

The Influence of Entrepreneurship on the Transformation of Private Manufacturing Enterprises: Based on the Regulating Role of Institutional Environment

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Abstract

The inherent mechanism and influence among institutional environment, entrepreneurship and enterprise transformation have become a hot issue that the academic community pays close attention to. How does the entrepreneurship achieve the transformation of the enterprise in the coordination of the external institutional environment, that is, through what kind of conduction route does the entrepreneurship influence the transformation of the enterprise? What is the mechanism and impact of the institutional environment affecting the relationship between entrepreneurship and enterprise transformation? This paper uses questionnaires to obtain micro-data of enterprises, and constructing the theoretical analysis framework and linear interactive regression equation of "entrepreneurship + institutional environment perception → enterprise transformation", systematically exploring the regulatory effect of institutional environment in the process of entrepreneurial transformation influenced by entrepreneurship.

Key words: Entrepreneurship; Enterprise transformation; Institutional environment; Regulatory effect

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INTRODUCTION

The entrepreneurship characterized by innovation and change has increasingly become the main means for modern enterprises to cope with external changes, overcome the path dependence, and gain sustainable competitive advantage. Especially in the background of the new era of socialism with Chinese characteristics, Chinese new and old kinetic energy transformation, supply-side structural reform and transformation and upgrading of industry are in a critical historical period. Entrepreneurship is indispensable for enterprises to grasp national strategies, historical opportunities and market opportunities such as new industrialization and informatization, and identify, select, acquire, activate, integrate and utilize various effective resources to transform them into corporate values. However, the effective play of entrepreneurship requires a suitable institutional environment. Whether entrepreneurship can promote enterprise's innovation, transformation, and upgrading is often inseparable from the effective coordination, support, and interaction of the external institutional environment. Therefore, displaying entrepreneurship and improving the effective interaction with institutional environment is an important way to promote the transformation and upgrading of enterprises. So more and more research has begun to analyze the drivers factors of institutional environment of entrepreneurship, The inherent mechanism and influence among institutional environment, entrepreneurship and enterprise transformation have become a hot issue that the academic community pays close attention to. Therefore, as a scarce resource that cannot be imitated or copied, How does the entrepreneurship achieve the transformation of the enterprise in the coordination of the efficient external institutional environment, that is, through what kind of conduction route does the entrepreneurship influence the transformation of the enterprise? What is the internal mechanism of entrepreneurship and institutional

environment? What is the internal mechanism and influence of the institutional environment affecting the relationship between entrepreneurship and enterprise transformation and upgrading? These questions have not yet been effectively answered. Therefore, it is necessary to introduce an institutional environment, discuss the relationship, mechanism and effects between entrepreneurship and enterprise transformation and upgrading, so as to open up the “black box” that entrepreneurship affects the transformation and upgrading of enterprises, crack the ultimate mission of institutional environment.

1. RESEARCH METHODS AND DATA SOURCES

1.1 Research Methods

1.1.1 Questionnaire Method

The scope of the questionnaire issued is private enterprises in the cities of Jiangsu, Zhejiang, Shanghai. One method is to visit the spot and distribute paper questionnaires. Another method is to use social networks with kinds of private enterprise resources, such as from tutors, teachers, classmates, relatives, friends, students, alumnus and others, and then through e-mails, WeChat, etc to issue questionnaires. The specific survey objects include core staff such as the CEO of private enterprises, general managers, and senior management staff. Specifically, there are 150 surveys in Zhejiang Province (30 in Hangzhou, 30 in Ningbo, 60 in Wenzhou, 10 in Taizhou, 10 in Jinhua and 10 in Shaoxing), and 50 in Jiangsu Province (10 in Nanjing, 10 in Wuxi, and 20 in Suzhou, 10 in Changzhou), 30 in Shanghai.

1.1.2 Regression Analysis Method

Taking the transformation of private manufacturing enterprises as the dependent variable, taking the innovative spirit, adventurous spirit and enterprising spirit in the entrepreneurial spirit as the independent variables, taking the “political environment, the rule of law environment and the economic environment” in the institutional environment as the adjustment variables, and the entrepreneurs heterogeneity characteristics and heterogeneity characteristics of enterprises are control variables, and constructing linear regression equations, testing the regulatory effect of institutional environment on that the entrepreneurship influence the enterprise transformation.

1.2 Data Sources

Through the questionnaire survey to obtain the micro data of the enterprises, first organize the investigation team and select 20 students with serious attitudes. Then, the survey team will be specially trained, from the structure of the questionnaire and its filling way, precautions, meanings of each item and key points of examination, so that make students with their eyes open, detailed training on the time, method and communication mechanism of this

investigation, and then a group of 4 students consists of 5 groups, each group selects a team leader and a guidance teacher. Each group collects the directory information of the private enterprises in the corresponding provinces according to the distributed scope of the survey, and the searched private enterprise directories are randomly lined according to 1, 3, 5, 7, 9..., or 2, 4, 6, and 8. 10, 12..., or 1, 4, 7, 10, 13, 16..., or 2, 5, 8, 11, 14, 17..., etc., drawing the corresponding companies, and then find their contact information, can not get in touch can abandon and correspondingly postponed, through various ways to communicate with the person in charge of the company to explain the intention, so as to obtain their trust and support, the uncooperative enterprises are to give up to the delay until the number of samples allocated to the group in the area is reached. Then, with the company director make an agreement on the method and time of the questionnaire, and completing the questionnaire distribution, filling and recycling according to the specific details of the training.

2. RESEARCH DESIGN

2.1 Variable System

2.1.1 Dependent Variable

The dependent variable is “enterprise transformation” that is a continuous variable with a fixed distance and fixed ratio. “enterprise transformation” uses four items to measure, select “1 extremely inconsistent” assigned 1 point, select “2 not quite in line” assigned 2 points, select “3 general” assigned 3 points, and select “4 basically consistent” assigned 4 points, select “5 fully consistent” assigned 5 points, the higher of the value that the scores of the four options plus the total average, the greater willingness to transform, the greater possibility for transformation.

2.1.2 Independent Variable

“Innovative spirit”: measured by four items, the scores of the four options plus the total average, and the higher the score, the higher the spirit of innovation. “Adventurous spirit”: measured by four items, the scores of the four options plus the total average, and the higher the score, the higher the risk-taking spirit.

“Enterprising spirit”: measured by four items, the scores of the four options plus the total average. and the higher the score, the higher the enterprising spirit.

2.1.3 Adjustment Variables

“Political environmental perception”: measured by four items, the scores of the four options plus the total average, the higher the score, the higher the perception of the political environment. “legal environment Perception”: measured by four items, the scores of the four options plus the total average, the higher the score, the higher the perception of the legal environment, “economic environment perception”: measured by four items, the scores of the four options plus the

total average, the higher the score, the higher the perception of the economic environment.

2.1.4 Control Variables

Control variables include “entrepreneur gender, entrepreneur character, entrepreneur age, entrepreneurial qualification, property rights, industry-intensive, industry type, enterprise development stage, sales, R&D proportion, years of establishment, total assets, number of employees.

2.2 Model construction

Adopting the linear regression model, first control the basic regression of the control variables, and the control variables with inconspicuous regression coefficients are removed, all the control variables are not significant, so these control variables will be eliminated in the standard interaction regression analysis.

$$\text{transf} = \beta_0 + \beta_1 \text{innov_spir} + \beta_2 \text{adven_spir} + \beta_3 \text{eager_spri} + \beta_4 \text{poli_envir} + \beta_5 \text{law_envir} + \beta_6 \text{econo_envir} + \beta_7 \text{innov_spir} * \text{poli_envir} + \beta_8 \text{innov_spir} * \text{law_envir} + \beta_9 \text{innov_spir} * \text{econo_envir} + \beta_{10} \text{adven_spir} * \text{poli_envir} + \beta_{11} \text{adven_spir} * \text{law_envir} + \beta_{12} \text{adven_spir} * \text{econo_envir} + \beta_{13} \text{eager_spri} * \text{poli_envir} + \beta_{14} \text{eager_spri} * \text{law_envir} + \beta_{15} \text{eager_spri} * \text{econo_envir} + \varepsilon$$

3. REGRESSION DIAGNOSIS

3.1 Detection of Extreme Values

First run the regression of the above interaction model, run predict standres, rstandard after the above linear interactive regression command, and generate standardized residuals. The maximum value of the standardized residual is 2.425872, and the minimum value is -2.4603877, according to the extreme value of $-3 < e < 3$ as the standard, there is no extreme value.

3.2 Error Term Mean Value as 0 Hypothesis Testing

Run predicte, re/sum e/display %10.9fr(mean) after the above linear regression command. The result is shown as below; the mean of the error term is 0. In addition, we use the least squares method to estimate, which is consistent with the original hypothesis that the error term average of the regression analysis is 0.

Table 1
Error Term

Variable	Obs	Mean	Std. Dev.	Min.	Max
e	206	-2.94e-09	.6518224	-2.023637	1.602804

: display %10.9fr (mean)
 -0.000000003

3.3 Normal Distribution Hypothesis Testing

Run predicte, re/sum e/kdensity e, normal after the above linear regression command. The result is shown as below. It can be seen that the error term distribution obeys the original hypothesis of normal distribution.

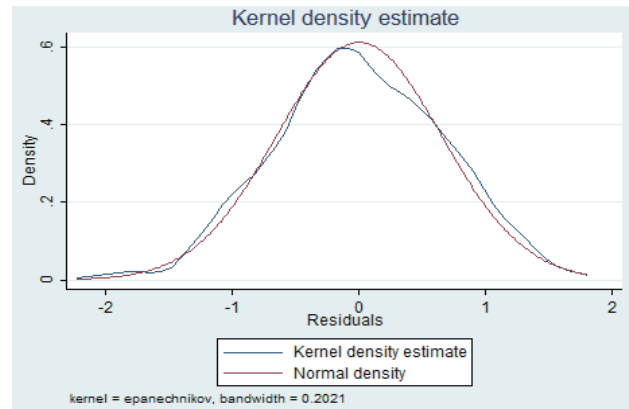


Figure 1
Normal distribution

3.4 Same Variance Hypothesis Testing

Run predicte, re/sum e after the above linear regression command, use estat imtest, white white test, the result is as shown as below, the original hypothesis is that the error term has the same variance hypothesis, and the heteroscedasticity test shows that the p value is greater than 0.05, the original hypothesis cannot be rejected, that is, there is no heteroscedasticity in the error term.

Table 2
Homoskedasticity White's Test

White's test for HO: Homoskedasticity
 Against Ha: unrestricted heteroskedasticity
 Chi2 (99) = 107.37
 Prob > chi2 = 0.2657
 Cameron & Trivedi's decomposition of IM-test

Source	Chi2	df	p
Homoskedasticity	107.37	99	0.2657
Skewness	18.55	15	0.2348
Kurtosis	0.34	1	0.5596
Total	126.26	115	0.2226

4. REGRESSION RESULTS AND DISCUSSION

4.1 Testing of Correlation Coefficient

It can be seen from the correlation coefficient among the following independent variables that the maximum correlation coefficient appears between total assets and sales, the correlation coefficient is 0.7265. Generally speaking, the higher the total assets, the higher the sales, which is in line with economical significance. There is a certain degree of correlation among the independent variables, but some of the independent variables have low correlation, especially the correlation coefficient among the variables below are all within 0.1, the independent variables such as “sales, R&D ratio, establishment years, total assets, number of employees” and core independent variables “innovative spirit, adventurous spirit, enterprising spirit, political environment, economic environment, legal environment” and the dependent variables “upgrading and transformation”, the correlation is low, and it can also be seen that the regression coefficients of these variables are not significant from the latter regression analysis.

Table 3
Correlation Coefficient

	sales	R_D	years	assets	employe	innov_~r	adven_~r	eager_~i	poli_e~r	law_en~r	econo_~r	upgrade	transf
sales	1.0000												
R_D	0.0872	1.0000											
years	0.2512	0.0422	1.0000										
assets	0.7265	0.0534	0.2399	1.0000									
employe	0.6855	0.0250	0.1850	0.6000	1.0000								
innov_spir	0.0788	0.0488	0.0661	0.1280	0.1162	1.0000							
adven_spir	0.0347	0.0951	0.1005	0.0363	0.0334	0.3593	1.0000						
eager_spri	0.0190	0.1097	0.0102	0.0591	0.0677	0.5098	0.4328	1.0000					
poli_envir	0.1033	-0.0260	0.0348	0.1357	0.1237	0.3582	0.1894	0.2814	1.0000				
law_envir	0.0481	-0.0796	0.0366	0.0536	0.1008	0.3200	0.2237	0.2482	0.6318	1.0000			
econo_envir	-0.0068	0.0249	0.1069	-0.0347	0.0064	0.0081	0.0560	0.1818	-0.0625	-0.0842	1.0000		
upgrade	0.0563	0.0445	0.0177	0.0723	0.0481	0.5503	0.2691	0.4703	0.4147	0.4276	-0.0288	1.0000	
transf	0.0505	-0.0318	0.0259	0.0704	0.0668	0.2327	0.4907	0.3794	0.2047	0.2526	0.1911	0.2488	1.0000

4.2 Model Overall Goodness of Fit and Overall Significant Testing

As shown in the below table, a total of 206 samples, the value of F (15, 190) is 15.39, corresponding to a P value is 0.0000, the overall model is significant at the level of 1%. R² is 0.5050, which indicates that the overall goodness of fit of the interactive regression model is higher, and the overall explanatory power of the model is good.

4.3 Economic Significance Test and Significance Test of Regression Coefficient

The core explanatory variables have changed after plus the interaction item that compared with the result of above-mentioned non-interaction term. Only the “economic environment” has passed the 5% level of significance test, the economic environment increases by one unit, and the willingness of enterprise transformation will decrease by

1.8186 units. That is, the better the economic environment, the less the willingness and enthusiasm of the enterprise transformation, this result is economically meaningful. The three dimensions of “innovative spirit, adventurous spirit, and enterprising spirit” in the entrepreneurial spirit and the “political environment and the legal environment” in the institutional environment all have not passed the significant test.

In the interaction between entrepreneurial spirit and institutional environment, the interaction between innovation spirit and legal environment passed the 10% level of significance test, but the level of significance was low. The interaction between adventurous spirit and political environment passed 5% level of significance test, the interaction between the enterprising spirit and the economic environment passed the 5% level of significance test.

Table 4
Significance Test of Regression Coefficient

Linear regression

Number of obs = 206; F (15, 190) = 15.39; Prob > F = 0.0000; R-squared = 0.5050; Root MSE = .73111

transf	Coef.	Std. Err.	t	P> t	Beta
innov_spir	-.4176127	.5406876	-0.77	0.441	-.2935305
adven_spir	.0358956	.6347632	0.06	0.955	.0269124
eager_spri	-.5795099	.6400901	-0.91	0.366	-.3452163
poli_envir	.0709102	.6284343	0.11	0.910	.0508217
law_envir	1.070698	.7796561	1.37	0.171	.7258003
econo_envir	-1.818559	.7905164	-2.30	0.023	-.9806318
innov_poli	-.0814259	.0940239	-0.87	0.388	-.3537331
innov_law	.0162946	.0092079	1.77	0.078	.0833082
innov_econo	.1919632	.1570821	1.22	0.223	.5455235
adven_poli	.2361934	.115512	2.04	0.042	.9422383
adven_law	-.0896413	.1559909	-0.57	0.566	-.3452175
adven_econo	-.1064963	.1375876	-0.77	0.440	-.2950951
eager_poli	-.1526529	.1655539	-0.92	0.358	-.5793739
eager_law	.0029563	.1962418	0.02	0.988	.0107675
eager_econo	-.4998706	.1947168	2.57	0.011	1.391552
_cons	2.621657	2.275562	1.15	0.251	.

The regression coefficient of the interaction term between innovation spirit and legal environment is 0.0163, which indicates that for the legal environment,

the effect of innovation on the transformation of the enterprise will increase by -0.413 (-0.4176+0.0163) units for each unit improved by legal environment. based on the

individual effect of the innovative spirit -0.4176, increase by 0.0163 units, that is, the legal environment plays a positive adjustment effect in the process of innovation spirit promote the transformation effect of enterprises, because transformation is a big risky behavior, a good legal environment is more likely to contribute to the interaction between innovation spirit and enterprise transformation, which is economically significant, and this regulatory effect of legal environment is significant at the 10% level.

The regression coefficient of the interaction term between adventurous spirit and political environment is 0.2362, which indicates that for the political environment, the effect of adventurous spirit on corporate transformation will increase by 0.2721 (0.0359+0.2362) for each unit improved by the political environment. An increase of 0.2362 units based on the 0.0359 alone effect of the adventurous spirit, that is, the political environment plays a positive adjustment effect in the process of adventurous spirit promote the transformation effect of the enterprise, because transformation is a big risky behavior, a good political environment is more likely to contribute to the interaction between adventurous spirit and enterprise transformation, which is economically significant, and this regulatory effect of political environment is significant at the 5% level.

The regression coefficient of the interactive term of the enterprising spirit and the economic environment is 0.4999, which indicates that for the economic environment, the effect of the enterprising spirit on the enterprise transformation will increase by -0.0796 (-0.5795+0.4999) for each unit improved by the economic environment. An increase of 0.4999 units based on the -0.5795 alone effect of the enterprising spirit, that is, the economic environment plays a positive adjustment effect in the process of the enterprising spirit promote the transformation effect of enterprises. The economic significance of adjustment effect is still unclear, and this regulatory effect of the economic environment is significant at the 5% level.

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