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Investment Approval System Reform and Investment Growth**

Abstract

The relationship between administrative regulation and economic prosperity is an important issue of public economics. This paper exploits the 2004 China investment approval system reform as a quasi-natural experiment, and identifies the impact of investment approval control loosening on investment by Difference-in-differences method. Based on the data of China's industrial enterprises in 2001-2007 years, we find that the relaxation of investment approval control significantly promotes the growth of fixed assets investment in corresponding industries. This effect has region and enterprise heterogeneity. The investment growth of higher productivity enterprises is faster, and the effect of reform is more significant in provinces with lower government efficiency. This study provides theoretical support and empirical evidence for orderly easing the government's regulation of micro economic activities to promote economic development.

Keywords: Investment Approval System, Investment Growth, Reform, China

1. Introduction

In economic growth theory, capital accumulation is an important driving force for economic growth. For developing countries, low per capita capital stock constitutes an important obstacle to economic growth. Investment has become an important way to promote economic growth in these countries. However, in many developing countries, investment activities often do not perform well due to market imperfections and institutional distortions. Therefore, the government's improvement of the market system is a feasible way to promote fixed asset investment. However, what kind of government policies are effective, how effective are they? These issues are still not well studied in economics.

This paper exploits the 2004 China investment approval system reform as a quasi-natural experiment, and identifies the impact of investment approval control loosening on investment by difference-in-differences method. Based on the data of China's industrial enterprises in 2001-2007 years, we find that the relaxation of investment approval control significantly promotes the growth of fixed assets investment in corresponding industries. This study provides theoretical support and empirical evidence for orderly easing the government's regulation of micro economic activities to promote economic development.

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2. Institutional Background

Since the reform and opening up, the reform of China's investment system has gone through three stages.

The first stage is the reform of the central investment system after reform and opening up to 2004. The planned economic system began to transit to a market economic system. The administrative examination and approval system remained the instruments by which the government controlled the society. In the investment system, there is still a lack of full implementation of corporate investment decision-making power, inadequate fair government investment management and investment decisions, many eyesight, cumbersome procedures, and lack of transparency in the approval procedures and standards.

The second stage is the reform of the investment system in 2004 to the 18th National Congress. The "Administrative Permission Law" implemented on July 1, 2004 is an important symbol of the institutionalization, standardization, and legalization of China's administrative examination and approval system. In terms of investment approval, on July 16, 2004, the Chinese Central Government promulgated the "Decision of the State Council on the Reform of the Investment System".¹ This is a landmark document in the investment approval reform for two reasons. First, the status of corporate investment entities is clarified, and the company's investment decision-making power can be exercised by the company itself. Second, it clearly defines the scope and form of investment approval. For the first time, this document clearly puts forward approvals, reviews, and filings, as well as the "Catalogue of Investment Projects Approved by the Government," which became the core content of China's investment approval system at the operational level. The document stipulates that the examination and approval system for government investment projects shall still be implemented. For projects where enterprises do not use government investment, no examination and approval system will be implemented, and the approval system and filing system will be implemented in different circumstances. Among them, the government only approves major projects and restricted projects from the perspective of safeguarding public interests. Other projects, regardless of their size, are replaced by the filing system. Business investment projects, if they are within the scope of the "Approved Catalogue," are subject to government review and approval. If an enterprise invests in a project outside of the "approved catalogue", it reports the incident to the competent authority for examination. The project's market prospects, economic benefits, sources of funding, and product technology programs are all determined by the company's independent decision-making and risk-taking. And companies should handle environmental protection, land use, resource utilization, safe production, urban planning and other licensing procedures and confirmation procedures for tax reduction and exemption.

The third stage is the 18th Congress so far. In 2012, the 18th CPC National Congress emphasized the "deepening reform of the administrative examination and approval system." The new government carried out drastic reforms in the economic management system and mechanisms, changed government functions, delegated authority for approval,

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and cancelled or simplified a large number of approved projects. In 2013 and 2014, the China's Central Government revised the "Catalogue of Investment Projects Approved by the Government" two times. At the end of 2014, the government has again drastically reduced the preconditions for the approval of business investment projects and pushed the reform to a new height.

3. Literature

The influence of business environment and government regulation on business activities and economic growth is an important economic research issue that leads to rich literature.

Exploiting the input cost data of the World Bank (Business Environment Index), Djankov *et al.* (2002) compares the differences in entrepreneurial costs in different countries and finds that the cost of entrepreneurship in continental Europe was significantly higher than in the United States, as well as the cost of starting a business in developing and emerging economies is generally higher than that of industrialized countries.² In view of the negative effects of strict government regulations, many countries have carried out reforms of government control systems and began to relax market access control and make the market play a greater role. A large number of empirical studies have shown that many countries or regions deregulate through the administrative examination and approval system reform, and reducing government's improper intervention is conducive to lowering the cost of enterprises, thereby promoting the entry of enterprises, increasing employment, and promoting economic growth.

For developing countries, Alfaro and Chari (2014) studies the economic impact of India's partial removal of industry access control reforms in the early 1990s.³ They find that more small businesses to have entered the market after the government had loosed access control to certain industries. Industry growth is still dominated by large companies, and the degree of misallocation of resources is weakened. Kaplan *et al.* (2011) studies the impact of a rapid start-up enterprise system reform (SARE) implemented in Mexico in 2002 on business entry, and finds that the start-up of enterprise system reforms increases the number of newly established companies by 5%, but this promotion effect tends to disappear after 15 months of policy implementation.⁴ Bruhn's (2011) study of Mexico's rapid start-up of the enterprise system reform also concludes that the reform promotes new enterprises to enter the market.⁵ At the same time, the study also finds that the reforms improve the employment rate in the region.

In developed countries, relaxing government regulations also help companies enter the market and increase employment opportunities. Bertrand and Kramarz (2002) studies

2 Djankov, S., R. La Porta, F. Lopes-de-Silances, and A. Shleifer, 'The Regulation of Entry', *The Quarterly Journal of Economics*, vol. 117, no. 1, 2002, pp.1-37.

3 Alfaro, L., and A. Chari, 'Deregulation, Misallocation, and Size: Evidence from India', *Journal of Law and Economics*, vol. 54, no. 4, 2014, pp.897-936.

4 Kaplan, D.S., E. Piedra, and E. Seira, 'Entry Regulation and Business Start-Ups: Evidence from Mexico', *Journal of Public Economics*, vol. 95, no. 11-12, 2011, pp. 1501-1515

5 Bruhn, M., 'License to Sell: The Effect of Business Registration Reform on Entrepreneurial Activity in Mexico', *The Review of Economics and Statistics*, vol. 93, no. 1, 2011, pp. 382-386.

the impact of French retail industry entry control on the employment growth of the product market, and finds that strengthening the access control will increase the concentration of retailers and slow the rate of employment growth in France.⁶ Branstetter et al. (2014) studied the “On the Spot Firm” reform that was introduced in Portugal in 2005 to reduce the cost of enterprises, and finds that the number of new firms entering the market and the number of jobs increase significantly after the reform. Most of these newly-entered enterprises are concentrated in low-tech industries (agriculture, retail, etc.), with small average sizes and weak survivability.⁷

Empirical studies compare the effect of government regulation in different countries on the socio-economic dimension, and find that strict market access control would prevent companies from entering and reduce employment opportunities. Scarpetta et al. (2002) finds that high levels of product market and labor market regulation hinder the emergence and expansion of efficient and innovative companies, resulting in resource mismatch and lowering productivity in OECD countries.⁸ Desai et al. (2003) finds that entry control has a negative impact on business entry in European Union.⁹ Exploiting the Amadeus (Pan-European Corporate Finance Database) study of EU countries’ companies, Klapper et al. (2006) finds that severe market access regulation prevents the entry of new companies and makes incumbent companies that originally entered the higher-cost industries grow slowly.¹⁰ Ciccone and Papaioannou (2007) finds that in countries where registering new businesses takes less time, more companies emerge in industries experiencing global demand expansion or technology transfer.¹¹ Dreher and Gassebner (2013) compares government regulations in 43 countries in 2003-2005 and finds that in countries with more procedures for registering new companies and higher minimum registered capital requirements, the entry of companies is more likely to be hindered.¹²

In addition, strict market access controls may also cause corruption. Djankov et al. (2002) measures the degree of government control in 85 countries by the entry cost data of the World Bank (the Doing Business Index).¹³ The more regulated countries are more corrupt and have greater proportion of underground economy, and provide the lower quality of public goods and private products. Dreher and Gassebner (2013) finds that in countries with high levels of government regulation, the companies are more motivated bribe gov-

6 Bertrand, M., and F. Kramarz, ‘Does Entry Regulation Hinder Job Creation? Evidence from the French Retail Industry’, *The Quarterly Journal of Economics*, vol. 117, no. 4, 2002, pp. 1369-1413.

7 Branstetter, L., F. Lima, L.J. Taylor, and A. Venâncio, ‘Do Entry Regulations Deter Entrepreneurship and Job Creation? Evidence from Recent Reforms in Portugal’, *The Economic Journal*, vol. 124, no. 577, 2014, pp.805-832.

8 Scarpetta, S., P. Hemmings, T. Tresselt, and J. Woo, ‘The Role of Policy and Institutions for Productivity and Firm Dynamics: Evidence from Micro and Industry Data’, *OECD Economics Department Working Papers*, no. 329, 2002.

9 Desai, M.A., P.A. Gompers, and J. Lerner, ‘Institutions, Capital Constraints and Entrepreneurial Firm Dynamics: Evidence from Europe’, *NBER Working Papers*, no. 10165, 2003.

10 Klapper, L., L. Laeven, and R. Rajan, ‘Entry Regulation as a Barrier to Entrepreneurship’, *Journal of Financial Economics*, vol. 82, no. 3, 2006, pp.591-629.

11 Ciccone, A., and E. Papaioannou, ‘Red Tape and Delayed Entry’, *Journal of European Economic Association*, vol. 5, no. 2-3, 2007, pp. 791-825.

12 Dreher, A., and M. Gassebner, ‘Greasing the Wheels of Entrepreneurship? Impact of Regulation and Corruption on Firm Entry’, *Public Choice*, vol. 155, no. 3-4, 2013, pp. 413-432.

13 Djankov, S., R. La Porta, F. Lopes-de-Silances, and A. Shleifer, ‘The Regulation of Entry’, *The Quarterly Journal of Economics*, vol. 117, no. 1, 2002, pp.1-37.

ernment officials in order to get started business, and they obtain approval for operation approximately 50 days in advance through corruption. Corruption becomes a means to help companies enter the market in highly regulated countries.¹⁴

As the 18th CPC National Congress has speeded up the decentralization reform of administration, China's economists begin to pay attention to the economic logic and economic effects of the government's administration decentralization reform, and focus on studying the reform of the administrative examination and approval system. Exploiting the prefecture-level city data from 2000 to 2013, Xia and Liu (2017) finds that the reform of the administrative examination and approval system promotes economic growth, by the means of establishing administrative examination and approval centre.¹⁵ Wang and Feng (2018) also use the establishment of an administrative examination and approval centre to portray the administrative approval reforms in different cities.¹⁶ The prefecture-level cities that set up an administrative examination and approval centre in 2002 are treated as treatment groups. And those prefecture-level cities that established in 2007 and later that did not set up an administrative examination and approval centre are treated as a control group. Combining with the data of Chinese industrial enterprises and patent data from 1998 to 2006, they adopt the difference-in-differences method and the triple difference method, and find that the reform of administrative approval significantly improves the level of enterprise innovation. Bi et al. (2018) also uses the establishment of an administrative examination and approval centre to portray administrative reforms in China's different regions.¹⁷ Based on data from 333 prefecture-level and 2,852 county-level administrative approval centres and 1998-2007 industrial enterprise data, they study the impact of the approval reform on the enterprise entry. They find that the establishment of an administrative examination and approval centre has significantly increased the rate of enterprise entry. This effect is mainly achieved through the inter-departmental coordination of the administrative examination and approval centre.

Most of the existing literature discusses the impact of the business system on business entry, while there is little literatures that specifically study the impact of investment regulation on corporate investment. We conduct a special empirical analysis of this issue.

4. Empirical Strategy

In 2004, the reform of the investment approval system led to changes in the level of approvals faced by companies in different industries around 2004. For this adjustment, a natural research strategy is the difference in differences method. We regard the reform of the investment approval system led by the China State Council in 2004 as an important natural shock. The characteristic of this reform is that there is a difference in the degree of

14 Dreher, A., and M. Gassebner, 'Greasing the Wheels of Entrepreneurship? Impact of Regulation and Corruption on Firm Entry', *Public Choice*, vol. 155, no. 3-4, 2013, pp. 413-432.

15 Xia, J.C., and C. Liu, 'Administrative Approval Reform, Transaction Cost and Economic Growth of China', *Management World*, no. 4, 2017, pp.47-59. [In Chinese]

16 Wang, Y.J., and X. Feng, 'The Reform of Administration Approval System and Firms Innovation', *China Industrial Economics*, no. 2, 2018, pp.24-42. [In Chinese]

17 Bi, Q.M., X.L. Chen, X.X. Xu, and S.J. Li, 'Administrative Approval Reform and Firm Entry', *Economic Research Journal*, no. 2, 2018, pp.140-155. [In Chinese]

investment review and approval in different fields. We will match this field difference to the National Standard Industry Classification Code. We can identify different adjustments in industries with relaxed investment approval and industries that are not relaxed. We use the differences in the time dimension and industry dimension of investment approval to construct a dual difference model for empirical analysis and identify the investment effect of investment approval reform. Specifically, we use the following benchmark model:

$$y_{jit} = \beta_0 + \beta_1 reform_t \times Nocontrolled_j + X_{jit} \Gamma + \gamma_t + \eta_t + \varepsilon_{jit}$$

We confine the samples we surveyed to the manufacturing industry or companies. Our approach to obtaining treatment and control groups is to compare the three-digit manufacturing industries that are still subject to investment approval after 2004 to those that no longer are approved for investment against the government-approved list of investment projects (2004). Regulated industry: a total of 13 three-digit code manufacturing industries were still subject to investment approval control after 2004: communications equipment manufacturing (401); steel and iron castings manufacturing (359); common non-ferrous metal smelting (331); basic chemical raw material manufacturing (261); Fertilizer Manufacturing (262); Cement, Lime, and Gypsum Manufacturing (311); Rare Earth Metal Smelting (333); Automotive Manufacturing (372); Ship and Floating Device Manufacturing (375); Papermaking and Paper Products (221) Manufacture of synthetic materials (265); sugar production (134); cigarette manufacturing (162). There are also some industries and sectors where agriculture and service industries are subject to approved controls. We do not discuss them because of data scarcity.

The explained variable y_{jit} is the logarithm of the fixed asset investment of industry j enterprise i in year t . The reform of the investment approval system took place in 2004. The China's State Council issued a decision on reform in mid-July of that year. Since the China's central government's policy has often had a time lag from its introduction to implementation and impact, we set 2005 as the first year for the policy to play its role. The dummy variable ($reform_{it}$) for the reform of the investment approval system is assigned a value of 0 in 2004 and before, and a value of 1 after 2004. $Nocontrolled_j$ is an industry dummy variable that denotes the industries affected by the investment approval reform. The above 13 three-digit code manufacturing industries are assigned a value of 0 and 1 for other manufacturing industries.

The sample period is 2001-2007. The reasons for concentrating the sample period in 2001-2007 are as follows: First, our manufacturing enterprise data comes from the Chinese Industrial Enterprise Database. The database based on the above-mentioned statistics has been collected since 1998, and the industrial enterprise database used by most scholars is between 1999 and 2007. Second, in 2008, the Chinese economy was affected by the external economic crisis, and the behavior of the macro-economy and micro-enterprises was adjusted. For the sake of stability, we do not extend the sample beyond 2008. Third, the reform of the investment approval system took place in 2004, and the period before and after the policy shock can be fairly balanced in 2001-2007.

5. Results

We first study the average investment effect of the investment approval system reform. Table 1 reports the basic regression results. The empirical results show that after the reform of the investment approval system in 2004, the investment of industrial enterprises with significantly relaxed degrees of investment approval control is, on average, 5 per cent of points higher than the investment of industrial enterprises with no change in investment approval degrees. This shows that our empirical results not only have statistical significance, but also have significant economic significance.

Table 1. The investment effect of investment approval system reform

	(1)	(2)
nocontrolled	0.209*	0.187
	(0.119)	(0.115)
reform	0.143***	-0.070***
	(0.010)	(0.010)
reform×nocontrolled	0.031***	0.039***
	(0.010)	(0.010)
Control variables	NO	YES
Enterprise fixed effect	YES	YES
Year fixed effect	YES	YES
Province fixed effect	YES	YES
Industry fixed effect	YES	YES
N.	1,115,057	1,104,749
No. of Enterprise	385,836	381,625
R2	0.014	0.049

We further analyze the dynamic investment effect of investment approval reform. We want to see whether this kind of investment effect gradually increases or gradually declines over time or is relatively stable. We use the difference in investment between the treatment group and the control group in 2004 as a benchmark, and then examine whether there are significant differences between the investment differences in the treatment group and the control group in other years and in 2004. The empirical results present in table 2. show that the investment gaps between the treatment and control groups in 2005, 2006, and 2007 have significantly increased. This shows that after the reform of the investment approval system in 2004, the investment in enterprises in the regulation relaxed industries was significantly higher than that in industries with unchanged degrees

of regulation. In most of the years before 2004, there was no significant difference in the investment differences between the treatment group and the control group in 2004. This also shows that the treatment group and the control group meet the conman trend hypothesis.

Table 2. The dynamic investment effect of investment approval system reform

	(1)	(2)
nocontrolled	0.197* (0.119)	0.188 (0.116)
reform	0.141*** (0.014)	-0.070*** (0.014)
nocontrolled×D2001	-0.003 (0.020)	-0.030 (0.019)
nocontrolled×D2002	0.012 (0.018)	0.001 (0.018)
nocontrolled×D2003	0.035** (0.016)	0.018 (0.016)
nocontrolled×D2005	0.051*** (0.015)	0.045*** (0.014)
nocontrolled×D2006	0.045*** (0.015)	0.040*** (0.014)
nocontrolled×D2007	0.033** (0.015)	0.040*** (0.015)
Control variables	NO	YES
Enterprise fixed effect	YES	YES
Year fixed effect	YES	YES
Province fixed effect	YES	YES
Industry fixed effect	YES	YES
N	1,115,057	1,104,749
No. ofEnterprise	385,836	381,625
R2	0.014	0.049

6. Heterogeneity

6.1. Is the effect of the reform of the investment approval system related to corporate productivity?

Although investment approval reform may lead to a more significant increase in corporate investment in industries with weakened approvals, this stimulatory effect may be different for companies with different efficiencies. After investment regulation is relaxed, companies can make investment more convenient. This may provide more market opportunities for those companies that already have higher operating and investment efficiency, but it may also result in those enterprises that have relatively low efficiency gaining greater access. Therefore, the relaxation of investment regulation, which is more conducive to the investment growth of enterprises with high efficiency or low efficiency, is an empirical issue that needs to be confirmed by empirical evidence.

In order to verify this problem, we construct a triple-interaction term, which is interacted by *nocontrolled*reform* with the TFP variables of the company (*productivity*). In the empirical equation, we make the TFP index of the company do not change with time. We obtain the TFP index of each company that does not change with time by arithmetically averaging the TFP indicators of each year of the company from 2001 to 2004.

The empirical results show that the coefficient of the triple-interaction term is significantly positive at the statistical level of 10%. The investment effect of the reform of the investment approval system is more prominent for highly efficient companies. Therefore, from the perspective of optimizing the allocation of resources, the reform of the investment approval system promotes resource allocation efficiency.

Table 3. The effect of the reform and corporate productivity

	(1)	(2)
nocontrolled	0.174 (0.158)	0.101 (0.155)
nocontrolled*productivity	-0.003 (0.012)	-0.005 (0.012)
reform	-0.077 (0.056)	-0.246*** (0.055)
reform*mlp04	0.040*** (0.010)	0.032*** (0.010)
nocontrolled*reform	-0.065 (0.060)	-0.055 (0.059)
nocontrolled*reform*productivity	0.017* (0.011)	0.017* (0.011)

Constant	6.136*** (0.693)	1.663** (0.677)
Control variables	NO	YES
Enterprise fixed effect	YES	YES
Year fixed effect	YES	YES
Province fixed effect	YES	YES
Industry fixed effect	YES	YES
N	896,855	891,319
No. of Enterprise	263,140	261,271
R2	0.014	0.050

6.2. Is the effect of the investment approval system reform related to local government efficiency?

The investment effect of the investment approval system reform does not only vary in enterprise dimension but also varies with the differences in economic and social characteristics of different regions. The investment effect of investment approval system reform may have different performance in different government efficiency regions. One possibility is that, in regions with high local government efficiency, after the degree of investment regulation is relaxed, the enterprises get greater investment enthusiasm and enthusiasm, which means that the effect of the region with high local government efficiency is more pronounced. Another possibility is that, in areas with low efficiency of local governments, after the level of investment regulation is relaxed, corporate investment is greatly reduced by government restrictions, which makes it easier to carry out investment activities. Therefore, this is a question to be empirically tested.

In the empirical equation, we construct a triple-interaction term, which is interacted by *nocontrolled*reform* with the local government efficiency indicator (*goveff*). We make the efficiency indicators of local governments do not change over time. We obtain the government efficiency index of each province that does not change with time by arithmetically averaging the provincial government's 2001-2004 government efficiency indicators. By adopting the average government efficiency, we avoid the disturbance of the transition of individual years to reflect the efficiency of local governments more accurately and reasonably. Using the data before 2005, that is, the data before the reform of the investment approval system, makes the regression more exogenous.

The empirical results in table 4 show that the coefficient of the triple-interaction term is significantly negative. The investment effect of investment approval system reform is more prominent in the provinces where local government efficiency is lower, which supports the second theoretical assumption.

Table 4. The effect of the reform and local government efficiency

	(1)	(2)
nocontrolled	0.082 (0.154)	0.046 (0.151)
nocontrolled×goveff	0.000 (0.000)	0.000 (0.000)
reform	-0.586*** (0.078)	-0.716*** (0.076)
reform ×goveff	0.002*** (0.000)	0.001*** (0.000)
nocontrolled×reform	0.305*** (0.083)	0.362*** (0.081)
nocontrolled×reform×goveff	-0.001*** (0.000)	-0.001*** (0.000)
Constant	-1.121 (3.966)	-7.517* (3.932)
Control variables	NO	YES
Enterprise fixed effect	YES	YES
Year fixed effect	YES	YES
Province fixed effect	YES	YES
Industry fixed effect	YES	YES
N	1,115,057	1,104,749
No. of Enterprise	385,836	381,625
R2	0.014	0.049

7. Conclusion

How government institution and policy affect the investment activities is an important transitional economic research issue. This paper exploits the 2004 China investment approval system reform as a quasi-natural experiment, and identifies the impact of investment approval control loosening on investment. Because the 2004 China investment approval system reform does not treat manufacturing industries equally, we use difference-in-differences method to study the effect of the reform. Based on the data of China's industrial enterprises in 2001-2007 years, we find that the relaxation of investment approval control significantly promotes fixed assets investment growth in corresponding industries. This effect also has distinguished region and enterprise heterogeneity. The investment growth of higher productivity enterprises is faster, and the effect of reform is more significant in provinces with lower government efficiency.

These results have important Implications. First, our result confirms that, in transitional economies, government deregulation of general market activities can promote market prosperity and investment. For capital accumulation is the important driving force for economic growth in developing countries, it is necessary to promote market deregulation. Second, government regulation system reform is an important way to improve market resource allocation efficiency. The reform reduces the institutional obstacles and policy distortions of production factor flow. Finally, to a certain extent, the reform of the central government can narrow the gap in regional institutional capacity and achieve coordinated regional development.

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Сјанбин Ванг

Реформа система одобрења улагања и инвестициони раст

Апстракт

Однос између административне регулације и економског просперитета важно је питање јавне економије. Овај рад користи реформу система одобрења улагања из Кине 2004. године као квази природни експеримент и идентификује утицај ублажавања контроле одобрења улагања на инвестирање методом "difference in differences". На основу података кинеских индустријских предузећа у периоду 2001-2007 година, откривамо да смањење контроле одобрења улагања значајно промовише раст улагања у основна средства у одговарајућим индустријама. Овај ефекат има регионалну и хетерогеност по предузећима. Раст улагања предузећа са већом продуктивношћу је бржи, а ефекат реформе је значајнији у провинцијама са нижом ефикасношћу владе. Ова студија пружа теоријску подршку и емпиријске доказе за ублажавање владиног уређења микроекономских активности ради промовисања економског развоја.

Кључне речи: систем одобрења улагања, инвестициони раст, реформа, Кина