The Impact of Entry Barriers on Firm Entry - the Case of the Computer, Communications and other Electronic Equipment Manufacturing Industry

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Abstract: Entry barriers affect the entry of new firms into an industry or the exit of incumbents from an industry, and the purpose of this paper is to investigate the impact of different types of entry barriers on the net entry of firms. This paper empirically analyses the computer, communications and other electronic equipment manufacturing industry in China using time series data from 2009-2022 using multiple linear regression models. The results show that structural barriers, behavioural barriers and administrative barriers all significantly and negatively affect the net entry rate, i.e. they reduce the number of new entrants and increase the survival rate of incumbents. This implies that barriers to entry reduce the level of competition within an industry, which may harm market efficiency and consumer welfare. The research in this paper has both theoretical and practical implications for understanding and improving competition in the computer, communications and other electronic equipment manufacturing industry.

Key words: Barriers to entry;Computer, communications and other electronic equipment manufacturing; Firm entry

1 Introduction

Only high-value economic activities with a large window of technological innovation, high barriers to entry and increasing returns to scale can put a country on the road to prosperity. As an important part of China's "14th Five-Year Plan" strategic emerging industries, the computer, communications and other electronic equipment manufacturing industry is closely related to other industries, involving national information security, network security, military security and other aspects, and is an important foundation for national economic and social development and an important guarantee of national strategic security. During the "14th Five-Year Plan" period, social investment in the computer, communications and other electronic equipment manufacturing industry grew rapidly. The industry welcomes new opportunities for the entry of large amounts of new capital and new enterprises. However, whether enterprises can successfully enter the industry is also subject to a variety of constraints, enterprises need to fully consider the characteristics and changes in market structure, especially the level of barriers to entry. Barriers to entry are the main factors affecting the market structure.It refers to the degree of advantage that the existing enterprises in the industry have over potential entrants and new enterprises that have just entered the industry. In terms of the composition of entry barriers, Yu Luchao classifies entry barriers into three types of structural, administrative and behavioural

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barriers in terms of the nature of the source of the constituent factors[1] , Meng Chang classifies entry barriers into endogenous structural barriers and exogenous administrative barriers, and further classifies the latter into Type I administrative entry barriers, which provide additional benefits to incumbent firms, and Type II administrative entry barriers, which impose additional costs on firms[2] . Mulanfeng suggests that the barriers to entry faced by Chinese manufacturers in the global market for high-end products mainly include absolute cost advantage barriers to entry, product differentiation barriers to entry, and policy barriers to entry[3]. W. G. Shepherd et al. classify entry barriers as exogenous and endogenous, and further classify them as technological, production, marketing and other barriers along the value chain[4][5] . Although from the perspective of neoclassical economics, barriers to entry are not conducive to free competition and their existence reduces social welfare, the barrier-free, atomistic, perfectly competitive market structure loses the efficiency of technological progress and product utility. The reality is that in order to enter the market, firms must first have certain capital and technology, and with economic and social development, as well as scientific and technological progress, the capital and technology required for firms to enter the market are becoming more and more demanding[6]. Bain argues that industries with high barriers to entry tend to raise the level of performance of firms within the industry, and that firms in industries with high concentration and high barriers to entry are more competitive[7]. Mann examined the main factors of entry barriers, such as economies of scale and product differentiation, and found that the performance and profit size of firms entering high-barrier industries increase significantly, and that entry barriers have a significant and positive relationship with the level of firm performance and profit size[8] . It can be seen that the existence of certain entry barriers can prevent inefficient small firms from entering the market, and a higher level of competition can promote the development of the industry. However, some scholars have also suggested that there is a non-linear relationship between incumbents' strategic innovation investment and the level of entry barriers, and that either too high or too low entry barriers lead to lower innovation investment by firms[9]. Therefore, accurately identifying and analysing the constraints for enterprises to enter the computer, communications and other electronic equipment manufacturing industry and scientifically and quantitatively measuring the barriers to entry are of great practical significance for optimising the structure of the computer, communications and other electronic equipment manufacturing industry, guiding the government to make policy adjustments, and facilitating the industry to improve its overall level of innovation and enhance its competitiveness in the market. Existing literature has paid attention to the impact of entry barriers and other factors on enterprise entry, but the research on the impact of entry barriers on enterprise entry is mostly concentrated in the pharmaceutical industry [10], banking industry [11], traditional manufacturing industry [12], basic energy industry [13], automobile industry [14], etc., and a small number of attention to strategic emerging industries [15], there is no analysis of barriers to entry in the manufacturing of computers, communications and other electronic equipment. and the economies of scale of different industries to enter and exit the The impact of economies of scale on entry and exit of different industries is not consistent[16], so there is a need to carry out targeted empirical analyses of this industry. In addition, the existing literature has not adequately identified and examined the factors that create and influence entry barriers, and much of the literature focuses only on structural factors, ignoring strategic factors. Meanwhile, the impact of entry control and industrial organisation policies on entry barriers has not been fully assessed and compared, and much of the literature only discusses theoretically the impact of policies on entry barriers, as well as the need, objectives, means and effects of

government intervention and regulation of entry barriers, and fails to empirically analyse the impact of administrative barriers on business entry.In view of this, this paper constructs a regression model based on the time series data of China's computer, communication and other electronic equipment manufacturing industry from 2009-2022, in an attempt to improve the above shortcomings and measure the impact of different types of entry barriers on the net entry of enterprises, to quantitatively study the impact of entry barriers on the entry of enterprises into the industry on the one hand, and to provide a basis for further optimising the market structure of computer, communication and other electronic equipment manufacturing industry on the other hand.

2 Methods

2.1 Definition of variables

2.1.1 Explanatory variables: net entry rate

Economists have summarised several ways of measuring entry. These include: the entry rate, the net entry rate, the market share of the entrant, i.e. the penetration rate of entry, and the survival time of the entrant after entry (average life cycle). Based on the experience of existing studies and the difficulty of obtaining data, we choose the net entry rate to measure the entry status of the industry.

2.1.2 Explanatory variables: structural barriers, behavioural barriers, administrative barriers

Barriers to entry can be grouped into three categories according to the nature of the source of the constituent factors: first, structural barriers, which are determined by the characteristics of the industry; second, behavioural barriers, which refer to strategic competitive instruments used by incumbents to impede entry by new firms and which are determined by the firms' market behaviour or behavioural expectations; and third, administrative barriers, which refer to industrial policies and regulations and are formulated by the executive[1] . Structural barriers mainly include economies of scale, product differentiation, absolute cost advantage, amount of necessary capital and sunk costs. Economies of scale are measured by the average original value of fixed assets. Product differentiation is measured by R&D intensity. This is because the intensity of R&D in this industry can represent product differentiation to a great extent. The average asset size of industrial producers may reflect the absolute cost advantage of large enterprises in terms of asset size. At the same time, the higher the average asset size, the higher the exit costs of the firm when it exits and the higher the barriers to exit may be. Sunk costs are the investment paid by potential entrants to enter the industry in order to acquire the production technology, an investment that cannot be recouped, which is an additional cost to the entrant that protects the incumbent from raising prices without inducing potential entrants to enter, as measured by the cumulative depreciation of fixed assets as a share of the original value of fixed assets. During the period when capital markets were less developed, there were fewer ways for enterprises to obtain capital. The amount of necessary capital in an industry hinders the entry of many enterprises. However, with the gradual improvement of the capital market and the diversification of the ways and opportunities for enterprises to obtain capital, the amount of necessary capital is no longer an important indicator affecting the entry of enterprises[17][18] . In

addition, the necessary capital is closely related to the economy of scale, the more significant the economy of scale of the industry, the larger the amount of necessary capital, so the definition of structural barriers in this paper no longer considers the amount of necessary capital.

In order to measure the level of structural barriers to entry, this paper selects four representative variables: economies of scale (se), product differentiation (pd), absolute cost advantage (ca) and sunk costs (sunk).These variables are defined and calculated as shown in Table 1.

Table 1 Definition and calculation of variables measuring structural barriers

Structural Barriers(SB)	economies of scale	se	Average original value of fixed assets = original value of fixed assets after elimination of price effects/number of enterprises
	product differentiation	pd	R&D intensity = research and testing expenditures/total industry sales
	absolute cost advantage	ca	Average asset size = total industry assets/number of enterprises
	sunk cost	sunk	Sunk Cost = Accumulated Depreciation of Fixed Assets/Original Value of Fixed Assets

Due to the possible correlation between these variables, using them directly may lead to the problem of multicollinearity. Therefore, this paper uses principal component analysis to extract the common information of these variables and generate the composite indicator SB as a measure of structural barriers. In this paper, the variables subjected to principal component analysis were first subjected to a unit root test, and the non-stationarity variables were differentially and logarithmically transformed to make them stationary. Then, principal component analysis was performed on the above stationary variables, and the results showed that the determinant of the correlation matrix was close to zero, indicating that there was a strong correlation among the variables; the p-value of Bartlett's sphericity test was 0.030, which rejected the initial hypothesis that the variables were not correlated with each other; and the value of the KMO test of sampling adequacy was 0.655, which was higher than the recommended threshold of 0.5, and the data were suitable for principal component analysis. The results of principal component extraction showed that the variance contribution ratio of the first two principal components was 0.8197, which better explained the variance of the original data. Therefore, the two principal components were retained and their scores were weighted and averaged to obtain the structural barriers composite indicator SB.

Behavioural barriers refer to the ability of incumbents to hinder potential entrants through behavioural means such as restrictive or predatory pricing, alliances, tacit collusion, threats, etc. When firms' behavioural barriers impede entry, it implies structural changes in the market and is therefore measured by the degree of concentration. The Herfindahl index can be used to measure industrial concentration, which reflects the market share and size distribution of individual firms in an industry, with higher values indicating greater industrial concentration, a higher degree of monopoly and higher behavioural barriers.

Regarding administrative barriers in entry barriers, Zhong Tingyong summarises previous studies and suggests that administrative barriers are essentially a matter of the strength of the state-owned economy in the industry[19]. Therefore, this paper follows this research idea and selects the proportion of total assets of state-controlled enterprises in the computer,

communications and other electronic equipment manufacturing industry as a proxy variable for administrative barriers.

2.1.3 Control variables: sales growth rate, expected asset margin, loss growth rate

Profit-maximising firms often consider expected returns when making entry and exit decisions, and there are many determinants of expected returns, including expected industry profitability and industry growth rate [12].As a profit-maximising firm, the expected capital profitability of the industry should be an important indicator for the firm to decide whether to enter or not, so the expected profit margin of the industry can be expressed by the expected capital profitability of the industry. To obtain the expected capital profitability, this paper assumes that the expected capital profitability is equal to π-1.In addition, the enterprise will also consider the growth of the industry, the industry with high growth rate, i.e., the industry that develops faster tends to have greater attraction to the enterprise, and the growth rate of the industrial sales reflects the growth rate of the industry and the change of the industrial market size, which is an important factor in deciding whether or not the enterprise enters. In addition, the growth rate of industrial losses also affects the expected returns. This indicator reflects the risk of entry, the higher the growth rate of industrial losses, the higher the risk of entry.All variables are summarized in Table 2.

Table 2 Variable definitions

Variable category	variable name	notation	calculation method
explanatory variable	net entry rate	ne	Net entry rate = number of new firms in the industry/number of firms in the industry in the previous year
explanatory variable	Structural Barriers	SB	Economies of scale, product differentiation, absolute cost advantage and sunk costs were analysed using principal component analysis to obtain
	Behavioural Barriers	BB	Herfindahl Index (HHI)
	Administrative Barriers	AB	Share of state-owned economy = total assets of state-controlled enterprises/total assets of industry
control variable	Sales growth rate	saleg	Sales growth rate = total new sales in the industry / total sales in the industry in the previous year
	Expected capital profitability	eroa	capital profitability = total industry profit/total industry assets
	Loss growth rate	lossg	Loss growth rate = total new losses in the industry/total losses in the industry in the previous year

2.2 Modelling

Based on previous studies and the definitions of variables above, this paper defines the following model. In the model, t represents the year, andβ_0 is the constant term, andμ is the random error term.

$$ne_t = \beta_0 + \beta_1 SB_t + \beta_2 CB_t + \beta_3 PB_t + \beta_4 saleg_t + \beta_5 eroa_t + \beta_6 lossg_t + \mu_t$$

2.3 Data sources

The data in this paper come from the National Bureau of Statistics of China, the statistical object of which is all state-controlled enterprises and non-state-owned enterprises above the scale in the computer, communications and other electronic equipment manufacturing industry, and this paper constructs the time series data with the industry data from 2009 to 2022. The fixed asset investment price index for 2020 and beyond is not disclosed, so the original value of fixed assets is deflated by the "industrial producer price index". The Herfindahl index, which measures concentration, is obtained from Paper Data Analysis. In terms of data processing, for indicators not published by the National Bureau of Statistics (NBS) in this period, the interpolation method was used to fill in the missing data and the data processing was completed with Stata16.

2.4 Stationarity test

After defining the variables, this paper first focuses on the stationarity of the variables, because the use of non-stationarity time series data may lead to the problem of "pseudo-regression". This paper uses the unit root test to test the stationarity of the variables, and for the non-stationarity variables after the test, we use the difference transformation and logarithmic transformation, and the transformed variables can pass the unit root test, which indicates that the transformed variables are stationary and can be analysed in the subsequent analysis.

2.5 Correlation test and multicollinearity test

First, we conduct the correlation test for the stationary variables, and the results are shown in Table 3. From the matrix of correlation coefficients, it can be seen that the net entry rate is significantly negatively correlated with structural barriers and administrative barriers, while the correlation between the net entry rate and behavioural barriers, the growth rate of industrial sales, the expected capital profitability and the growth rate of industrial losses is not significant. In addition, the matrix of correlation coefficients also shows that there is a positive correlation between structural barriers and administrative barriers, while there is a negative correlation between the expected asset profitability and the growth rate of industrial losses, and these results are in line with the theoretical logic of economics.

Table 3 Correlation term test

ne	SB	BB	AB	saleg	eroa	lossg	
ne	1						
SB	-0.828***	1					
BB	0.108	-0.235	1				
AB	-0.732***	0.483*	-0.289	1			
saleg	-0.179	0.236	-0.472*	-0.0180	1		
eroa	0.223	0.0410	0.0410	-0.459*	0.480*	1	
lossg	-0.147	-0.198	0.0730	0.549**	-0.456	-0.780***	1

The multicollinearity test in this paper uses the Variance Inflation Factor (VIF) to make an assessment of the presence of the multicollinearity problem in the model. The results in Table

4 show that the VIF of all variables in the model is less than 5 and the average VIF is 2.93, indicating that the problem of multicollinearity does not exist or can be ignored in the model. There is no overly strong correlation between the explanatory variables in the model, which does not affect the estimation of the regression coefficients and the test of significance.

Table 4 Multiple covariance test

Variable	VIF	1/VIF
lossg	5.020	0.199
AB	3.520	0.284
eroa	3.140	0.318
SB	2.310	0.432
saleg	1.950	0.512
BB	1.610	0.620
Mean	VIF	2.930

2.6 Descriptive statistics

Table 5 Descriptive statistics

variable	N	mean	p50	sd	min	max
ne	14	0.0490	0.0670	0.0910	-0.234	0.158
SB	14	0	-0.0980	1.143	-2.029	3.019
BB	14	-0.00100	-0.00600	0.0170	-0.0180	0.0490
AB	14	0.173	0.172	0.00900	0.160	0.196
saleg	14	0.100	0.0900	0.0530	0.0240	0.248
eroa	14	-0.00100	-0.00100	0.00900	-0.0150	0.0170
lossg	14	0.184	0.154	0.331	-0.520	0.635

The results of the descriptive statistical analysis of the sample data in Table 5 show that the distribution of the net entry rate has a mean of 0.0490, a median of 0.0670, a standard deviation of 0.0910 and a minimum value of -0.234. The net entry rate of the industry over the sample period shows a certain positive tendency, but there are also some negative values and there are some years when the number of exiting enterprises in the industry exceeds the number of entering enterprises. In some years, the number of exits exceeds the number of entrants. In addition, there are large fluctuations and differences in the net entry rate from year to year. Structural barriers is a composite indicator obtained by principal component analysis with a standard deviation of 1.143, with large fluctuations and differences. Behavioural barriers indicate that the market shares of firms in the industry show a certain tendency towards dispersion. Finally, from the distribution of administrative barriers, its mean value is 0.173, the median is 0.172, and the standard deviation is 0.00900, and the proportion of state-owned economy in the industry shows a certain stability and consistency, and there is no obvious

upward or downward trend. The relatively low mean value of administrative barriers may be due to the fact that state-controlled enterprises do not enjoy an absolute advantage or a dominant position within the industry.

2.7 Regression results

The Ordinary Least Squares (OLS) regression model was used to estimate the linear relationship between the net entry rate (ne) and structural barriers (SB), behavioural barriers (BB), administrative barriers (AB) and other control variables. The regression results are presented in the table below.

Table 6 OLS regression results

Source	SS	df	MS	Number of obs	=	14
Model	0.0967	6	0.0161	Prob>F	=	0.00330
Residual	0.0107	7	0.00152	R-squared	=	0.901
Total	0.107	13	0.00826	Root MSE	=	0.0390
ne	Coef.	Std.Err.	t	P>|t|	95% Conf.	Interval
SB	-0.0490	0.0140	-3.380	0.0120	-0.0830	-0.0150
BB	-1.671	0.812	-2.060	0.0790	-3.592	0.249
AB	-4.635	2.251	-2.060	0.0790	-9.959	0.689
saleg	-0.462	0.283	-1.630	0.147	-1.132	0.208
eroa	2.405	2.223	1.080	0.315	-2.850	7.661
lossg	0.0170	0.0730	0.230	0.822	-0.156	0.190
cons	0.896	0.380	2.360	0.0510	-0.00300	1.795

The regression results show that the model fits well, with an R^2 of 0.9007, indicating that the model explains 90.07% of the variance in the explanatory variables; and the p-value of the F-test is 0.0033, indicating that the model as a whole is significant, with at least one of the explanatory variables having a significant effect on the explanatory variables. At the 0.05 significance level, structural barriers (SB) have a significant negative effect on the net entry rate (ne), while at the 0.1 significance level, behavioural barriers (BB) and administrative barriers (AB) also have a significant negative effect on the net entry rate (ne), suggesting that all three components of entry barriers prevent firms from entering. The regression coefficients in the table above indicate the extent and direction of the impact of different types of barriers on firm entry.In addition, Breusch-Pagan, Cook-Weisberg test and Breusch-Godfrey test were conducted to test whether the model has heteroskedasticity and autocorrelation, and the test results show that the model is free from heteroskedasticity and autocorrelation, which satisfies the basic assumptions of OLS.

First, structural barriers have a significant negative effect on the net entry rate, because the structural barriers measured in this paper include factors such as economies of scale, product differentiation, absolute cost advantage and sunk costs, all of which increase the costs or reduce the benefits of new entrants and thus inhibit their willingness to enter. Economies of scale mean

that incumbents can reduce unit costs by increasing the scale of production, while new entrants need to invest more fixed capital to reach the same scale; product differentiation means that incumbents can attract consumers by offering unique or high quality products, while new entrants need to spend more time and resources to build their own brands or improve product quality; Absolute cost advantage implies that incumbents can reduce production costs by having more advanced technologies or cheaper resources, while new entrants need to invest more money or effort to acquire these technologies or resources; Sunk costs implies that there are investments that cannot be fully recouped by new entrants after entry, such as specialised equipment, advertising costs, research and development costs, etc. , which increase the risk and uncertainty of new entrants and thus reduce their incentive to enter the market. In general, economies of scale, product differentiation, absolute cost advantage and sunk costs all reduce the willingness and possibility of exit because they all increase the difficulty and cost of entering and exiting an industry. However, if the incumbent firm has reached the limit of economies of scale, or if the effect of economies of scale is diminishing or disappearing, then the firm may face an increase in marginal costs or a decrease in revenues, leading to a decrease in profitability or a loss for the firm, at which point the firm may choose to exit the industry to avoid further losses or to find new growth. In terms of product differentiation, if the incumbent's product or service has lost its differentiation from its competitors, or if more attractive or innovative substitutes have emerged in the market, the firm may face a loss of customers or a decline in demand, which may lead to a reduction or loss of revenues. In such cases, firms may choose to exit the industry to avoid being displaced or to seek new opportunities. Meanwhile, if the incumbent's cost advantage has been eroded or surpassed by competitors, or if lower-cost or more efficient production methods have emerged in the market, the firm may face price wars or margin squeezes, leading to a decline or compression in profitability. The absolute cost advantage of other firms may lead them to exit the industry to avoid obsolescence or to find new advantages. In addition, incumbents whose sunk costs have reached high levels, or where there is a large gap between sunk costs and current market value, are likely to face asset write-downs or write-offs, leading to an increase in leverage or risk. In such cases, it may be a better option for the firm to exit the industry, as this will allow the firm to avoid further losses or to seek new investment.

Second, behavioural and administrative barriers also have a significant negative impact on net entry rates. This is because both behavioural and administrative barriers increase the competitive pressure on new entrants or limit their market opportunities, thereby discouraging entry. Incumbents will maintain or increase their market share or profit levels by adopting certain strategic behaviours, such as pricing strategy, advertising strategy, innovation strategy, etc., which make new entrants face more intense competition or higher barriers to entry.In addition, the government or other institutions restrict or intervene in market competition through laws and regulations or policies such as licensing systems, standard specifications, subsidy policies, etc., all of which require new entrants to meet more conditions or incur more costs to enter the industry.

Finally, the control variables industry sales growth rate, expected asset profitability and industry loss growth rate have no significant effect on the net entry rate. This may be due to the fact that they are all indicators of the profitability or growth prospects of the industry and have the same effect on both new entrants and incumbents: attracting or expelling. If the industry's sales growth rate or expected return on assets is high, it indicates that the industry has a larger market demand

or profit margin. More new entrants are attracted and incumbents are more reluctant to exit. At the same time, it is also possible that the high profit margins attract a large number of new entrants, leading to intense competition, with many firms unable to survive and exiting. In the end, firms enter and exit in roughly equal numbers. On the other hand, if the growth rate of industry losses is high, it indicates that the industry is under greater business risk or loss pressure, which would drive out more new entrants and make it easier for incumbents to exit.

2.8 Robustness Tests

In order to test the robustness of the regression results, this paper excludes the outliers and outliers of structural barriers, behavioural barriers and administrative barriers based on the method of statistics, shrinks the tail of SB and AB by 5% up and down, and shrinks the tail of BB by 10% up and down, and builds a model with the processed variables, and at the same time conducts the test of multiple covariance, heteroskedasticity and autocorrelation on the processed model. The test results show that the model has no multicollinearity, heteroskedasticity and autocorrelation, which satisfies the basic assumptions of OLS. Table 7 shows the regression results after removing the outliers. Compared with the regression results without outlier removal in Table 6, the coefficients and significance levels of the core explanatory variables remain basically unchanged after outlier removal, indicating that the regression results have a high degree of robustness.

Table 7 Robustness tests

Source	SS	df	MS	Number of obs	=	14
Model	0.100	6	0.0167	Prob>F	=	0.000900
Residual	0.00715	7	0.00102	R-squared	=	0.933
Total	0.107	13	0.00826	Root MSE	=	0.0320
ne	Coef.	Std.Err.	t	P>|t|	95% Conf.	Interval
SB	-0.0530	0.0120	-4.540	0.00300	-0.0810	-0.0260
BB	-3.500	1.122	-3.120	0.0170	-6.153	-0.848
AB	-3.425	1.774	-1.930	0.0950	-7.621	0.770
saleg	-0.643	0.252	-2.550	0.0380	-1.238	-0.0480
eroa	3.088	1.858	1.660	0.140	-1.304	7.480
lossg	-0.00500	0.0590	-0.0800	0.935	-0.143	0.133
cons	0.699	0.297	2.360	0.0510	-0.00200	1.401

3 Conclusions

This paper examines the impact of different types of entry barriers on the net entry of firms through an empirical analysis of the computer, communications and other electronic equipment manufacturing industry. It finds that structural, behavioural and administrative barriers significantly reduce net entry. Entry barriers increase the difficulty and cost of entry for new firms and inhibit the exit incentives of incumbents, leading to weakened intra-industry competition and reduced efficiency. Structural barriers increase the costs or reduce the benefits for new entrants, while at the same time reducing the willingness and likelihood of the

incumbent to exit, unless the incumbent faces the reversal or disappearance of economies of scale, product differentiation, cost advantages or sunk costs; behavioural barriers increase the competitive pressure on new entrants or limit their market opportunities, while at the same time increasing the incumbent's competitive advantage or ability to withstand them; and administrative barriers increase the conditions or costs for new entrants, while protecting the interests or rights of incumbent firms. In order to promote market competition and efficiency and to facilitate industrial development, measures should be taken to reduce barriers to entry, such as encouraging innovation and differentiation, protecting intellectual property rights, regulating market behaviour and simplifying administrative procedures.

The research in this paper also has some limitations and shortcomings. First, this paper uses an ordinary least squares model to estimate the effect of entry barriers on the net entry rate, but it does not take into account the fact that there may be a lag in the effect of entry barriers on the entry of firms, which may lead to problems such as reverse causality or simultaneity bias. Future research could attempt to use distributional lag models to address this issue and improve the reliability of the estimation results. Second, this paper uses time-series data of individual industries for the empirical analyses, but does not provide more detailed comparisons or decompositions of different industries or regions, thus ignoring possible heterogeneity effects. Future research could explore the differences or characteristics of different industries or regions in terms of entry barriers and firm entry and exit, and reveal deeper influences or mechanisms.

The research in this paper has some theoretical and practical significance for understanding and improving the competitive situation of the computer, communications and other electronic equipment manufacturing industry. It is hoped that this paper will provide some useful guidance and insights for governments and businesses to promote the lowering of barriers to entry, increase the activity of firms in entering and exiting the market, and improve competition and market efficiency, so as to promote the development and transformation of the computer, communications and other electronic equipment manufacturing industry.

References

[1] Yu Luchao. (2016). Impact of barriers to entry on industrial performance-an empirical analysis based on Chinese industrial sector. Business and Economics Research (1), 3. https://kns.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2016&filename=SYJJ201601009&v=

[2] Meng, Chang. (2010). Structural versus administrative barriers to entry - an understanding based on the rent analysis paradigm. China Circulation Economy (5), 4.

[3] Mulangfeng. (2019). Entry barriers and their breakthroughs from the current situation of China's advanced manufacturing development. Financial Economics (8), 27-30.10.14057/j.cnki.cn43-1156/f.2019.08.011

[4] Shepherd, W. G., & Shepherd, J. M. (2003). The economics of industrial organisation. Waveland Press. https://books.google.com.sg/books?hl=zh-CN&lr=&id=DXAfAAAAQBAJ&oi=fnd&pg=PR3&dq=The+economics+of+industrial+organisation&ots=bP0yHhof1Q&sig=0mGNMkPCLePEl4oJtXlfIXOTlSw&redir_esc=y#v=onepage&q=The%20economics%20of%20industrial%20organisation&f=false

[5] Pehrsson, A. (2009). Barriers to entry and market strategy: a literature review and a proposed model. European Business Review, 21(1), 64-77. https://www.emerald.com/insight/content/doi/10.1108/09555340910925184/full/html?fullSc=1
[6] Shi, Q., Liang, L., & Zhou, N.. (2022). Identification of High-Quality Industrial Activities and Prospects for Industrial Development in Major Growth Poles. The Economist (2), 11. http://qikan.cqvip.com/Qikan/Article/Detail?id=7106684399
[7] Bain, J. S. (1956). Barriers to new competition: their character and consequences in manufacturing industries. Harvard University Press. https://www.degruyter.com/document/doi/10.4159/harvard.9780674188037.c5/html
[8] Mann, H. M. (1966). Seller concentration, barriers to entry, and rates of return in thirty industries, 1950-1960. the Review of Economics and Statistics, 296-307. https://www.jstor.org/stable/1927085
[9] Yeh, Lin, & Zeng, K.-A. (2013). Barriers to Entry, Strategic Blocking and Firm Innovation. Economic Review (5), 8. CNKI:SUN:JJPL.0.2013-05-007
[10] Sun, G. J., & Qiu, J. X... (2003). A test of entry barriers in the pharmaceutical industry. Advances in Pharmacy, 27(1), 4.10.3969/j.issn.1001-5094.2003.01.017
[11] Chen, Y.. (2006). Analyses and Reflections on Market Entry Barriers in the Banking Sector. Journal of Central University of Finance and Economics (3), 6.10.3969/j.issn.1000-1549.2006.03.007
[12] Wu, S. Busy. (2009). An analysis of entry and exit determinants of Chinese manufacturing firms. Industrial Economics Research (4), 7.10.3969/j.issn.1671-9301.2009.04.003
[13] Ge Wei. (2013). Analysis of factors influencing the entry of enterprises in China's coal industry - an empirical analysis based on panel data model. Science and Technology Innovation and Productivity (12), 4.10.3969/j.issn.1674-9146.2013.12.021
[14] Cho, M. J., & Shin, J. (2022). Identifying a combination of key resources to overcome the entry barriers in the electric vehicle market. IEEE Access, 10, 60373-60386. https://ieeexplore.ieee.org/abstract/document/9791254
[15] Yan JZ, Tong CH, & Qin JJ. (2019). Influential factors of firms' entry into strategic emerging industries - an empirical analysis based on probit selection model. Economic Jingwei, 36(2), 7.10.15931/j.cnki.1006-1096.20190115.012
[16] Deng, Fangfang, & Li, Lu. (2015). Analysis of factors affecting entry and exit of Chinese manufacturing firms - A study based on the symmetric barrier hypothesis. Business Research (11), 8. CNKI:SUN:BUSI.0.2015-11-003
[17] Li, D. C., & Yan, B.. (2004). An empirical analysis of the entry and exit orr model of Chinese industrial firms. Journal of Northwestern University: Philosophy and Social Science Edition, 34(6), 5.10.3969/j.issn.1000-2731.2004.06.016
[18] Yang, T. Y., & Zhang, L.. (2009). Analysis of factors influencing entry and exit behaviour of Chinese manufacturing firms. Management World (6), 9. CNKI:SUN:GLSJ.0.2009-06-012
[19] Zhong Tingyong Xu Chaoya Li Jiangna. (2022). Barriers to entry and the high-quality development of China's cultural industry: protection or inhibition? Journal of Shanghai Business School, 23(1), 59-72. http://qikan.cqvip.com/Qikan/Article/Detail?id=7106647231