A Multinomial Logit Model of Bank Choice:
An Application to Turkey

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Abstract

This paper uses the multinomial choice model to analyze the individuals' choice of banks based on their characteristics and the type of banking services used. The study is based on survey data gathered after the 2001 crisis in Turkey, of which one major component was bank failures. The findings indicate that age, education, and culture play an important role in the choice of public banks versus private banks. Occupation, receipts of salary/pension payments, closeness of branches, branch density, friendly staff are other factors influencing the choice. Deposit rates do not seem to be much important overall, yet they are still effective in choosing small private banks. Small private banks are less likely to be chosen on the basis of trust, indicating the customers of such banks choose on the basis of high interest rates only.

Key Words: Multinomial logit, banking sector, bank choice, Turkey

JEL No: C25, D12, G21

1 Introduction

Turkey has experienced a few financial crises since the 1980s when the financial liberalization started. Although liberalization was underway, a sound financial system was never in place until after the 2001 crisis when severe measures were taken to regulate the financial sector.

The recent history of the banking sector in Turkey since the 1980s is therefore characterized by bad banking practices and bank failures. Especially after the initial liberalization attempts, as the regulations on deposit rates were lifted, banks started to compete on the basis of high interest rates. Many small size banks were established, which pushed the interest rates higher. In addition, the banking practice, especially in the 1990s, have become to borrow from abroad and to invest in government securities, and in turn to create a currency mismatch. All these led to bank failures. However, in the meantime, people still chose those banks that had potential risks, partly thanks to full deposit insurance which was in effect prior to 2001.

The aim of this study is to analyze the factors that contribute to the choice of banks by people. For this purpose, a unique data set is used, which is gathered after the 2001 crisis in Turkey. The analysis builds up on a multinomial choice model where the dependent variable is the choice of banks and the explanatory variables include consumer characteristics as well as banking services.

The findings indicate that demographic factors play an important role in the bank choice as well as receiving salary/pension payments from a particular bank, closeness of branches, branch density, bank having friendly staff. Deposit rates do not seem to be much important overall, yet they are still effective in choosing small private banks. Small private banks are less likely to be chosen on the basis of trust, indicating the customers of such banks choose on the basis of high interest rates only. This supports the idea that full deposit insurance distorts the incentives by causing small banks to offer very high interest rates for competition while making customers choose banks based on interest rates rather than riskiness.

The rest of the paper is organized as follows. Related literature is reviewed in Section 2. Section 3 provides an overview of the Turkish banking sector. Section 4 introduces and discusses the data set used. Econometric framework and estimation results are presented in Section 5. Section 6 concludes.

2 Literature

Although the literature on the supply side of the banking industry, i.e. how the sector should be regulated, the structure of the market, costs, etc. is vast, there is not much literature on the demand side, i.e. how consumers make their decisions on bank choice.

Dick (2002) estimates the demand for comercial bank deposits for the US for the period 1993-1999, and finds that customers respond to deposit rates and account fees in choosing a depository institution. Customers also respond favorably to branch staffing, geographic density, the bank's age, size, and geographic diversification (the number of states in which the bank operates). She uses number of employees per branch, the age of the bank, salary per employee, and geographic diversification as proxies for bank quality.

Adams *et al.* (2004) investigate the willingness of consumers to substitute banks for thrifts and to switch between institutions with large and small branch networks. They use a panel of almost all banks and thrifts in the US for the period 1990-2001 and construct a non-nested discrete choice random utility model of consumer's choice of a depository institution. Their findings indicate that deposit supply increases with own deposit rate, own branches, employees per branch and branch density in the market. According to their findings thrifts and banks, as well as large and small branch network banks are found to compete more directly in rural markets than in urban markets.

The factors that influence customers' decisions are not limited to deposit rates and bank branches. Fry *et al.* (1973), by working on a survey data, find past patronage, patronage of parents, mobility and gender, among other variables, as significant for customers' loyalty on their banks. Especially social factors as family influence, personal relations with bank personnel can distort the conditions of assumption for competitive banking, and impede monitoring risk-price mix in decisions.

For a competitive and sound banking system monitoring and knowing customers is also an important issue. Bozcar (1978) uses customer characteristics as age, home ownership, and credit-card ownership, number of dependents, marital status, education, race, income and gender to mirror the risk-taking behavior of customers.[1] Using a survey data gathered in 1970 on the socio-economic

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[1]In a slightly different but related context, Apilado *et al.* (1974) consider similar variables including age, gender, marital status, home ownership, length of service with current employer, gross monthly income, number of dependents, total monthly payments, to have a checking account, and security (if any), purpose, amount and terms (number of monthly payments) of the loan to discriminate between potentially good and bad credit customers.

characteristics of credit users, and a probit model, he shows that the borrower profiles of banks and finance companies differ in terms of home ownership, credit-card ownership, age, education, and race, although the predictive accuracy tests indicate substantial overlap in the risk characteristics of borrowers served by the two institutions.

3   An Overview of the Turkish Banking Sector

On February 19, 2001 a row between the President and the Prime Minister triggered the most severe financial crisis that the Turkish Republic has ever experienced. On the same day the foreign exchange demand amounted to a total of eight billion euros. Two days later the overnight rates reached a peak of 4,000 %, but that was still not enough to prevent the capital outflows. The crawling peg regime, which was the basic pillar of the 1999 disinflation program, had to be abandoned, and within one day the Turkish currency lost around 30% of its value. A total of seven banks failed in 2001. Although the dispute between the politicians seemed to trigger the crisis, the real cause was the fragility of the financial system itself.[2]

Before the liberalization of the Turkish financial system in the 1980s, the banking sector was highly regulated and concentrated. The only tools of competition for the banks were the scale of branch networks and the number of their personnel. As the restrictions were removed as a part of the liberalization program, the deposit rates became the major tool of competition rather than branching. Smaller banks, especially, were observed to be pushing the interest rates higher. In addition to interest rates, the financing of the government debt through issuing securities had been another crucial factor that reduced the importance of branches. It was more profitable for the banks to borrow funds from abroad and lend it to the government than collecting deposits and lending to the real sector (Damar (2004)).

Table 3 presents the number of banks, branches and personnel between 1980-2000 in Turkey. The has been a considerable increase in the number of banks, branches and personnel, however banks contracted in size, as can be observed from the number of employees and branches per bank.

In the meantime, as banks functioned mainly to transfer funds to the government, their loan portfolio deteriorated as well. The conglomerates were able to found their own banks after the

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[2]For a detailed account of the 2001 crisis in Turkey see, for example, Alper (2001), Alper and Öniş (2004), Gencay and Selçuk (2005), and Özatay and Sak (2002).

Year	Number of banks	Number of employees	Number of branches	Number of employees/bank	Number of branches/bank
1980	43	125,312	5,954	2,914	138
1990	66	154,089	6,560	2,335	99
2000	79	170,401	7,837	2,157	99

Table 1: Number of banks, employment figures and branches during 1980-2000.
Source: Banking Regulation and Supervision Agency.

liberalization due to the attractiveness of cheap loans to the firms within their body. This, together with the illegal transfer of funds to owners and executives, contributed to this deterioration (Soral *et al.*, 2003).

As a result of the 1994 crisis, the significant devaluation of the Turkish lira worsened the banks' positions as they had been borrowing from abroad to lend the government. In addition, the worsening of Turkey's credit rating made fundraising from abroad harder and more expensive. Consequently, three banks were liquidated. To combat the crisis, the Savings Deposit Insurance Fund (SDIF hereafter) was entitled the provision of full deposit insurance.[3]

The 1994 crisis and the developments in its aftermath did not provide an adequate solution to the problems in the banking sector. The full deposit insurance distorted the incentives further. In addition, the government was not inclined to closing these banks in fear of the consequences. Thus, banking practices worsened. By the end of the 1990s, the banks again started a similar cycle as they did before the 1994 crisis: borrow from abroad and invest in government securities.[4]

By the end of 1999, the government initiated a stabilization program with the IMF and and the SDIF took control of five banks. In late 2000, lower confidence in the stabilization program, problems with privatization, the liquidation of two more banks among other factors led to a capital flight which resulted in the failure of one bank in November 2000 that held government securities as a large proportion of its portfolio and further deterioration of confidence in the economy. In February 2001, the dispute between the President and the Prime Minister initiated the turmoil, which is

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[3]As it is put forth by many, full deposit insurance may have more costs than benefits as it distorts the incentives. For example, Dowd (1996) states that with deposit insurance, the depositors stop monitoring the bank management, and managers do not worry about maintaining confidence anymore. He further argues that free banking, i.e. free trade in the financial services sector without any intervention or regulation, would provide a stable system. This argument is also supported by Selgin and White (1994) who also write that a total laissez-faire is not possible in practice due to many costs. Finally, Beck *et al.* (2003) point out that crises are less likely in economies with fewer regulatory restrictions on bank competition and activities, and more concentration in the sector would encourage competition and enhance stability.

[4]See Damar (2004); Soral *et al.* (2003); Denizer *et al.* (2000); Alper and Öniş (2004); Alper *et al.* (2001) for details.

mentioned above, which resulted in the failure of two more banks due to currency mismatch (Damar, 2004).

The turmoil marked the beginning of a restructuring in the banking sector, starting with the foundation of the Banking Regulation and Supervision Agency (BRSA), takeovers of insolvent banks, investment banks and depository institutions. These were then grouped and merged, and put on sale. New regulations were put in place to prevent recurrence.

4 Data

The data used in this study is gathered by SAM Research and Consulting Inc. (Istanbul, Turkey) in 2002. To ensure the representation of the target population at national level, stratified multistage random sampling method is used. Target population is defined as the population older than 18 years old, having an account in one bank, and living in an area where at least one bank branch exists. The population living in places where no bank exists is left out for operational reasons. Region and number of banks in the residential area are used as stratification criteria. The questionnaires are implemented in nine regions, 84 districts of 23 cities. Accordingly, a total of 1829 interviews are done. Fieldwork is accomplished during February 9-28, 2002. The variables used in this study are presented below.

The Dependent Variable

The choice of main bank is classified under four distinct categories, namely

- Public banks (Halk Bank, Ziraat Bank, Vakf Bank)
- İş Bank
- Large private banks (Akbank, Garanti, YapıKredi)
- Small private banks (all other private banks)

This categorization is done because we are specifically interested in the differences between public and private banks. Large private banks are kept separately from small private banks, because they hold stronger capitals and are expected to be less risky. İş Bank, which is also private, is taken

Bank Choice	Frequency	Percent
Public Banks	700	38.27
İş Bank	441	24.11
Large Private Banks	532	29.09
Small Private Banks	156	8.53
Total	**1829**	**100.00**
Culture Level	**Frequency**	**Percent**
Lowest	640	35.16
Low	604	33.20
High	470	25.82
Highest	106	5.82
Total	**1820**	**100.00**
Information Level	**Frequency**	**Percent**
Nothing	538	30.28
Little	708	39.84
Somewhat	335	18.85
Well	148	8.33
Very well	48	2.70
Total	**1777**	**100.00**

Table 2: The Distribution of Bank Choice, Culture Level and Information Level in the sample.

separately given the "public-like" perception towards the bank.[5] See Table 2 for the distribution of bank choice across the sample.

Potential Explanatory Variables

Demographics

Demographic characteristics include gender, age, education, income level, and occupation.

Education level is comprised of four dummy variables, namely no education (illiterate, literate without degree), primary school (5-8 years), high school (11-13 years), and university (15 years or more).

Seven dummies of income level refer to total household income corresponding to less than 175 YTL (around 120 Euros), 175 YTL - 300 YTL (around 210 Euros), 301 YTL - 500 YTL (around

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[5]İş Bank is a large private bank established in 1924 by the initiative of Ataturk, the founder of the Republic. Ataturk provided one fourth of the bank's initial capital. The treasury had 12.3% share until 1998. The bank has always been a private bank nad 28% of its shares are traded publicly. Another 25% are owned by the first political party of the Republic. Among all private banks, due to this history, İş Bank is perceived as semi-public.

350 Euros), 501 YTL -750 YTL (around 520 Euros), 751 YTL - 1,000 YTL (around 700 Euros), 1,000 YTL - 1,500 YTL (around 1040 Euros), and more than 1,500 YTL.[6]

There are nine occupation categories.

- Manager/specialist: Manager / specialist in public or private sector / professor at university; big trader, industry owner; professional with private practice; research assistant at university

- Civil servant (except directors/specialists/professors)

- Blue collar worker in public sector

- Blue collar worker in private sector

- Small trader: Craftsmen/small trader; farmer

- Retired

- Student

- Unemployed

- Other: Irregular work at home, irregular work outside the home, house wife/girl, only living on interest/rent income

Culture

Six questions addressing the cultural activities of the respondent include reading newspaper, going to cinema, going to theater, going to concerts, traveling and reading books. Answers are taken on a likert scale of four, such that "1-never", "2-very seldom", "3-sometimes", "4-regularly."

These six questions are analyzed with Principle Components Analysis (PCA) in order to characterize customers' level of cultural consumption. As a result of the analysis a normalized index is obtained. Although the variable is treated as continuous variable, the range of the variable [-1.65, 2.74] is divided into four equal sub-ranges for descriptive purpose.

Banking services

Four variables that show service usage are as follows:

- Standard banking services: Bank card, ATM, credit card

- Saving services: Deposit account, investment account

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[6]Conversions are made using 2002 exchange rates.

Variable	Range	Obs.	Mean	Std. Dev.
Gender	1=Female, 2= Male	1829	1.748	0.434
Age	18+	1829	37.063	12.942
No education	1= Yes, 0= No	1829	0.024	0.153
Primary school	1= Yes, 0= No	1829	0.393	0.489
High school	1= Yes, 0= No	1829	0.284	0.451
University	1= Yes, 0= No	1829	0.299	0.458
Income 1^* (< 175)	1= Yes, 0= No	1829	0.086	0.28
Income 2^* (175-300)	1= Yes, 0= No	1829	0.25	0.433
Income 3^* (301-500)	1= Yes, 0= No	1829	0.285	0.451
Income 4^* (501-750)	1= Yes, 0= No	1829	0.179	0.383
Income 5^* (751-1000)	1= Yes, 0= No	1829	0.095	0.293
Income 6^* (1000-1500)	1= Yes, 0= No	1829	0.045	0.207
Income 7^* (> 1500)	1= Yes, 0= No	1829	0.027	0.163
Manager/specialist	1= Yes, 0= No	1829	0.036	0.187
Civil servant	1= Yes, 0= No	1829	0.117	0.322
Blue collar - public	1= Yes, 0= No	1829	0.041	0.198
Blue collar-private	1= Yes, 0= No	1829	0.169	0.375
Small trader	1= Yes, 0= No	1829	0.197	0.398
Retired	1= Yes, 0= No	1829	0.169	0.375
Student	1= Yes, 0= No	1829	0.095	0.293
Unemployed	1= Yes, 0= No	1829	0.062	0.242
Other Employment	1= Yes, 0= No	1829	0.113	0.317
Culture	Index variable in range [-1.65, 2.74]	1820	0	1
Stand**	1=Use, 0=Not use	1829	0.846	0.361
Save**	1=Use, 0=Not use	1829	0.426	0.495
Credit**	1=Use, 0=Not use	1829	0.126	0.332
Tech**	1=Use, 0=Not use	1829	0.128	0.334
Info	Index variable in range [-1.54, 3.22]	1777	0	1

Table 3: Data Summary 1. Demographics in the sample.

* Quoted in terms of new Turkish liras (YTL)
** Stand: use of standard services, Save: use of saving services, Credit: use of credit services, Tech: use of technology services.

- Credit services: Credit deposit account, commercial credit, consumer loan, housing loan

- Technology services: Automatic bill payment, telephone banking, internet banking, banking via TV, banking via WAP, POS machine

Customers' level of knowledge about banking services is also questioned. The services asked are namely ATM, credit card, bank card, teller machine (included separately for the ones who are not familiar with the ATM abbreviation), telephone banking, internet banking, banking via TV, banking via WAP, POS machine. Their knowledge is rated on a scale of 1 to 5 such that "1" means know nothing, "5" means know very well.

These nine questions are used to obtain a general information level (index) on banking services. This is accomplished by PCA. This variable is also treated as a continuous variable as in the case

of culture. However, the range of the variable [-1.54, 3.22] is divided into five equal sub-ranges for descriptive purpose.

Table 3 provides the summary of demographic factors, culture and information variables across the sample.

Important factors in banking

Respondents are also asked directly about the factors that influence their bank choice. These factors are namely

1. Past patronage of other family members

2. Having special services for farmers

3. Having full range of services that are needed

4. Having the best telephone banking service

5. Having the best internet banking service

6. Having special services for craftsmen

7. The bank where salary/pension is deposited

8. Being a state bank

9. Having close branches to home / work place / school

10. Having the most appropriate terms of credit

11. Having the highest interest rates for deposit

12. Being the most trustworthy bank

13. Having friendly staff

14. One-to-one relationship with bank manager/customer representative

The most important factors appear to be the bank where salary or pension is deposited, being trustable, closeness of bank's branches and having full range of services.

The respondents are also asked about their level of trust to the banking system in general. A likert scale of one to five is used, where 1 means "I do not trust at all" and five means "I trust a lot."

Variable	Range	Obs.	Mean	Std. Dev.
Salary/pension	1= Yes, 0= No	1829	0.32	0.467
Trust bank	1= Yes, 0= No	1829	0.231	0.421
Closeness	1= Yes, 0= No	1829	0.221	0.415
Full service	1= Yes, 0= No	1829	0.201	0.401
Staff	1= Yes, 0= No	1829	0.186	0.389
Family	1= Yes, 0= No	1829	0.176	0.381
State	1= Yes, 0= No	1829	0.172	0.377
Manager	1= Yes, 0= No	1829	0.087	0.282
Terms of credit	1= Yes, 0= No	1829	0.06	0.237
Services for craftsmen	1= Yes, 0= No	1829	0.049	0.215
Interest rates	1= Yes, 0= No	1829	0.047	0.212
Telephone banking	1= Yes, 0= No	1829	0.037	0.189
Internet	1= Yes, 0= No	1829	0.036	0.187
Services for farmers	1= Yes, 0= No	1829	0.02	0.139
Trust sector	[1-5]: 1=Not at all, 5=A lot	1651	2.462	1.083

Table 4: Data Summary 2.

The summary of these variables across the whole sample is presented in Table 4.

Region and branch density

Dummy variables are constructed to account for possible regional differences. Nine dummies indicate Mediterranean, Aegean, Southeast Anatolia, Black Sea, Northeast Anatolia, Marmara, Central Eastern Anatolia, Central South Anatolia, and Central North Eastern Anatolia regions.

Moreover, there are five dummy variables which show the branch density according to the number of branches in the residential area. The categories are having 1-2, 3-5, 6-9, more than ten branches (excluding metropolitan areas), and metropolitan areas.

5 Econometric Framework and Estimation Results

A standard multinomial choice model is constructed by introducing the entire set of potential explanatory variables at once The model is estimated via multinomial logit technique.[7] The insignificant variables are eliminated iteratively until attaining a parsimonious result. However, trust in the banking sector in general is kept as a control variable despite its insignificance. The significance of variables is also tested with likelihood-ratio tests. The estimation output is presented in

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[7]Due to missing cases in explanatory variables, the model is run on 1643 observations, dropping the missing values.

the appendix.

Demographics

The results show that as age increases the probability of choosing İş Bank rather than public banks decreases. Large and small private banks are no different than İş Bank in that sense. This might have been interpreted as the effect of retirees since they receive their pension from public banks; however the effects of salary/pension and being retired are already controlled separately with two other variables. Therefore this result can simply be attributed to the decision that the elderly took in the past; keeping İş Bank aside the prevalence of private banks in the Turkish banking sector is relatively new. Although it seems to be mostly related with habituation, this attitude might also be attributed to a less risk taking behavior of the elderly. On the other hand, it is interesting to see that the difference among private banks (including İş Bank) with respect to age is not significant.

It is notable that none of the education levels, except university degree, appears significant. University degree is significant for small private banks at 5% level; public banks' customers are around two times more likely to have a university degree or higher compared to small banks' customers. Small private banks' customers are also less likely to have a university degree compared to İş Bank's and large private banks' customers.

Culture is only significant, at 10% level, for the case of large private banks versus public banks; the cultural consumption level of large private banks' customers is higher than that of public banks' customers.

As expected, public banks are quite dominant among retired people. It is interesting to see that neither age nor receiving pension, as control variables, eliminates the significance of the effect of being retired. An İş Bank customer is 80% less likely to be retired. Similarly, customers of large private banks and small private banks are 75% and 72% less likely to be retired compared to public banks' customers.

Public banks, unexpectedly, are not dominant at all among civil servants. On the contrary, İş Bank's and small private banks' customers are around 2.5 times more likely to be civil servants compared to public banks' customers. Large private banks are comparatively less accomplished

among civil servants, however still 1.7 times more likely than public banks (significant at 10% level). This shows that without salary effect, private banks attract civil servants much more than public banks. It is known that some public institutions, e.g. schools or universities, engage in agreements with private banks for salaries in exchange of discounts, special services or lump sum cash paid to the institution by the bank. That might also be an explanation to how private banks can be that influential on civil servants. Another significant result is that civil servants prefer İş Bank around 2.5 more likely compared to large private banks.

Private banks are even stronger in reaching the blue collars in the public sector compared to public banks. Similarly, blue collars in private sector prefer private banks more than public banks. However, the difference among other private banks, including İş Bank, is not significant for workers.

Students, on the other hand, are more than half times less likely to work with private banks, including İş Bank, compared to public banks. This might be attributed to the distribution of public funds and scholarships for students through public banks.

The effect of receiving salary or pension payments is obviously significant (at 1% level). A customer receiving her salary/pension payment from her main bank happens to be 55% less likely to be an İş Bank customer, and around 70% less likely to be a customer of other private banks compared with public banks.

Services used

The effect of services in bank choice is significant. Public banks seem to fall behind private banks in technology services. The customers of İş Bank, large private banks and small private banks are on average three to four times as likely to use technology services compared to public banks' customers. On the other hand, Is Bank and other private banks appear to be even in technology services in the eye of customers.

İş Bank's customers are around half times less likely to use credit services compared to public banks. Using credit services is not a significant criterion for the choice of other private banks compared to public banks. In contrast, large and small private banks are 1.7 and 1.8 times more likely to attract credit service users than İş Bank. These are actually indicators of higher selectiveness of İş Bank in their credit services.

İş Bank's and large private banks' customers are more likely to use standard services compared to public bank customers. Since standard services include using bank card, ATM, credit cards, we can say that İş Bank and large private banks' customers display a slight sophistication compared to public banks' customers. These banks also seem to be ahead of small private banks in standard services usage.

İş Bank is chosen around two times more likely for its full range of products/services compared to public banks. However, the difference between other private banks and public banks is not significant in that regard.

Trust

Trust in the banking sector in general does not affect the decision between these banks. On the other hand, it matters whether people specifically trust their main banks.

Compared to other banks' customers, İş Bank's customers value trust in their main bank most; they are 2.4, 1.4 and 3.5 times more likely to choose their main bank due to trust as compared to public banks, large and small private banks respectively. On the other hand, large private banks' customers are 1.7 times more likely to value trust compared to public banks' customers, and 2.4 times more likely than small private banks' customers. The difference between public banks and small private banks is not significant.

These results are especially interesting, because the state backed up public banks would have been expected to be more trustworthy. However, the results do not indicate so. Another noteworthy issue is that the favorable state effect (in terms of trust) on public banks' customers compared to private banks is more than that to İş Bank which might be taken as an indicator of İş Bank being perceived as having "the state behind" as do public banks, although to a lesser extent. This effect appears to be significant in the choice of İş Bank rather than other private banks. It is actually in line with the known fact that İş Bank is perceived as partly public due to its past, as explained in section two.

Prices, branches, personnel and other effects

It is notable that deposit interest rates only play a role in the choice of small private banks compared to other banks. Small private banks' customers are around four times more likely to be influenced by interest rates offered by their bank compared to the customers of public banks or İş Bank. Similarly, large private banks' customers compared to small private banks' customers are around three times less likely to choose their main bank due to high deposit rates. This is a clear indication of small banks' aggressive marketing strategy through high interest rates during the period.[8] Despite the fact that small banks are not selected on the basis of trust as do other banks, their customers' search for high interest rates indicate risky choice, if not unconscious.

The closeness of bank branches is not significant in the choice of public banks versus private banks, including İş Bank. However, compared to İş Bank, small private banks are less likely to be selected because of this factor. This result is an evidence against the idea that most people are forced to choose public banks because most public banks, especially Ziraat Bank, have branches in rural areas while many private banks do not.

To find friendly staff in the bank is a factor for the choice of large private banks compared to public banks or İş Bank. Large private banks' customers are two times more likely to select their banks because of the staff compared to public banks' customers, and they are 1.7 times more likely compared to İş Bank's customers. This might refer to a similar customer relation approach in public banks and İş Bank. On the other hand the difference between small banks and İş Bank or public banks is nor significant either.

To have a one-to-one relationship with the manager or customer representative in the branch is a significant factor in decision between public banks and small private banks; small private around 3 times more likely. Compared to İş Bank, large private banks' customers are two times, small private banks' customers are four times more likely to value manager or customer representatives. On the other hand, small private banks' customers are two times more likely to value such a relationship compared to the customers of large private banks. This might refer to more intensive customer relations by private banks, especially in smaller ones, or even to informal relations in these institutions.

Family influence in banking choice is also controlled for. However, the only significant relation appears between İş Bank and small private banks, İş Bank's customers are around twice more likely

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[8]For a very long time, one of the small banks (i.e. Imar Bank) kept emphasizing in their advertisements that they had the highest interest rates.

to be working with the bank of their parents compared to small private banks. The family influence in other cases seems not to differ significantly.

Regions and branch density

The regions that enter the model significantly are Mediterranean, Aegean, Black Sea, Marmara, and Middle-south regions, which can be considered as somewhat developed regions of Turkey.

Private banks, including İş Bank, are more dominant than public banks in all regions, when significant. Specifically in Mediterranean region small banks are more than three times more likely to be selected compared to public banks. In Marmara region large and private banks are four times more likely to be selected again compared to public banks.

In Mediterranean and Marmara regions small private banks are more dominant than İş Bank. Large private banks are also more dominant compared to İş Bank in Marmara, and they are so in Black Sea region as well. The regional effect on the choice between large and small private banks is not significant.

We also consider the effect of branch density of the customers on their choices. The significant cases are 1-2 banks, 3-5 banks and 6-9 banks. The results show that public banks are more dominant in smaller settlements which are in line with the argument that as not many private banks have branches in most of the rural areas, small towns around Anatolia, people living there have to choose public banks. Compared to İş Bank and small private banks, public banks are significantly more dominant in places where there are 1-2 banks and 6-9 banks. On the other hand they are significantly ahead of large private banks in all three cases.

In settlements with 1-2 banks, large and small private banks are more dominant than İş Bank. In contrast, İş Bank is more dominant than large private banks in areas with 6-9 banks, and more dominant than small privates in areas with 6-9 banks. Large private banks are around two times more dominant than small private banks in areas with 3-5 banks. On the contrary, they are around 80% less dominant in areas with 6-9 banks.

6 Conclusion

Recent history shows that the banking system has affected the Turkish economy drastically at times. Eleven banks failed during 1997 and 2000 period, which created unrest to its customers and to the overall economy as well. Therefore the need for monitoring both the banks and its customers for proper conduct and behavior has been understood. The literature on issues as bank regulation and safe banking is vast, however that on the perspective of the bank customers is limited. In this study, we do not search for policy implications, but rather analyze the banking choices of customers and try to see their differences in terms of their characteristics and motivations. We question if they are really rational in their choices. For that purpose, we use a unique micro-level data set on households for 2002, one year after one of the biggest financial crisis in Turkey has faced.

The bank choice appears to be influenced by many factors. Main findings can be summarized as follows:

- Customers of public banks and private banks differ in terms of age, education and culture.

- The majority of the customers are not informed properly about the baking services in general. Furthermore the information level of the customers is not significant in our model, implying that the customers of all banks are equally uninformed.

- Respondents with specific occupations (e.g. civil servants, blue collars) appear to differ in their bank choice.

- Receiving one's salary/pension payments through a bank is an obvious factor in main bank selection.

- Closeness of branches and branch density of banks are also influential.

- An expected-to-be influential social factor, family effect, does not make a difference between public or private banks. On the other hand, we see that around one fifth of the sample choose the main bank of their parents.

- Other social factors that shape customers' choices are friendly staff and one-to-one relationship with bank manager or customer representative. Although the first one might sound as a

component of service quality, especially the latter gives the sign of informal relationship in retail banking.

- Only five percent of the sample gives importance to deposit interest rates, nevertheless this appears to be significant especially in the choice of small private banks.

- Small private banks are less likely to be selected on the basis of trust, which reflect the risky behavior of the customers who search high interest rates.

- İş Bank customers are less likely to use credit services. This might be taken as an indication of the selectiveness of the bank when giving credit. Note that banks' evaluation of customers is a further constraint that prevents independent choice of customers in loan decisions.

It is clear that banking sector is not as simple that it would function properly with simple market rules. Its complicated dynamics may easily outweigh the price-benefit tradeoff. Structural conditions, social factors are influential. Perceptions can easily offset the reality. It may not be wise to say that the decisions of the failed banks' customers are irrational; they have to be evaluated under given conditions. However, it is possible to say that the system and the conditions are not proper enough to support efficient behavior.

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Appendix - Model Output

Multinomial Logit Results with Public Banks as the Base Category

Mlogit stats.	# of obs=1643		LRchi2 (87)=1428.38		Prob > chi2=0.000	
	Log likelih. =-1563.492		Pseudo R2 =0.314			
Variables	**IS BANK**		**LARGE PRIVATE**		**SMALL PRIVATE**	
	RRR	**Std. Error**	**RRR**	**Std. Error**	**RRR**	**Std. Error**
Age	0.972 *	0.006	0.971 *	0.006	0.964 *	0.008
University	0.937	0.200	1.044	0.225	0.522 **	0.159
Culture	1.108	0.108	1.197 ***	0.118	1.057	0.137
Retired	0.204 *	0.070	0.247 *	0.078	0.281 *	0.126
Civil servant	2.672 *	0.723	1.657 ***	0.492	2.426 **	0.950
Blue collar-pub.	3.017 *	1.208	2.719 **	1.170	2.792 ***	1.509
Blue collar-pr.	2.417 *	0.572	2.512 *	0.599	1.676 ***	0.511
Student	0.487 **	0.147	0.375 *	0.117	0.244 *	0.130
Tech	3.009 *	0.893	3.810 *	1.118	3.767 *	1.354
Credit	0.545 **	0.140	0.904	0.221	1.009	0.309
Stand	1.877 *	0.392	1.763 **	0.386	1.062	0.296
Family	1.347	0.273	1.069	0.226	0.778	0.228
Closeness	1.203	0.228	0.940	0.185	0.705	0.188
Service	2.104 *	0.471	2.351 *	0.529	2.023 **	0.579
Salary/pension	0.445 *	0.094	0.316 *	0.070	0.276 *	0.084
State	0.174 *	0.037	0.040 *	0.012	0.041 *	0.020
Int. Rate	0.972	0.379	1.212	0.471	3.742 *	1.530
Trust_sector	1.060	0.072	1.087	0.077	1.119	0.105
Turst_bank	2.414 *	0.496	1.695 **	0.365	0.690	0.213
Staff	1.232	0.300	2.095 *	0.503	1.560	0.488
Manager	0.723	0.266	1.449	0.494	2.933 *	1.184
Mediterranean	1.789 **	0.493	2.262 *	0.640	3.283 *	1.202
Aegean	2.424 *	0.592	1.950 **	0.529	1.661	0.623
Black Sea	1.140	0.359	2.133 **	0.687	0.894	0.484
Marmara	1.897 *	0.431	4.620 *	1.053	4.003 *	1.219
Middle-south	1.708 ***	0.506	1.091	0.395	2.321 ***	1.045
1-2 bank	0.163 *	0.048	0.274 *	0.073	0.348 *	0.120
3-5 bank	1.174	0.275	0.293 *	0.096	0.641	0.251
6-9 bank	0.602 ***	0.161	0.554 **	0.158	0.119 *	0.076
Comparison group: Public banks					RRR: Relative Risk Ratio	
* Significant at 1% level		**: Significant at 5% level		**: Significant at 10% level	

21

Multinomial Logit Results with İş Bank as the Base Category

Mlogit stats.	# of obs=1643		LRchi2 (87)= 1428.38		Prob > chi2=0.000	
	Log likelih. =-1563.492		Pseudo R2 =0.314			
Variables	**PUBLIC BANKS**		**LARGE PRIVATE**		**SMALL PRIVATE**	
	RRR	**Std. Error**	**RRR**	**Std. Error**	**RRR**	**Std. Error**
Age	1.029 *	0.007	1.000	0.007	0.993	0.009
University	1.068	0.228	1.114	0.210	0.558 **	0.161
Culture	0.902	0.088	1.080	0.095	0.954	0.118
Retired	4.893 *	1.670	1.207	0.472	1.373	0.697
Civil servant	0.374 *	0.101	0.620 ***	0.164	0.908	0.338
Blue collar-pub.	0.332 *	0.133	0.901	0.320	0.926	0.452
Blue collar-pr.	0.414 *	0.098	1.039	0.195	0.694	0.189
Student	2.052 **	0.619	0.770	0.218	0.501	0.261
Tech	0.332 *	0.099	1.266	0.254	1.252	0.366
Credit	1.833 **	0.472	1.658 **	0.399	1.850 **	0.569
Stand	0.533 *	0.111	0.939	0.207	0.566 **	0.161
Family	0.742	0.150	0.793	0.143	0.577 **	0.159
Closeness	0.831	0.158	0.782	0.132	0.586 **	0.147
Service	0.475 *	0.107	1.118	0.199	0.961	0.246
Salary/pension	2.248 *	0.473	0.710	0.150	0.621	0.186
State	5.739 *	1.220	0.231 *	0.071	0.233 *	0.116
Int. Rate	1.029	0.402	1.248	0.468	3.851 *	1.564
Trust_sector	0.943	0.064	1.025	0.068	1.056	0.097
Turst_bank	0.414 *	0.085	0.702 **	0.122	0.286 *	0.081
Staff	0.811	0.198	1.700 *	0.338	1.266	0.365
Manager	1.383	0.509	2.004 **	0.564	4.057 *	1.476
Mediterranean	0.559 **	0.154	1.264	0.319	1.835 ***	0.642
Aegean	0.413 *	0.101	0.804	0.194	0.685	0.247
Black Sea	0.877	0.276	1.870 ***	0.619	0.784	0.434
Marmara	0.527 *	0.120	2.435 *	0.502	2.110 **	0.620
Middle-south	0.586 ***	0.174	0.639	0.227	1.359	0.612
1-2 bank	6.121 *	1.812	1.677 ***	0.503	2.129 **	0.807
3-5 bank	0.852	0.200	0.249 *	0.075	0.546	0.205
6-9 bank	1.662 ***	0.445	0.921	0.251	0.198 **	0.127
Comparison group: Is Bank					RRR: Relative Risk Ratio	
* Significant at 1% level		**: Significant at 5% level		**: Significant at 10% level	

Multinomial Logit Results with Large Private Banks as the Base Category

Mlogit stats.	# of obs=1643		LRchi2 (87)= 1428.38		Prob > chi2=0.000	
	Log likelih. =-1563.492		Pseudo R2 =0.314			
Variables	**PUBLIC BANKS**		**IS BANK**		**SMALL PRIVATE**	
	RRR	**Std. Error**	**RRR**	**Std. Error**	**RRR**	**Std. Error**
Age	1.030 *	0.007	1.000	0.007	0.993	0.009
University	0.958	0.207	0.897	0.169	0.500 **	0.138
Culture	0.836 ***	0.082	0.926	0.082	0.884	0.105
Retired	4.053 *	1.282	0.828	0.324	1.137	0.536
Civil servant	0.603 ***	0.179	1.612 ***	0.427	1.464	0.546
Blue collar-pub.	0.368 **	0.158	1.109	0.394	1.027	0.498
Blue collar-pr.	0.398 *	0.095	0.962	0.180	0.667	0.173
Student	2.665 *	0.832	1.299	0.367	0.651	0.334
Tech	0.262 *	0.077	0.790	0.159	0.989	0.268
Credit	1.106	0.270	0.603 **	0.145	1.116	0.305
Stand	0.567 **	0.124	1.065	0.234	0.603 ***	0.168
Family	0.936	0.198	1.261	0.227	0.728	0.194
Closeness	1.063	0.210	1.279	0.217	0.749	0.182
Service	0.425 *	0.096	0.895	0.159	0.860	0.207
Salary/pension	3.167 *	0.699	1.409	0.297	0.874	0.258
State	24.856 *	7.519	4.331 *	1.324	1.007	0.534
Int. Rate	0.825	0.321	0.802	0.301	3.087 *	1.123
Trust_sector	0.920	0.065	0.976	0.065	1.030	0.092
Turst_bank	0.590 **	0.127	1.424 **	0.248	0.407 *	0.112
Staff	0.477 *	0.115	0.588 *	0.117	0.744	0.199
Manager	0.690	0.235	0.499 **	0.140	2.024 **	0.626
Mediterranean	0.442 *	0.125	0.791	0.199	1.452	0.496
Aegean	0.513 **	0.139	1.243	0.299	0.852	0.316
Black Sea	0.469 **	0.151	0.535 ***	0.177	0.419	0.229
Marmara	0.216 *	0.049	0.411 *	0.085	0.866	0.245
Middle-south	0.916	0.332	1.565	0.556	2.127	1.024
1-2 bank	3.650 *	0.977	0.596 ***	0.179	1.270	0.438
3-5 bank	3.416 *	1.120	4.010 *	1.205	2.191 ***	0.939
6-9 bank	1.805 **	0.515	1.086	0.296	0.215 **	0.137
Comparison group: Large pr.				RRR: Relative Risk Ratio		
* Significant at 1% level		**: Significant at 5% level		**: Significant at 10% level		