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Telecommunications Market Survey

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I. Purpose

The rapid development in information and communications technologies has driven the overall digital economy to flourish. Under the trend of convergence, the communications industry is vital to the national economy and development. Particularly, how consumers use the communications services in the communications market is not only closely related to the business operations and technological development in the overall communications industry, but its impact is also expanding to numerous other industries.

A survey on the communications provides an overview of the national development and consumer behaviors. A mechanism of surveys and investigations on the market and consumer behaviors has been established for a long time in many developed countries worldwide, such as Ofcom, the communications regulator in the UK, Ministry of Internal Affairs and Communications in Japan, KCC in Korea and IMDA in Singapore. In these countries, related information is regularly collected and documented to provide important statistics about the communications industry. The above mechanism of regular survey can serve as a key indicator of the overall national development on one hand and offer an understanding of the consumer behaviors and the market on the other.

Taiwan's survey on the communications market was first conducted by NCC last year, and is performed again this year. The survey aims to obtain first-hand objective and detailed data on consumer behaviors and the status of the innovative applications through a comprehensive and in-depth investigation on the demand side. In addition, the obtained information will serve as an indicator of the development of Taiwan's digital economy, as well as the basis for the development of future policies and regulations.

II. Survey Methods

A. Questionnaire Design

The questionnaires used in this survey are designed with reference to the way Ofcom, the British communications regulator, has surveyed consumer behaviors and trends in the communications market, and modified based on the latest development of Taiwan's telecommunications market.

B. Population and Sampling Strategy

1. Survey population

The survey was conducted in Taiwan proper (exclusive of Kinmen County and Lianjiang County) with people aged 16 and above (those who were born on and before December 31, 2002) being approached.

2. Sampling method

Under the principle of PPS (probabilities proportional to size) ¹sampling, the sampling was performed in three stages. In the first and second stages, samples were allocated based on the proportion of the population in the area; while in the third stage, samples were selected using convenience sampling.

The stratified sampling used in this research is based on the classifications established by Peichun Hou et al. (2008), where villages, towns, cities and districts are grouped into seven levels based on the development. Thus, Taiwan's 358 townships and districts are divided into seven levels. They are city cores, commercial and industrial areas, emerging cities and townships, traditional industry townships, less-developed townships, aged townships and remote townships. The primary sampling units were townships, the secondary sampling units were villages, and the third sampling units were gathering places in the townships where an interview point was set up.

Table 1 Levels of Townships and Districts

Level Code	Names of Districts and Townships
1	Songshan District of Taipei City, Xinyi District of Taipei City, Da'an District of Taipei City, Zhongzheng District of Taipei City, Datong District of Taipei City, Wanhua District of Taipei City, Yonghe District of New Taipei City, Central District of Taichung City, West District of Taichung City, North District of Taichung City, East District of Tainan City, West Central District of Tainan City, Yancheng District of Kaohsiung City, Sanmin District of Kaohsiung City, Xinxing District of Kaohsiung City, Qianjin District of Kaohsiung City, Lingya District of Kaohsiung City
2	Zhongshan District of Taipei City, Wenshan District of Taipei City, Nangang District of Taipei City, Neihu District of Taipei City, Shilin District of Taipei City,

¹probabilities proportional to size, PPS

Level Code	Names of Districts and Townships
	Beitou District of Taipei City, Banqiao District of New Taipei City, Sanchong District of New Taipei City, Zhonghe District of New Taipei City, Xinzhuang District of New Taipei City, Tamsui District of New Taipei City, Luzhou District of New Taipei City, Linkou District of New Taipei City, Taoyuan City of Taoyuan County, Zhongli City of Taoyuan County, Zhubei City of Hsinchu County, East District of Hsinchu City, North District of Hsinchu City, South District of Taichung City, Xitun District of Taichung City, Nantun District of Taichung City, Beitun District of Taichung City, North District of Tainan City, Gushan District of Kaohsiung City, Zuoying District of Kaohsiung City, Fengshan District of Kaohsiung City
3	Xindian District of New Taipei City, Shulin District of New Taipei City, Yingge District of New Taipei City, Sanxia District of New Taipei City, Xizhi District of New Taipei City, Tucheng District of New Taipei City, Taishan District of New Taipei City, Yangmei City of Taoyuan County, Luzhu Township of Taoyuan County, Dayuan Township of Taoyuan County, Guishan Township of Taoyuan County, Bade City of Taoyuan County, Longtan Township of Taoyuan County, Pingzhen City of Taoyuan County, Zhudong Township of Hsinchu County, Hukou Township of Hsinchu County, Xinfeng Township of Hsinchu County, Qionglin Township of Hsinchu County, Baoshan Township of Hsinchu County, Xiangshan District of Hsinchu City, Zhunan Township of Miaoli County, Toufen Township of Miaoli County, Fengyuan District of Taichung City, Shalu District of Taichung City, Wuqi District of Taichung City, Tanzi District of Taichung City, Daya District of Taichung City, Wuri District of Taichung City , Longjing District of Taichung City, Taiping District of Taichung City, Dali District of Taichung City, Shanhua District of Tainan City, Rende District of Tainan City, Guiren District of Tainan City, Yongkang District of Tainan City, Annan District of Tainan City, Anping District of Tainan City, Nanzi District of Kaohsiung City, Xiaogang District of Kaohsiung City, Daliao District of Kaohsiung City, Dashe District of Kaohsiung City , Renwu District of Kaohsiung City, Niasong District of Kaohsiung City, Gangshan District of Kaohsiung City
4	Zhongzheng District of Keelung City, Qidu District of Keelung City, Nuannuan District of Keelung City, Renai District of Keelung City, Zhongshan District of Keelung City, Anle District of Keelung City, Xinyi District of Keelung City, Wugu District of New Taipei City, Shenkeng District of New Taipei City, Bali District of New Taipei City, Miaoli City of Miaoli County, East District of Taichung City, Changhua City of Changhua County, Yuanlin Township of Changhua County,

Level Code	Names of Districts and Townships
	Douliu City of Yunlin County, East District of Chiayi City, West District of Chiayi City, Xinying District of Tainan City, South District of Tainan City, Qianzhen District of Kaohsiung City, Qijin District of Kaohsiung City, Pingtung City of Pingtung County, Yilan City of Yilan County, Luodong Township of Yilan County, Hualien City of Hualien County, Ji'an Township of Hualien County
5	Ruifang District of New Taipei City, Sanzhi District of New Taipei City, Shimen District of New Taipei City, Jinshan District of New Taipei City, Wanli District of New Taipei City, Daxi Township of Taoyuan County, Xinwu Township of Taoyuan County, Guanyin Township of Taoyuan County, Xipu Township of Hsinchu County, Guanxi Township of Hsinchu County, Hengshan Township of Hsinchu County, Beipu Township of Hsinchu County, Yuanli Township of Miaoli County, Tongxiao Township of Miaoli County, Houlong Township of Miaoli County, Gongguan Township of Miaoli County, Tongluo Township of Miaoli County, Touwu Township of Miaoli County, Sanyi Township of Miaoli County, Zaoqiao Township of Miaoli County, Sanwan Township of Miaoli County, Dajia District of Taichung City, Qingshui District of Taichung City, Houli District of Taichung City, Shengang District of Taichung City, Shigang District of Taichung City, Waipu District of Taichung City, Da'an District of Taichung City, Dadu District of Taichung City, Wufeng District of Taichung City, Lugang Township of Changhua County, Hemei Township of Changhua County, Xianxi Township of Changhua County, Shengang Township of Changhua County, Fuxing Township of Changhua County, Xiushui Township of Changhua County, Huatan Township of Changhua County, Fenyuan Township of Changhua County, Xihu Township of Changhua County, Tianzhong Township of Changhua County, Datsuen Township of Changhua County, Puyan Township of Changhua County, Puxin Township of Changhua County, Yongjing Township of Changhua County, Shetou Township of Changhua County , Beidou Township of Changhua County, Pitou Township of Changhua County, Nantou City of Nantou County, Puli Township of Nantou County, Caotun Township of Nantou County ,Dounan Township of Yunlin County , Huwei Township of Yunlin County, Linnei Township of Yunlin County, Taibao City of Chiayi County, Minxiong Township of Chiayi County, Shuishang Township of Chiayi County, Zhongpu Township of Chiayi County, Yanshui District of Tainan City, Liuying District of Tainan City, Madou District of Tainan City, Xiaying District of Tainan City, Liujia District of Tainan City, Guantian District of Tainan City, Jiali District of Tainan City, Xuejia District of Tainan City, Xigang District of Tainan City, Qigu District of Tainan City, Jiangjun District of Tainan City, Beimen District of

Level Code	Names of Districts and Townships
	Tainan City, Xinhua District of Tainan City, Xinshi District of Tainan City, Anding District of Tainan City, Shanshang District of Tainan City, Guanmiao District of Tainan City, Linyuan District of Kaohsiung City, Dashu District of Kaohsiung City, Qiaotou District of Kaohsiung City, Yanchao District of Kaohsiung City, Alian District of Kaohsiung City, Luzhu District of Kaohsiung City, Hune District of Kaohsiung City, Jiading District of Kaohsiung City, Yongan District of Kaohsiung City, Mituo District of Kaohsiung City, Ziguan District of Kaohsiung City, Chaozhou Township of Pingtung County, Donggang Township of Pingtung County, Hengchun Township of Pingtung County, Wandan Township of Pingtung County, Changzhi Township of Pingtung County, Linluo Township of Pingtung County, Jiuru Township of Pingtung County, Neipu Township of Pingtung County, Xinyuan Township of Pingtung County, Su'ao Township of Yilan County, Toucheng Township of Yilan County, Jiaoxi Township of Yilan County, Zhuangwei Township of Yilan County, Yuanshan Township of Yilan County, Dongshan Township of Yilan County, Wujie Township of Yilan County, Taitung City of Taitung County
6	Shiding District of New Taipei City, Pinglin District of New Taipei City, Pingxi District of New Taipei City, Shuangxi District of New Taipei City, Gongliao District of New Taipei City, Emei Township of Hsinch County, Zhuolan Township of Miaoli County, Dahu Township of Miaoli County, Nanzhuang Township of Miaoli County, Xihu Township of Miaoli County, Shitan Township of Miaoli County, Tai'an Township of Miaoli County, Dongshi District of Taichung City, Xinshe District of Taichung City, Heping District of Taichung City, Ershui Township of Changhua County, Erlin Township of Changhua County, Tianwei Township of Changhua County, Fangyuan Township of Changhua County, Dacheng Township of Changhua County, Zhutang Township of Changhua County, Xizhou Township of Changhua County, Zhushan Township of Nantou County, Jiji Town of Nantou County, Mingjian Township of Nantou County, Lugu Township of Nantou County, Zhongliao Township of Nantou County, Yuchi Township of Nantou County, Guoshing Township of Nantou County, Shuili Township of Nantou County, Xinyi Township of Nantou County, Xiluo Township of Yunlin County, Tuku Township of Yunlin County, Beigang Township of Yunlin County, Gukeng Township of Yunlin County, Dapi Township of Yunlin County, Citong Township of Yunlin County, Erlun Township of Yunlin County, Lunbei Township of Yunlin County, Dongshi Township of Yunlin County, Baozhong Township of Yunlin County, Taixi Township of Yunlin County, Yuanchang Township of Yunlin County, Sihou Township of Yunlin County,

Level Code	Names of Districts and Townships
	<p>Kouhu Township of Yunlin County, Shuilin Township of Yunlin County, Puzi City of Jiayi County, Budai Township of Jiayi County, Dalin Township of Chiayi County, Xikou Township of Chiayi County, Xingang Township of Chiayi County, Liujiao Township of Chiayi County, Dongshi Township of Chiayi County, Yizhu Township of Chiayi County, Lucao Township of Chiayi County, Zhuqi Township of Chiayi County, Meishan Township of Chiayi County, Fanlu Township of Chiayi County, Baihe District of Tainan City, Houbi District of Tainan City, Dongshan District of Tainan City, Danei District of Tainan City, Yujing District of Tainan City, Nanxi District of Tainan City, Nanhua District of Tainan City, Zuozhen District of Tainan City, Longqi District of Tainan City, Tianliao District of Kaohsiung City, Qishan District of Kaohsiung City, Meinong District of Kaohsiung City, Liugui District of Kaohsiung City, Jiaxian District of Kaohsiung City, Shanlin District of Kaohsiung City, Neimen District of Kaohsiung City, Ligang Township of Pingtung County, Yanpu Township of Pingtung County, Gaoshu Township of Pingtung County, Wanluan Township of Pingtung County, Zhutian Township of Pingtung County, Xinpi Township of Pingtung County, Fangliao Township of Pingtung County, Kanding Township of Pingding Township, Linbian Township of Pingtung County, Nanzhou Township of Pingtung County, Jiadong Township of Pingtung County, Checheng Township of Pingtung County, Manzhou Township of Pingtung County, Fangshan Township of Pingtung County, Huxi Township of Penghu County, Baisha Township of Penghu County, Xiyu Township of Penghu County, Wangan Township of Penghu County, Qimei Township of Penghu County, Sanxing Township of Yilan County, Fenglin Township of Hualien County, Yuli Township of Hualien County, Shoufeng Township of Hualien County, Guangfu Township of Hualien County, Fengbin Township of Hualien County, Ruisui Township of Hualien County, Fuli Township of Hualien County, Chenggung Township of Taitung County, Guanshan Township of Taitung County, Beinan Township of Taitung County, Luye Township of Taitung County, Chishang Township of Taitung County, Donghe Township of Taitung County, Changbin Township of Taitung County, Taimaili Township of Taitung County</p>
7	<p>Wulai District of New Taipei City, Fuxing Township of Taoyuan County, Jianshi Township of Hsinchu County, Wufeng Township of Hsinchu County, Renai Township of Nantou County, Mailiao Township of Yunlin County, Dapu Township of Chiayi County, Alishan Township of Chiayi County, Maolin District of Kaohsiung City, Taoyuan District of Kaohsiung City, Namaxia District of Kaohsiung City, Liuqiu Township of Pingtung County, Sandimen Township of</p>

Level Code	Names of Districts and Townships
	Pingtung County, Wutai Township of Pingtung County, Majia Township of Pingtung County, Taiwu Township of Pingtung County, Laiyi Township of Pingtung County, Chunri Township of Pingtung County, Shizi Township of Pingtung County, Mudan Township of Pingtung County, Magong City of Penghu County, Datong Township of Yilan County, Nan'ao Township of Yilan County, Xincheng Township of Hualien County, Xiulin Township of Hualien County, Wanrong Township of Hualien County, Zhuoxi Township of Hualien County, Dawu Township of Taitung County, Ludao Township of Taitung County, Haiduan Township of Taitung County, Yanping Township of Taitung County, Jinfeng Township of Taitung County, Daren Township of Taitung County, Lanyu Township of Taitung County

Table 2 Geographic Stratifications

Geographic Area	Level Code	Combined Level Code
Taipei City, New Taipei City, Keelung, Yilan	1	1
	2	2
	3, 4	3
	5, 6, 7	4
Taoyuan, Hsinchu, Miaoli	1, 2	1
	3, 4	2
	5, 6, 7	3
Taichung, Changhua, Nantou	1, 2	1
	3, 4	2
	5	3
	6, 7	4
Yunlin, Chiayi, Tainan	1, 2, 3	1
	4, 5	2
	6, 7	3
Kaohsiung, Pingtung, Penghu	1, 2	1
	3, 4	2
	5, 6, 7	3
Hualien, Taitung	4, 5	1
	6, 7	2

(1) Pilot Test

A stratified three-stage probability proportional to size sampling was adopted for the pre-test interviews. Since not many completed samples were expected during the pretest, the stratification system used in this project's formal survey was adjusted in order to meet the project deadline and save survey costs. With the Hualien and Taitung area excluded, only one geographic stratum was sampled within each of the five "geographic areas" -- "Taipei City, New Taipei City, Keelung, Yilan," "Taoyuan, Hsinchu, Miaoli," "Taichung, Changhua, Nantou," "Yunlin, Chiayi, Tainan," and "Kaohsiung, Pingtung, Penghu." Once the proportions of population in the geographic areas were calculated based on the demographic data provided by the Ministry of the Interior at the end of December 2017, the numbers of samples for all geographic areas were determined based on the proportions, with the numbers of townships and the expected number of completed samples within every township adjusted. The actual number of successful samples is 30.

(2) Formal survey

Prior to conducting the formal survey, the proportions of population in the geographic areas were calculated based on the demographic data provided by the Ministry of the Interior at the end of December 2017, and the numbers of samples for all geographic areas were determined based on the proportions, with the numbers of townships and the expected number of completed samples within every township adjusted. Consequently, a total of 1,068 samples were expected to be completed in each of the four investigations. In view of the small population and extremely uneven distribution of population in the Hualien and Taitung area, the stratified two-stage PPS (probabilities proportional to size) sampling was actually used, while the stratified three-stage PPS sampling was used in other areas. During the third stage, a survey point was set up at gathering places (such as village office, activity center, and market) in the townships selected to conduct the survey with local residents.

The sampling units in each stage are explained as below.

- During a two-stage sampling, the primary sampling units were "township" and then "people." All of the "districts and townships" in the geographic stratum were included.
- During a three-stage sampling, the primary sampling units were "townships," and the second sampling units were "villages." The last sampling units were "people."

During the implementation of the survey, the gender and age structures of all communities were strictly controlled with view to ensuring that the structure of the survey results could be similar to that of the target population. In case of any inconsistency between obtained samples and the population, the results were weighted based on variables like gender, age, and community. The weighted sample number in every age group must not exceed the original sample number by 60%.

(3) Allocation of samples

To meet the request of the agency that commissioned this project, at least 1,068 valid samples were investigated in each questionnaire with a sampling error of within $\pm 3\%$ at a 95% confidence level.

Table 3 Plan for Allocation of Samples at Survey Sites in All Communities

Geographic stratum	Level	No. of People Aged 16 and above	Population Percentage	Planned Allocation of Samples	No. of Townships and Districts Selected	No. of Villages Selected	Total Samples of Villages
Taipei City, New Taipei City, Keelung, Yilan	Level 1	1,234,927	19.11%	66	2	2	4
	Level 2	3,180,892	49.22%	169	5	2	10
	Level 3	1,642,127	25.41%	87	3	2	6
	Level 4	404,626	6.26%	22	1	2	2
	Subtotal	6,462,572	32.15%	343	11		22
Taoyuan, Hsinchu, Miaoli	Level 1	1,136,158	36.42%	60	2	2	4
	Level 2	1,460,970	46.83%	78	3	2	6
	Level 3	522,787	16.76%	28	1	2	2
	Subtotal	3,119,915	15.52%	166	6		12
Taichung, Changhua, Nantou	Level 1	903,857	23.26%	48	2	2	4
	Level 2	1,266,346	32.59%	67	2	2	4
	Level 3	1,276,334	32.85%	68	2	2	4
	Level 4	438,815	11.29%	23	1	2	2
	Subtotal	3,885,352	19.33%	206	7		14
Yunlin, Chiayi, Tainan	Level 1	922,186	31.58%	49	2	2	4
	Level 2	1,216,056	41.65%	65	2	2	4
	Level 3	781,563	26.77%	42	1	2	2
	Subtotal	2,919,805	14.53%	155	5		10
Kaohsiung, Pingtung, Penghu	Level 1	1,132,325	35.01%	60	2	2	4
	Level 2	986,400	30.49%	52	2	2	4
	Level 3	1,115,990	34.50%	59	2	2	4
	Subtotal	3,234,715	16.09%	172	6		12
Hualien, Taitung	Level 1	252,400	52.97%	13	0	1	1
	Level 2	224,091	47.03%	12	0	1	1
	Subtotal	476,491	2.37%	25			2
Total		20,098,850	100.00%	1,068			72

Since the original allocation of the survey site sampling is based on proportions of the entire population, these calculated decimal numbers had to be rounded to the nearest integers when the survey was actually performed. Moreover, to meet a specific requirement this year that the number of weighted samples in every age group must not exceed the original number of samples by 60%, the samples were allocated and adjusted accordingly in this project. The adjusted allocation of survey site sampling has been shown in the table below.

Table 4 Plan for Allocation of Samples at Survey Sites in All Communities after Adjustment by Age

Geographic stratum	Level	No. of People Aged 16 and above	Population Percentage	Originally Planned Allocation of Samples at Survey Sites						First Adjustment	
				Planned Allocation of Samples	No. of Townships and Districts Selected	No. of Villages Selected	Total Samples of Villages	Expected No. of Samples by Village	Expected No. of Samples by Level	Expected No. of Samples by Village	Expected No. of Samples by Level
Taipei City, New Taipei City, Keelung, Yilan	Level 1	1,234,927	19.11%	66	2	2	4	16	64	16	64
	Level 2	3,180,892	49.22%	169	5	2	10	17	170	17	170
	Level 3	1,642,127	25.41%	87	3	2	6	15	90	15	90
	Level 4	404,626	6.26%	22	1	2	2	11	22	11	22
	Subtotal	6,462,572	32.15%	343	11	-	22	-	346	-	346
Taoyuan, Hsinchu, Miaoli	Level 1	1,136,158	36.42%	60	2	2	4	15	60	15	60
	Level 2	1,460,970	46.83%	78	3	2	6	13	78	13	78
	Level 3	522,787	16.76%	28	1	2	2	14	28	14	28
	Subtotal	3,119,915	15.52%	166	6	-	12	-	166	-	166
Taichung, Changhua, Nantou	Level 1	903,857	23.26%	48	2	2	4	12	48	12	48
	Level 2	1,266,346	32.59%	67	2	2	4	17	68	17	68
	Level 3	1,276,334	32.85%	68	2	2	4	17	68	17	68
	Level 4	438,815	11.29%	23	1	2	2	12	24	12	24
	Subtotal	3,885,352	19.33%	206	7	-	14	-	208	-	208
Yunlin, Chiayi, Tainan	Level 1	922,186	31.58%	49	2	2	4	12	48	12	48
	Level 2	1,216,056	41.65%	65	2	2	4	16	64	16	64
	Level 3	781,563	26.77%	42	1	2	2	21	42	21	42
	Subtotal	2,919,805	14.53%	155	5	-	10	-	154	-	154
Kaohsiung, Pingtung, Penghu	Level 1	1,132,325	35.01%	60	2	2	4	15	60	12	48
	Level 2	986,400	30.49%	52	2	2	4	13	52	14	56
	Level 3	1,115,990	34.50%	59	2	2	4	15	60	16	64
	Subtotal	3,234,715	16.09%	172	6	-	12	-	172	-	168
Hualien, Taitung	Level 1	252,400	52.97%	13	-	1	1	13	13	14	14
	Level 2	224,091	47.03%	12	-	1	1	12	12	12	12
	Subtotal	476,491	2.37%	25	-	-	2	-	25	-	26
Total		20,098,850	100.00%	1,068	35	-	72	-	1071	-	1068

Table 4 Plan for Allocation of Samples at Survey Sites in All Communities after Adjustment by Age

				First Adjustment		Second Adjustment of Site Allocation Based on Age Distribution in the Population (Expected No. by Site)							
Geographic stratum	Level	No. of People Aged 16 and above	Population Percentage	Expected No. of Samples by Village	Expected No. of Samples by Level	Expected No. of Samples with Ages 16-25	Expected No. of Samples with Ages 26-35	Expected No. of Samples with Ages 36-45	Expected No. of Samples with Ages 46-55	Expected No. of Samples with Ages 56-65	Expected No. of Samples with Ages 66 and Above	Expected No. of Samples by Level	Expected No. of Completed Samples in Each Level by Age Group
Taipei City, New Taipei City, Keelung, Yilan	Level 1	1,234,927	19.11%	16	64	2	4	3	3	2	2	16	64
	Level 2	3,180,892	49.22%	17	170	3	3	3	3	2	2	16	160
	Level 3	1,642,127	25.41%	15	90	3	3	3	3	2	1	15	90
	Level 4	404,626	6.26%	11	22	3	3	2	3	2	1	14	28
	Subtotal	6,462,572	32.15%	-	346	-	-	-	-	-	-	-	342
Taoyuan, Hsinchu, Miaoli	Level 1	1,136,158	36.42%	15	60	3	3	3	3	2	1	15	60
	Level 2	1,460,970	46.83%	13	78	3	3	2	3	2	1	14	84
	Level 3	522,787	16.76%	14	28	3	3	2	3	2	1	14	28
	Subtotal	3,119,915	15.52%	-	166	-	-	-	-	-	-	-	172
Taichung, Changhua, Nantou	Level 1	903,857	23.26%	12	48	3	3	2	3	2	1	14	56
	Level 2	1,266,346	32.59%	17	68	3	3	4	2	2	2	16	64
	Level 3	1,276,334	32.85%	17	68	3	3	4	3	2	2	17	68
	Level 4	438,815	11.29%	12	24	3	3	2	2	2	1	13	26
	Subtotal	3,885,352	19.33%	-	208	-	-	-	-	-	-	-	214
Yunlin, Chiayi, Tainan	Level 1	922,186	31.58%	12	48	3	3	2	2	2	1	13	52
	Level 2	1,216,056	41.65%	16	64	3	3	3	2	2	1	14	56
	Level 3	781,563	26.77%	21	42	3	3	4	3	2	2	17	34
	Subtotal	2,919,805	14.53%	-	154	-	-	-	-	-	-	-	142
Kaohsiung, Pingtung, Penghu	Level 1	1,132,325	35.01%	12	48	3	3	2	3	2	1	14	56
	Level 2	986,400	30.49%	14	56	3	3	3	2	2	1	14	56
	Level 3	1,115,990	34.50%	16	64	3	3	3	2	2	2	15	60
	Subtotal	3,234,715	16.09%	-	168	-	-	-	-	-	-	-	172
Hualien, Taitung	Level 1	252,400	52.97%	14	14	2	3	3	3	2	1	14	14
	Level 2	224,091	47.03%	12	12	2	3	2	3	2	1	13	12
	Subtotal	476,491	2.37%	-	26	-	-	-	-	-	-	-	26
Total		20,098,850	100.00%	-	1068	-	-	-	-	-	-	-	1068

3. Survey period

The interviews took place in the selected areas between May 6 and July 13, 2018.

Table 5 Implementation of Formal Sampling

Area	Level	Townships and Districts	Expected No. of Samples (1,068 samples in total)	No. of Completed Samples (1,068 samples in total)
Taipei City, New Taipei City, Keelung, Yilan	Level 1	Xinyi District of Taipei City	32	34
		Wanhua District of Taipei City	32	32
	Level 2	Banqiao District of New Taipei City	32	32
		Zhonghe District of New Taipei City	32	40
		Zhongshan District of Taipei City	32	34
		Wenshan District of Taipei City	32	32
		Shilin District of Taipei City	32	31
	Level 3	Xindian District of New Taipei City	30	31
		Xizhi District of New Taipei City	30	31
		Tucheng District of New Taipei City	30	24
	Level 4	Sanxing Township of Yilan County	28	28
Subtotal		342	349	
Taoyuan, Hsinchu, Miaoli	Level 1	Zhongli City of Taoyuan County	30	28
		Zhubei City of Hsinchu County	30	29
	Level 2	Miaoli City of Miaoli County	28	28
		Bade City of Taoyuan County	28	29
		Zhudong Township of Hsinchu County	28	28
	Level 3	Houlong Township of Miaoli County	28	28
	Subtotal		172	170
Taichung, Changhua, Nantou	Level 1	North District of Taichung City	28	29
		Beitun District of Taichung City	28	28
	Level 2	West District of Taichung City	32	34
		Changhua City of Changhua County	32	32
	Level 3	Caotun Township of Nantou County	34	31
		Puli Township of Nantou County	34	28
	Level 4	Zhushan Town ship of Nantou County	26	26
	Subtotal		214	208
Yunlin, Chiayi, Tainan	Level 1	Yongkang District of Tainan City	26	26
		Annan District of Tainan City	26	27
	Level 2	Huwei Township of Yunlin County	28	28
		Zhuqi Township of Chiayi County	28	27
	Level 3	Baihe District of Tainan City	34	34
	Subtotal		142	142
Kaohsiung, Pingtung, Penghu	Level 1	Fengshan District of Kaohsiung City	28	28
		Sanmin District of Kaohsiung City	28	27
	Level 2	Qianzhen District of Kaohsiung City	28	28
		Nanzi District of Kaohsiung City	28	28
	Level 3	Magong City of Penghu County	30	29
		Pingtung City of Pingtung County	30	31
Subtotal		172	171	
Hualien, Taitung	Level 1	Hualien City of Hualien County	14	15
	Level 2	Taitung City of Taitung County	12	13
	Subtotal		26	28
Total			1068	1068

Differences between the actual numbers of samples and the planned numbers of samples are explained as below:

- (1) This survey was completely implemented as planned in terms of sites and allocation of samples. However, due to reasons like age control and the people's willingness to be interviewed at different sites, fewer samples were completed than expected at several sites.
- (2) Although samples were not performed as planned at some sites, samples of all areas were verified to represent the population in terms of distribution, through a test prior to weighting (Refer to Table 6 below).

Table 6 Contingency Table for Telecommunications Market Survey Site before Weighting

Allocation of Survey Site No.	Allocation of Samples		No. of Samples before		Chi-Square Test before Weighting
	No. of People	Percentage	No. of People	Percentage	
Total	1,068	100.0%	1,068	100.0%	
Survey Site					The Chi-square value is 0.49, and p-value (= 0.99) is below the accepted significance level of 5%, meaning no significant difference between the distribution of samples and the original allocation of samples.
Taipei City, New Taipei City, Keelung, Yilan	342	32.0%	349	32.6%	
Taoyuan, Hsinchu, Miaoli	172	16.1%	170	15.9%	
Taichung, Changhua, Nantou	214	20.0%	208	19.4%	
Yunlin, Chiayi, Tainan	142	13.3%	142	13.2%	
Kaohsiung, Pingtung, Penghu	172	16.1%	171	16.0%	
Hualien, Taitung	26	2.4%	28	2.6%	

C. Implementation of Survey

1. Timeline

Before the survey was formally launched, preparations for questionnaires and related affairs were undertaken from April 22 to April 26, 2018. After the questionnaires were modified based on the conclusions from the meeting with the agency that commissioned this study, the survey formally began on May 6, 2018. The timeline is explained as below.

- (1) Preparation period: April 1 to April 27, 2018
- (2) Survey period:
 - Phase 1: April 22 to April 26, 2018
 - Phase 2: May 6 to July 13, 2018
- (3) Review period: July 14 to July 18, 2018

2. Survey method

Face-to-face interviews were employed for this survey; a computer-assisted interview survey system was used during the interview, and was complemented with printed questionnaires.

3. Statistical analysis method

(1) Sample representativeness and weighting

After the survey results were reviewed, the NPAR Chi-square test was used to examine the difference between the allocation of samples and the structure of the population in terms of age, gender, and population percentage, to enhance the representativeness and reliability of the survey so that these samples could reflect the population structure. In case a significant difference in structure was identified between the samples and the population, weighting was used to make the sample structure identical to that of the population.

About weighting, the raking method was used to adjust the sampling weights based on variables in the order of gender, age and area of household registered until no significant difference existed between the allocation of samples and the population in every variable.

All the data in the results were multiplied by the adjustment weight. $\frac{N_i}{N} \bigg/ \frac{n'_i}{n}$,

N_i and n'_i represent the number of the population and the number of sample population weighted in the Cross Group i , while N and n represent the number of the total population and the number of the total sample population weighted. This way, the sampling distribution was completely the same as the population distribution after weighting. The last weight was gained by multiplying all the adjustment weights.

(2) Reliability analysis

Reliability refers to trustworthiness or consistency of a survey. Namely, when the survey is performed under the same or similar conditions, consistent or stable results can be obtained. Cronbach's (1951) α reliability coefficient is currently the most used reliability indicator. Nunnally (1967) suggested that a reliability of 0.7 or higher, also known as high reliability, is acceptable.

(3) Frequency

How people understand and rate each of the aspects can be realized through the data presented in allocation of frequencies and percentages in all questions.

(4) Cross analysis and Chi-square test

A cross analysis table was established with the basic data in "all the issues" to realize whether a difference existed between the respondents with different backgrounds in all the issues. Pearson's Chi-square test was used in the cross table. The Chi-square test value (W) is defined as below:

$$W = \sum_{i=1}^r \sum_{j=1}^c \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \sim \chi^2((r-1)(c-1))$$

, wherein

O_{ij} is the observed frequency from Row j , Column i , and

E_{ij} is the expected frequency from Row j , Column i .

When p -value in the Chi-square test is less than 0.05, it means the two variables are not independent at a 95% confidence level. That is, a significant statistic difference exists between the respondents with different backgrounds in the issue.

(5) Analysis of variance (ANOVA)

The total variation can be divided into the variation between groups and the variation within groups. Analysis of variance is used to calculate the ratio of variation between groups to variation within groups. If the variation between groups is significantly greater than the variation within groups, significant differences among group means exist between two or more groups. If the variation between groups is not

highly different from the variation within groups, few differences exist among groups. The ANOVA F-test calculations are as below.

$$F = \frac{MS_b}{MS_w} = \frac{SS_b / k - 1}{SS_w / n - k}$$

, where n represents the number of samples and k represents the number of groups,

$SS_b = n \sum_{i=1}^k (\bar{X}_i - \bar{X})^2$ is the total sum of squared deviations of group means from grand mean, and

$SS_w = \sum_{i=1}^k \sum_{j=1}^{n_i} (X_{ij} - \bar{X}_i)^2$ is the total sum of the squared deviations within groups.

4. Sample structure

As of July 18, 2018, the survey for this research has been implemented and reviewed by the research team, with 1,068 questionnaires completed as valid samples. The sample structure is shown in Table 7.

Table 7 Contingency Table for Telecommunications Market Survey Samples

Population variables	Population		No. of Samples before Weighting		No. of Samples after Weighting		Chi-Square Test before Weighting	Chi-Square Test after Weighting
	No. of People	Percentage	No. of People	Percentage	No. of People	Percentage		
Total	20,098,850	100.0%	1,068	100.0%	1,068	100.0%		
Gender							The Chi-square value is 0.05, and p-value (= 0.815) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of gender.	The Chi-square value is 0.000, and p-value (= 0.999) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of gender.
Male	9,914,303	49.3%	523	49.0%	527	49.3%		
Female	10,184,547	50.7%	545	51.0%	541	50.7%		
Age							The Chi-square value is 41.964, and p-value (= 0.000) is below the accepted significance level of 5%, meaning significant difference between samples and the target population in distribution of age.	The Chi-square value is 0.000, and p-value (= 0.999) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of age.
Age 16-25	3,019,238	15.0%	206	19.3%	160	15.0%		
Age 26-35	3,365,892	16.7%	217	20.3%	179	16.7%		
Age 36-45	3,830,729	19.1%	207	19.4%	204	19.1%		
Age 46-55	3,652,178	18.2%	184	17.2%	194	18.2%		
Age 56-65	3,263,731	16.2%	147	13.8%	173	16.2%		
Age 66 and above	2,967,082	14.8%	107	10.0%	158	14.8%		
City or County							The Chi-square value is 387.66, and p-value (= 0.000) is below the accepted significance level of 5%, meaning significant difference between samples and the target population in distribution of city and county.	The Chi-square value is 0.699, and p-value (= 0.999) is below the accepted significance level of 5%, meaning no significant difference between samples and the target population in distribution of city and county.
New Taipei City	3,448,947	17.2%	145	13.6%	184	17.2%		
Taipei City	2,289,192	11.4%	144	13.5%	125	11.7%		
Taoyuan City	1,830,616	9.1%	75	7.0%	95	8.9%		
Taichung City	2,347,963	11.7%	76	7.1%	127	11.9%		
Tainan City	1,634,429	8.1%	90	8.4%	86	8.1%		
Kaohsiung City	2,412,066	12.0%	115	10.8%	126	11.8%		
Yilan County	396,203	2.0%	40	3.7%	21	2.0%		
Hsinch County	454,239	2.3%	65	6.1%	24	2.2%		
Miaoli County	475,420	2.4%	40	3.7%	25	2.3%		
Changhua County	1,097,511	5.5%	34	3.2%	60	5.6%		
Nantou County	439,878	2.2%	80	7.5%	23	2.2%		
Yilan County	601,273	3.0%	31	2.9%	30	2.8%		
Chiayi County	455,600	2.3%	32	3.0%	24	2.3%		
Pingtung County	730,817	3.6%	26	2.4%	36	3.4%		
Taitung County	190,752	0.9%	11	1.0%	10	1.0%		
Hualien County	285,739	1.4%	16	1.5%	15	1.4%		
Penghu County	91,832	0.5%	25	2.3%	5	0.5%		
Keelung City	328,230	1.6%	6	0.6%	19	1.7%		
Hsinch City	359,640	1.8%	5	0.5%	19	1.7%		
Chiayi City	228,503	1.1%	12	1.1%	13	1.2%		
Note: The source of the population data is the 2017 December Demographic Data of Households in Each Village provided on the Open Data platformby by the Ministry of the Interior.								

D. Research Limitations

To keep on top of how Taiwanese people use communications in the digital economic era, a survey on the Broadband Usage trend in the communications industry was implemented by means of interviews with people aged 16 and above (those who were born on and before December 31, 2002) in Taiwan proper (exclusive of Kinmen County and Lianjiang County), at the request of NCC. However, the following study limitations exist when actually performing the survey:

1. Sample frame limitations

Based on the requirements of the NCC, at least 1,068 successful samples were to be completed with the allocation of samples proportional to the population of every county or city.

In order to undertake rigorous sampling, research was conducted with reference to the sample structure used in Taiwan Social Change Survey by Academia Sinica. Nonetheless, it may be worth noting that this research differed from Taiwan Social Change Survey, where household registrations were used as a sampling frame. With no access to Taiwan's household registration database, a household survey seemed impossible. Instead, interviews were carried out at gathering places in townships or cities.

2. Sample recovery restrictions

The survey questionnaires contained 82 questions. In order to meet the requirement of at least 1,068 successful sample responses, groups of two interviewers were arranged at bustling locations, such as parks and busy crossroads, to perform interviews.

During this survey, the average number of those who did not comply was 3.65. Among the aged 55 and over groups, the average number of refusals was 7.1, making it much harder to achieve the planned number of interviews when compared with young people. Even so, the interviewers were urged to obtain the required number of samples by gender and age, so the weighted number of all age groups would not exceed the original number of samples by 60%.

3. Sample inference restrictions

After weighting, the sample number of young people, such as ages 16-25, was 0.78 times greater; the sample number of ages 26-35 was 0.82 times greater; the

sample number of ages 36-45 was 0.98 time greater; the sample number of middle-aged people such as ages 46-55 was 1.05 times greater; the sample number of ages 56-65 was 1.18 times greater; and the sample number of ages 66 and above was 1.47 times greater.

III. Results

A. Phone Usage

Household Phone Usage

1. Overall Analysis

For household phone usage, 78.6% of people in Taiwan aged 16 and over have both landline and mobile phones. With the ubiquity of mobile and broadband networks, 16.9% people responded that they rely fully on mobile phones, while 2.4% people use only landline phones at home (Figure 1).

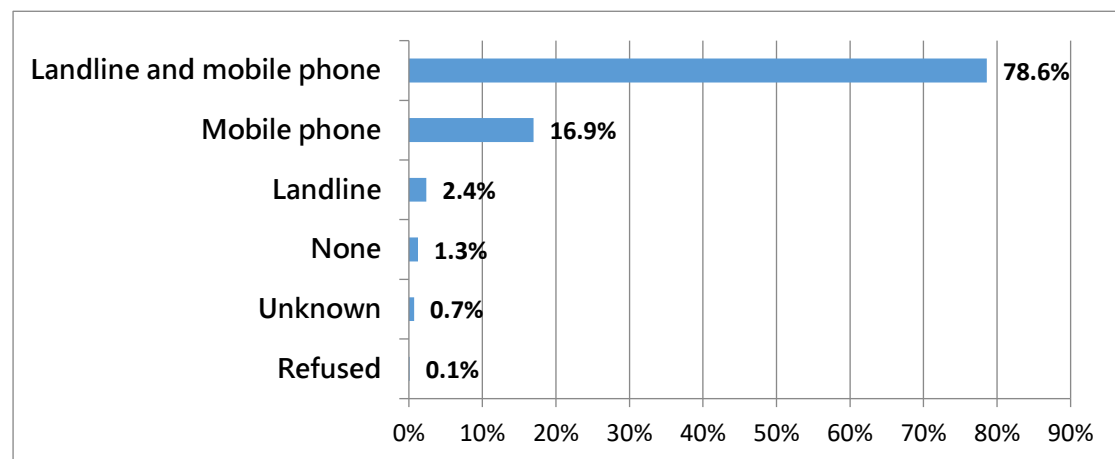


Figure 1 Household Phone Usage

Base: N = 1,068

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that over 70% of people in the north region (Taipei city, New Taipei City and Keelung), central region (Taoyuan, Hsinchu and Miaoli), south region (Yunlin, Chiayi and Tainan) and east region (Yilan, Hualien and Taitung) use landline and mobile phones at the same time, of which the highest rate (91.1%) are in the central region. People in Yilan, Hualien and Taitung have the highest rate (25.1%) of only mobile phone use. People in Yunlin, Chiayi and Tainan have the highest rate (4.7%) of only landline phone use.

(2) Analysis of basic differences

When analyzed by gender, females have the highest proportion (80.2%) of using landline and mobile simultaneously, followed by males (76.9%). The proportion of using mobile only is 18.3% for males and 15.6% for females. The proportion of using landlines only is 2.9% for males and 1.9% for females.

When analyzed by age, the people aged 46-55 have the highest proportion (86.0%) of using both landlines and mobile phones, followed by the people aged 56-65 (80.0%). The people aged 36-45 have the highest rate of using only mobile phones (23.3%), followed by the people aged 26-35(22.7%). The people aged 66 and above have the highest rate of using only landlines (7.2%), followed by the people aged 56-65 (3.9%).

When analyzed by marital status, married people have the highest rate (83.5%) of using both landlines and mobile phones, followed by the unmarried (74.4%). The unmarried group has the highest rate (21.5%) of using mobile phones only, followed by the widowed/separated persons group (20.1%). The widowed/separated persons group have the highest rate (4.9%) of using landlines only, followed by the unmarried group (2.7%).

B. The Usage of Landline

The Monthly Phone Bill at Home

1. Overall Analysis

The average monthly phone bill at home is NT416 (N = 865).

2. Comparative Analysis

(1) Analysis of regional differences

The difference test analysis indicates that the average monthly telephone bill at home is significantly related to the region where one lives. The cross analysis suggests that the average monthly telephone bill at home in Taoyuan, Hsinchu and Miaoli, Taichung, Changhua and Nantou, Kaohsiung, Pingtung and Penghu is above NT400, except in Taipei City, New Taipei City and Keelung (NT301.8). Among them, the bill is NT566 in Taichung, Changhua and Nantou, and the second highest bill is NT476 in Yunlin, Chiayi and Tainan.

Table 8 The Monthly Phone Bill at Home (by Region)

Region	Average Bill (NTD)
Taipei City, New Taipei City and Keelung	301.82
Taoyuan, Hsinchu and Miaoli	456.58
Taichung, Changhua and Nantou	472.93
Yunlin, Chiayi and Tainan	476.12
Kaohsiung, Pingtung and Penghu	444.81
Yilan, Hualien and Taitung	566.42
Average Score	416.27

Source: This study

(2) Analysis of basic differences

When analyzed by gender, the average monthly landline bill at home is NT427 for females, which is higher than the average bill of NT404 for males.

When analyzed by age, the highest bill is NT529 in 26-35 age group, followed by NT482 in 16-25 age group.

When analyzed by marital status, the highest bill is NT468 in the widowed/separated group, followed by NT447 in the unmarried group.

The Satisfaction of the Communication Quality of Landline

1. Overall Analysis

The average score of the satisfaction with the quality of the communication quality of landline is 7.73 (1-point is very dissatisfied, and 10 points is very satisfied; N=865).

2. Comparative Analysis

(1) Analysis of regional differences

The difference test analysis shows that the average score of the satisfaction with the communication quality of landline is significantly related to the region where one lives.

The cross analysis suggests that the average satisfaction in all regions are higher than 7 points. Among them, the highest point is 8.16 in Taoyuan, Hsinchu and Miaoli, followed by 7.81 in Taipei city, New Taipei City and Keelung.

Table 9 The Satisfaction of the Communication Quality of Landline (by Region)

Region	Average Score (NTD)
Taipei City, New Taipei City and Keelung	7.81
Taoyuan, Hsinchu and Miaoli	8.16
Taichung, Changhua and Nantou	7.41
Yunlin, Chiayi and Tainan	7.44
Kaohsiung, Pingtung and Penghu	7.77
Yilan, Hualien and Taitung	7.63
Average Score	7.73

Source: This study

(2) Analysis of basic differences

When analyzed by gender, the average satisfaction of males using landline is 7.83 points, higher than the satisfaction of females (7.63).

When analyzed by age, the 36-45 age group has the highest score 7.95, followed by 7.92 in the 66 and above age group.

When analyzed by marital status, the highest point is 7.76 in the married group, followed by 7.73 points in the unmarried group.

(3) Analysis of differences in social and economic status

The difference test analysis shows that the average satisfaction of the quality of landline at home is significantly related to average monthly individual income, residence, education level and occupation.

When analyzed by average monthly individual income, except NT10,000-19,999 group, the average satisfaction in all other income groups is higher than 7 points. Among them, the satisfaction of NT40,000-49,999 group is the highest (8.03), followed by NT60,000 and above group (8.02).

When analyzed by residence, the Homeowners group has a higher score (7.82) for the average satisfaction of landline quality than the House Renters group (7.33).

When analyzed by education level, the average satisfaction scores with the quality of landline at home in all groups are higher than 7. People of master's degree and above have the highest score (8.63), followed by people of junior college level (7.81).

When analyzed by occupation, except people working in agriculture, forestry, fishery and husbandry, construction, public administration and national defense industries/compulsory social security, the average satisfaction of landline quality in all other occupations are over 7 points. People in the manufacturing industry had the highest satisfaction which is 8.40, followed by professional/science and technical services (8.13).

The Overall Satisfaction with the Landline Provider

1. Overall Analysis

The overall satisfaction with the landline providers is 7.65 points on average (1-point is very dissatisfied, and 10-points is very satisfied; N=865, people who were using landline).

2. Comparative analysis

(1) Analysis of regional differences

The difference test analysis shows that the overall satisfaction with the landline providers is significantly related to the region where one lives.

The cross analysis suggests that, the overall satisfaction with landline providers in all regions is higher than 7 points. Among them, the highest point is 8.18 in Taoyuan, Hsinchu and Miaoli, followed by 7.83 points in Taipei City, New Taipei City and Keelung (Refer to Table 10).

Table 10 Satisfaction with the Landline Provider (by Region)

Region	Average Score
Taipei City, New Taipei City and Keelung	7.83
Taoyuan, Hsinchu and Miaoli	8.18
Taichung, Changhua and Nantou	7.29
Yunlin, Chiayi and Tainan	7.17
Kaohsiung, Pingtung and Penghu	7.56
Yilan, Hualien and Taitung	7.65
Average Score	7.65

Source: This study

(2) Analysis of basic differences

The difference test analysis shows that the overall satisfaction with the landline providers is significantly different in marriage.

When analyzed by marital status, the highest point is 7.81 in the married group, followed by 7.51 points in the unmarried group.

(3) Analysis of differences in social and economic status

The difference test analysis shows that overall satisfaction with the landline providers is significantly related to the average monthly individual income, residence and occupation.

When analyzed by average monthly individual income, except NT10,000-19,999 group, the average satisfaction in all other income groups is higher than 7 points. Among them, the satisfaction of NT50,000-59,999 group is the highest (8.22), followed by NT60,000 and above group (8.06).

When analyzed by residence, the Homeowners group has a higher score (7.75) for the average satisfaction with landline quality than the House Renters group (7.20).

When analyzed by occupation, all the groups had average satisfaction scores with the mobile phone voice quality higher than 7, except the people working in agriculture, forestry, fishery and husbandry, construction, public administration and national defense industries/ compulsory social security, as well as arts, entertainment and recreation services. People working in manufacturing had the highest score of satisfaction (8.33), followed by people working in the education industry (8.14).

The Possibility of Installing a Landline at Home in the Next 12 Months

A. Overall Analysis

In the next 12 months, 10.0% of the participants will be installing a landline at home. There are 83.0% of participants having no plans to install a landline (Refer to Figure 2). Among the reasons for not installing a landline, already using a mobile phone is the most common answer (67.1%), followed by no need of landline service which is

27.6% (Refer to Figure 3).

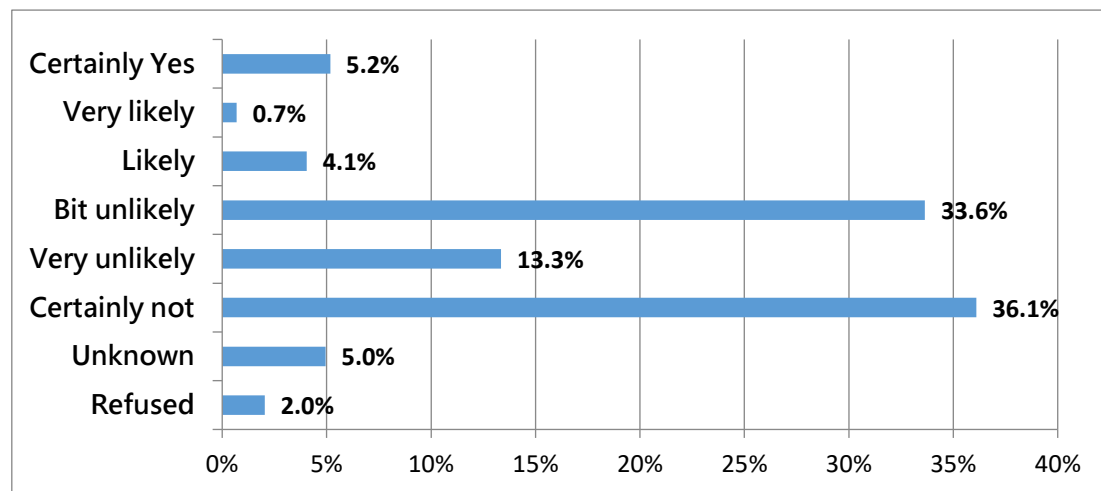


Figure 2 The Possibility of Installing a Landline at Home in the Next 12 Months

Base: N=203 (people who do not use landline at home)

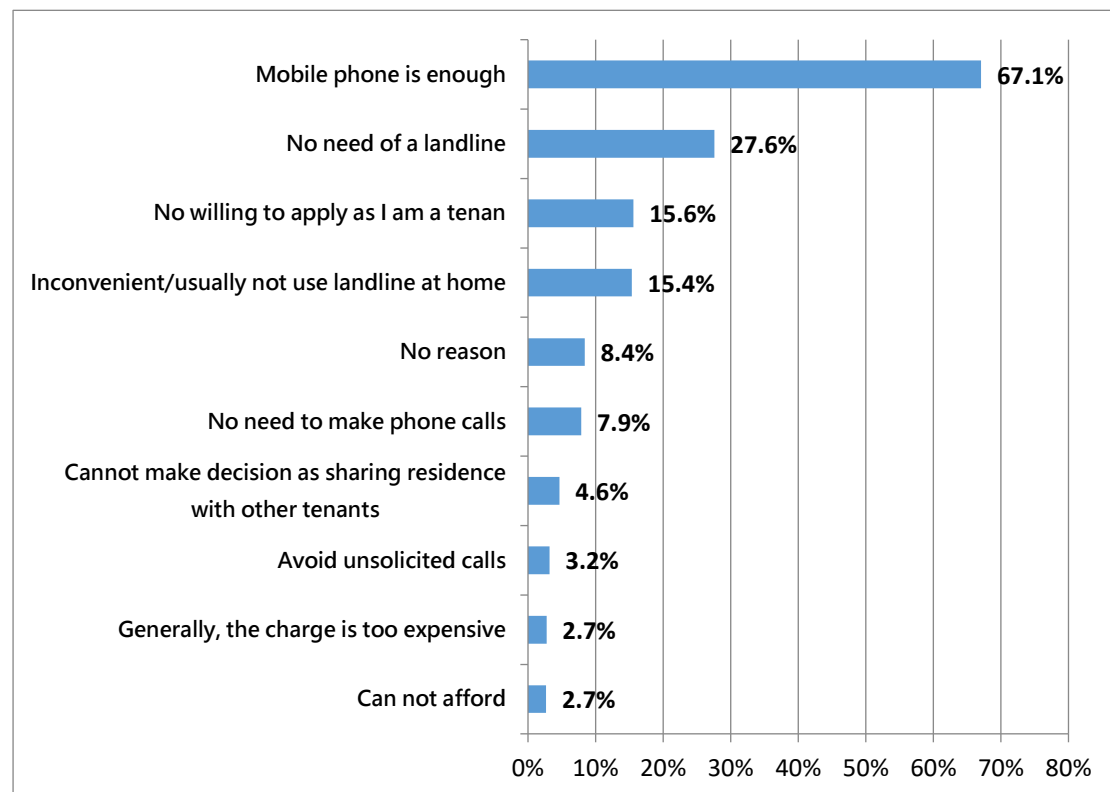


Figure 3 The Reasons for Not Installing a Local Phone Line at Home in the Next 12 Months

Base: N=169, multiple-choice (people who do not use landline at home)

B. Comparative Analysis

(1) Analysis of regional differences

When analyzed by region, the rate of all groups of participants who do not have a plan to install a landline are higher than 70%. Among them, the highest rate is 93.7%

in Taoyuan, Hsinchu and Miaoli, followed by 91.8% in Yilan, Hualien and Taitung. The highest rate of people to install a landline is in Taichung, Changhua, Nantou (19.4%). In terms of the reasons for not installing landline, Yunlin, Chiayi and Tainan has the highest rate (76.4%) for already using a mobile phone, followed by Yilan, Hualien and Taitung (76.2%). Yilan, Hualien and Taitung also have the highest rate (47.6%) showing that the landline is not necessary, followed by Taipei City, New Taipei City and Keelung (32.2%).

(2) Analysis of basic differences

When analyzed by gender, 81.7% males and 84.6% females do not plan to install a landline. In terms of the reasons, 67.3% males and 66.7% females think that mobile phones can be an alternative. Moreover, 32.9% males and 21.9% females think that landlines are not necessary.

When analyzed by age, the highest rate of people who have no plan to install a landline is in the 26-35 age group (96.7%), followed by the 56-65 age group (84.4%). In terms of the reasons, the highest rate of people who think that mobile phones can be an alternative is in the 46-55 age group (87.0%), followed by the 26-35 age group (85.6%). On the other hand, the highest rate of people who think that a landline is not necessary is in the 56-65 age group (49.6%), followed by the 66 and above age group (31.9%).

When analyzed by marital status, the highest rate of people who have no plan to install a landline is in the widowed/separated group (91.8%), followed by the unmarried group (84.9%). In terms of the reasons, the highest rate of people who think that mobile phones can be an alternative is in the married group (71.5%), followed by the unmarried group (66.5%). On the other hand, the highest rate of people who think that a landline is not necessary is in the widowed/separated group (35.1%), followed by the married group (32.4%).

C. Mobile Phone Usage

Smart Phone Usage in households

1. Overall Analysis

The proportion of the households using smartphones is 92.8% (Refer to Figure 4).

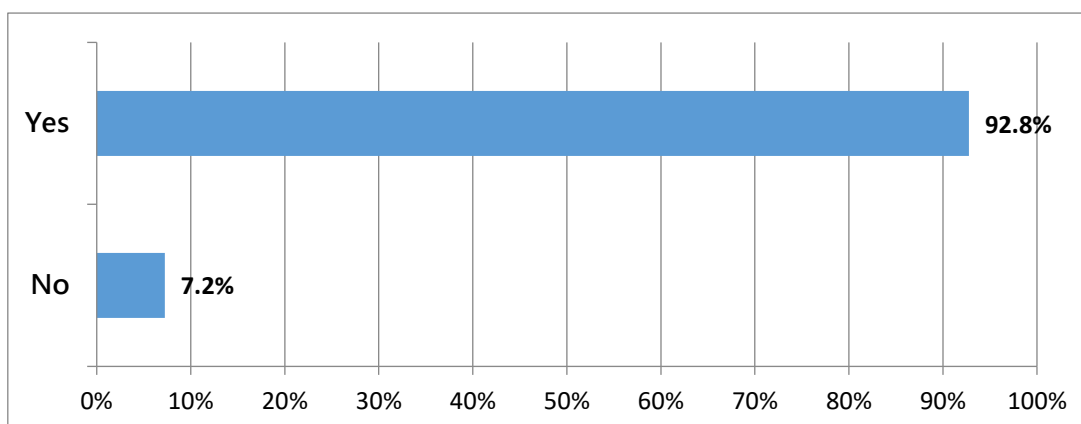


Figure 4 Smart Phone Usage in Households

Base: N = 1,068

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that in all regions, more than 90% of households use smartphones. The highest rate is 98.8% in Yilan, Hualien and Taitung, followed by Taoyuan, Hsinchu and Miaoli (97.0%).

(2) Analysis of basic differences

The difference test analysis shows that whether households use smartphones is significantly related to age and marital status.

When analyzed by gender, 92.8% males and 92.7% females use smartphones respectively, and there is no significant difference between these two gender groups.

When analyzed by age, except the age group over 66 (83.2%), the other groups have more than 90% smartphone users. The 26-35 age group has the highest rate of smartphone users (96.3%), followed by the 35-45 group (95.9%).

When analyzed by marital status, except for the widowed/separated group (85.9%), the other groups have more than 90% smartphone users. The rate is 98.5% for the unmarried group, and 92.6% for the married group.

(3) Analysis of the socio-economic status differences

The difference test analysis shows that whether households use smartphones is significantly related to education level.

When analyzed by education level, except the primary and lower education group having a lower rate of smartphones use, all the other groups have more than 90% of households using smartphones. The highest rate is 98.7% in the college degree group, followed by the university degree group (95.3%).

Smart Phone Usage

1. Overall Analysis

The proportion of people who mainly use smartphones is 92.5%, much higher than the people who do not use smartphones 7.5% (Refer to Figure 5).

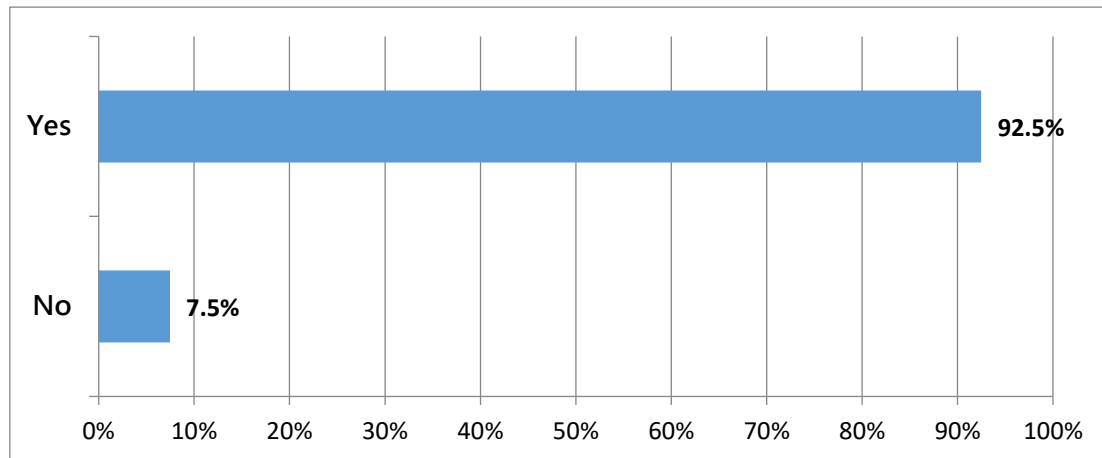


Figure 5 Smartphone Usage

Base: N = 1,020 (people who often use mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that smartphone users have the highest rate in all regions. Except the east region which is 83.7%, the rates of remaining regions are higher than 90%. The highest is 98.4% in Taoyuan, Hsinchu and Miaoli.

(2) Analysis of basic differences

When analyzed by gender, the female group has a higher rate (95.4%) of mainly using smartphones than the male group (90.8%).

When analyzed by age, 100% of people in the 16-25 and 26-35 age groups mainly use smartphones.

When analyzed by marital status, 99.1% people in the unmarried group mainly use smartphones, followed by the married group (90.0%).

The Most Commonly Used Mobile Phone Operators

1. Overall Analysis

CHT is the most commonly used telecoms operator with a proportion of 45.4%, follow by TAIWANMOBILE (23.1%), FETNET (20.0%), APTG (5.2%) and TSTARTEL (5.0%)(Refer to Figure 6).

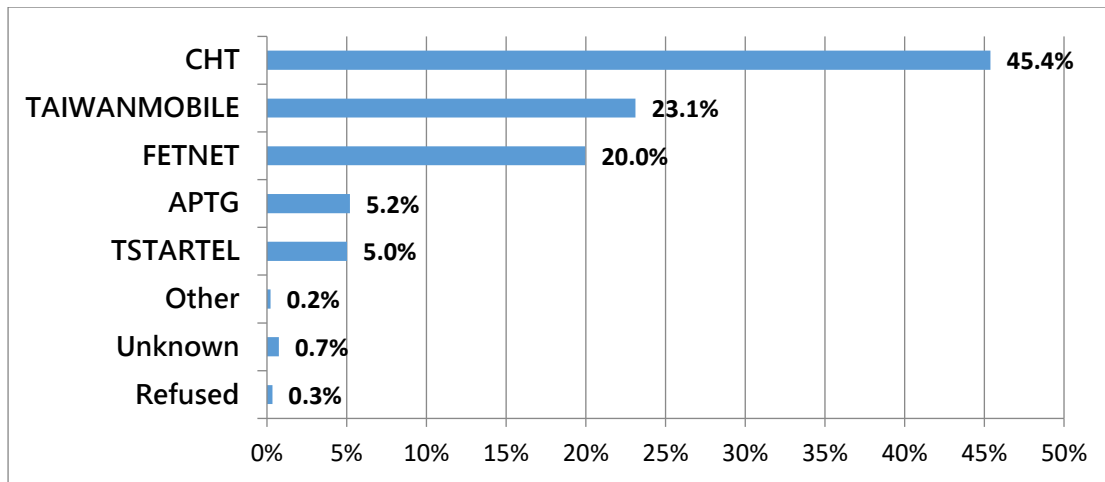


Figure 6 Most Popular Mobile Phone Operators

Base: N=1,020 (people who often use mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the highest rate of people who use CHT are living in Taoyuan, Hsinchu and Miaoli (49.0%), followed by Yilan, Hualien and Taitung (48.7%). The highest rate of people who use TAIWANMOBILE are living in Taipei City, New Taipei City and Keelung (28.1%), followed by Kaohsiung, Pingtung and Penghu (26.5%). The highest rate of people who use FETNET are living in Taoyuan, Hsinchu and Miaoli (28.9%), followed by Yilan, Hualien and Taitung (21.6%). The highest rate of people who use APTG are living in Yilan, Hualien and Taitung (10.5%), followed by Yunlin, Chiayi and Tainan (6.5%). People who mostly use TSTARTEL are living in Kaohsiung, Pingtung and Penghu (9.4%), followed by Taipei City, New Taipei City and Keelung (7.0%).

(2) Analysis of basic differences

When analyzed by gender, 45.0% of males and 45.8% of females mostly use CHT, and 23.0% of males and 23.3% of females mostly use TAIWANMOBILE. In males, 20.2% mostly use FETNET, and females (19.8%). In terms of APTG, 5.2% of both males and females use its service. For TSTARTEL, the rate is 5.2% of males use its service and 4.8% of females.

When analyzed by age, the most commonly used telecoms operator is CHT with the 56-65 age group at 54.4%, followed by 52.9% in the 66 and above age group. The highest rate of those who mostly use TAIWANMOBILE is in the 26-35 group (28.4%), followed by 27.4% in the 36-45 age group. The highest rate of those who mostly use FETNET is 22.5% in the 36-45 group, followed by 21.0% in the 26-35 group. The highest rate of those who mostly use APTG is 8.5% in the 36-45 group, followed by 5.7% in the 56-65 group. In terms of TSTARTEL, the highest rate is 7.7% in the 16-25 group, followed by 5.5% in the 36-45 group.

When analyzed by marital status, the married group has the highest use (50.8%) of the service of CHT, followed by the unmarried group (42.1%). The widowed/separated group has the highest use (27.8%) of the service of TAIWANMOBILE, followed by the unmarried group (26.6%). The widowed/separated group has the highest use (28.4%) of the service of FETNET, followed by the unmarried with 20.2%. The widowed/separated group has the highest use (12.1%) of the service of APTG, followed by the married group (5.4%). The unmarried group has the highest use (6.0%) of the service of TSTARTEL, followed by the widowed/separated group (5.5%).

The Reasons for choosing the Telecoms Operators

1. Overall Analysis

The favourite of relatives and friends is the most common reason to choose the telecoms service provider, at the rate of 30.7%, followed by the better quality of communication (30.6%) and using the personal habitual provider (24.4%) (Refer to Figure 7).

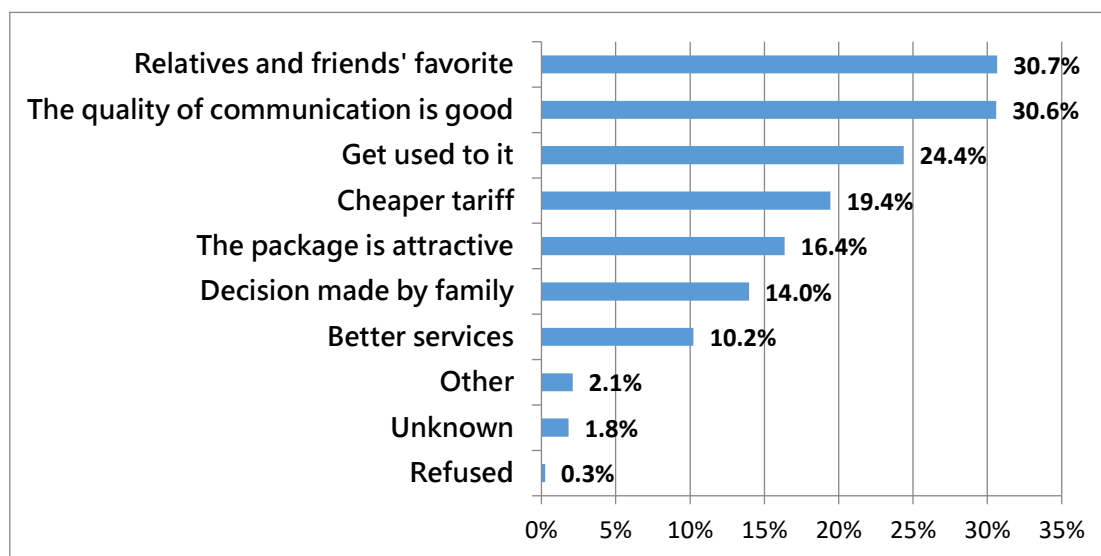


Figure 7 The Reasons to Choose the Telecoms Suppliers

Base: N = 1009, multiple-choice

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the top reason to choose the telecoms service provider in Taipei City, New Taipei City, and Keelung; Kaohsiung, Pingtung and Penghu; Yilan, Hualien and Taitung is in line with the relatives and friends' favourite provider. Among them, Yilan, Hualien and Taitung have the highest rate 38.6%. In Taoyuan, Hsinchu, Miaoli; Yunlin, Chiayi and Tainan, the better communication quality of the

provider is the top reason. Among them, Taoyuan, Hsinchu, Miaoli have the highest rate 44.9%. Using the personal habitual provider is the top reason in Taoyuan, Hsinchu, Miaoli (32.3%), followed by Taichung, Changhua, Nantou (28.4%).

(2) Analysis of basic differences

When analyzed by gender, the females have higher rate (35.2%) of choosing their telecoms service provider because that is their relatives and friends' favourite provider, while the females' rate is 26.0%. For the reason that the provider has better communication quality, males have higher rate (32.0%) than females (29.2%). Males have higher rate (25.4%) of choosing the service provider because of using their personal habitual provider, while the rate of females is 23.4%.

When analyzed by age, those aged 46-55 have the highest rate (38.9%) of choosing their telecoms service provider because that is their relatives and friends' favourite provider, followed by those aged 26-35 (33.3%). For the reason that the provider offers better communication quality, those aged 56-65 have the highest rate (37.0%), followed by those aged 36-45 (34.6%). Those aged 46-55 have a higher rate (29.9%) of choosing the service provider because of using their personal habitual provider, followed by those aged 56-65 (28.9%).

When analyzed by marital status, the widowed/separated group has the highest rate (38.5%) of choosing their telecoms service provider because that is their relatives and friends' favourite provider, followed by the married group (33.4%). For the reason that the provider offers better communication quality, the married group has the highest rate (33.0%), followed by the unmarried group (28.9%). The widowed/separated group has the highest rate (27.6%) of choosing the service provider because of using their personal habitual provider, followed by the married group (27.2%).

The Main Reasons to Change the Habitual Telecoms Operators

1. Overall Analysis

The more expensive tariff of the previous provider is the most common reason to change the telecoms service provider, at the rate of 25.3%, followed by the tariff is cheaper if you use the original number (22.6%) (Refer to Figure 8).

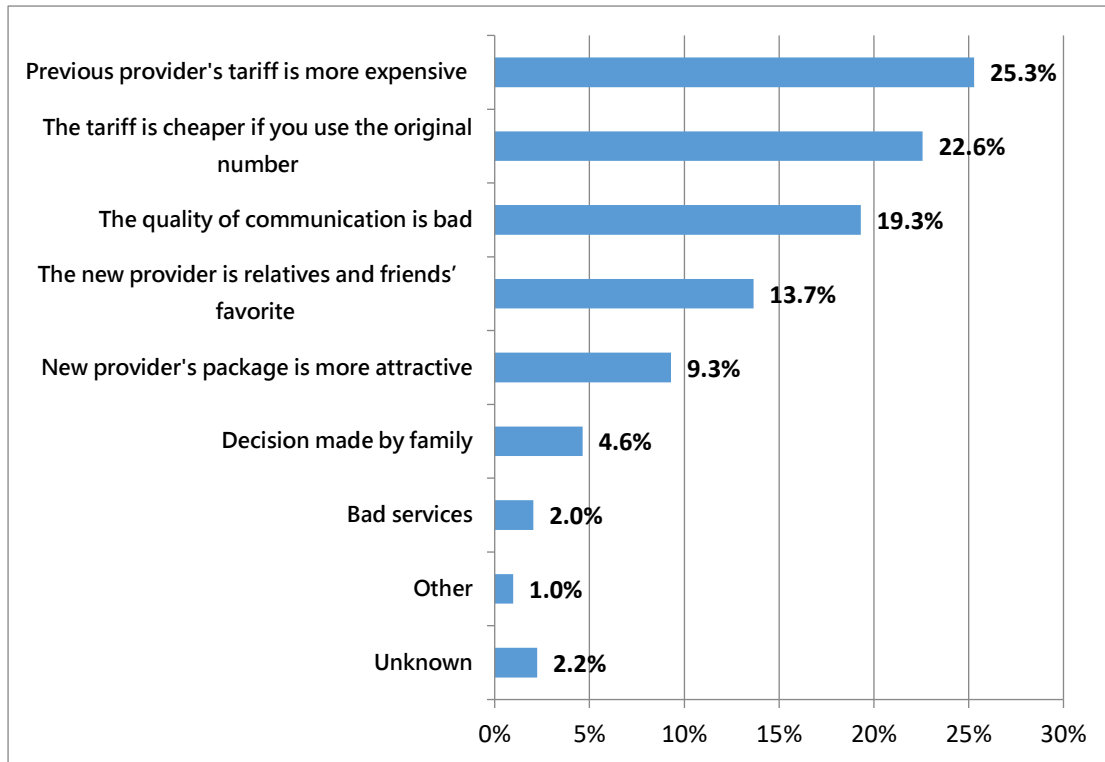


Figure 8 The Reasons to Change the Habitual Telecoms Suppliers

Base: N = 378

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the top reason to change the provider for Taipei City, New Taipei City, and Keelung (32.7%); Kaohsiung, Pingtung and Penghu (30.5%) is the tariff of the original operator is more expensive. In Taichung, Changhua, Nantou; Yunlin, Chiayi and Tainan; Yilan, Hualien and Taitung, the poor communication quality of previous provider is the top reason. Among them, Yilan, Hualien and Taitung have the highest rate 41.3%. The tariff is cheaper if you use the original number is the top reason in Taoyuan, Hsinchu, Miaoli (42.8%).

(2) Analysis of basic differences

When analyzed by gender, males have a higher rate (27.2%) of changing their most commonly used telecom service provider because the tariff of the original operator is more expensive, while the female rate is 23.5%. For the reason that users can get cheaper tariff if bringing the original number, females have a higher rate (23.2%) than males (21.9%).

When analyzed by age, those aged 66 and above have the highest rate (34.2%) of changing their most commonly used telecom service provider because the tariff of the original operator is more expensive, followed by those aged 56-65 (29.9%). For the reason that users can get a cheaper tariff if bringing the original number, those aged 26-35 have the highest rate (32.4%), followed by those aged 16-25 (28.0%).

When analyzed by marital status, the married group has the highest rate (25.6%) of changing their most commonly used telecom service provider because the tariff of the original operator is more expensive, followed by the unmarried group (25.3%). For the reason that users can get cheaper tariffs if bringing the original number, the unmarried group has the highest rate (25.8%), followed by the married group (22.6%).

The Most Frequently Used Mobile Internet Service Outside Homes

1. Overall Analysis

The most frequently used mobile internet service when people are outside their homes is broadband. After the launch of 4G services, the rate of 4G service users increased rapidly to 84.2%. In contrast, 6.5% of people do not use a mobile internet service when they are outside their home. The rates of using 3G service (2.6%) and sharing hotspots from family or friends (1.9%) are less than 3% (Refer to Figure 9).

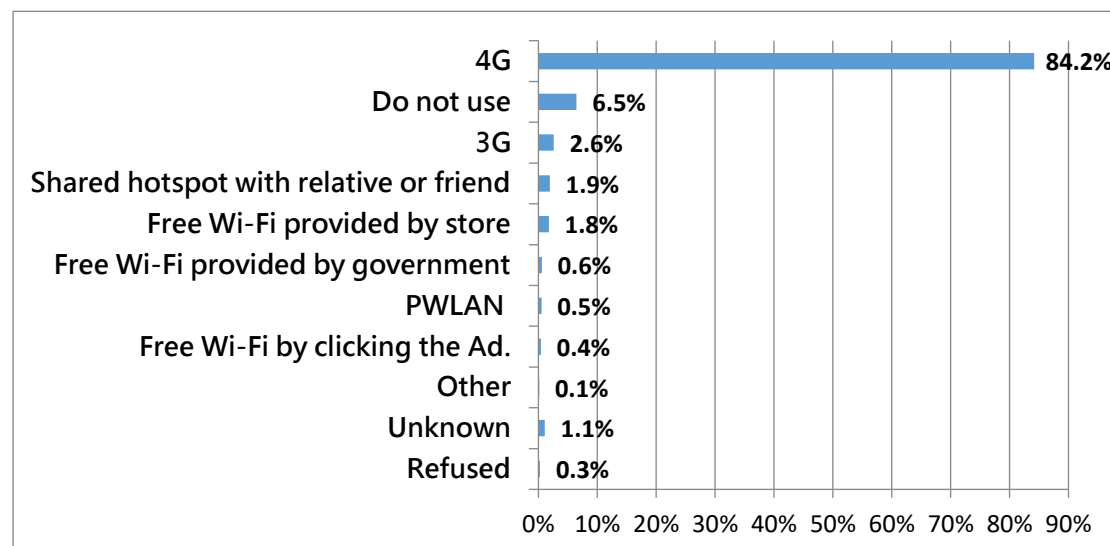


Figure 9 Most Frequently Used Mobile Internet Service Outside Homes

Base: N = 944 (people who mainly use smartphones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the 4G service users have the higher rate (over 80%) in all regions. The highest rate is 87.3% in Taoyuan, Hsinchu and Miaoli, followed by 87.0% in Yilan, Hualien and Taitung. The highest rate of using a 3G service is in Taoyuan, Hsinchu and Miaoli (8.0%). The highest rate of sharing relatives and friends' mobile internet services is in Yunlin, Chiayi and Tainan (4.6%).

(2) Analysis of basic differences

When analyzed by gender, 83.5% of males use 4G services, which is similar to females (84.9%). Males show a higher rate (3.4%) of using 3G service than females

(1.8%). Males and females have the similar trend of sharing relatives and friends' mobile internet services, and their rates are 1.7% and 2.2% respectively.

When analyzed by age, the 4G service users have the highest rate in the 26-35 age group (93.7%), followed by the 36-45 age group (91.3%). The 66 and above age group shows the highest rate (8.0%) of using a 3G service, followed by the 46-55 age group (3.2%). The highest rate of sharing relatives and friends' mobile internet services is in the 66 and above age group (6.2%), followed by the 46-55 age group (2.3%).

When analyzed by marital status, the unmarried group has the highest rate of 4G service use (91.1%), followed by married group (80.0%). The married group shows the highest rate (3.5%) of using a 3G service, followed by the widows/separated group (2.4%). The widows/separated group shows the highest rate (4.7%) of sharing relatives and friends' mobile internet services, followed by the married group (2.3%).

The Most Common Place to Access Internet through Mobile Phones

1. Overall Analysis

The survey shows that most Taiwanese people use mobile phones to access the network at home (49.7%), followed by workplace (29.3%), and schools (6.2%) (Refer to Figure 10).

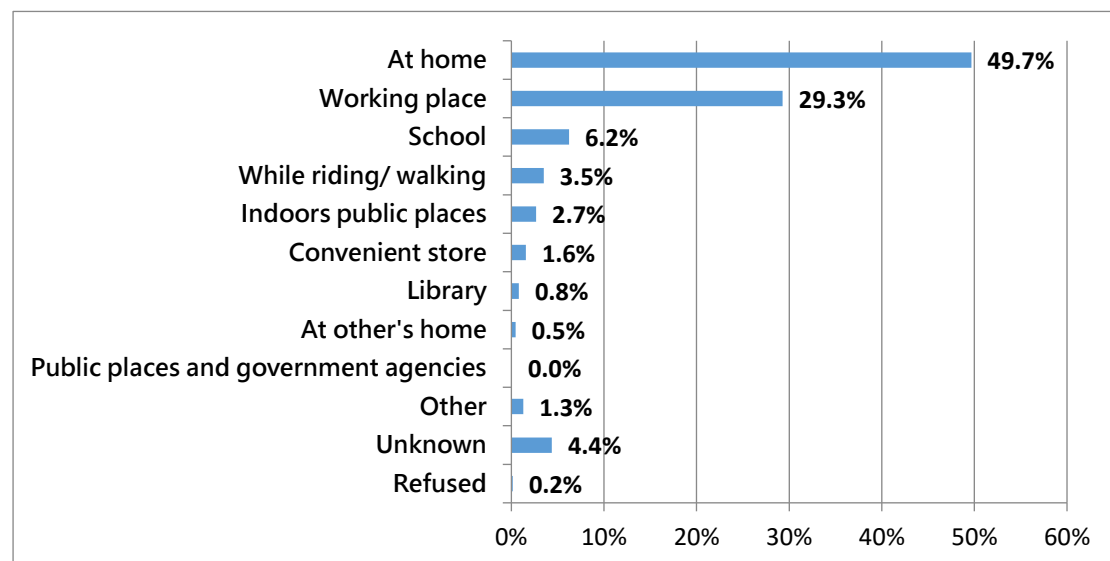


Figure 10 The Most Commonly Used Mobile Phone Networking Sites

Base: N = 944 (people who mainly use smartphones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that using mobile phones to access internet at home has the higher rate (over 40%) in all regions. The highest rate is 55.2% in Yunlin,

Chiayi and Tainan, followed by 53.6% in Taoyuan, Hsinchu and Miaoli. The highest rate of internet access at workplaces is in Yilan, Hualien and Taitung (38.8%). Moreover, the highest rate of internet access at school is in Yunlin, Chiayi and Tainan (9.1%).

(2) Analysis of basic differences

When analyzed by gender, homes are the most common places to be used to access the internet by mobile phone for females (53.1%), followed by 45.9% for males. The rate of males most frequently accessing the internet by mobile phone at workplaces is 34.5%, while the rate of females is 24.4%. The rate of males most frequently accessing the internet at school is 3.8%, while the rate of females is 8.4%.

When analyzed by age, the 56-65 age group shows that homes are the most common place to access the internet by mobile phone (64.9%), followed by the 66 and above age group (61.1%). There are 47.0% of the 36-45 age group accessing the internet at workplaces, followed by the 26-35 age group (38.4%). On the other hand, 16-25 age group has the highest rate (30.8%) of accessing the internet at schools, followed by the 66 and above age group (3.7%).

When analyzed by marital status, homes are the most frequent place for the widowed/separated group to access the internet by mobile phone (57.9%), followed by the married (51.1%). There are 31.9% of married people accessing the internet by mobile phone at workplaces, followed by 26.8% of unmarried people. There are 14.0% of unmarried people accessing the internet by mobile phone at schools, followed by 1.2% of married people.

Behaviors Related to Non-Internet Mobile Use beyond Phone Calls

1. Overall Analysis

In terms of the behaviors of non-internet mobile use beyond phone calls, the highest rate of these behaviors is taking pictures (80.0%), followed by using alarm clocks (60.5%) and calculators (54.4%) (Refer to Figure 11).

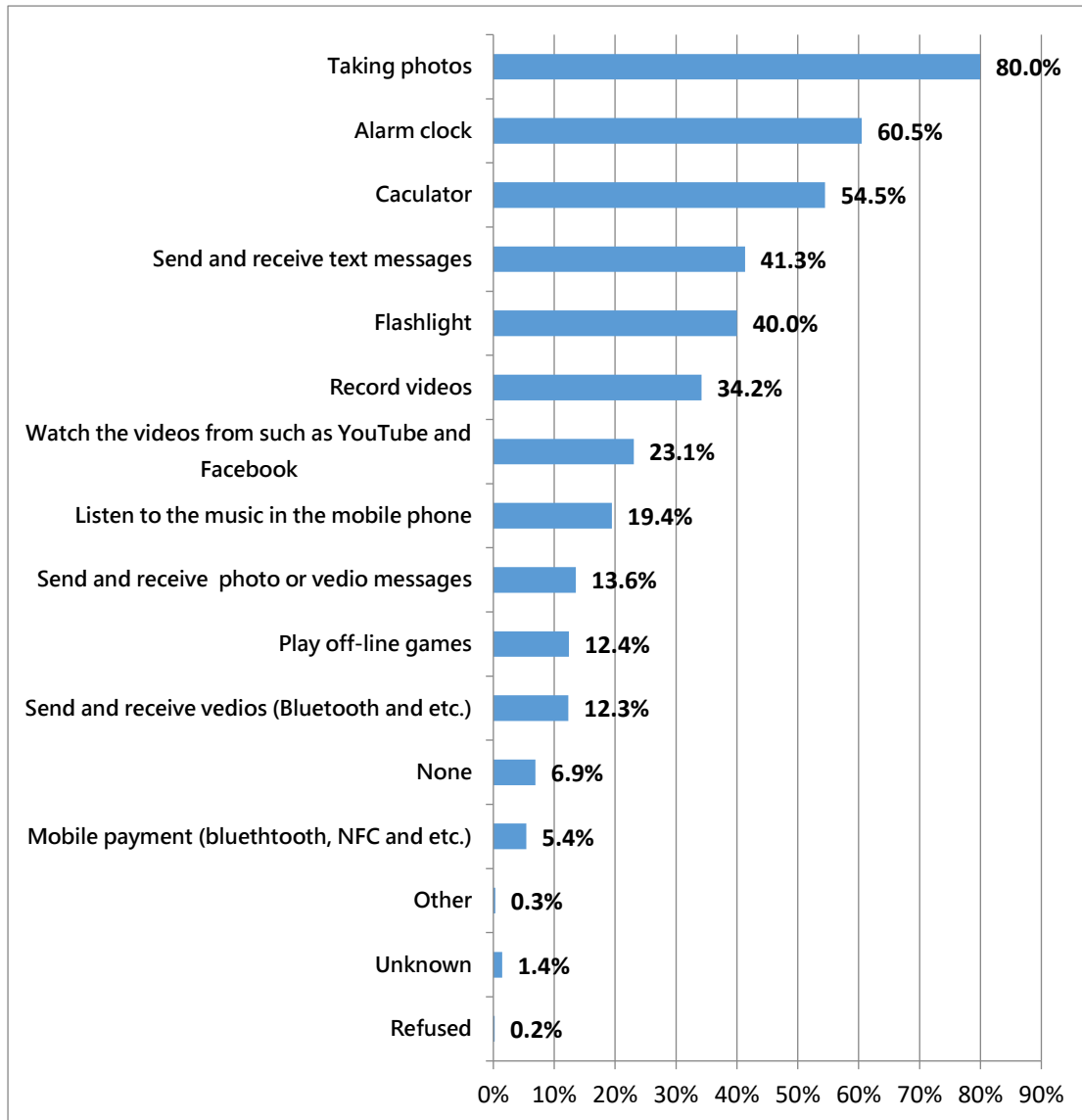


Figure 11 Behaviors of Non-Internet Mobile Use

Base: N=1,020, multiple-choice (people who use smartphones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that people in Taoyuan, Hsinchu and Miaoli have the highest rate (94.1%) for taking pictures, followed by Taipei City, New Taipei City and Keelung (79.5%). The highest rate for people using alarm clocks, are those living in Taoyuan, Hsinchu and Miaoli (73.5%), followed by Yilan, Hualien and Taitung (63.9%). Moreover, the highest rate for people using calculators are those living in Taoyuan, Hsinchu and Miaoli (70.1%), followed by Kaohsiung, Pingtung and Penghu (58.5%).

(2) Analysis of basic differences

When analyzed by gender, 83.0% of females and 76.8% of males use mobile phones for taking pictures, 61.6% of females and 59.3% of males use mobile phones for alarm clocks; and 55.1% of females and 53.8% of males use mobile phones for

calculators.

When analyzed by age, people aged 26-35 have the highest rate (88.9%) of using mobile phones for taking pictures, followed by the 36-45 group (88.1%). People aged 16-25 have the highest rate (74.2%) of using mobile phones for alarm clocks, followed by the 26-35 group (71.7%). People aged 26-35 have the highest rate (64.6%) of using mobile phones for calculators, followed by the 16-25 group (63.7%).

When analyzed by marriage status, the unmarried group has the highest rate (87.0%) of using mobile phones for taking pictures, followed by 77.6% of the married group. For using mobile phones as alarm clocks, the unmarried group has the highest rate (71.1%), followed by the married group (55.3%). For using mobile phones as calculators, the unmarried group has the highest rate (61.7%), followed by the married group (51.6%).

Searching Information through the Internet by Phone Users beyond Phone Calls

1. Overall Analysis

In terms of the behaviors of phone users beyond phone calls, 68.4% people browse the Web/query, followed by 50.1% people who learn the latest news, and 44.4% people who seek products/service information (Refer to Figure 12).

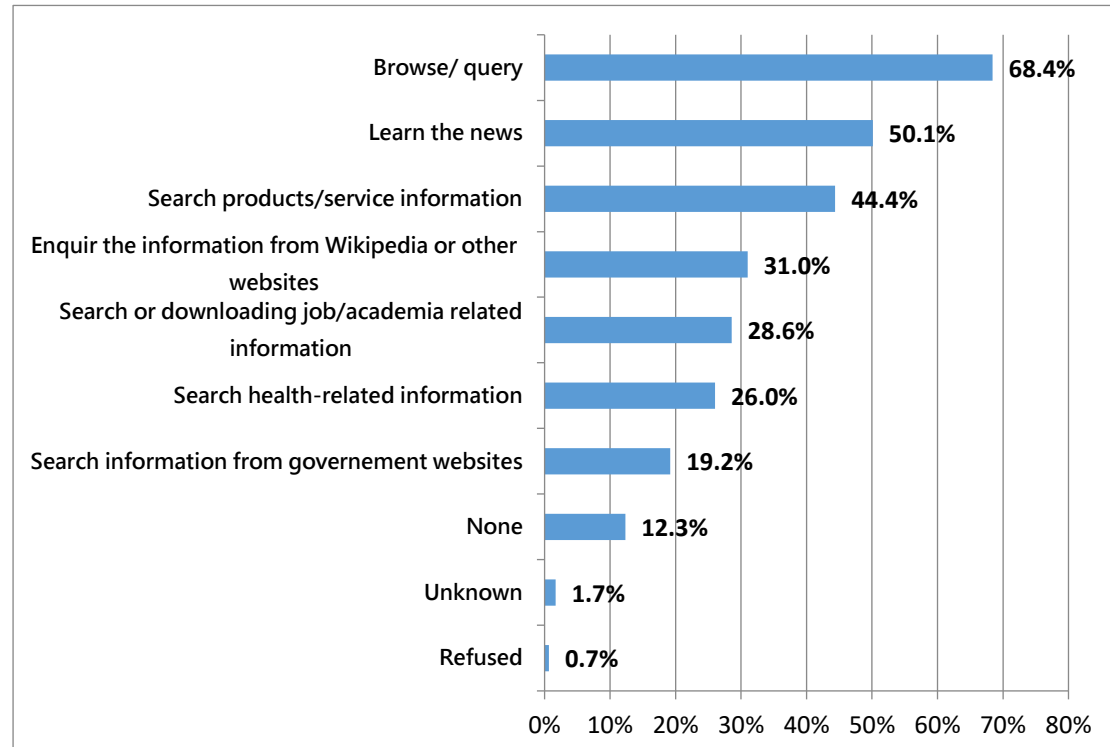


Figure 12 Searching Information through the Internet

Base: N = 944, multiple-choice (people who mainly use smartphones as their mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that, beyond phone calls, browsing the Web/query is at the highest rate (over 60%) in all regions. The highest number is in Taoyuan, Hsinchu and Miaoli (85.9%), followed by Kaohsiung, Pingtung and Penghu (73.0%). Taoyuan, Hsinchu and Miaoli have the highest rate of people who learn the latest news by smartphone (68.2%), followed by Kaohsiung, Pingtung and Penghu (51.6%).

(2) Analysis of basic differences

When analyzed by gender, 69.2% of males use internet browsing/query, while the rate of females is 67.6%. The rate of males learning the latest news is 53.6%, while the rate of females is 46.9%.

When analyzed by age, the highest rate is 79.9% for 16-25 age group on browsing/query, followed by 78.5% in the 26-35 age group. In terms of learning the latest news, the 36-45 age group is at the highest rate (78.5%), followed by the 26-35 age group (55.5%).

When analyzed by marital status, the highest rate of web browsing/query is 75.3% for the unmarried, followed by the married (65.1%). Regarding learning the latest news, the highest rate is 52.4% for the unmarried, followed by 49.3% for the married.

Behaviors around Socializing or Communicating functions of Phone through Internet

1. Overall Analysis

Beyond phone calls, social network Apps and communication software are most popular (65.1%) in the socializing and communicating functions which people use by phone through internet, followed by using instant messaging to communicate (63.8%), and making voice calls over the internet (59.7%) (Refer to Figure 13).

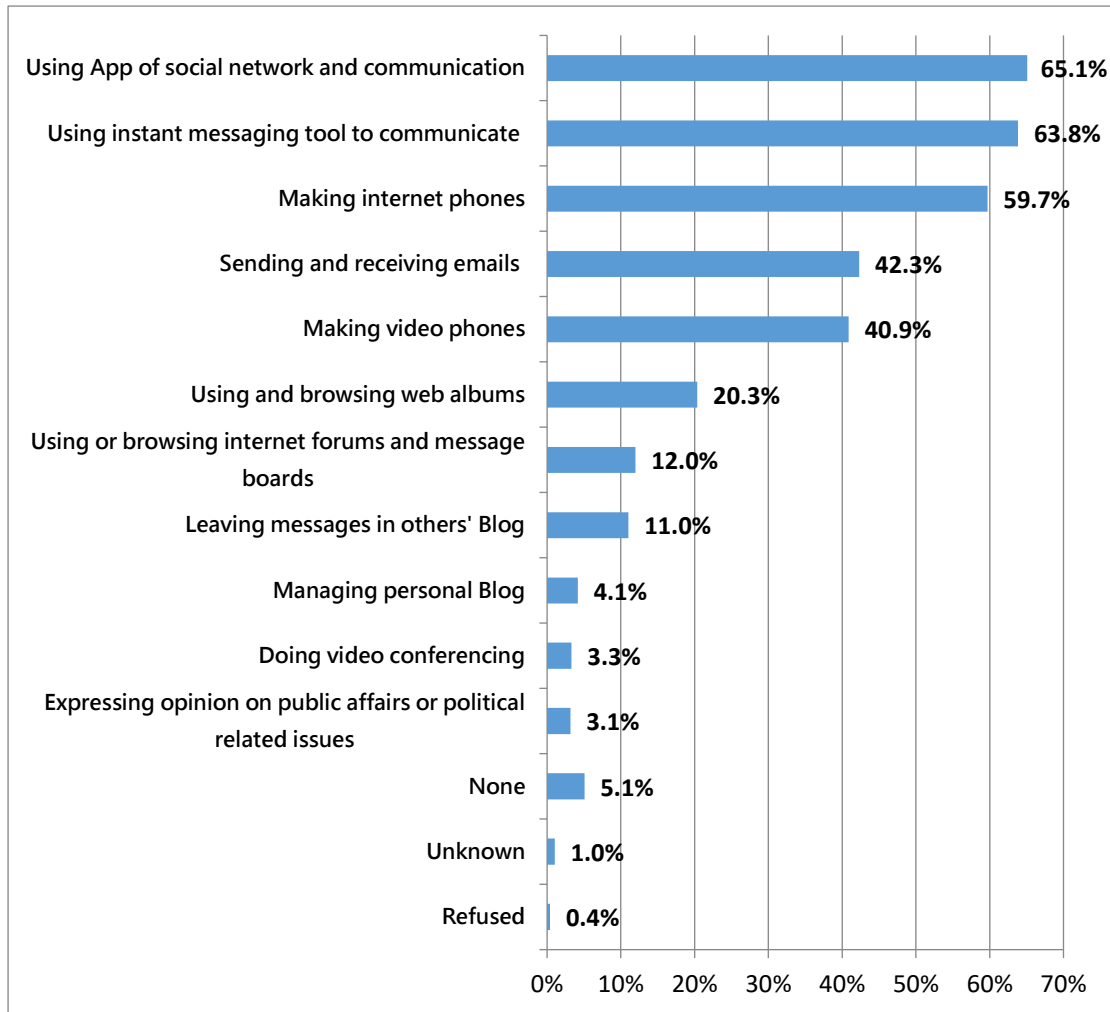


Figure 13 Socializing or Communicating functions of Phone through Internet

Base: N = 944, multiple-choice (people who mainly use smartphones as their mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that, beyond phone calls, social network Apps and communication software are the most popular functions (over 84.5%) in all regions, except Taoyuan, Hsinchu, Miaoli, Yunlin, Chiayi and Tainan. Among them, the highest rate is in Taoyuan, Hsinchu and Miaoli (84.5%), followed by Yilan, Hualien and Taitung (68.9%). In terms of using instant messaging to communicate, the highest rate is in Taoyuan, Hsinchu and Miaoli (89.3%), followed by Yilan, Hualien and Taitung (62.3%).

(2) Analysis of basic differences

When analyzed by gender, 65.9% females use social network Apps and communication software, which is higher than males (64.2%). The rate of females using instant messaging to communicate is 53.6%, while the rate of males is 60.6%.

When analyzed by age, the 16-25 age group has the highest use (76.5%) of social network Apps and communication software, followed by the 26-35 age group (67.7%).

In terms of using instant messaging to communicate, the 36-45 age group is at the highest rate (69.7%), followed by the 26-35 age group (67.7%).

When analyzed by marital status, the unmarried group has the highest use (71.2%) of social network Apps and communication software, followed by the married group (63.2%). In terms of using instant messaging to communicate, the unmarried group is at the highest rate (67.2%), followed by the married group (63.0%).

Using Services by Phone through Internet

1. Overall Analysis

Beyond phone calls, uploading and downloading files from the cloud (31.0%) is the most popular service people use, followed by attending social groups (28.1%), and banking services (23.0%). The rate of not using any service is 38.5% (Refer to Figure 14).

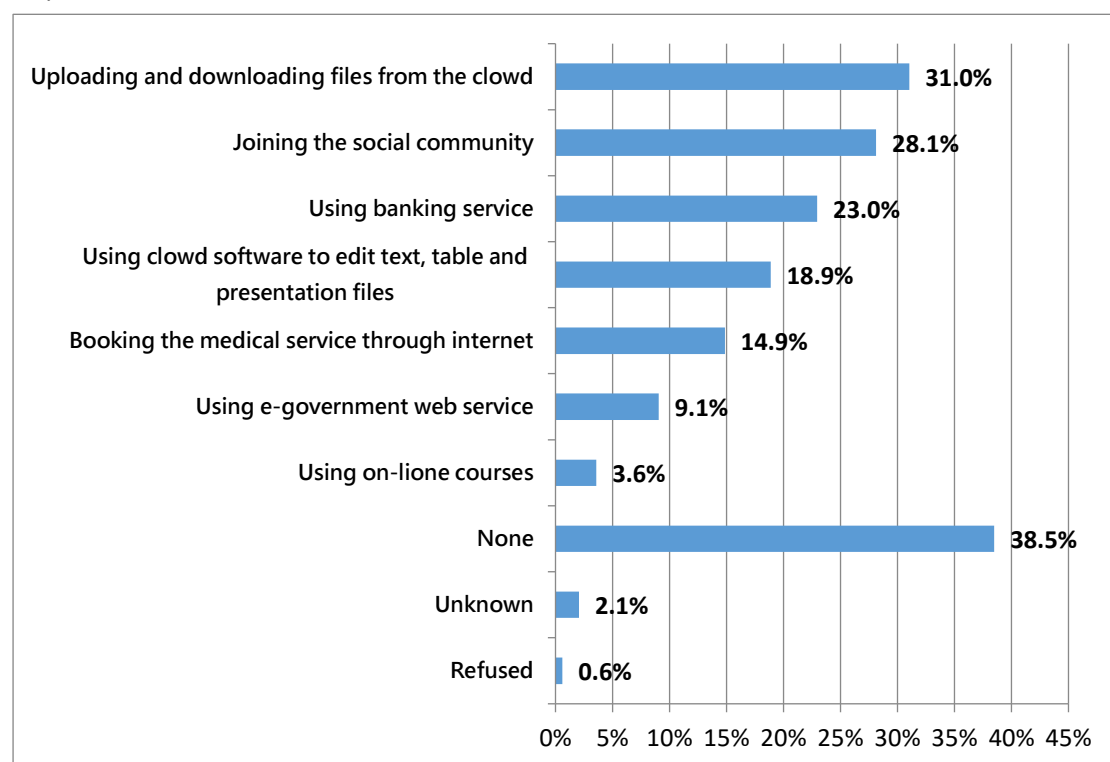


Figure 14 Using Services by Phone through Internet

Base: N = 944, multiple-choice (people who mainly use smartphones as their mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that Taoyuan, Hsinchu and Miaoli region have the highest rate (52.3%) of using the service of uploading and downloading files from the cloud, followed by Kaohsiung, Pingtung and Penghu (31.5%). The highest rate of people attending social groups is in Yilan, Hualien and Taitung (38.1%), followed by

Taoyuan, Hsinchu and Miaoli (35.3%).

(2) Analysis of basic differences

When analyzed by gender, 31.5% of males use the service of uploading and downloading files from the cloud, while the rate of females is 30.6%. The rate of females attending the social group is 32.2%, which is higher than the males (30.6%).

When analyzed by age, the 16-25 age group has the highest rate (56.6%) of using the services of uploading and downloading files from the cloud, followed by the 26-35 age group (44.5%). In terms of attending social groups, the 16-25 age group has the highest rate (38.1%), followed by the 36-45 age group (32.6%).

When analyzed by marital status, the unmarried group has the highest rate (44.1%) of using the services of uploading and downloading files from the cloud, followed by the married group (23.7%). In terms of attending social groups, the unmarried group has the highest rate (32.6%), followed by the married group (25.7%).

Using Functions by Phone through Internet

1. Overall Analysis

Beyond phone calls, watching video (52.8%) is the most popular function people use by phone, followed by uploading/sharing photos or videos (43.3%) and playing online games (29.1%) (Refer to Figure 15).

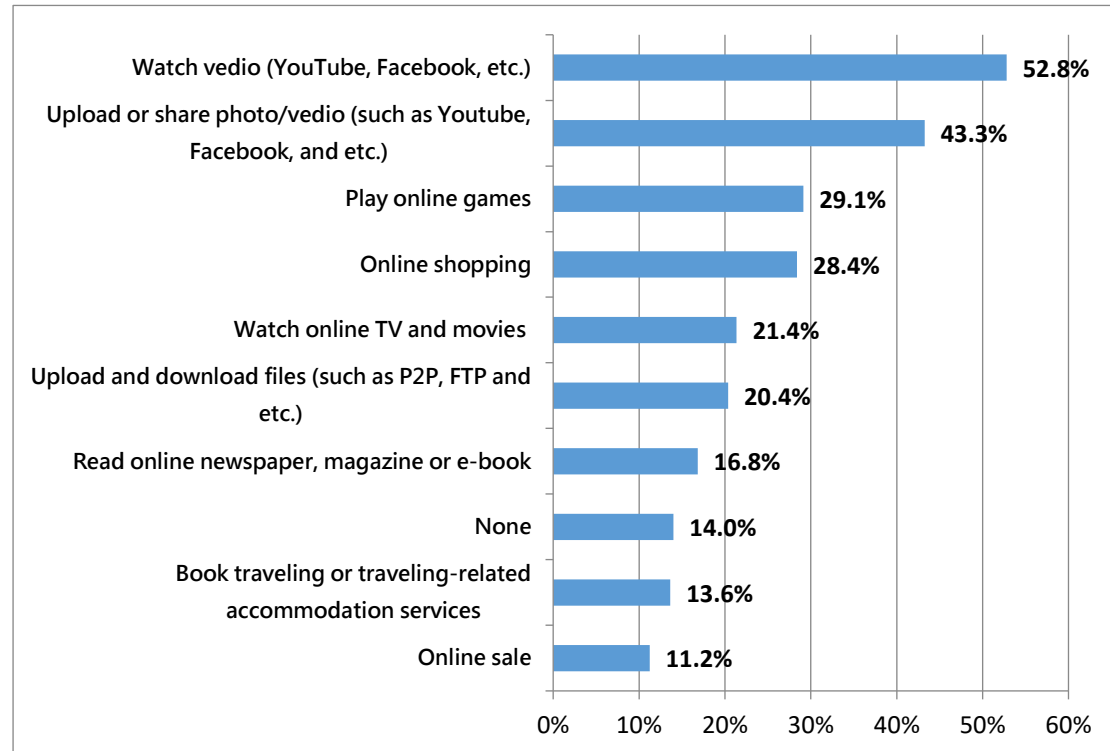


Figure 15 Using Functions by Phone through Internet

Base: N = 944, multiple-choice (people who mainly use smartphones as their mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that Taoyuan, Hsinchu and Miaoli region have the highest rate (83.7%) of watching videos, followed by Kaohsiung, Pingtung and Penghu (59.6%). The highest rate of people uploading/sharing photos or videos is in Taoyuan, Hsinchu and Miaoli (61.2%), followed by Yilan, Hualien and Taitung (43.0%).

(2) Analysis of basic differences

When analyzed by gender, 55.7% of males watch online video by phone, while the rate of females is 50.1%. The rate of females uploading/sharing photos or videos is 44.3%, which is higher than males (42.1%).

When analyzed by age, the 16-25 age group has the highest rate (68.9%) of watching online video by phone, followed by the 26-35 age group (61.9%). In terms of uploading/sharing photos or videos, the 26-35 age group is at the highest rate (51.0%), followed by the 16-25 age group (50.5%).

When analyzed by marital status, the unmarried group has the highest rate (62.0%) of watching online video by phone, followed by the married group (49.1%). In terms of uploading/sharing photos or videos, the unmarried group is at the highest rate (48.8%), followed by the widowed/separated group (42.8%).

Satisfaction with the Quality of Mobile Phone Voice

1. Overall Analysis

The average score of satisfaction with mobile phone voice quality is 7.44 (1- point is very dissatisfied, and 10-points is very satisfied) (N=892, people who use mobile phones which include voice services).

2. Comparative Analysis

(1) Analysis of regional differences

The difference test analysis shows that the satisfaction of mobile phone voice quality is significantly related to the region where one lives.

The cross test suggests that the average satisfaction rates of mobile phone voice quality are higher than 7 in all regions. Among them, people in the Taoyuan, Hsinchu and Miaoli have the highest score (7.88), followed by Taipei City, New Taipei City and Keelung (7.54) (Refer to Table 11).

Table 11 Satisfaction with the Quality of Mobile Phone Voice Quality (By Region)

Region	Average Score
Taipei City, New Taipei City and Keelung	7.54
Taoyuan, Hsinchu and Miaoli	7.88
Taichung, Changhua and Nantou	7.06
Yunlin, Chiayi and Tainan	7.18
Kaohsiung, Pingtung and Penghu	7.47
Yilan, Hualien and Taitung	7.35
Average Score	7.44

Source: This study

(2) Analysis of basic differences

When analyzed by gender, the satisfaction of males with mobile phone voice quality is 7.49 on average, which is higher than the females average score (7.38).

When analyzed by age, the 16-25 age group has the highest score (7.60) of satisfaction with mobile phone voice quality, followed by the 66 and above age group (7.52).

When analyzed by marital status, both the married and the unmarried groups have the highest average score (7.48) of satisfaction with mobile phone voice quality, followed by the widowed/separated group (7.13).

(3) Analysis of differences in social and economic status

The difference test analysis shows that the average satisfaction with mobile phone voice quality is significantly related to the average monthly individual income and education level.

When analyzed by average monthly individual income, except less than NT10,000 (6.42) and NT10,000-NT19,999 (6.28), the average satisfaction scores with mobile phone voice quality of all other groups is higher than 7. Among them, the NT40,000-NT49,999 group has the highest score (8.00), followed by NT50,000-NT59,999 group (7.80).

When analyzed by education level, the average satisfaction scores with mobile phone voice quality of all groups are higher than 7. Among them, people holding master's degree have the highest score (7.80), followed by people holding university degree (7.65).

Satisfaction with the Quality of Accessing the Internet by Mobile Phone

1. Overall Analysis

The average satisfaction with the quality of accessing the internet by mobile phone is 7.18 (1-point is not satisfied, 10-points is very satisfied) (N=838, people who use mobile phones which include internet services).

2. Comparative Analysis

(1) Analysis of regional differences

The difference test analysis shows that people's satisfaction with the quality of accessing the internet by mobile phone is significantly related to the region where one lives.

The cross analysis suggests that the satisfaction scores of the quality of accessing the internet by mobile phone are higher than 6 in all regions. Among them, the satisfaction in Taoyuan, Hsinchu and Miaoli is at the highest (7.85), followed by Taipei City, New Taipei City and Keelung (7.43) (Refer to Table 12).

Table 12 Satisfaction with the Quality of Accessing the Internet by Mobile Phone (By Region)

Region	Average Score
Taipei City, New Taipei City and Keelung	7.43
Taoyuan, Hsinchu and Miaoli	7.85
Taichung, Changhua and Nantou	6.58
Yunlin, Chiayi and Tainan	6.77
Kaohsiung, Pingtung and Penghu	7.12
Yilan, Hualien and Taitung	6.83
Average Score	7.18

Source: This study

(2) Analysis of basic differences

The difference test analysis shows that people's satisfaction with the quality of accessing the internet by mobile phone is significantly related to their marriage status.

When analyzed by gender, males had an average score of satisfaction with the quality of accessing the internet by mobile phone of 7.20, which is similar to the average score of females (7.17).

When analyzed by age, the average satisfaction with the quality of accessing the internet by mobile phone in all groups is higher than 7. Among them, the 16-25 age group has the highest scores (7.32), followed by the 36-45 group (7.28).

When analyzed by marriage status, the married group has the highest average satisfaction with the quality of accessing the internet by mobile phone (7.25), followed by the unmarried (7.24) and widowed/separated (6.57) groups.

(3) Analysis of differences in social and economic status

The difference test analysis shows that the average satisfaction with the quality of accessing the internet by mobile phone is significantly related to the average monthly individual income, residence, education level and occupation.

When analyzed by average monthly individual income, except less than NT10,000 (6.95) and NT10,000-19,999 (6.58), the average satisfaction with the quality

of accessing the internet by mobile phone was higher than 7 for all other groups except the group of no income. Among them, the NT40,000-NT49,999 group has the highest scores (7.84), followed by NT50,000-59,999 group (7.43).

When analyzed by residence, homeowners have an average satisfaction score of 7.27, which is higher than house renters at 6.98.

When analyzed by education level, the satisfaction scores of all groups are higher than 7, except the elementary school and below group. Among them, the master's degree group has the highest score (7.65), followed by the junior high school and college group (both 7.28).

When analyzed by occupation, the average satisfaction with the quality of accessing the internet by mobile phone for all groups is higher than 6. People in the real estate industry had the highest scores (8.49).

The Places to Buy Mobile Phones

1. Overall Analysis

In terms of the places to buy mobile phones, the highest rate is of people buying mobile phones at the most-visited telecoms provider's store (51.9%), followed by buying at the non-provider store (22.2%) (Refer to Figure 16).

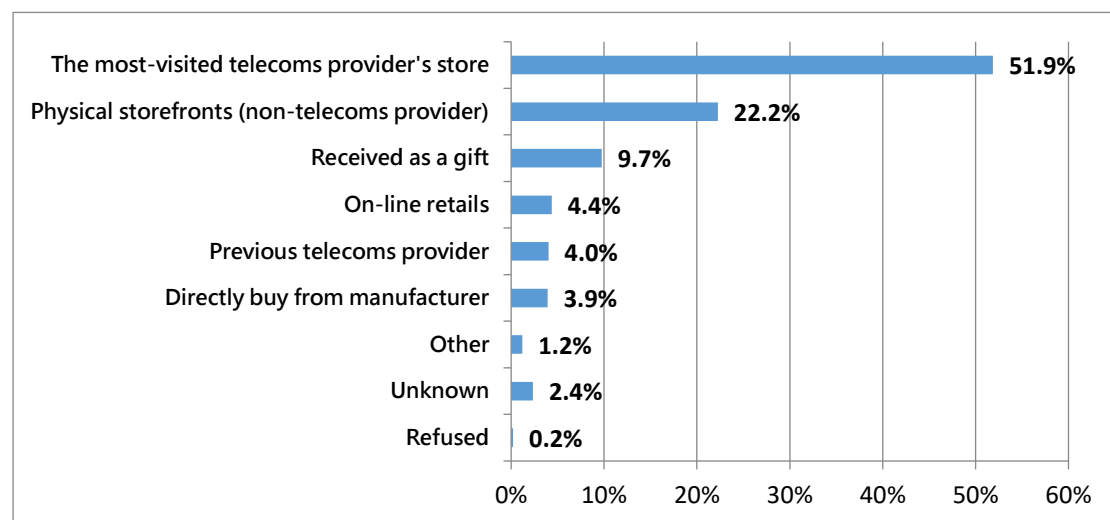


Figure 16 The Places to Buy Mobile Phones

Base: N=1,020 (people who use mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that people in Taoyuan, Hsinchu and Miaoli have the highest rate (84.9%) of buying mobile phones from the most-visited telecoms provider's store, followed by people in the Yilan, Hualien and Taitung (53.0%). In terms of buying mobile phones at non-telecoms provider's stores, the highest rate of people

live in Yilan, Hualien and Taitung (28.3%), followed by the people in Yunlin, Chiayi and Tainan (25.3%).

(2) Analysis of basic differences

When analyzed by gender, the rates of females and males buying mobile phones at providers' stores are 54.9% and 48.8% respectively. Moreover, the rates of males and females buying mobile phones at non-providers' stores are 23.5% and 21.0% respectively.

When analyzed by age, the 56-65 age group has the highest rate (57.6%) of buying mobile phones at a provider's store, followed by the 46-55 age group (57.0%). On the other hand, the 16-25 age group has the highest rate (28.7%) of buying mobile phones at non-provider stores, followed by the 26-35 age group (25.3%).

When analyzed by marriage status, the widowed/separated group has the highest rate (54.7%) of buying mobile phones at a provider's store, followed by the married group (54.3%). On the other hand, the unmarried group has the highest rate (27.8%) of buying mobile phones at non-provider stores, followed by the married group (19.1%).

D. Mobile Phone Plans

Most Common Mobile Phone Tariff Plans and Types

1. Overall Analysis

The most common mobile phone tariff plan is a monthly-based scheme (91.7%) with the rates of prepaid plan and the scheme combined with the monthly base and prepaid base accounting for just 4.7% and 0.8% respectively (Refer to Figure 17).

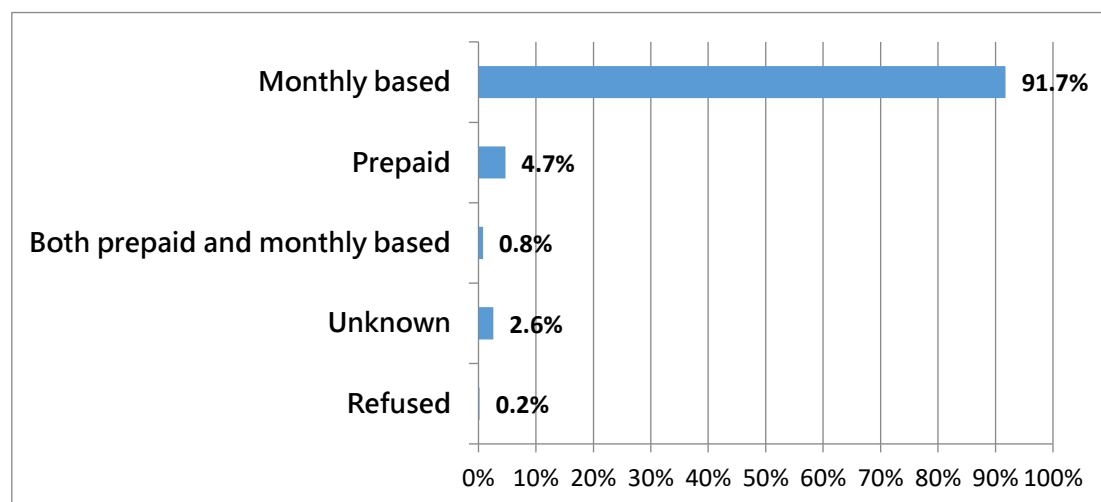


Figure 17 Most Common Mobile Phone Tariff Plans

Base: N = 1,020 (people who use mobile phones)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the monthly-based plans are most popular (higher than 90%) in all regions, except Yunlin, Chiayi and Tainan (89.3%) and Yilan, Hualien and Taitung (87.1%).

(2) Analysis of basic differences

When analyzed by gender, using a monthly-based plan is the most popular in both male and female groups. The rate is 92.8% for males and 90.7% for females.

When analyzed by age, using the monthly-based plan is at the highest rate in all age groups (over 90%), except 66 and above group. Among them, the highest rate is 94.9% for 36-45 age group.

When analyzed by marriage status, using the monthly-based plan is at the highest rate in all age groups (over 90%). Among them, the highest rate of using a monthly based plan is 92.4% in the unmarried group.

Monthly Mobile Phone Bill

1. Overall Analysis

The average monthly cost of a mobile phone bill is NT756 (N = 944, people who use mobile phones and monthly-based plan).

2. Comparative Analysis

(1) Analysis of regional differences

Cross analysis found that the average monthly mobile phone bills in all regions are above NT900, except Taipei City, New Taipei City and Keelung. Among them, the highest bill is NT857 in Taoyuan, Hsinchu and Miaoli, followed by NT831 in Yilan, Hualien and Taitung (Refer to Table 13).

Table 13 Monthly Mobile Phone Bill (By Region)

Region	Average Bill (NTD)
Taipei City, New Taipei City and Keelung	677.55
Taoyuan, Hsinchu and Miaoli	856.69
Taichung, Changhua and Nantou	794.74
Yunlin, Chiayi and Tainan	735.62
Kaohsiung, Pingtung and Penghu	747.96
Yilan, Hualien and Taitung	831.40
Average Score	756.35

Source: This study

(2) Analysis of basic differences

The difference test analysis shows that the cost of the average monthly mobile

phone bill is significantly related to age and marriage status.

When analyzed by age, the monthly bills are over NT700 in all age groups, except the 66 and above age group. Among them, people aged 26-35 have the highest average monthly mobile phone bills NT831, followed by people aged 36-45 (NT792).

When analyzed by marriage status, the monthly bill is over NT700 in all marriage status. Among them, the widowed/separated group has the highest average monthly mobile phone bill (NT909), followed by the unmarried group (NT747).

(3) Analysis of differences in social and economic status

The difference test analysis shows that the average monthly mobile phone bill is significantly related to average monthly individual income, residence, education level and occupation.

When analyzed by average monthly individual income, NT20,000-NT29,999, NT50,000-NT59,999 and NT60,000 and above groups have higher average monthly mobile phone bills, which are above NT900. Among them, the NT20,000-NT29,999 group has the highest average monthly mobile phone bill (NT1,044).

When analyzed by residence, house renters have higher average monthly mobile phone bill costs (NT868) than homeowners (NT710).

When analyzed by education level, all groups had average monthly mobile phone bills higher than NT700, except the groups of junior high school, elementary school and below. Among them, the master's degree and above group has the highest bill (NT885), followed by vocational school group (NT784).

When analyzed by occupation, the publishing/video production/information and communications service and the real estate industries have bills higher than NT1, 000. Among them, the real estate industry has the highest bills NT1, 481.

Mobile Phone Plans

1. Overall Analysis

People in Taiwan have mainly opted for mobile phone plans with the phone number-binding contract (58.1%) and the handset-binding contract (30.5%). Only 6.7% people have opted for a SIM-only plan (Refer to Figure 18).

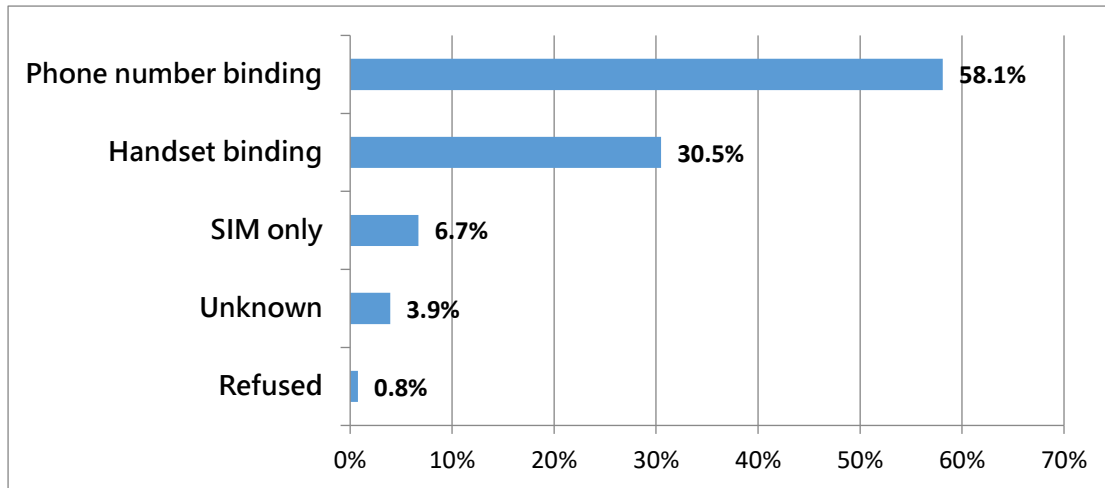


Figure 18 Mobile Phone Plans Chosen

Base: N = 992 (people who use mobile phone and know which phone plan they choose)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the phone number-binding contract has a higher rate in all regions (all over 48%). Among them, Yunlin, Chiayi and Tainan have the highest rate (65.3%), followed by Taipei City, New Taipei City and Keelung (61.0%). Handset-binding contract is most popular in Taoyuan, Hsinchu and Miaoli (44.5%), followed by Kaohsiung, Pingtung and Penghu (32.6%). SIM-only plan has the highest rate in Taipei City, New Taipei City and Keelung (8.6%).

(2) Analysis of basic differences

The difference test analysis shows that choosing the phone number-binding contract is significantly related to age.

When analyzed by gender, 58.7% of males choose the phone number-binding contract plan, while the rate is 57.5% for females. The rate of males choosing the handset-binding contract plan is 31.0%, while the rate is 30.0% for females.

When analyzed by age, the phone number-binding contract plan has the higher rate for all age groups. Among them, the highest rate is in the 26-35 age group (66.1%), followed by the 16-25 group (63.1%). The highest rate of choosing a handset-binding contract is 38.1% in the 36-45 group. People choosing a SIM-only plan is 10.0% in the 66 and above age group.

When analyzed by marital status, a phone number binding contract is the most popular plan in all marital status. Among them, the highest rate is 63.0% for the unmarried group, followed by 56.6% for the married. The rate of the widowed/separated group choosing the handset binding contract plan is 39.7%, followed by the married group (30.8%).

The Usage of Free Voice Hotline and Intra-Network Phone Calls

1. Overall Analysis

In terms of the usage of free voice hotline and free intra-network, the rate of people using free intra-network is 44.7%, using free voice hotlines is 4.3%. Using both functions is 17.9%, and using neither of these functions is 22.8% (Refer to Figure 19).

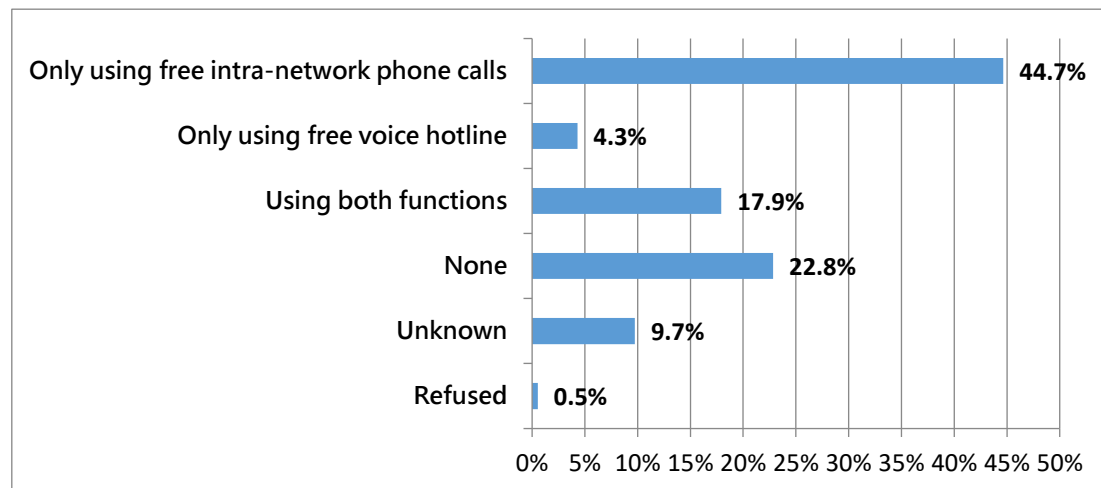


Figure 19 The Usage of Free Voice Hotline and Intra-Network Phone Calls

Base: N=992 (people who use mobile phone and know which phone plan they choose)

2. Comparative Analysis

(1) Analysis of regional differences

The difference test analysis shows that the use of free voice hotlines and intra-network is significantly related to the region where one lives.

The cross analysis suggests that the only use of free voice hotline and intra-network in Kaohsiung, Pingtung and Penghu has the highest rate (52.5%), followed by Yunlin, Chiayi and Tainan (45.4%). While voice hotline in Taipei City, New Taipei City and Keelung has the highest rate (6.7%), followed by the Yilan, Hualien and Taitung (3.9%). With regards to use of both free intra-network and voice hotlines, Yilan, Hualien and Taitung have the highest rate (23.5%), followed by the rate in Taipei City, New Taipei City and Keelung (20.3%). In terms of using neither of these functions, Taoyuan, Hsinchu and Miaoli have the highest rate (30.9%), followed by Yunlin, Chiayi and Tainan (28.6%).

(2) Analysis of basic differences

The difference test analysis shows that use of the voice hotline and free intra-network is significantly related to age.

When analyzed by gender, the rates of females and males using free intra-network are 45.1% and 44.2% respectively. The rates of males and females using voice hotline are 4.8% and 3.8% respectively. The rates of females and males using both

intra-network free calls and voice hotlines are similar to each other with 18.0% and 17.9% respectively. In terms of using neither of these functions, the rates of females and males are 23.1% and 22.6% respectively.

When analyzed by age, people aged 36-45 have the highest rate (58.5%) of using only intra-network free calls, followed by people aged 56-65 (46.0%). The people aged 66 and above have the highest rate of using only voice hotlines (6.6%), followed by people aged 16-25 (5.5%). Using both free intra-network calls and voice hotlines has the highest rate in the 26-35 age group (29.0%), followed by people aged 46-55 (19.7%). In terms of using neither of these functions, the 66 and above group has the highest rate (34.9%), followed by the 56-65 age group (23.7%).

When analyzed by marriage status, the widowed/separated have the highest rate (47.2%) of using only intra-network free calls, followed by the unmarried group (46.8%). The married group has a highest rate of using only voice hotlines (5.1%), followed by the unmarried group (3.5%). Using both free intra-network calls and voice hotlines has the highest rate in the widowed/separated group (21.7%), followed by the unmarried group (18.8%). In terms of using neither of these functions, the married group has the highest rate (25.7%), followed by the unmarried group (20.1%).

Mobile Broadband Data Allowance

1. Overall Analysis

Consumers in Taiwan take great advantage of serious competition in unlimited data plans between telecom operators. The unlimited data plan (without speed limitation) has the highest rate of use (54.3%), followed by the 1G-5G (5G not included) plan (13.0%), and unlimited data plan with unknown speed limitation (12.0%) (Refer to Figure 20).

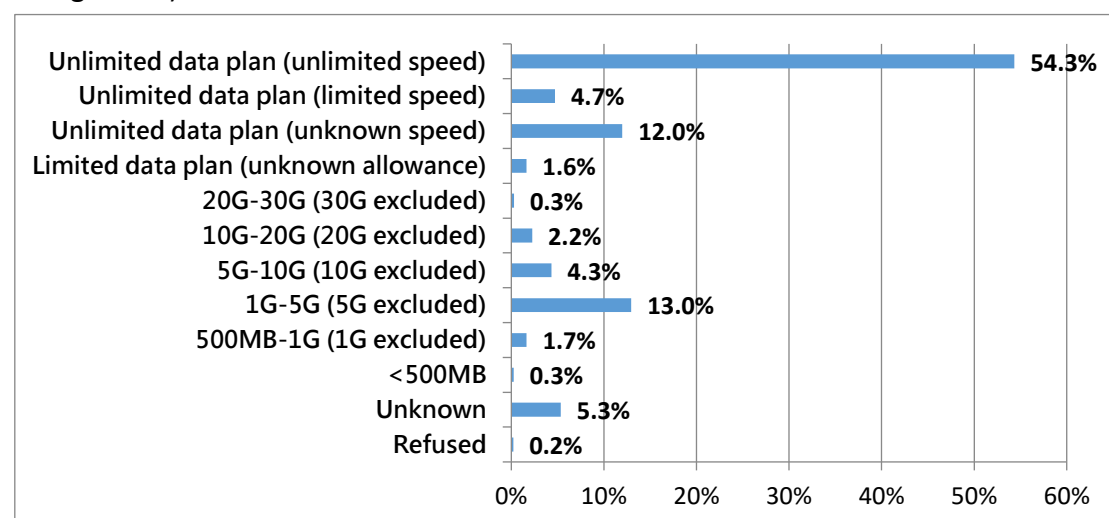


Figure 20 Mobile Broadband Data Allowance

Base: N = 838 (people who use mobile phone and the internet-accessible project)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the unlimited data plan (without speed limitation) has the highest rate in all regions (all over 45%). Among them, the highest rate is 59.2% in Taoyuan, Hsinchu and Miaoli, followed by 55.7% in Taipei City, New Taipei City and Keelung. The 1G - 5G (5G not included) plan has the highest rate of 15.4% in Taichung, Changhua and Nantou, followed by 13.9% in Yunlin, Chiayi and Tainan. The unlimited data plan with unknown speed limitation has the highest rate of 15.4% in Kaohsiung, Pingtung and Penghu (20.2%), followed by Taoyuan, Hsinchu and Miaoli (15.8%).

(2) Analysis of basic differences

When analyzed by gender, the rate of the unlimited data plan (without speed limitation) is 58.3% for males and 50.6% for females; the rate of the 1G - 5G (5G not included) plan is 13.5% for females and 12.4% for males. The rate of the unlimited data plan with unknown speed limitation is 12.3% for females and 11.6% for males.

When analyzed by age, the highest rate for using the unlimited data plan (without speed limitation) is 65.0% for the 26-35 age group, followed by 59.4% for the 36-45 age group. The 1G - 5G (5G not included) plan has the highest rate of 18.2% in the 46-55 age group, followed by 17.2% in the 66 and above age group. The unlimited data plan with unknown speed limitation has the highest rate of 19.9% in the 66 and above age group, followed by 14.1% in the 56-65 age group.

When analyzed by marital status, the unlimited data plan (without speed limitation) has the highest rate of 60.1% for the unmarried group, followed by 56.4% for the widowed/separated group. The 1G - 5G (5G not included) plan has the highest rate of 15.2% in the married group, followed by 11.4% for the unmarried. The unlimited data plan with unknown speed limitation has the highest rate of 13.7% in the married group, followed by 10.7% in the unmarried group.

Internet Usage

1. Overall Analysis

The survey shows that 86.2% of people in Taiwan aged 16 and over use the internet, while 13.8% of them do not (Refer to Figure 21).

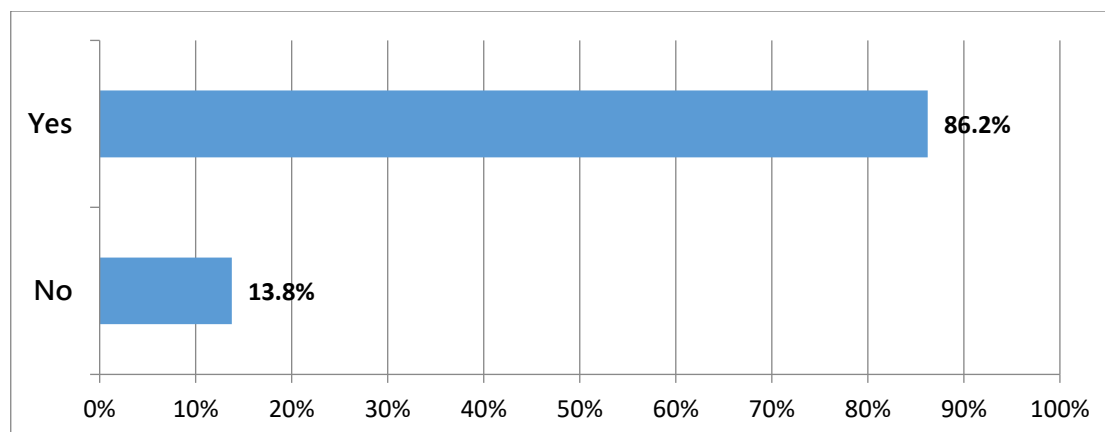


Figure 21 Internet Usage

Base: N = 1,068

2. Comparative Analysis

(1) Analysis of regional differences

The difference test analysis shows that internet usage by people aged 16 and above is significantly related to the region where one lives.

The cross test suggests that the rates of internet usage are over 80% in Taipei City, New Taipei City, Keelung, Taoyuan, Hsinchu, Miaoli, Taichung, Changhua, Nantou, Yunlin, Chiayi, Tainan, Kaohsiung, Pingtung and Penghu. The rate in Taoyuan, Hsinchu and Miaoli is the highest (93.4%), and the rate in Yilan, Hualien and Taitung is the lowest (77.6%).

(2) Analysis of basic differences

The difference test analysis shows that internet usage is significantly related to age.

When analyzed by gender, females have a higher rate (%) of internet usage than males (86.2%).

When analyzed by age, the rates of internet usage in all age groups are higher than 90%, except the 56-65 age group (81.7%) and the 66 and above group (41.4%). Among them, the 26-35 age group has the highest rate (100%), followed by the 36-45 age group (97.9%).

When analyzed by marital status, the unmarried age group has the highest rate (98.3%), followed by the married group (97.9%).

(3) Analysis of differences in social and economic status

The difference test analysis shows that internet usage is significantly related to average monthly individual income, residence and education level.

When analyzed by average monthly individual income, all income groups have a higher rate of internet use (over 90%), except less than NT10,000 group (73.0%). Among them, the NT50,000-NT59,999 group has the highest rate (100%).

When analyzed by residence, house renters have higher internet usage (91.9%)

than homeowners (84.7%).

When analyzed by education level, all groups have a higher rate of internet use, except elementary school and below level. Among them, the master's degree and above group has the highest internet usage (100%), followed by high school/vocational school group (92.6%), junior college (98.6%) and university (99.5%) degree group.

Total hours spending on the internet per week

1. Overall Analysis

The survey shows that Taiwanese people aged 16 and above averagely spend 37.0 hours on the internet per week (N = 921, people who use internet).

2. Comparative Analysis

(1) Analysis of regional differences

Cross analysis shows that people in all regions spend over 34 hours using internet. Among them, people living in Kaohsiung, Pingtung and Penghu spend the most hours (39.50) using internet, followed by 37.44 hours in Taoyuan, Hsinchu and Miaoli (Refer to Table 14).

Table 14 Total Hours Spending in Internet Per Week (By Region)

Region	Average Hours
Taipei City, New Taipei City and Keelung	36.70
Taoyuan, Hsinchu and Miaoli	37.44
Taichung, Changhua and Nantou	36.60
Yunlin, Chiayi and Tainan	34.73
Kaohsiung, Pingtung and Penghu	39.50
Yilan, Hualien and Taitung	36.20
Average Score	37.00

Resource: This study

(2) Analysis of basic differences

The difference test analysis shows that the hours people spend using internet per week is significantly related to gender, age and marriage status.

When analyzed by gender, males spend more hours (39.62 hours) using internet than the females (34.45 hours).

When analyzed by age, the internet usage is over 40 hours in 16-25, 26-35, and 36-45 age groups. Among them, people aged 26-35 use internet for the most hours (50.13 hours), followed by the 16-25 age group (45.96 hours).

When analyzed by marriage status, the unmarried group spend the most hours per week using internet (46.2 hours), followed by the married group (30.70 hours).

(3) Analysis of differences in social and economic status

The difference test analysis shows that internet usage is significantly related to average monthly individual income, residence, education level and occupation.

When analyzed by average monthly individual income, internet usage per week in all income groups is over 25 hours. Among them, the NT60,000 and above group spends the most time using internet (44.57 hours), followed by the NT50,000-59,999 income group (42.76 hours).

When analyzed by residence, house renters spend more time using internet per week (43.93 hours), while homeowners spend only 34.10 hours.

When analyzed by education level, the people with master's degree spend the most time using internet (64.58 hours), followed by the university degree group (45.00 hours).

When analyzed by occupation, the people working in publishing/video production/information and communications service, arts, entertainment and recreation services, and the education industry all spend over 50 hours using internet. Among them, people working in publishing/video production/information and communications service spend the most time using internet (73.27 hours), followed by people working in arts, entertainment and recreation services (67.88 hours).

E. Fixed Broadband Usage at Home

Accessing Internet at Home

1. Overall Analysis

The rate of people in Taiwan that access the internet at home is 89.0%, while only 8.8% do not (Refer to Figure 22).

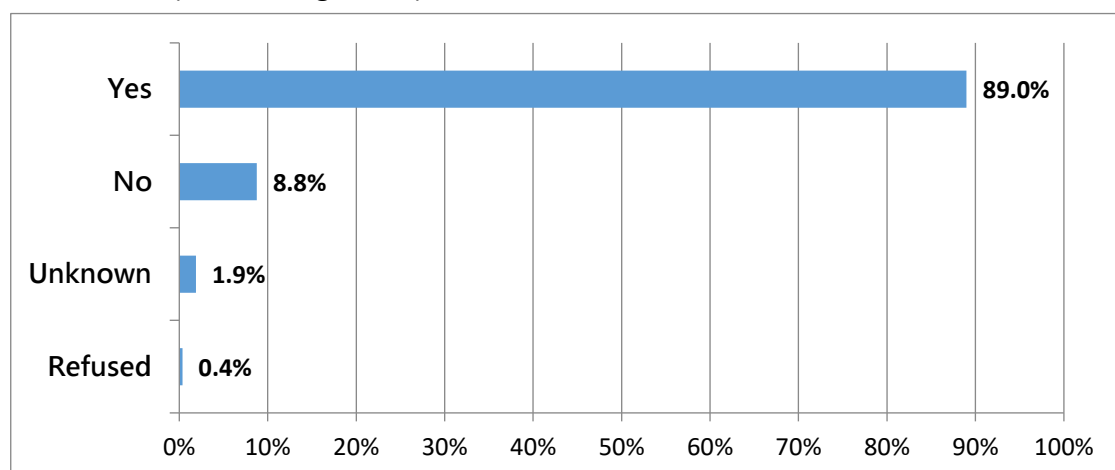


Figure 22 Access to the Internet at Home

Base: N = 1,068

2. Comparative Analysis

(1) Analysis of regional differences

The cross test shows that the rates of access to the internet in all regions are higher than 85%, except in Yilan, Hualien and Taitung (84.6%). Among them, the highest rate is 95.9% in Taoyuan, Hsinchu and Miaoli, followed by 89.8% in Taichung, Changhua and Nantou. The highest rate of people who cannot access the internet at home is 14.2% in Yilan, Hualien and Taitung, followed by 12.4% in Kaohsiung, Pingtung and Penghu.

(2) Analysis of basic differences

When analyzed by gender, the rates of people who can access the internet at home is 91.9% for males and 86.2% for females.

When analyzed by age, the rates of people who can access the internet at home in all age groups are higher than 90%, except the 56-65 age group (85.9%) and 66 and above group (63.2%).

When analyzed by marital status, the rates of people who can access the internet at home is 94.7% for the unmarried, followed by the married (88.8%). There are 20.1% of the widowed/separated people who cannot access the internet at home.

The Usage of Fixed Broadband at Home

1. Overall Analysis

The rate of people having fixed broadband at home is 73.8%, while the rate is 19.1% for those who do not (Refer to Figure 23).

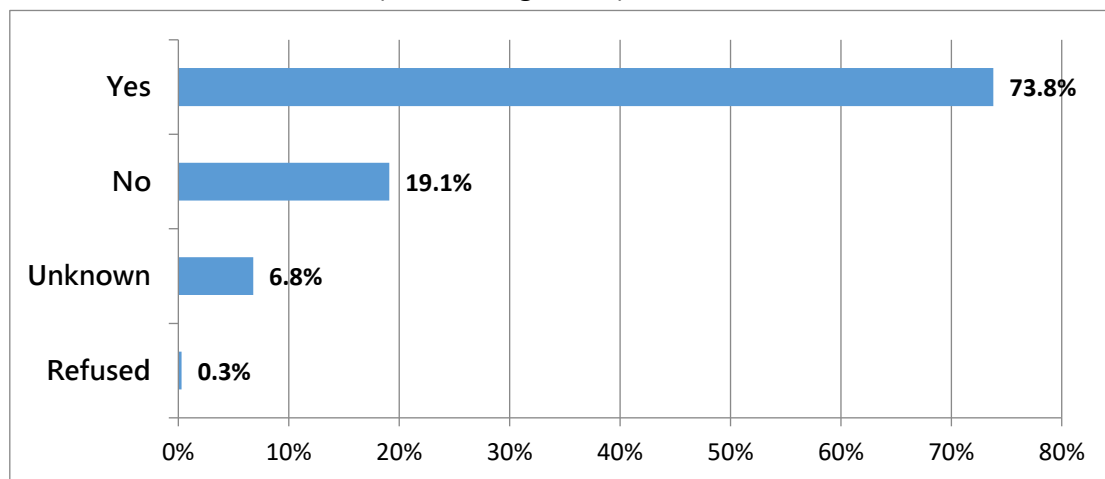


Figure 23 The Usage of Fixed Broadband at Home

Base: N=950 (people who have fixed broadband at home)

2. Comparative Analysis

(1) Analysis of regional differences

The cross test shows that the rates of access to the internet in all regions are higher than 70%, except in Yunlin, Chiayi and Tainan (61.4%). Among them, the highest

rate of people having a fixed network at home is in the Taoyuan, Hsinchu and Miaoli region (87.3%), followed by Kaohsiung, Pingtung and Penghu (78.4%). On the other hand, the highest rate of people who do not have fixed broadband at home is in the Yunlin, Chiayi and Tainan (26.0%), followed by Yilan, Hualien and Taitung (21.7%).

(2) Analysis of basic differences

When analyzed by gender, the rates of males and females having fixed broadband at home are 73.3% and 74.4% respectively.

When analyzed by age, all age groups have over 70% of people having fixed broadband at home, except people aged 56-65 (69.4%) and people aged 66 and above (67.8%).

When analyzed by marriage status, the unmarried and married group have a similar rate of having fixed broadband at home (74.6% and 75.2% respectively), followed by the widowed/separated group (57.6%).

Whether there is a new cable operator joining the market

1. Overall Analysis

The rate of the new cable operator joining the market in the regions interviewed is 22.2%, while the rate of no new operator joining the market is 24.0%. It is worth mentioning that over 50% of interviewees were not clear about whether there is a new cable operator joining the market (Refer to Figure 24).

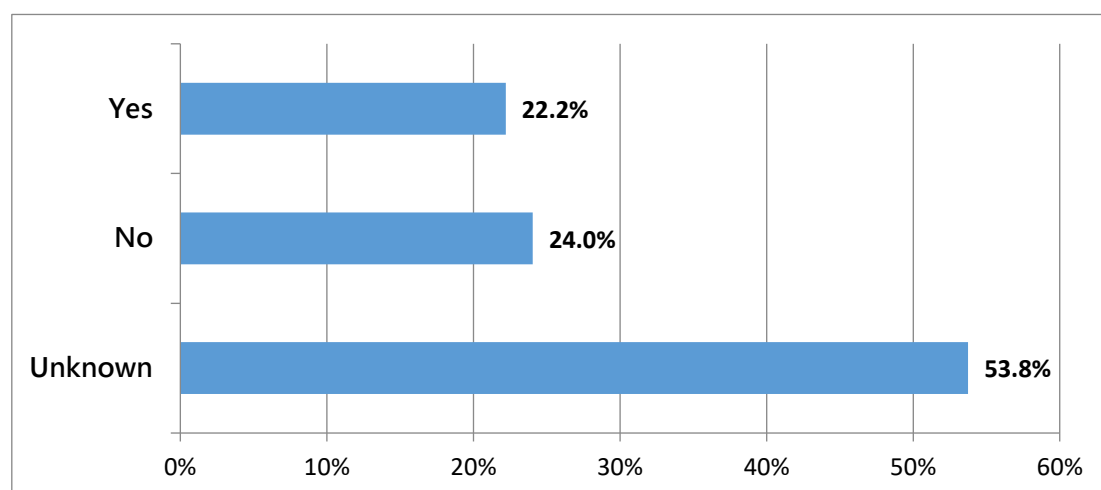


Figure 24 Whether There is a New Cable Operator Joining the Market

Base: N=508 (there is a new cable operator joining the market in regions interviewed)

2. Comparative Analysis

(1) Analysis of regional differences

Within the region where there are new cable operators joining the market (Taipei City, New Taipei City, Kaohsiung and Changhua), people in Taipei City have the highest

rate (24.5%) of answering there is a new cable operator joining the regional market. People in Changhua have the highest rate (69.6%) of answering not clear about whether there is a new cable operator joining the market.

(2) Analysis of basic differences

When analyzed by gender, males have the higher rate (24.7%) of answering yes than the females (19.7%). The females have the higher rate (24.8%) of answering no than the males (23.3%). Moreover, females have the higher rate (55.5%) of answering not clear than the males (52.0%).

When analyzed by age, people aged 46-55 have the highest rate (27.0%) of answering yes, followed by the 26-35 age group (24.0%). People aged 36-45 have the highest rate (31.9%) of answering no, followed by the 46-55 age group (27.1%). Moreover, the 16-25 age group have the highest rate (65.5%) of answering not clear, followed by the 66 and above age group (59.0%).

When analyzed by marriage status, the unmarried group has the highest rate (23.0%) of answering yes, followed by the widowed/separated group (22.7%). The married group has the highest rate (29.2%) of answering no, followed by the widowed/separated group (24.8%). Moreover, the unmarried group has the highest rate (59.9%) of answering not clear, followed by the widowed/separated group (52.6%).

(3) Analysis of differences in social and economic status

The difference test analysis shows whether there is a new cable operator joining the market is significantly related to average monthly individual income and education.

When analyzed by average monthly individual income, the NT60,000 and above group has the highest rate (52.2%) of response that there is a new cable operator joining the market, followed by the NT40,000-NT49,999 group (36.1%). The NT30,000-39,999 group has the highest rate (27.7%) of answering no, followed by the NT10,000-NT19,999 group (27.2%). Moreover, the NT20,000-29,999 group has the highest rate (55%) of answering not clear, followed by the NT50,000-59,999 group (52.7%).

When analyzed by education, the junior college group has the highest rate (34.8%) of response that there is a new cable operator joining the market, followed by the high school degree group (27.4%). The junior high school degree group has the highest rate (35.3%) of answering no, followed by the high school degree group (26.2%). Moreover, the elementary school and below group has the highest rate (69.0%) of answering not clear, followed by the university degree group (57.6%).

Whether to change to the new cable operator after the across-area market is open

1. Overall Analysis

After the across-area cable market was open, 17.2% of people changed to the

new cable operator, and 82.8% people did not (Refer to Figure 25).

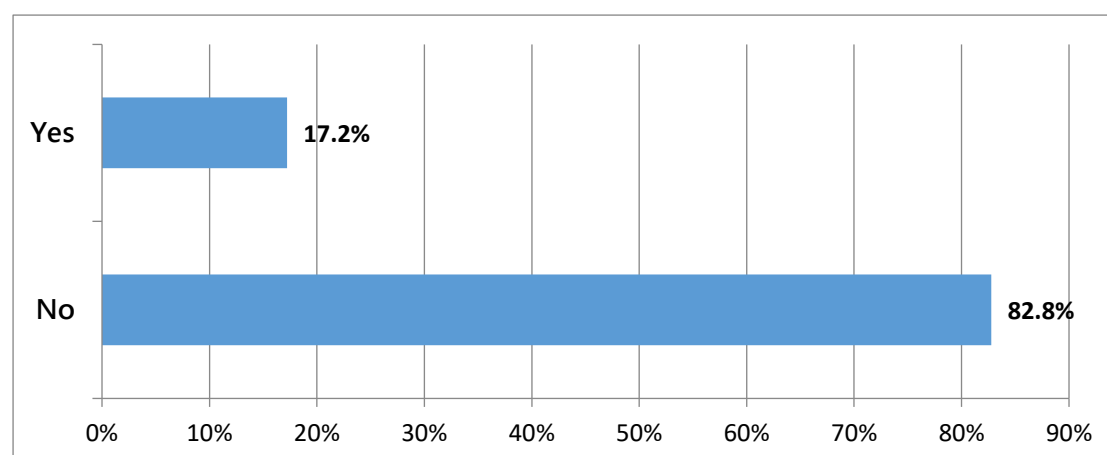


Figure 25 Whether to Change to the New Cable Operator after the Across-Area Market is Open

Base: N=113 (people who know there is new cable operator joining the market in their region)

2. Comparative Analysis

(1) Analysis of regional differences

Within the regions where there are new cable operators joining the market (Taipei City, New Taipei City, Kaohsiung and Changhua), people in Taipei City have the highest rate (19.2%) of changing to the new cable operator, while people in Kaohsiung have the lowest rate (11.9%).

(2) Analysis of basic differences

When analyzed by gender, females have the higher rate (17.7%) of changing to the new cable operator, followed by males (16.8%).

When analyzed by age, people aged 16-25 have the highest rate (47.5%) of changing to the new cable operator, followed by the 66 and above age group (22.0%).

When analyzed by marriage status, the unmarried group has the highest rate (22.6%) of changing to the new cable operator, followed by the married group (14.9%).

The Most Common Ways Used to Access the Internet at Home

1. Overall Analysis

As mobile broadband has become widespread, the way that people access the internet is not limited to fixed broadband. There are 55.9% of people accessing the internet through mobile broadband (3G, 4G and free hotspot), which is higher than the rate (43.8%) of people using a fixed broadband service (fiber optical, ADSL and cable broadband). Among them, the highest rate is 52.7% for using 3G and 4G to access the internet, followed by 20.4% of people using optical cable from a carrier (Refer to Figure 26).

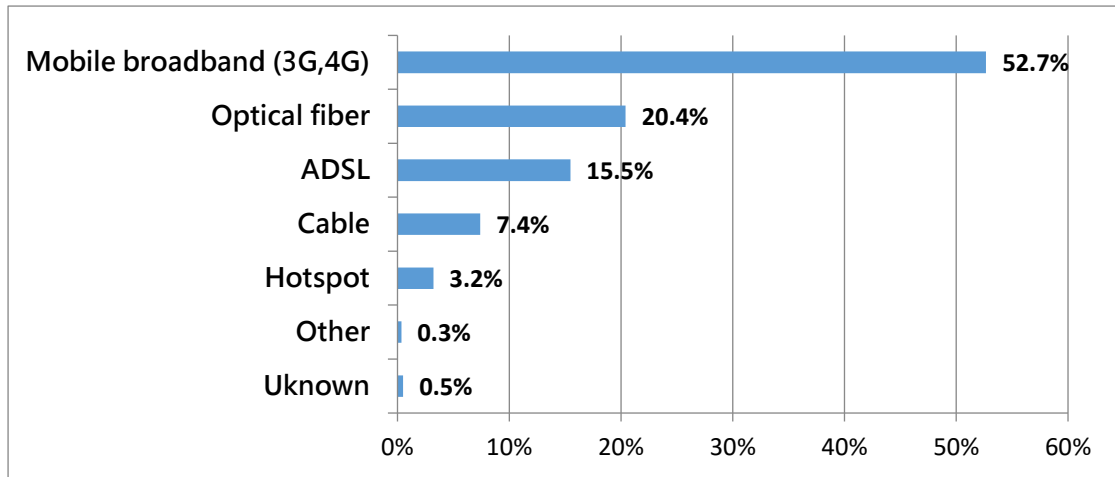


Figure 26 The Most Common Ways Used to Access the Internet at Home

Base: N = 669 (people who have fixed broadband at home and know which way they use to access the internet at home)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that the rate of people using 3G and 4G to access the internet is the highest in all regions. Among them, the highest rate is in Taoyuan, Hsinchu and Miaoli (73.9%), followed by Kaohsiung, Pingtung and Penghu (60.2%). The highest rate of using optical fibre to access the internet is 32.9% in Taichung, Changhua and Nantou, followed by 24.8% in Taipei city, New Taipei City and Keelung. On the other hand, the highest rate of people using Wi-Fi to access the internet through ADSL is 23.9% in Yunlin, Chiayi and Tainan; followed by 21.0% in Taichung, Changhua and Nantou.

(2) Analysis of basic differences

When analyzed by gender, the rate of people using 3G and 4G to access the internet is 51.6% for males and 53.7% for females. The highest rate of using optical fibre to access the internet is 22.2% for males and 18.6% for females. On the other hand, the highest rate of people using WIFI to access the internet through ADSL is 17.4% for males and 13.6% for females.

When analyzed by age, the rate of people using 3G and 4G to access the internet is 58.4% for the 16-25 age group, followed by 56.7% for the 56-65 age group. The highest rate of using optical fibre to access the internet is 33.5% for the 66 and above age group, followed by 21.0% for the 46-55 age group. On the other hand, the highest rate of people using wifi to access the internet through ADSL is 21.6% for the 36-45 age group and 17.7% for 46-55 age group.

When analyzed by marital status, the rate of people using 3G and 4G to access the internet is 54.8% for the unmarried group, followed by 52.5% for the married group. The highest rate of using optical fibre to access the internet is 27.8% for the

widowed/separated group, followed by 21.4% for the married group. On the other hand, the highest rate of people using wifi to access the internet through ADSL is 30.3% for the widowed/separated group and 16.3% for the unmarried group.

Speed of Fixed-Line at Home

1. Overall Analysis

The highest rate of Taiwanese people applying a fixed-line speed at home is 12.9% for 60-100Mbps, followed by 12.6% for 20-60Mbps. However, there are nearly 50% people who do not know the speed of their fixed line at home (Refer to Figure 27).

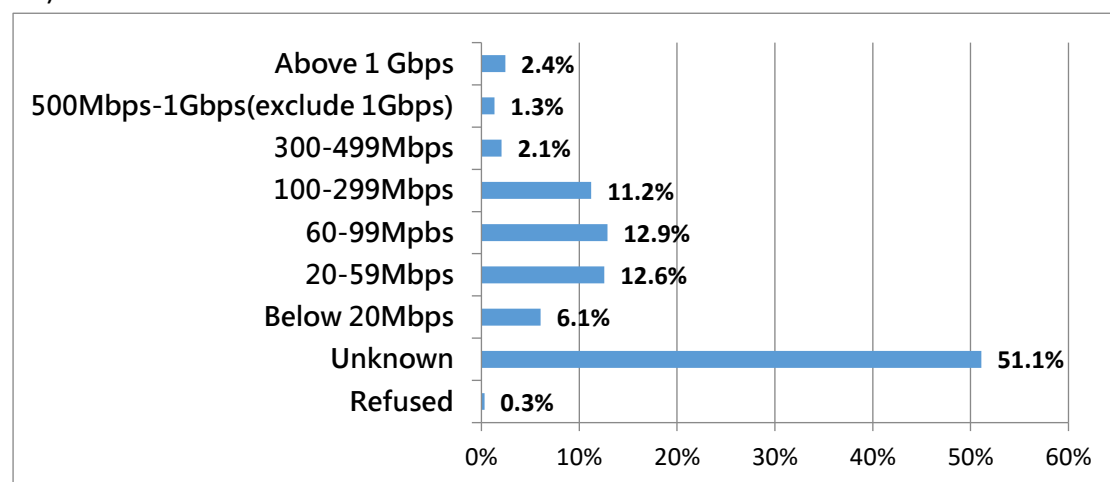


Figure 27 Speed of Fixed-Line Applied at Home

Base: N = 702 (people who have fixed broadband at home)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that, except Taoyuan, Hsinchu and Miaoli and Yunlin, Chiayi and Tainan, the other regions mainly use the speed of 100-300Mbps. Among them, the highest rate is 16.5% in Yilan, Hualien and Taitung, followed by 13.4% in Taichung, Changhua and Nantou. Regarding the speed of 20-60Mbps, the highest rate is 32.6% in Taoyuan, Hsinchu and Miaoli, followed by 8.9% in Yilan, Hualien and Taitung. In terms of the people who do not know the speed of their fixed line at home, the rate is over 50% in all regions, except Taoyuan, Hsinchu and Miaoli (24.0%). Among them, the highest rate is 66.8% in Kaohsiung, Pingtung and Penghu.

(2) Analysis of basic differences

The difference test analysis shows that the fixed-line speed people apply at home is significantly related to gender.

When analyzed by gender, 13.6% males use 60-100Mbps, which is higher than females (12.2%). The rate of males using 20-60Mbps is 14.3%, while the rate is 10.8%

for females. There are 11.9% of males using 100-300Mbps, while 10.6% of females use this speed. In terms of the people who do not know the speed of their fixed line at home, the rate is 59.1% for females and 43.2% for males.

When analyzed by age, the 36-45 age group is at the highest rate (17.8%) applying 60-100Mbps, followed by the 25-36 age group (17.3%). The 46-55 age group is at the highest rate (21.0%) applying 20-60Mbps, followed by the 56-65 age group (14.6%). In terms of people who do not know the speed of their fixed line at home, the 66 and above age group is at the highest rate (67.7%), followed by the 16-25 age group (61.7%).

When analyzed by marital status, the married group has the highest rate of 13.6% for using the speed 60-100Mbps, followed by 12.9% for the unmarried group. The married group has the highest rate of 15.6% for using the speed 20-60Mbps, followed by 8.9% for the unmarried group. The unmarried group has the highest rate of 11.8% for using the speed 100-300Mbps, followed by 10.9% for the married group. In terms of people who do not know the speed of their fixed line at home, the widowed/separated group has the highest rate (61%), followed by the unmarried group (53.8%).

Fixed Broadband Speed Test

1. Overall Analysis

Regarding whether people know how to measure the speed of fixed broadband, 13.8% of people do know, while 85.4% of people do not know (Refer to Figure 28).

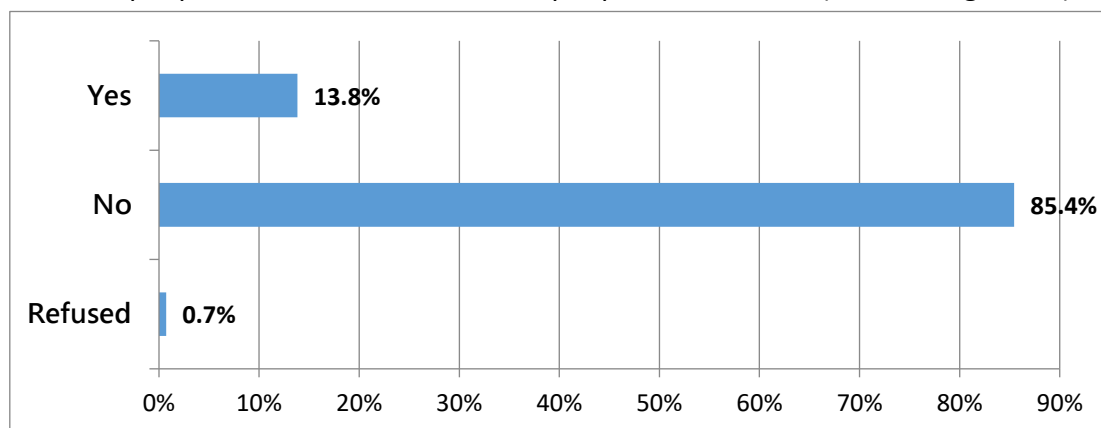


Figure 28 Whether or not People Know How to Measure the Speed of Fixed Broadband

Base: N=1,068

2. Comparative Analysis

(1) Analysis of regional differences

Cross analysis shows that Taichung, Changhua and Nantou have the highest rate of people (19.4%) who know how to measure the speed of fixed broadband, followed

by Kaohsiung, Pingtung and Penghu (16.7%). Taipei City, New Taipei City and Keelung have the highest rate of people (88.3%) who do not know how to measure the speed of fixed broadband, followed by Yunlin, Chiayi and Tainan (87.7%).

(2) Analysis of basic differences

When analyzed by gender, the rate of males who know how to measure the speed of fixed broadband is higher (22.9%) than females (5.0%).

When analyzed by age, the people in the 26-35 age group have the highest rate (31.9%) of knowing how to measure the speed of fixed broadband, followed by the 16-25 age group (19.2%).

When analyzed by marital status, the people in the unmarried group have the highest rate (25.2%) of knowing how to measure the speed of fixed broadband, followed by the married group (8.3%).

Satisfaction with Quality of Fixed-Line Broadband

1. Overall Analysis

The average score of the satisfaction with quality of fixed-line broadband is 7.3 (1-point is very dissatisfied, and 10 points is very satisfied; N=702, people have the fixed-line broadband at home)

2. Comparative Analysis

(1) Analysis of regional differences

The difference test analysis shows that the average score of the satisfaction with the quality of fixed-line broadband is significantly related to the region where one lives.

The cross analysis suggests that, except in Taichung, Changhua and Nantou, and Kaohsiung, Pingtung and Penghu, the average satisfaction in other regions is higher than 7 points. Among them, the highest point is 8.02 in Taoyuan, Hsinchu and Miaoli, followed by 7.36 in Taipei city, New Taipei City and Keelung.

Table 15 Satisfaction with Quality of Fixed-Line Broadband (By Region)

Region	Average Score
Taipei City, New Taipei City and Keelung	7.36
Taoyuan, Hsinchu and Miaoli	8.02
Taichung, Changhua and Nantou	6.90
Yunlin, Chiayi and Tainan	7.13
Kaohsiung, Pingtung and Penghu	6.91
Yilan, Hualien and Taitung	7.13
Average Score	7.30

Resource: This study

(2) Analysis of basic differences

When analyzed by gender, the average satisfaction of females using fixed-line broadband is 7.33 points, which is higher than the satisfaction of males (7.27).

When analyzed by age, the average satisfaction in all age groups using fixed-line broadband is higher than 7 points. Among them, the age group 66 and above has the highest score of 7.76, followed by 7.63 in the 56-65 age group.

When analyzed by marital status, the average satisfaction scores of those using fixed-line broadband is the highest in the married group (7.46), followed by the unmarried group (7.16).

(3) Analysis of differences in social and economic status

The difference test analysis shows that the average satisfaction with the quality of fixed-line broadband is significantly related to average monthly individual income, residence and occupation.

When analyzed by average monthly individual income, except for the groups of NT10,000-19,999 and NT50,000-59,999, the average satisfaction with fixed-line broadband quality is higher than 7 points in the rest of income groups. The highest point is 7.63 in NT40,000-49,999, followed by 7.46 points in the group of NT30,000-NT39,999.

When analyzed by residence, the average satisfaction with fixed-line broadband quality of homeowners (7.46) is higher than house renters (6.78).

When analyzed by occupation, the average satisfaction with fixed-line broadband quality is higher than 7 points in all groups, except people working in agriculture, forestry, fishery and husbandry, public administration and national defense/ compulsory social security, arts, entertainment and recreation services, job seekers.

Usage of the Internet Voice Call

1. Overall Analysis

With the development of smartphone and mobile broadband services, there are 90.3% Taiwanese people using the internet for voice calls. On the other hand, there are 8.5% people who never use internet voice calls (Refer to Figure 29).

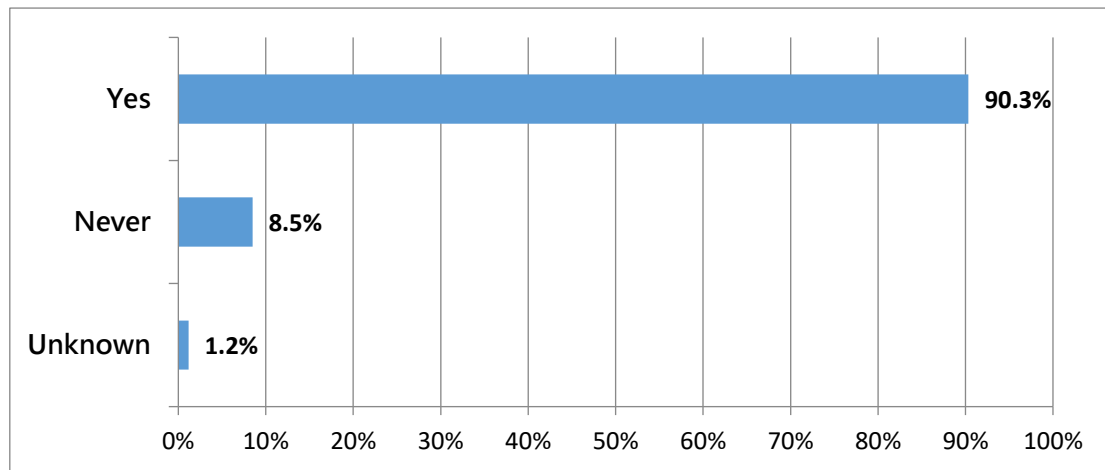


Figure 29 Whether Respondents Have Used Internet Voice Calls at Home

Base: N = 937 (people who know that the internet can be used as voice calls)

2. Comparative Analysis

(1) Analysis of regional differences

The cross test suggests that the rate of people who have used internet voice calls is the highest in all regions, and all over 80.0%. Among them, the highest rate is 93.4% in Taoyuan, Hsinchu and Miaoli, followed by 91.1% in Taichung, Changhua and Nantou.

(2) Analysis of basic differences

When analyzed by gender, the rate for females using internet voice calls is 91.5%, which is higher than males (89.1%).

When analyzed by age, the highest rate of people using internet voice calls is in the 16-25 age group (98.1%), followed by the 26-35 age group (95.5%).

When analyzed by marital status, people in the unmarried group have the highest rate of using internet voice calls (92.7%), followed by married group (91.6%).

Voice over Internet Protocol Telephone Service Used

1. Overall Analysis

Line is the most popular for Voice over Internet Protocol (VoIP) with ratios reaching 96.4%, followed by Facebook Messenger (46.1%). The using ratios of other types of VoIP are all less than 20% (Refer to Figure 30).

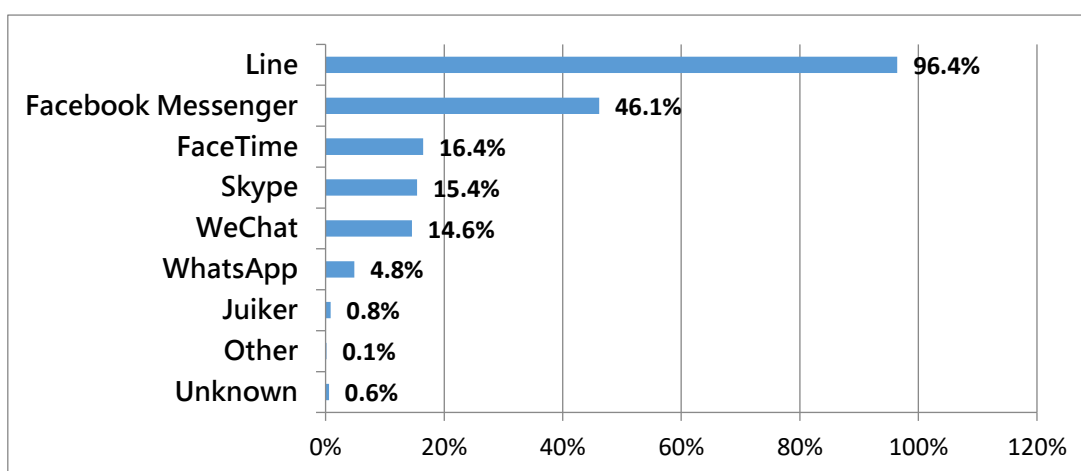


Figure 30 The Usage of Internet Voice Call Service by Respondents or Families

Base: N = 847, multiple choice (interviewees themselves or their family members who have ever used VoIP)

2. Comparative Analysis

(1) Analysis of regional differences

The cross analysis suggests that Line has the highest use ratio in all regions, and all the ratios are over 90%. Among them, the highest ratio is 99.2% in Yilan, Hualien and Taitung, followed by 97.0% in Taichung, Changhua and Nantou. On the other hand, Taoyuan, Hsinchu and Miaoli have the highest ratio (65.7%) of using Facebook Messenger, followed by Yilan, Hualien and Taitung (55.0%).

(2) Analysis of basic differences

When analyzed by gender, the use ratios of Line for males and females are both over 90.0%. Higher numbers of females (48.7%) use Facebook Messenger than males (43.4%).

When analyzed by age, each age group has a use ratio of more than 90% of Line. The 16-25 age group has the highest use ratio (63.8%), followed by 26-35 age group (56.2%).

When analyzed by marital status, the use ratios of Line for all marital status are over 90% and similar. The unmarried group has the highest rate (56.5%) of using Facebook Messenger, followed by the married group (40.6%).