# PATTERNS AND DETERMINANTS OF ENTRY AND EXIT IN TURKISH MANUFACTURING INDUSTRIES

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**Abstract**
*This paper aims to examine the main determinants of entry and exit rates in Turkish manufacturing industries by estimating a Tobit model. With this aim 4-digit data on Turkish manufacturing industries are used covering a 7 year period of 1995-2001. Different from most of other studies in the existing literature, in addition to micro variables macro variables are also included in the study. The results reveal that macroeconomic structure and policies play a crucial role on firms' entry and exit decisions in Turkish manufacturing industries.*

**Keywords:** Entry, Exit, Tobit, Turkish Manufacturing
**JEL Classification:** L10, C23, C34

## 1. Introduction

Firm mobility plays a crucial role in all markets and, hence, entry and exit of firms are highly discussed topics in economics literature. Since the number of firms is fixed in the short run, profit of a firm is a function of price and quantity. In the long run, however, when entry and exit become feasible, profit becomes a function of number of firms in the market. Additionally, number of firms in a market becomes endogenous in the long run while it is exogenous in the short run (Dunne *et al.*, 2009).

In market system, entry and exit work as a selection process. Entry brings new and efficient capital to the market while exit clears the old and inefficient ones. This selection process is affected by barriers to entry and exit and factors that may trigger entry and exit. These barriers and incentives to entry and exit can be seen as effects of market and firm structure. Moreover, entry and exit take place in this process also by affecting each other.

Bain (1956) is considered as the beginning of the studies concerning barriers to entry. According to Bain, entry barriers can be described as; the conditions which enable existing firms to determine a price over minimum average costs without encouraging new firm entry. Bain states that scale economies, product differentiation and absolute cost advantages are the main determinants of entry. After the theoretical and

empirical studies about entry barriers and especially after Caves and Porter (1976), a growing attention in the literature has also been devoted to the exit of firms.

Firm entry and exit represent a significant part of industrial organization. The main reasons behind entry and exit have been investigated for decades and attracted increasing attention for several reasons. First of all, understanding entry and exit patterns is vital to understand the market structure in an industry. Secondly, understanding the main reasons behind firm entry and exit are also important for policy makers in order to try to keep unemployment rates at a minimum level or to determine growing industries or even to see how an industry may react to a possible economic shocks or fluctuations. Industrial organization theory and empirical studies on this issue indicate that there are several incentives and barriers (impediments) to entry and exit.

High rates of current and past profits and high or increasing rates of market demand are seen as incentives to entry. On the other hand; scale economies, cost barriers, multi-plant operations, limit pricing, excess capacity and advertising are seen as barriers to entry in the industrial organization theory.

There are also some factors that can be regarded as incentives and/or barriers under different circumstances such as; product differentiation, R&D and innovation and finally diversification. These factors become incentives when they are realized by entrants; however are entry barriers when realized by incumbents. Furthermore, low current and past profit rates, low or declining rates of market demand and displacement of old firms with new firms are recognized as incentives to exit. Finally, sunk costs, low managerial skills and diversification can be listed as barriers to exit.

Entry and exit are important in a market because, entry can increase competition in the market. Even when there is no entry, threat of entry can force incumbents to act as if they were operating in a competitive market. Further, entry brings new and efficient technology and also new products to the market. In addition, entry increases employment opportunities. Exit, on the other hand, can have severe increasing effects on unemployment; however it can be argued that in the long run exit clears out the old and inefficient technology from the market (Sigfried and Evans, 1994; Ilmakunnas and Topi, 1999; Kleijweg and Lever, 1996)

In this context, the main focus of this paper is to analyse the determinants of entry and exit rates in Turkish manufacturing industries. In order to understand the basic structure of an industry and the main reasons behind firm entry and exit to industries, both micro and macro variables are used in this study. Using macro variables enables us to see how Turkish manufacturing industries might react to macroeconomic factors and might give insight about how shocks might affect the market structure and also might provide vital implications such as how the negative effects of macroeconomic factors can be minimized.

This study uses 1995-2001, 4-digit industry level data to investigate the determinants of entry and exit in Turkish manufacturing industries. For such investigation, panel data Tobit model is employed for estimation due to the censored structure of the data. In this respect, this study makes an important contribution to the existing literature by using a different estimation method.

Remainder of this paper is organized as follows; section 2 provides information about the previous literature, section 3 describes the data and methodologies used, section 4 present the estimation results and finally section 5 concludes the study.

## 2. Empirical Background

Dunne and Roberts and Samuelson (1988), use plant level US data to examine patterns of gross entry, exit and survival rates of firms in US manufacturing industry, covering a period of 1963-1982. Their

findings show that the highest survival rates are observed among diversifiers. Baldwin and Gorecki (1991) investigate firm entry and exit in Canadian manufacturing covering 1970-1982 period. Their data allow following plants through time and also making it possible to link plants under common ownership. With such detailed information, authors grouped firms as entrants, exitors and continuing. However; the limitation of their study is that they only performed descriptive analysis of the data rather than conducting an econometric analysis.

Mayer and Chappell (1992) use the same data set as Chappell et al (1990) however employ a slightly different methodology. Determinants of entry and exit are investigated using 1972-1977 US manufacturing industry data in both studies. Chappell et al (1990) argues entry and exit data are integer values and hence needed to be handled differently than classical regression assumptions. According to Chappell et al (1990), entry and exit data should be estimated using probability distribution models and hence employs a univariate Poisson distribution. Mayer and Chappell (1992), on the other hand, use bivariate Poisson distribution analysis, arguing observations on entry and exit have some common aspects. They argue that even though entry and exit can be influenced by common elements, it is important and essential to separate the two. Thus, authors estimate entry and exit models which have common independent variables with a quasi-maximum likelihood method.

Ilmakunnas and Topi (1999) investigate determinants of entry and exit on Finnish manufacturing industry for 1988-1993. This study differs from most of the previous literature in terms of arguing macroeconomic factors have equally important effects on firm entry and exit as microeconomic factors. Hence they use both macro and micro variables as determinants of entry and exit in the study. Micro variables include; profit rates, market size and demand growth. Macro variables include variables such as GDP growth and unemployment. Authors also consider the possibility of interdependency between entry and exit and therefore include lagged values of entry and exit in corresponding models. However, they still estimated two separate entry and exit models. They use Poisson and Negative Binomial models as a method of estimation. Findings indicate macroeconomic influences are also important on firms' entry and exit decisions. In this study, authors take into account the statistical properties of the data and hence used count data models to strictly nonnegative integer values. While quite important and insightful, using count data models make it impossible to take into account the interdependency of entry and exit.

Empirical literature on firm mobility reviewed so far, mainly neglects the interdependence of entry and exit on the models they use. Some studies such as, Ilmakunnas and Topi (1999) mention a possible interdependence, however still choose to estimate entry and exit separately. Ignoring the effect of entry and exit on each other by conducting the analysis for entry and exit separately does not provide a complete picture of firm mobility and may lead to lose some information in this process. In this respect, the "symmetry hypothesis" suggested by Caves and Porter (1976) implies a symmetrical relationship between entry and exit barriers; suggesting that the interdependence between entry and exit is important and should be accounted for in the empirical analysis. In this context, Shapiro and Khemani (1987) investigate the symmetry hypothesis using data from Canadian manufacturing industry for the years 1972-1976. They estimate two equations while employing entry in the exit equation and vice versa. They adopt seemingly unrelated regressions (SUR) technique as an estimation method. Authors use pretty standard independent variables such as profitability, industry growth rate, economies of scale, advertising ratio and concentration index. Their findings support the symmetry hypothesis and indicate that such symmetry arises because barriers to exit are also barriers to entry.

Austin and Rosenbaum (1990) examine the determinants of entry and exit rates in US manufacturing industries using 4-digit data. They employ OLS and simultaneous equations as methods of estimation. Their

findings indicate profits increase entry rates and advertising and sunk costs act as barriers to entry. However they argue while entry and exit are definitely related, it seems unclear that if they are simultaneously determined or not.

Kleijweg and Lever (1996) examine entry and exit in Dutch manufacturing industries for the years 1986-1990. They use different definitions of entry and exit to investigate similarities and differences among their determinants. Authors also specify entry and exit as a function of incentives and barriers. As incentives they use; export share, expected profitability and production growth. As barriers they use capital intensity, advertising intensity, R&D intensity and concentration ratio. Entry and exit equations are estimated both separately and simultaneously. The findings indicate that there are different patterns for different kinds of entry and exit.

In terms of the main determinants of entry and exit, numerous empirical works on entry and exit imply high current and past profit rates and market growth triggers entry and reduce exit. Highly concentrated industries usually have lower entry rates. There is, however, less support and ambiguous results from evidence that entry and exit barriers from scale economies, excess capacity and limit pricing. Sunk costs have found to be significant actors as exit barriers. Finally, R&D intensity does not seem to be an efficient entry barrier. Further, a common finding in the existing literature is that entry and exit are interdependent. Reviewing previous literature on entry and exit allows us making some generalizations. First of all, entry and exit are quite common in almost every industry. Secondly, majority of the variation in firm mobility in the form of both entry and exit across industries and over time can be classified as 'within' industry variation. And finally entry and exit rates are highly and positively correlated.

It should also be mentioned that studies on entry and exit concerning Turkish manufacturing industries are quite scarce. Kaya and Ucdogruk (2002) analyze the entry and exit determinants in Turkish manufacturing industries for the 1981-1997 period using a dynamic panel data analysis. They estimate entry and exit equations separately and use standard micro variables such as; profit, output growth, concentration, labour productivity and wage and productivity differentials. However, they do not take into account the interdependent structure of entry and exit. Further, Gunalp and Cilasun (2006) investigate the determinants of entry in Turkish manufacturing industries covering the 1993-1999 period. They only estimate the entry equation using a dynamic approach. However, they acknowledge the possible interdependency between entry and exit and include the past exit rate into the entry equation. The variables they use include minimum efficient scale, capital and advertisement expenditures, productivity, industry growth concentration, rental expenditures and also export. As well as realizing the possible interdependency problem they also take into account the possible importance of the macroeconomic variables and include export into the equation.

Our study take the entry and exit investigations for Turkish manufacturing industries one step further by including macro variables into the equations and by taking into account both the censored structure of the data and the interrelated structure of firm mobility differs from other studies concerning Turkish manufacturing industries.

## 3. The Structure of Turkish Manufacturing Sector

1980 is usually seen as a critical year in Turkish economy. Therefore, Turkish economy is analyzed in the literature in two periods; pre and post 1980 period (Senses and Taymaz, 2003; Boratav, Yeldan and Kose, 2000). The pre-1980 period is mainly characterized by government interference to the economy; import substitution oriented policies and planned development programs. However, the recessionary period that started in 1977 ended with a major crisis in 1979; Turkey was also affected by the OPEC crises which affected the world economy (Yenturk, 1997).

Liberalization programs are seen as a way out from the crisis. Therefore post-1980 period is mainly characterized by liberalization policies in the economy; export oriented policies; privatization throughout the economy and also several attempts to integrate with the world economy especially the EU (Yenturk, 1997). Additionally, in the 1980-2001 period, Turkey witnessed three economic crises. An exchange rate crisis in 1994, a crisis affected by the earthquake and also by the crisis in Russia in 1999 and finally a financial market crisis in 2001. Further, Turkey became associated with customs union in 1996 (Boratav, Yeldan and Kose, 2000).

Since the major concern of this study is the 1995-2001 period, due to data limitations, analysis regarding Turkish economy and manufacturing sector is also kept to this period. In this context, Figure 1, shows the total numbers of entry and exit in Turkish manufacturing sector for the investigated period. This figure indicates that firm exit in Turkish manufacturing industry has always been smaller than firm entry. Furthermore, it is possible to say that firm exit follows a declining trend for the investigated period. Moreover, a similar declining trend is observed for firm entry after 1999. Since 1999 and 2001 are years of economic crisis such observation is not surprising.

## 4. Data and Methodology

Data set obtained from Turkish Statistical Institute (TurkStat); covers 1995-2001 and provides detailed information on Turkish manufacturing industry. Data set covering 1995-2001 period provides information on gross entry and exit of firms to and from industries, only available for 4-digit on industry level. This data set only covers a 7 year period because of unavailability of gross entry and exit data regarding Turkish manufacturing industry prior to 1995. In addition, data sets end at year 2001, because data for post 2001 period is not compatible with pre 2001 data because of major changes in data collection procedures.

Panel data or longitudinal data sets are defined as data sets that combine time series and cross sections in other words panel data sets are repeated measurements at different points in time on the same unit such as an individual, household, country, firm or in this case industry. Estimations based on panel data sets can therefore capture variation in cross sectional units over time. However, modelling in this setting requires more complex stochastic specifications. The main focus of the analysis when using panel data is the heterogeneity across cross-sectional units (Greene, 2002; Wooldridge, 2002). In this context, using panel data provides some important advantages such as; controlling for individual heterogeneity, more information since it combines cross section and time series information, more variability and less collinearity among variables and finally more degrees of freedom and as a result of all these features it can improve efficiency. Panel data are better suited to investigate the dynamics of a certain relationship. Panel data are also more reliable since they are usually gathered on micro units; hence do not contain the risk of bias resulting from aggregation (Baltagi, 2001).

As we can see from figures 2 and 3, entry and exit rates –used as dependent variables in this study- are censored from left. These variables never take a value below zero, since it is impossible to observe negative entry or exit rates. Hence, this study employs panel data, Tobit model as the preferred estimation methodology[*]. The Tobit model involves a censored dependent variable. This means that the dependent variable is continuous but constrained in some way. Such a model; with a dependent variable which is

[*] The endogenous relationship between entry and exit is a well known fact. However it is impossible to take into consideration both the censored nature of the data and the endogeneity. However, for the endogeneity issue, the model is also estimated using seemingly unrelated regression (SUR) estimation. The results from SUR estimation indicate that entry and exit are interdependent in nature. Furthermore, the results from the SUR estimation are consistent with the Tobit estimation in terms of independent variables. The SUR estimation results are available on request. The authors also think that incorporating the entry and exit rates variables in the corresponding equations allows them to consider the interrelated nature of entry and exit.

constrained to be nonnegative ($y \geq 0$) is first analysed by Tobin (1958) and hence called the Tobit model. The general formulation of the model is:

$$y_i^* = \mathbf{x_i'\beta} + e_i \quad (1)$$

$$y_i = 0 \text{ if } y_i^* \leq 0 \quad (2)$$

$$y_i = y_i^* \text{ if } y_i^* \geq 0 \quad (3)$$

Here $y_i^*$ is a latent variable which can be observed only when it is nonnegative. For the cases that the latent variable is negative, zero is observed instead. The Tobit model uses MLE (maximum likelihood estimation) technique. For panel data; it is possible to adapt the random effects model to the censored regression using a simulation or quadrature –the adaptive Gauss-Hermite quadrature in this case-. Fixed effects model, on the other hand, is more problematic then the random effects because a sufficient statistic does not exist allowing the fixed effects to be conditioned out of the likelihood. There has been some studies which try to make fixed effects work for censored regression models however unconditional fixed effects estimates are usually biased.

In terms of the variables used; it can be argued that the independent variables used in this study intended to encompass commonly used variables in the existing literature. Evidence from previous literature suggests that profit rates and/or profitability of firms are important on firms' entry and exit decisions. Dunne *et. al* (2009) estimate a profit function and find that profitability has an important and significant affect on potential entrants. Similarly, Sigfried and Evans (1994) argue that current and past profits are one of the main incentives to enter and usually have a positive relationship with entry. Further, Austin and Rosenbaum (1990) find that for US manufacturing industries high profits increase entry rates. In a similar manner, Storey (1991) lists profit levels under the "pull hypothesis"; i.e. profits are seen as the main attraction for firms to enter the market. Doi (1999) while examining firm exit in Japanese firms also considers profitability to be one of the main determinants and finds a significant and negative impact from profitability on firm exit. Ilmakkunnas and Topi (1999) while investigating both microeconomic and macroeconomic influences on entry and exit also argue as a microeconomic factor high profit rates attract entry and low profit rates or losses encourage exit. Klaijweg and Lever (1996) include expected profitability in both entry and exit equations as an incentive to entry and barrier to exit. Mayer and Chappel (1992) use profit rates in entry and exit equations and find significant impact from profits on both entry and exit. As a result it is possible to say that most researchers use profit rates or profitability in their analyses and find that profit is one of the main factors that affect entry and exit.

Another important variable that influences entry and exit is industry growth. Similar to profit, industry growth is also used in most of the empirical studies and the findings indicate that it has a positive impact on entry and a negative impact on exit. Hence; it can be said that industry growth act as an incentive to entry and a barrier to exit[†].

Apart from profitability and industry growth, those seen as two main factors that affect entry and exit, several additional variables are also used in previous studies such as; scale economies, cost barriers, limit pricing, excess capacity, product differentiation, R&D expenditures, sunk costs and many others as incentives and/or barriers to entry and exit.

It is also worth mentioning that the dependent variables are used as rates in order to take into account the size of the industry. In this respect, variables used in this study and the sign expectations are summarized in Table 1:

[†] (Baldwin & Gorecki, 1991); (Berlgrund & Brannas, 2001); (Chappell, Kimeyni, & Mayer, 1990); (Doi, 1999); (Dunne, Klimek, Roberts, & Xu, 2009); (Dunne, Roberts, & Samuelson, 1988); (Georski, 1995); (Ilmakunnas & Topi, 1999); (Mayer & Chappell, 1992).

## 5. Results

The descriptive statistics of the variables used in this study are presented in Table 2.

Table 3 presents the estimation results of the following models;

$$ENTRY_{it}= \beta_0+\beta_1 EXIT_{it}+\beta_2 PROFIT_{it}+ \beta_3 IGR_{it}+\beta_4 CONCENTRATION_{it}+ \beta_5 PRODUCTIVITY_{it}+ \beta_6 SUNK\ COSTS_{it}+\beta 7 INFLATION_{it}\ \beta_8 X_{it}+\beta_9 M_{it} +\varepsilon_{it} \quad (1)$$

$$EXIT_{it}= \beta_0+\beta_1 ENTRY_{it}+\beta_2 PROFIT_{it}+ \beta_3 IGR_{it}+\beta_4 CONCENTRATION_{it}+ \beta_5 PRODUCTIVITY_{it}+ \beta_6 SUNK\ COSTS_{it}+\beta 7 INFLATION_{it}\ \beta_8 X_{it}+\beta_9 M_{it} +\varepsilon_{it} \quad (2)$$

Results from the Tobit model clearly indicate a positive relationship between entry and exit rates. Such result is not unexpected since it is well known that entry and exit are interrelated. Using the entry and exit variables in subsequent estimations allowed us to acknowledge this interrelated structure of firm mobility. Although we do not argue that the Tobit model is the best specification to take into account for the interdependency. It is the right specification for the data in hand because of the censored structure of the data.

When the results from Table 3 are further investigated it can be seen that, the macro variables have a great impact on entry and exit behaviours. Inflation, exports and imports are all statistically significant in both models. The results indicate that inflation negatively affects entry while positively affects firm exit. However, the marginal effect of the variable implies that inflation has a larger impact in the entry model than in the exit model. Therefore, it is possible to say that inflation affects entry more than it affects exit in Turkish manufacturing industries. Such result is particularly important for Turkey since inflation has always been an important problem, especially in the investigated period. The sign of export and import rate variables from both equations indicates that the possibility of export and import increases firm mobility in both ways. The signs being same in both equations might seem surprising at first. However, we believe that it can be interpreted as possibility of imports and exports in an industry increases firm turnover rate. The possibility of export makes the industry more attractive for entrants. This hypothesis is also supported by the larger marginal effect of export variable in the entry model. However, it is also possible to say that it is harder to stay at international markets. Firms that cannot keep up with the international demand –perhaps technologically- will have no choice to exit. Import, on the other hand, will force firms to compete with international firms. It is clear that competing with firms from different countries with different costs can be problematic for some firms and these firms will cease to exit. In a similar manner, the marginal effect of import variable indicates that import has a larger impact on the exit model. However, new entrants –with the possibility of new technology- might want to benefit from the competition. In addition, since entry and exit are interrelated, increasing in the firm exit will also enhance entry to that industry and *vice versa*. Furthermore, profit has a positive impact on firm entry however statistically insignificant on firm exit. This means that firms enter when they find it profitable, however for the incumbents other factors become more important than profit on their decisions of exit, such as sunk costs or other factors that we fail to measure, such as morality issues or responsibilities to workers/region/country. Consistent with the expectations, sunk costs do not explain firms' entry decisions but sunk costs have the largest marginal effect the exit model, which implies that sunk costs are the main determinants of firms' exit decisions. We can say that existence of sunk costs keep firms in the industry even when it is not quite profitable, or even when the macroeconomic environment is not promising. Productivity is also an important factor affecting both firms' entry and exit decisions whereas this effect is larger for firms' entry decisions. Finally, industry growth rate and concentration rate do not explain entry or exit in Turkish manufacturing industries.

## 6. Conclusions and Discussions

The aim of this paper is to examine the pattern and determinants of entry and exit behaviours in Turkish manufacturing industries. For this purpose, 4-digit industry level data set covering the 1995-2001 period is used and Tobit model is employed as the preferred estimation method.

It should be noted that, different from most studies concerning Turkish manufacturing sector, this study uses gross entry and exit data in the analysis. Further, we use macro variables as well as micro variables in our study. Finally, we believe that the empirical methodology that we employ is accurate considering the censored structure of the data. The results from the econometric analysis are consistent with the theory and hence expectations. The determinants of entry in Turkish manufacturing industries are; profit rates, labour productivity, inflation, export rates and import rates. The determinants of exit are; sunk costs, inflation, export rates and import rates. Furthermore, the results from our study imply that; entry and exit affect each other positively in Turkish manufacturing industries.

It is possible to derive some policy implications according to the estimation results. First of all; profit has an important impact on entry rates in Turkish manufacturing. It is clear that in Turkish manufacturing industries firms tend to enter when find it profitable. However, the results also indicate that sunk costs are dominant in terms of exit in Turkish manufacturing industries. This can be interpreted as when firms decide to enter considering the profit rates in the industry, they need to invest an important deal and hence the existence of such investments prevents them from exiting the industry in spite of the declining profit rates. In terms of policy, such situation can be seen as helpful. Existence of the sunk costs forces firms to stay in the industry longer and hence Turkish manufacturing industries become more resistant to various kinds of shocks in the economy. On the other hand, when we think in terms of firms; we can say that industries that require higher sunk costs might need some kind of support from the government in times of shocks or crisis. The bank loan possibilities might be reconsidered for firms operating in such industry. Because even though profits are decreasing or there is increasing macroeconomic instability these firms will want to stay in order to protect their investments. However, in such conditions these firms might not be able to pay the wages of their workers. In such condition even though the unemployment in that industry will not rise people would suffer a great deal. Finally, it is clear that firms do react to the inflation rate which can be seen as a sign of macroeconomic stability. As a result, macroeconomic structure and the policies applied play a crucial role on firms' decisions in Turkish manufacturing industries.

This study has some limitations regarding the data in terms of its relatively short time dimension; however a seven year period panel data is still thought to reveal important information on Turkish manufacturing industries for the medium run. Results from econometric analyses indicate the importance of macroeconomic variables as well as the dynamic structure of entry and exit in Turkish manufacturing industries. Furthermore, in this study some possibly important variables such as R&D and advertisement expenditures are left out because of the data limitation. Finally firm or plant level data could have been more suitable for this study. These limitations can be taken into consideration for future research and if such data is acquired it will most certainly reveal more detailed information on the subject.

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**Figures:**

**Figure 1**: Total Entry and Exit Numbers in Turkish Manufacturing Sector (1995-2001)

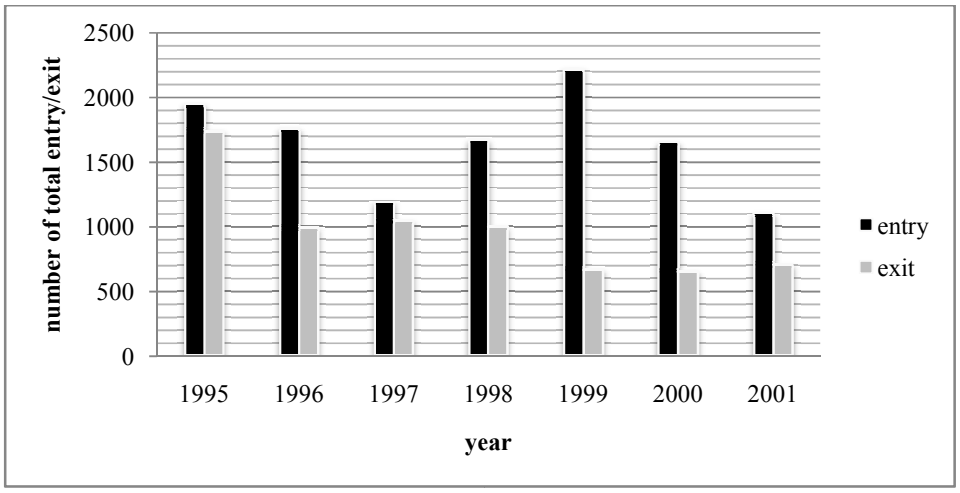



**Figure 2**: Histogram of Entry Rate

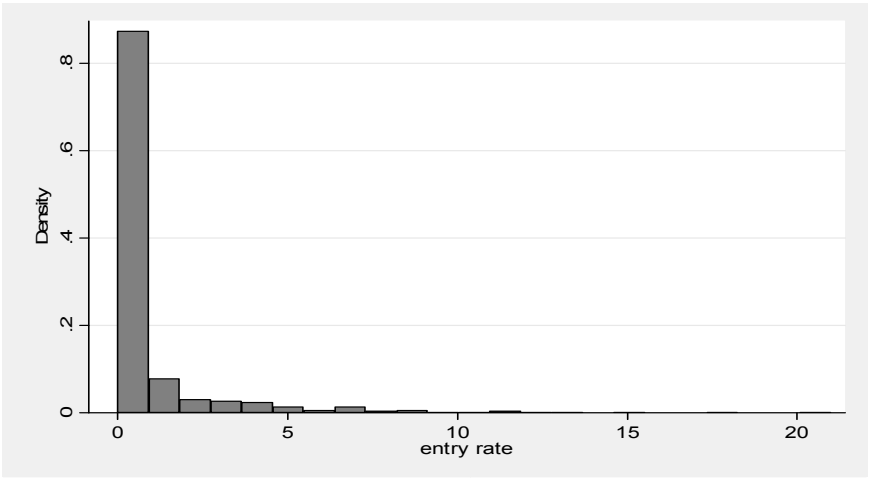
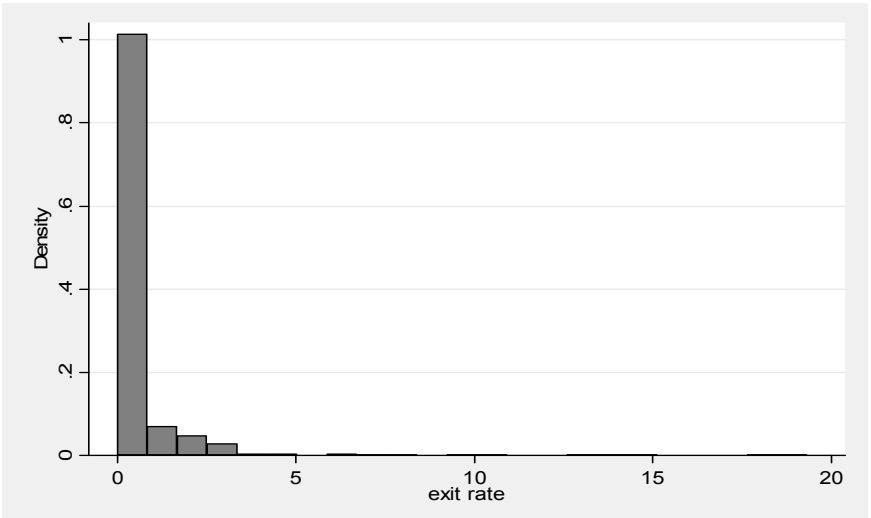



**Figure 3**: Histogram of Exit Rate



**Tables:**

**Table 1:** Variable definitions and sign expectations

| Variable | Description | Sign expectation | |
|---|---|---|---|
| | | Entry | Exit |
| EXIT (Exit rate) | The share of firm exit in total number of firms at time t | positive | - |
| ENTRY (Entry rate) | The share of firm entry in total number of firms at time t | - | positive |
| IGR (Industry growth rate) | The ratio of the difference between total industry income at time t and output at time t-1 to output at time t-1 | positive | negative |
| CONC (Concentration ratio) | Herfindahl index | ambiguous | ambiguous |
| PROFIT (Profit rate) | The share of the difference of value added and payments to workers over total sales | positive | negative |
| X (Export rate) | The ratio of industry exports to industry output | ambiguous | ambiguous |
| M (Import rate) | The ratio of industry imports to industry output | ambiguous | ambiguous |
| INF (Inflation rate) | Inflation rate at time t | negative | positive |
| PROD | Labour productivity | positive | negative |
| SUNK | Sunk costs proxied by investments in fixed capital | positive | negative |

**Table 2:** Descriptive statistics

| Variable | Mean | Std. Deviation | Min. | Max. |
|---|---|---|---|---|
| ENTRY RATE | 0.87479 | 2.235264 | 0 | 21 |
| EXIT RATE | 0.56065 | 1.822325 | 0 | 19.33333 |
| PROFIT | 0.313225 | 0.1128785 | -.0152635 | .8113719 |
| IGR | 0.747238 | .918599 | -1 | 15.98473 |
| CONCENTRATION | 0.147091 | .1618148 | .0041 | 1 |
| PRODUCTIVITY | 0.000290 | .0004055 | 0.0000786 | .0034339 |
| SUNK COSTS | 0.050976 | .0467381 | -.5136124 | .3651316 |
| INFLATION | 68.38571 | 9.220209 | 56.1 | 81 |

| | | | | |
|---|---|---|---|---|
| X | 0.382884 | 3.856985 | 0.0000002 | 76.1301 |
| M | 1.364732 | 11.696 | 0 | 146.6771 |

**Table 3:** Results from Tobit model

| | Entry | | Exit | |
|---|---|---|---|---|
| | Coefficients | Marginal Effects | Coefficients | Marginal Effects |
| ENTRY/EXIT | 0.239*** | 0.135*** | 0.379*** | 0.203*** |
| | (0.609) | (0.036) | (0.049) | (0.295) |
| PROFIT | 1.533** | 0.867** | -0.350 | -0.188 |
| | (0.719) | (0.410) | (0.530) | (0.285) |
| IGR | -0.008 | -0.004 | 0.126 | 0.681 |
| | (0.090) | (0.512) | (0.090) | (0.048) |
| CONCENTRATION | 0.959 | 0.543 | 0.690 | 0.371 |
| | (1.067) | (0.605) | (0.663) | (0.356) |
| PRODUCTIVITY | 1.017*** | 0.575*** | -0.188 | -0.101 |
| | (2.528) | (0.151) | (0.257) | (0.138) |
| SUNK COSTS | 0.452 | 0.256 | -2.284** | -1.22** |
| | (1.059) | (0.599) | (1.022) | (0.54) |
| INFLATION | -0.026*** | -0.014*** | 0.120* | 0.006* |
| | (0.006) | (0.037) | (0.006) | (0.003) |
| X | 0.634*** | 0.358*** | 0.372*** | 0.200*** |
| | (0.091) | (0.053) | (0.068) | (0.036) |
| M | -0.156*** | -0.088*** | -0.205*** | -0.110*** |
| | (0.241) | (0.014) | (0.063) | (0.033) |
| Prob.(>chi$^2$) | 0.0000 | | 0.0000 | |
| Number of obs. | 408 | | 408 | |
| Number of groups | 74 | | 74 | |
| Number of left censored observations | 88 | | 104 | |
| Number of uncensored observations | 320 | | 304 | |
| Number of right censored observations | 0 | | 0 | |

*** 0.01<p, ** 0.05<p, * 0.1<p

Numbers in parentheses are standard errors