



## **Use of Online Banking and Financial Services in Mumbai**

**Dr. Sameer G. Thakur**

*Associate Professor and HoD of Economics,*

*Siddharth College of Commerce and Economics, Mumbai*

*sameergthakur@gmail.com*

### **Abstract**

This paper is based on a survey to identify the use of online banking and financial services in Mumbai. An effective sample of 200 adult respondents from Mumbai was taken and responses were tabulated. An Electronic Financial Services Preference Index (EFSPI) has been developed using weighted responses of respondents to questions regarding usage of online/electronic financial and banking services. The responses have been tested through regression analysis to observe the correlation between the age, gender, occupation and income level of the respondents and the EFSPI. Later a single regression is employed, which considers all the significant variables as regressors and the EFSPI as the dependent.

The study concludes that age group and monthly family income of the respondent are important factors which determine the usage of electronic banking and financial services. It also concludes that people working in the IT, ITES or finance sectors have a significantly higher usage of such services as compared to people employed in other occupations. It also finds that the gender and education of the respondents are not important factors in determining the usage of electronic banking and financial services.

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## **I. Introduction**

This paper is based on a survey of people in the Mumbai region to study their use of online banking and financial services. There is considerable research in this area such as the studies by Wang et. al. (2009) Kumawat (2014), Hanafizadeh and Khedmatgozar (2014), Kaur et. al., (2015), Kaur (2017) and Chauhan and Shingari (2017) and this is not an exhaustive list.

The paper is divided into 4 sections, the first being the introduction. The second section outlines methodology regarding data collection and collation. Section III elaborates how the Electronic Financial Services Preference Index (EFSPI) was generated and also outlines the regression models used for the research. The last section presents the findings and conclusions.

## **II. Data Collection and Collation**

The responses of an effective sample of 200 people (100 males and 100 females) to a questionnaire were considered for the survey. The respondents were selected from south Mumbai and the western suburbs. The questionnaire had general questions regarding the age group (18-30 / 31-50 / Above 50), gender, education level, profession and monthly family income level of the respondents. The specific questions concerning the respondents' use of online banking and financial services concerned their use or willingness to use SMS/e-mail alerts, e-Statements, Credit card, online transfer of funds through banks, E-wallets/ payment apps and online purchases.

The question regarding age group was tabulated as 2 dummy variables, YNG with value 1 for 18-30 age group and MID with value 1 for ages 31-50. The gender was also represented by a dummy, GEND, with value 1 for male and 0 for female respondents. The education level (variable EDU) was assigned values 1 to 5 for responses: uneducated, up to SSC, up to HSC, graduate and post-graduate respectively. The profession categories unemployed/ underemployed, housewife, salaried, IT/ITES/ Finance and business were represented by the four dummies UNEMP, HSWF, SAL and IT having value 1 for the first 4 categories respectively and all values 0 for business persons. Monthly family income (in rupees) was represented by the variable INC with values 1 to 5 for income categories: Up to 20000, 20001- 50000, 50001-100000, 100001- 200000 and above 200000.

The specific questions, regarding whether they used SMS/e-mail alerts, e-Statements or Credit card, had yes/no responses which were assigned values 1 and 0 respectively. The questions regarding the respondent use/ is willing to use online transfer of funds through banks, E-wallets/ payment apps and online purchases were designed in the Likert scale format with responses: never, rarely,

occasionally, frequently and very frequently, which were assigned values, 0 to 4 respectively.

### III. The Model

The responses to the specific questions were then combined into a single index. In this study, the researcher has created an index and called it, the Electronic Financial Services Preference Index (EFSPI). It is derived by the formula:

$$EFSPI = (ALERTS + E\text{-STM} + CRCARD + ETRANS + PAPPS + ONLINEP) / 15$$

The responses to services like SMS/e-mail alerts, e-Statements and Credit card (ALERTS, E-STM and CRCARD respectively) have values between 0 and 1 each. Responses to services like online transfer of funds through banks, E-wallets/ payment apps and online purchases (ETRANS + PAPPS + ONLINEP respectively) have values between 0 and 4 each. So the value of EFSPI can range between 0 and 1.

Five regressions were initially carried out with EFSPI as the dependent. The explanatory variables were YNG and MID in the first regression, GEND in the second, EDU in the third, UNEMP, HSWF and SAL and IT in the fourth, while the fifth regression had INC as the explanatory variable.

Table 1 shows the results of the various regressions. One observes that the high t values for YNG, MID (Regression 1), UNEMP and IT (Regression 4) and INC (Regression 5) indicate that these factors affect the usage of electronic banking and financial services at the 95% level of significance, while factors like gender and education levels do not. Among different occupations, people who are housewives, salaried and businessmen do not use significantly different levels of electronic banking and financial services. Only people who are unemployed use less of these services, while people employed in the IT/ITES and finance sectors use these services to a significantly greater extent as compared to others.

**TABLE1**

**Dependent Variable: EFSI**

Regression Model	Constant/ Independent	Coefficient	Std. Error	t-ratio	p-value
1	Const	0.428571	0.0216332	19.81	9.03e-049
	YNG	0.119606	0.0321100	3.725	0.0003
	MID	0.0996772	0.0328446	3.035	0.0027
2	Const	0.486667	0.0196771	24.73	1.81e-062
	GEND	0.0191667	0.0278276	0.6888	0.4918
3	Const	0.460047	0.0453897	10.14	1.03e-019
	EDU	0.0102997	0.0122922	0.8379	0.4031
4	Const	0.534722	0.0488168	10.95	4.55e-022
	UNEMP	-0.218056	0.0724070	-3.012	0.0029

	HSWF	-0.0723566	0.0533322	-1.357	0.1764
	SAL	-0.0939327	0.0525296	-1.788	0.0753
	IT	0.152778	0.0556597	2.745	0.0066
<b>5</b>	Const	0.237361	0.0300724	7.893	1.97e-013
	INC	0.0960629	0.0102936	9.332	2.15e-017

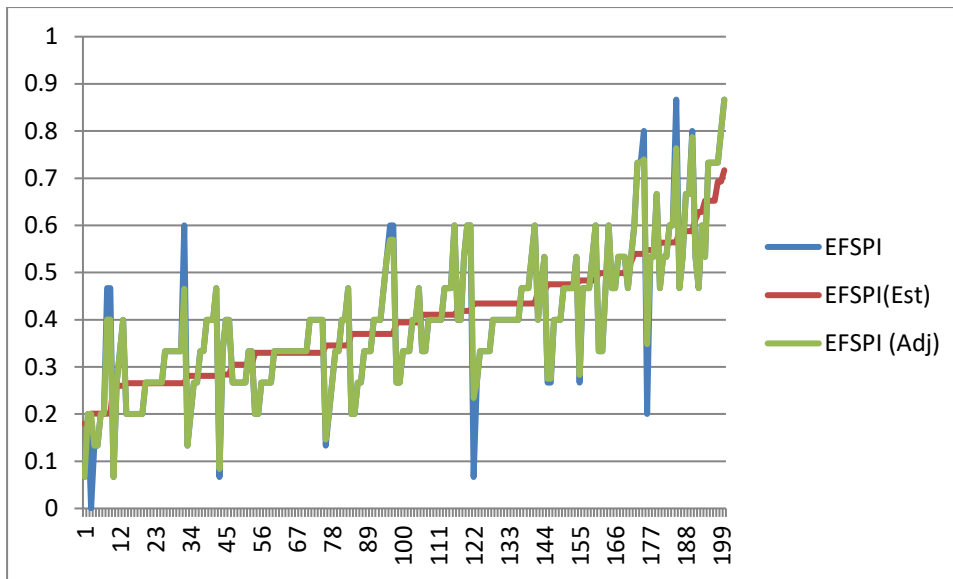
Using the results of these regressions a sixth regression was carried out using all the variables with significant values viz. YNG, MID, UNEMP, IT and INC as the **REGRESSORS** to explain the EFSPI. The results are given in Table 2. When the various relevant regressors are taken together in a single regression, the coefficients and t ratios increase, while the p-values improve for all variables except INC and UNEMP. INC is still significant above the 95% level. But for UNEMP, one is forced to state that unemployed employees do not exhibit significantly different EFSPI than other respondents in the final regression.

**TABLE2**

**Dependent Variable: EFSPI**

<b>Constant/ Independent Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-ratio</b>	<b>p-value</b>
<b>Const</b>	0.170059	0.0294643	5.772	3.07e-08
<b>YNG</b>	0.130417	0.0230152	5.667	5.21e-08
<b>MID</b>	0.100457	0.0235684	4.262	3.15e-05
<b>UNEMP</b>	-0.0265751	0.0471483	-0.5636	0.5736
<b>IT</b>	0.191534	0.0245811	7.792	3.91e-013
<b>INC</b>	0.0808327	0.00923236	8.755	9.96e-016

The following chart shows the fit of the estimated EFSPI [EFSPI(Est)] with the actual values, where the values were first sorted in increasing order of the EFSPI(Est). At first glance, the fit is not very good. This is because, there are 15 EFSPI outliers, whose values vary from the EFSPI(Est) by more than 0.2. If the outliers are adjusted so that the difference between them and the EFSPI(Est) is a maximum of 0.2 then outliers and to a maximum of 0.2, then one obtains the adjusted EFSPI (shown as EFSPI (Adj) in green), while the outliers are seen in blue. Now, one can see that there is a marked upward trend in both the values.



#### **IV. Findings and Conclusions**

This paper has considered a sample of 200 respondents from India's financial capital, Mumbai. So the conclusions drawn here may not be valid for rural areas or even smaller cities. This paper makes the following findings and conclusions:

Finding 1: Younger respondents (18-30 years) and Middle aged respondents (31-50 years) show significantly higher levels of EFSPi as compared to older respondents (above 50 years). Younger respondents tend to have the highest EFSPi among all age groups. Middle aged respondents have the second-highest EFSPi. This is true in regression 1, as well as regression 6.

Conclusion 1: So, this paper concludes that the use of electronic banking and financial services tends to be lowest among older people and highest among younger people.

Finding 2: Regressions 2 and 3 demonstrate that the gender (GEND) or education levels (EDU) of respondents have no significant impact on the EFSPi.

Conclusion 2: This allows the conclusion that there is no significant difference in the use of electronic banking and financial services between men and women or even between people with different levels of education.

Finding 3: From regressions 4 and 6, it is found that respondents employed in sectors like IT, ITES or finance have significantly higher EFSPi values than those employed in other occupations.

Conclusion 3: So the paper concludes that people employed in these sectors tend to use electronic banking and financial services to a greater extent than housewives, salaried people or the business class.

Finding 4: Regressions 4 and 6 give contradictory results where unemployed or underemployed people are concerned. Regression 4 shows significant negative

t and p values indicating lower EFSPi values. However, no such significance is observed in regression 6.

Conclusion 4: So the study cannot conclude that unemployed or underemployed people use significantly different levels of electronic banking and financial services than others.

Finding 5: Regressions 5 and 6 show that the EFSPi of respondents with higher family incomes, is significant higher than that of those with lower income levels.

Conclusion 5: This allows the paper to conclude that richer people tend to use electronic banking and financial services to a greater extent than poorer people.

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