

# How Does the Reform of Collective Operating Construction Land into the Market Promote the Integrated Development of Rural Industrial Integration? Empirical Evidence from China

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## Abstract

**An investigation into the impact of the market entry of collective operating construction land on the integrated development of rural three industries could provide a reference point for the policy system to accelerate the formation of new quality agricultural productivity. This paper employs a multi-temporal DID model to test the impact of the market entry reform on the integrated development of the rural three industries from the perspectives of the development of the financial market, the establishment of the e-commerce platform, the growth of non-farm employment and the development of the non-farm industry. The results indicate that the level of rural industrial integration in pilot counties (districts) is significantly higher than in non-pilot counties (districts) in the context of the market entry reform. This conclusion remains robust following multiple robustness tests. Furthermore, the promotion effect of the market entry reform is more pronounced in agricultural counties, non-food-producing regions, county-level cities. Furthermore, the impact of the market entry reform on rural industrial integration is greater in areas of higher levels of economic development, in areas with younger demographic structures and higher education levels, and over time. The greater the impact, the greater the policy effect, which tends to grow over time. It is therefore of great importance to recognise the significant supporting role of land elements in the integration of rural industries. In order to accelerate this process, it is necessary to further expand the pilot scope and promotion of the market entry reform.**

## Keywords

**Market Access Reform; Rural Industrial Integration; Land System Reform; Multi-Temporal Double-Difference Method.**

## 1. Introduction

A comprehensive strategy for rural revitalisation is an effective means of achieving common prosperity. The industrial sector represents a significant aspect of rural revitalisation, and the integrated development of one, two and three industries in rural areas represents an important mechanism for the promotion of industrial prosperity. In 2015, the central government's 'No. 1 Document' proposed the introduction of modern industrial organisation methods such as industrial chains and value chains into agriculture, as well as the integrated development of one, two and three industries in rural areas. This has been mentioned in the central government's 'No. 1 Document' in the past years since then. In 2022, the 'No.1 Document' of the Central Government proposed to encourage the integrated development of rural industries. In 2023, the Ministry of Agriculture and Rural Development and the Ministry of Finance proposed to continue to promote the integrated development of rural industries. The continuous issuance of central policy documents has clarified the target tasks, specific contents and realisation path for the integrated development of rural industries. Currently, new industries and business forms continue to emerge in rural China. The integration of rural industries is becoming

increasingly evident, and the mechanism of benefit association is becoming more sophisticated [1]. However, it is evident that the overall level of rural industrial integration remains low, the structure of the allocation of factors of production is not optimal, and systemic barriers to the flow of factors such as land are becoming a significant constraint on the prosperity of rural industries.

Land is the most important resource in the countryside and the basic element of rural industrial development. The core content of rural revitalisation is to systematically build a coupled pattern of multiple factors of production, and in population aggregation and industrial development, land plays a basic resource support role. At present, the main body of rural land property rights in China is unclear, the efficiency of land resource allocation and use is relatively low, and problems such as resource scarcity, idleness and waste have long coexisted [2]. The demand for land for investment in new industries in the countryside has increased dramatically, and there is a contradiction between supply and demand and a serious regional imbalance of industrial land in the countryside [3] [4]. Consequently, the implementation of land system reform represents an unavoidable avenue for the achievement of rural revitalisation and rural agricultural modernisation, through the optimal utilisation of land resources and the realisation of their intrinsic value. Since the 18th National Congress of the Communist Party of China (CPC), China has consistently advanced the reform of the rural land system. The Third Plenary Session of the 18th CPC Central Committee explicitly emphasised the necessity to "build a unified market for urban and rural construction land." In accordance with planning and use control, rural collective operational construction land is permitted to enter the market on an equal footing with state-owned land, with the same rights and prices. At the end of 2014, the central government issued the Opinions on the Pilot Work of Rural Land Acquisition, Market Entry of Collective Operational Construction Land and Reform of Residential Bases. In 2015, the Standing Committee of The National People's Congress (NPC) issued a decision authorising the State Council to temporarily adjust the implementation of relevant legal provisions in the administrative areas of thirty-three pilot counties (municipalities and districts), including Beijing's Daxing District, in order to provide policy support to the pilot project of market entry for collectively operated construction land. In 2015, the initial cohort of 15 counties was designated as pilot locations, with a further 18 counties joining the pilot list in 2016. The pilot cycle was scheduled to conclude on 31 December 2019. Currently, local governments have enacted implementing rules and other supporting policies based on the overarching design, and the pilot work is being actively promoted across the country.

The reform of market entry for rural collectively operated construction land has become the core content of China's rural land system reform. As the pilot work of China's collective operating construction land into the market reform continues to advance, the relevant research work is shifting its focus from the legitimacy and necessity of collective operating construction land entering the market to academic analysis of the main body of the market, the distribution of benefits, behavioural choices, the dilemma of entering the market and improvement of the aspects of theoretical and policy research. In recent years, there has been a gradual increase in empirical research on the policy effects of the reform of market entry for collectively operated construction land. A number of studies have been conducted to analyse the effects of the market entry reform of collectively operated construction land on a range of economic and social outcomes. These include farmers' land property income [5][6], the regional land market [7], urban land use efficiency [8], local financial revenue [9], county economic growth [10][11][12], and the integration and development of rural and urban areas [13][14]. Furthermore, there is a body of literature that empirically examines the effects of the reform of collectively operated construction land on urban-rural integration and development. This includes the market entry reform and the systematic relationship between rural secondary and tertiary industry development [15][16].

In conclusion, the existing literature tends to focus more on the policy implications of the reform of market entry for collectively operated construction land on the rural land market and industrial development. However, there is a paucity of studies that adopt a holistic approach, examining the integration of the three industries in rural areas. Furthermore, there is a dearth of studies that investigate the impact of market entry for collectively operated construction land on the integration of the three industries at the county level. Rural three-product integration is the process by which resources flow and develop among industries. The primary objective of the market entry reform is to facilitate the flow of land resources in a government- and market-linked manner. This is done with the intention of creating conditions for the optimal allocation of resources, such as capital and labour. Once these conditions have been met, the reform will then inject momentum into the development of the three rural industries and their integration [16]. However, the impact of market entry reform on the integration of the three rural industries and the underlying mechanisms have not been extensively studied. For this reason, this paper takes the pilot reform of market entry of collective operating construction land in 2015 and 2016 as an example and analyses the impact mechanism of market entry reform on rural industrial integration. A multi-temporal double difference model is constructed to estimate and test the impact effect and mechanism of the reform of the agricultural land system on the integration and development of the three rural industries. The results of the study are expected to provide valuable policy insights for the integration and development of the rural industry and the advancement of the pilot reform of the land system. It is anticipated that the research findings will provide valuable insights for the integrated development of rural industries and the promotion of land system reform pilot initiatives. In comparison to existing literature, this paper makes several contributions. Firstly, it analyses the impact of collective operating construction land entering the market on the integrated development of rural industries from the perspective of rural three-product integration. Secondly, it employs a cutting-edge policy evaluation tool, the multi-temporal DID methodology, to assess the policy effect based on county samples. Thirdly, it probes the mechanism of action between the two.

## 2. Theoretical Analysis and Research Hypothesis

Rural three-industry integration is a production mode that facilitates closer connections between rural primary, secondary and tertiary industries by breaking down industrial barriers, promoting factor aggregation, industrial linkage, technology diffusion and absorption, and other related processes at a specific stage of the development of productive forces [17] [18] [19]. The fundamental objective is to enhance the comparative labour productivity of agriculture and related industries [20]. The integration of the three industries introduces a variety of new market openings and new technologies into agriculture and rural areas, promoting the extension of the vertical industrial chain of agriculture and the expansion of horizontal multi-functionality. It also makes the comprehensive integration of agriculture, industry and services, and the optimal allocation of agricultural factors of production [21]. From the perspective of the development path of industrial integration, it is evident that the promotion of the development of rural agricultural economies necessitates the establishment of a market-oriented agricultural production system. Agricultural industrialisation represents a specific form of the realisation of agricultural industrial integration [22]. Agricultural industrial integration can also give rise to new agricultural industry chains and new business forms and markets, promoting industrial change and innovation [23]. This is the mainstream trend of the development of agricultural modernisation and an important path for rural industrial revitalisation.

The integrated development of rural industry is contingent upon the establishment of an optimal factor supply system, with the effective supply of land factors representing a pivotal aspect [24]. The primary challenge currently facing China's rural land system is the issue of land property rights. The reform of the rural land system can be conceptualised as a process of dynamic adjustment of land property rights. The objective of the market reform of collectively operated land is to optimise the utilisation of idle land resources, facilitate the rational mobility of land use rights, unleash the potential for rural development, and facilitate the advancement of new urbanisation and urban-rural integration and development, while maintaining the separation of "three rights". The following section will elaborate on the impact mechanism of the pilot reform of market entry of rural collectively operated construction land on the integrated development of rural three industries.

1. The reform of market entry for collectively operated construction land is expected to result in an increase in the quantity and type of agricultural land supply, thereby providing a valuable resource for the integration of the three industries.

In comparison to state-owned land, collectively operated construction land offers several advantages, including smaller parcels, lower cost, and convenient accessibility. This land can be supplied through a variety of means, including granting, leasing, and other forms of construction land for industrial, commercial, cultural, and tourism purposes. This approach is conducive to the development of new industries and new forms of economic development in rural areas, thereby promoting the growth of non-agricultural industries and the creation of non-agricultural employment opportunities. The integration of the three industries necessitates the construction of various types of platforms and parks as carriers, and the effective supply of land elements as support conditions is required for the construction of platforms and parks. The reform of rural land acquisition allows county governments to utilise the scattered stock of construction land in villages for self-management or joint ventures, thereby increasing the land supply for the development of different types of rural industries. This, in turn, provides the basic conditions for the integration of new technologies and the development of new industries such as parks and platforms.

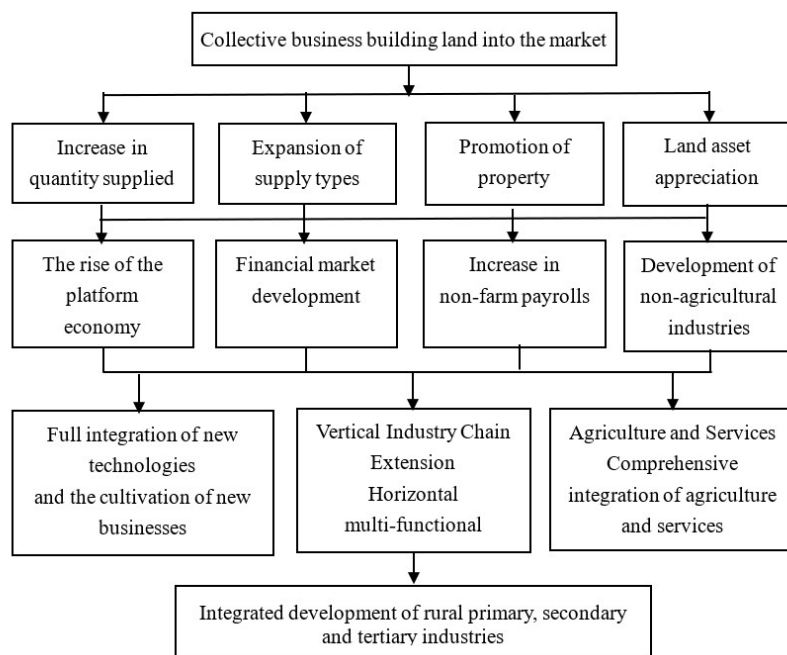
The low entry thresholds, low business risks, low investment capital and natural fit between e-commerce sales platforms and farmers have facilitated the gradual and eventual expansion of rural e-commerce into a complete industrial chain, comprising agricultural products production, planting, processing and sales. This has resulted in the comprehensive integration of new technologies, agriculture and service industry development. Furthermore, the market entry of collective operating construction land provides land support for the development of e-commerce platforms, as well as attracting foreign capital and technology to enter the countryside to develop new types of agriculture, which is conducive to the promotion of the deep integration of the development of the agricultural and service industries.

2. The reform of market entry for collectively operated construction land has the effect of promoting land property transactions and land asset appreciation, thereby providing labour and capital support for the integration of the three industries.

The market entry of collectively operated construction land confers upon farmers the right to transfer land. This effectively reveals the value of the right to use collectively operated construction land and brings land appreciation benefits to village collectives. The activation of security rights allows farmers to use collectively operated construction land as collateral for banking industry and other financial institution loans, providing crucial financial support for market reform. This, in turn, allows farmers to share in the dividends of the reform, promoting income diversification. This will further promote the development of rural financial institutions, alleviate the financing constraints of farmers, and enhance the overall financial level of the county. It will also provide a source of funding for the integrated development of rural

industries, thus facilitating the full integration of new technologies and the cultivation of new business models.

In the reform of market entry for collective operating construction land, the compensation method for land acquisition has been further improved, and a range of compensation methods ensures that farmers' living standards will not decline. A portion of the revenue generated from land concessions is allocated towards the establishment of a long-term mechanism for the livelihood security of expropriated farmers. This mechanism addresses the social security system of employment, old age, medical care and housing for expropriated farmers who have lost their land. Additionally, it aims to reduce the proportion of preventive savings for farmers, and to unleash the consumption demand of farmers as well as the investment demand, in order to provide development funds for the integration of rural industries. The expropriation of rural land and the market entry of collective operating construction land have been linked to create a mechanism for the reasonable distribution of the land appreciation obtained from the transfer of rural land expropriation and the market entry of rural collective operating construction land between the state and the collectives. This allows the village collectives and the villagers to share in the land appreciation proceeds, thereby increasing the income of the peasants. A portion of the proceeds from the marketing of land value-added will be invested by village collectives and farmers into rural industries, rural infrastructure and modern agriculture. These sectors are currently underdeveloped in terms of capital, and therefore require urgent attention. This investment will contribute to the further development of the village collective economy. The market entry reform provides construction land for industrial development, cultural tourism construction and innovative projects. It also provides conditions for a large number of labourers detached from agricultural production to engage in secondary and tertiary production labour. Furthermore, it is conducive to the promotion of vertical industry chain extension and horizontal multifunctional expansion of existing industries. Consequently, it provides effective support for the integrated development of the three rural industries in terms of capital, labour and market demand.



**Figure 1.** Mechanisms and paths of the impact of collective management of construction land into the market reform on the integration of rural three industries

In light of the preceding analysis, this paper presents the following research hypotheses:

Hypothesis 1: The reform of market entry for collective operating construction land facilitates the rational flow of land resources and increases the effective supply, thereby providing resource support for the emergence of rural secondary and tertiary industries. Consequently, this favours the integration of rural industries.

Hypothesis 2: The reform of market entry of collective operating land for construction has led to the development of non-agricultural industries, an increase in non-agricultural employment and income, the rise of the platform economy and the development of the financial market. This is an important mechanism to promote the development of rural tertiary industry integration.

In conclusion, the theoretical framework for analysing the mechanisms and pathways of the impact of the market access reforms on rural triple-diploma integration is presented in Figure 1.

### 3. Research Methodology

#### 3.1. Benchmarking Model Setting

The implementation of the market entry reform of collectively operated construction land (hereinafter referred to as the market entry reform) can be regarded as a quasi-natural experiment. In this paper, the years 2015 and 2016 are taken as the base period of policy implementation. The pilot counties (districts) of the market entry reform are set as the experimental group, and the other counties (districts) are taken as the control group. The multi-period double-difference-in-differences (DID) method is used to assess the effects of the market entry reform.

As the pilot sample of counties (districts) only accounts for 1.6% of the full sample size, and at the same time, when the grassroots government implements the pilot municipal entry reform, there are certain differences in the level of economic development, natural resource endowment, and spatial attributes of different counties (cities), the selection of the experimental group does not have complete randomness. This paper employs the research methodology of Xu Z et al [25]. in order to avoid selection bias due to the sample and to effectively solve the endogeneity problem due to the omission of explanatory variables. This paper employs the PSM-DID methodology for analysis. As the policy implementation will produce exogenous shocks to the experimental group of cities, there is no reverse causality. Consequently, the two-way fixed-effects model can be employed to control for differences and time trends across different years, thus effectively eliminating the errors generated by omitted variables. The specific model settings are as follows:

$$Integration_{it} = \alpha_0 + \alpha_1 DID + \alpha_2 \sum Control_{it} + \mu_i + \omega_t + \varepsilon_{it} \quad (1)$$

Where:  $i$  denotes different counties (districts),  $t$  denotes year,  $\mu_i$  and  $\omega_t$  denote county (district) individual fixed effects and time fixed effects, respectively;  $\varepsilon_{it}$  denotes the random disturbance term;  $Integration_{it}$  denotes the explanatory variable rural tertiary integration level;  $DID_{it}$  denotes the state of policy implementation of region  $i$  in year  $t$ ;  $\sum Control_{it}$  for the control variables, drawing on the methodology of Zhang Yue and other researchers, [26] this paper selects the digital financial inclusion index, the level of traditional agricultural development, agricultural production facilities, rural living conditions (electricity), living standards, agricultural science and technology levels and other variables to mitigate the model estimation bias that may be caused by endogenous problems. facilities, rural living conditions (electricity),

rural residents' income level, living standards, agricultural science and technology level and other variables in order to mitigate the model estimation bias that may be caused by endogeneity problems.

### 3.2. Parallel Trend Test Analysis

The precondition for the use of the double difference model is that the parallel trend assumption needs to be satisfied, and the pilot counties (districts) of the market entry reform that have not received policy shocks should show a common trend of change in the level of rural three-product integration with the non-pilot counties (districts) of the control group. At the same time, the pilot counties (districts) of the market entry reform are affected by factors such as the basis of the city's economic level, differences in policy implementation, and differences in land elements, resulting in the possibility of a certain lag in the effect of the market entry reform policy. Referring to Beck et al.'s approach [27], constructs the following dynamic model:

$$Integration_{it} = \alpha + \sum_{k \geq -4}^5 \beta_k D_{it}^k + \sum \partial_k year_k + \sum \gamma_j X_{it} + \mu_{city} + \lambda_{it} \tag{2}$$

As shown in equation (2),  $Integration_{it}$  denotes the level of rural industrial integration;  $D_{it}^k$  denotes the exogenous shock of market entry reform, which is a dummy variable assigned with values 0 and 1, and the assignment rules of  $D_{it}^k$  are as follows:  $S_i$  is used to denote the time of establishment of the market entry reform pilot, which is defined as  $D_{it}^{-4} = 1$  if  $t - s_i \leq -4$ , and  $D_{it}^{-4} = 0$  otherwise; and  $D_{it}^k = 1$  is define it as if  $t - s_i = k$ , and  $D_{it}^k = 0$  otherwise. This paper adopts the graphical method to test the parallel trend of the policy.

### 3.3. Variable Selection

(1) Explained variable, the level of rural industrial integration. Referring to Wang Lina et al [28], Li Xiaolong et al and Hao Aimin and other measurement methods [29] [30], this paper starts from the three dimensions of the extension of the agricultural industry chain, the integration of the agricultural service industry and the comprehensive integration of agricultural technology, and selects the following index system to construct the index of integration of rural industries, see Table 1.

**Table 1.** Evaluation system of rural industrial integration indicators

Level 1 indicators	Secondary indicators	Interpretation of indicators
Agricultural Industry Chain extension	Agricultural vertical chain extension (MW)	Gross power of agricultural machinery
	Horizontal multifunctional expansion of agriculture (%)	Rural secondary and tertiary industry workers/rural employment
Agricultural Services Integrated development	Integration of agriculture and services (%)	Value added of agricultural, forestry, animal husbandry and fishery services/ Value added of primary industry
Agricultural technology Full integration	Cultivation of new agricultural businesses (%)	Area covered by agricultural facilities
	Full integration of new agricultural technologies (%)	Number of Taobao villages/number of administrative villages

For determining the weights of constructing rural industrial integration indicators, the paper adopts the entropy value method. In the first step, the original data are dimensionless:

$$e_j = -\frac{1}{\ln(n)} \cdot \sum_{i=1}^n \frac{X'_{ij}}{\sum_{i=1}^n X'_{ij}} \ln \frac{X'_{ij}}{\sum_{i=1}^n X'_{ij}} \tag{3}$$

Using the measured entropy value of each indicator, the Rural Industrial Integration Indicator was calculated:

$$Integration_{it} = 100 \times \sum_{j=1}^J W_j X'_{ij} \tag{4}$$

(2) Market entry reform is the core explanatory variable. The core explanatory variable in this paper is the interaction term of the policy dummy variable and the time dummy variable of market entry reform (DID=Treat×Time). Among them, Time represents the time dummy variable, the pilot market entry reform was set up in 2015 and 2016, taking 2015 as the policy time node as an example, Time=0 before 2015; Time=1 after 2015. Treat is the policy dummy variable, the counties (districts) in the experimental group are set up with Treat=1; the counties (districts) in the control group are set up with Treat=0. The policy dummy variable is the policy dummy variable. With the PSM-DID model, the interaction term coefficients can accurately reflect the net effect of the pilot reform, and the estimated coefficients  $\alpha_1$  are an important basis for evaluating the effect of the pilot policy.

**Table 2.** Variable names and definitions

Typology	Variant	Define
Explanatory variable	Level of integration of rural industries	Rural Tertiary Integration Index, calculated as above
Explanatory variable	Double difference dummy variable	Policy dummy variables interacted with time dummy variables
	Level of development of digital financial inclusion	Peking University Digital Finance Research Centre 'Peking University Digital Inclusive Finance Index'
	Level of development of traditional agriculture (kg/person)	Food production per capita
	Agricultural production facilities	Share of area harvested by agricultural machinery, area harvested by agricultural machinery/area sown with crops
	Rural living conditions (electricity consumption) (MWh/person)	Per capita electricity consumption of rural residents
	Income level of rural residents (million yuan/person)	Per capita disposable income of rural residents
	Level of agricultural science and technology (MW/person)	Total mechanical power/primary industry employees

(3) Other control variables. Digital inclusive finance is one of the driving forces to support the development of rural e-commerce, raise funds and establish online sales platforms is an important factor affecting rural industrial integration. In addition, with reference to the conclusions of Cheng Li et al. research conclusion [31], this paper selects five aspects of traditional agricultural development level, rural living conditions (electricity), rural residents' income level, agricultural production facilities, and agricultural science and technology level as important factors affecting rural industrial integration. The definition of specific variables is shown in Table 2.

### 3.4. Data Sources

The entry reform pilot is primarily focused on counties (districts), with relevant data from the 2011-2020 China County Statistical Yearbook serving as the sample data. Table 1 presents the specific data sources for the five indicators that measure the level of rural industrial integration. The level of digital financial inclusion development is sourced from the Digital Finance Research Centre of Peking University, where the digital financial inclusion index for counties (districts) commenced in 2014. Consequently, this paper utilises the digital financial inclusion index for prefectures instead of the county indexes. The county statistical yearbooks do not differentiate between the values of electricity consumption for rural and urban residents. Consequently, this paper's per capita electricity consumption for rural residents is obtained by using the ratio of the per capita electricity consumption for rural residents in the provincial data to that for the ratio of electricity consumption of rural and urban residents in provincial data. This is obtained by multiplying the per capita electricity consumption of rural residents (at the county level).

The simultaneous release of pilot policies on market entry reform resulted in a lack of differentiation in their implementation. The market entry reform was fully implemented in 33 pilot counties (districts) in a relatively short period of time. This paper evaluates the joint effect of the pilot policies on the 'three pieces of land'. After eliminating counties (districts) with significant missing data (originally 2072 counties), this paper employs linear interpolation and moving average to fill in the missing values, ultimately obtaining a balanced panel data set of 1,839 counties (cities and districts) spanning a 10-year period from 2011 to 2020. Of these, 33 counties (districts) are designated as the experimental group, while the remaining counties (districts) constitute the control group. The remaining counties (districts) serve as the control group. Table 3 presents the descriptive statistics of the main variables.

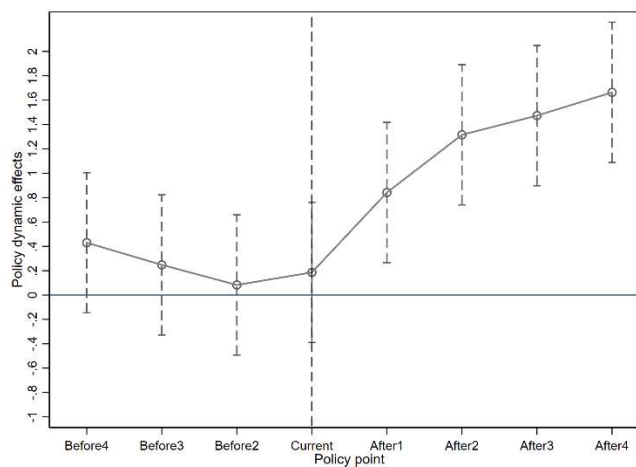
**Table 3.** Descriptive statistics of variables

Variant	sample size	average value	standard deviation	minimum value	maximum values
Rural industrial integration	18 390	14.290	4.567	0.102	42.3922
market access reform	18 390	0.011	0.103	0	1
Digital Inclusive Finance	18 390	168.123	67.946	17.02	375.352
Traditional agricultural development	18 390	0.980	3.653	0.011	217.5
Agricultural production facilities	18 390	0.398	0.287	0.001	0.991
Rural living conditions	18 390	0.106	0.196	0.001	2.549
Income of rural inhabitants	18 390	1.158	0.593	0.121	6.635
Level of agricultural science and technology	18 390	5.249	2.565	2.310	144.270

## 4. Analysis of Empirical Results

### 4.1. Parallel Trend Test

The graphical method compares the trend of the rural three-product integration index before and after the implementation of the pilot reform of ‘entering the market’. The horizontal coordinate of Figure 2 indicates the time point of policy implementation, the vertical coordinate indicates the estimated coefficient, and the trend line indicates that prior to the implementation of the pilot, the difference between the rural industrial integration levels of the experimental and control groups was relatively minor, thus satisfying the parallel trend assumption. Figure 2 also demonstrates that the policy effect is apparent following the implementation of the market entry reform, with the policy effect maintaining a steady growth as the pilot implementation progresses.



**Figure 2.** Parallel trend test

### 4.2. Benchmark Regression Results

This paper employs a multi-temporal DID model to test the preceding hypothesis. The results of the regression analysis are presented in Table 4. Among the models, Model 1 employs the market reform pilot dummy variable as a separate explanatory variable in the regression analysis, resulting in a regression coefficient of 4.257 and a significant positive association at the 1% level. Model 2 incorporates individual fixed effects and time dummy variables based on Model 1. The regression coefficient remains significantly positive, and the regression results for the time dummy variables indicate a tendency for the level of rural industrial integration to increase year by year. Model 4 incorporates additional control variables based on Model 2, and the estimation results for the core explanatory variables remain largely unchanged. The estimated coefficient of the development level of digital inclusive finance is 0.003 and significantly positive at the 1% level, indicating that the development of digital inclusive finance significantly promotes the process of rural industrial integration. This result is consistent with the research conclusions of Zhang Y and Zhou Y [26]; The estimated coefficient of the level of traditional agricultural development on the integration of rural industries is significantly positive, indicating that the level of traditional agricultural development serves as a foundation for agricultural industrial integration. The estimated coefficient of the level of traditional agricultural development on the integration of rural industries is significantly positive. This is because the level of traditional agricultural development is the foundation of agricultural industrial integration, and traditional agricultural development is positively related to rural industrial integration. The estimated coefficient of agricultural production facilities on rural industrial integration is significantly positive. This is because the process of rural industrial

integration must rely on modern agricultural machinery to promote the development of rural industrial integration. Consequently, there is a positive correlation between agricultural production facilities and rural industrial integration.

The living conditions in the countryside represent the modernisation level of the countryside. Therefore, the living standards (electricity consumption) and the rural industrial integration are positively correlated. The level of modernisation in rural areas is reflected in rural living conditions, with a positive correlation between rural living conditions (electricity) and rural industrial integration. The estimated coefficient of rural science and technology level on rural industrial integration is significant at the 1 per cent level, indicating that scientific and technological development is a key factor for industrial integration and rural revitalisation. Consequently, there is a positive relationship between rural science and technology level and rural industrial integration.

**Table 4.** Impact of market access reforms on rural industrial integration

Variant	(1)	(2)	(3)	(4)
Pilot market access reform	4.257*** (0.439)	1.168** (0.442)	1.158*** (0.438)	1.227*** (0.445)
Level of development of digital financial inclusion			0.004*** (0.000)	0.003*** (0.000)
Level of development of traditional agriculture			0.006* (0.004)	0.004* (0.002)
Agricultural production facilities			0.002*** (0.000)	0.002*** (0.000)
Rural living conditions (Electricity consumption)			1.260*** (0.432)	2.601*** (0.686)
Income level of the rural population			-0.126*** (0.076)	-0.141* (0.084)
Level of agricultural technology			0.195*** (0.031)	0.183*** (0.002)
Constant term	14.245*** (0.102)	13.669*** (0.031)	13.877*** (0.154)	13.576*** (0.196)
Time/individual	uncontrolled	control	uncontrolled	control
R <sup>2</sup>	0.010	0.063	0.160	0.125
N	18390	18390	18390	18390

Note: '\*', '\*\*', and '\*\*\*' denote 10%, 5%, and 1% significance levels, respectively, and the values in parentheses are heteroskedasticity robust standard deviation values, as below.

### 4.3. PSM Method Applicability Test

The selection of pilot counties (districts) for market entry reform is determined by local governments according to their own level of economic development and the level of local agricultural development. In order to accurately assess the impact of market entry reform on rural industrial integration, a number of city-specific variables are employed, including the digital financial inclusion index, the level of traditional agricultural development, the agricultural production facilities, the rural living conditions (electricity), the level of income of rural residents, and the level of agricultural science and technology. These variables are selected as matching covariates. The variables are used to calculate the probability of a city's entry into the market reform through the Logit model.

In this paper, the nearest neighbour matching method is employed for matching purposes. Once the experimental and control groups have been matched, it can be concluded that there is no

significant difference between the treatment group and the control group. Therefore, the use of a double difference model after the tendency matching score is a reasonable approach. Table 5 illustrates that the standard deviation of the majority of covariates declines following matching. The standard deviation is less than 10%, and the results of the t-test do not reject the null hypothesis that there is no significant difference between the treatment group and the control group. Therefore, the use of PSM-DID estimation in this paper is justified.

**Table 5.** PSM-DID Applicability experiments

Variant		Mean value (treatment group)	Mean (control group)	Standardised difference (%)	T- value	P - value
Digital Financial Inclusion Level of development	Before Matching	181.9	167.86	20.1	3.72	0.000
	After Matching	181.9	180.93	1.4	0.17	0.862
Traditional agriculture Level of development	Before Matching	0.774	0.984	-7.9	-1.03	0.301
	After Matching	0.774	0.747	1.0	0.39	0.696
Agricultural production facilities	Before Matching	0.516	0.389	-6.8	-0.88	0.381
	After Matching	0.516	0.412	-0.3	-1.00	0.319
Rural living conditions (Electricity consumption)	Before Matching	0.516	0.106	-27.6	-3.88	0.000
	After Matching	0.516	0.067	-1.9	-0.45	0.653
Income level of the rural population	Before Matching	2.799	2.379	39.6	8.21	0.000
	After Matching	2.799	2.838	-3.7	-0.42	0.674
Level of agricultural technology	Before Matching	4.852	5.258	-2.7	-0.36	0.722
	After Matching	4.852	4.772	0.8	0.21	0.837

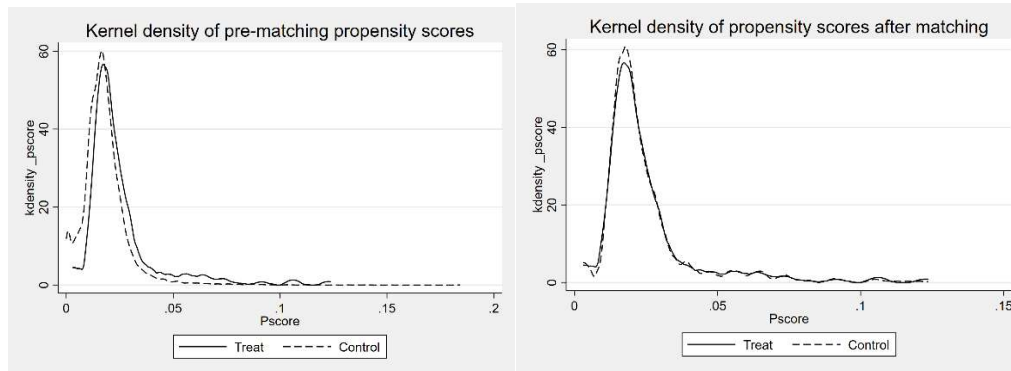
As shown in Table 6, the results of the joint sample test indicate that the median deviation after sample matching decreased from 14 to 1.2, and the p-value increased to 0.874, suggesting that the test of balance between the experimental group and the control group passes the test of equilibrium and meets the requirements of the double-difference equilibrium assumption, and that matching reduces the impact of selection bias on the net effect of policy.

**Table 6.** Joint test of samples

Combined specimen test	Pseudo- R2	Likelihood ratio	P- value	Mean difference	Median deviation	B- value	R- value
Before Matching	0.033	108.62	0.000	17.5	14.0	16.7	0.02*
After Matching	0.003	2.45	0.874	1.5	1.2	11.7	0.19*

This paper employs the methodology of Shi Daqian et al. (2018) as a foundation for the PSM-DID estimation [32]. Prior to this, the authors utilise a density function plot of the propensity

matching score. As illustrated in Figure 3, a comparison of the probability densities of the propensity score values of the experimental group and the control group before and after matching reveals that they are more closely aligned after matching. This indicates the reasonableness and feasibility of using this method.



**Figure 3.** Kernel density plot before and after propensity matching

**Table 7.** Results of double difference regression after propensity matching

Variant	(1) PSM-DID	(2) PSM-DID	(3) PSM-DID	(4) PSM-DID
Market access reform	3.812*** (0.373)	1.929** (0.208)	1.955*** (0.348)	1.962** (0.222)
Level of development of digital financial inclusion			0.004*** (0.000)	0.007* (0.003)
Level of development of traditional agriculture			0.392*** (0.070)	0.444* (0.152)
Agricultural production facilities			0.678*** (0.045)	0.302 (0.295)
Rural living conditions (Electricity consumption)			6.389*** (0.494)	5.445* (2.965)
Income level of the rural population			0.482*** (0.044)	0.576*** (0.159)
Level of agricultural science and technology			0.719*** (0.183)	2.793*** (0.761)
Constant term	15.516*** (0.111)	14.093*** (0.030)	14.495*** (0.107)	12.844*** (0.512)
Time/individual	Uncontrolled	Controlled	Uncontrolled	Controlled
R <sup>2</sup>	0.070	0.452	0.355	0.539
N	1558	1558	1558	1558

Table 7 presents the results of post-propensity-matching double-difference regression of the impact of market entry reform on rural industrial integration in 33 county-level cities as an experimental group. The method of propensity matching was employed to select 1558 samples from the original sample. The PSM-DID robustness test regression results indicated that the regression coefficient of the pilot reform dummy variable for market entry reform was significantly positive at the 1% level. This suggests that the implementation of market entry reform has a significant role in promoting rural industrial integration. Upon the addition of control variables to the regression in Model 4, the conclusion remains unchanged, namely that

the market entry reform facilitates rural industrial integration. In conclusion, the test results estimated by the PSM-DID method provide partial validation of the robustness of the aforementioned findings.

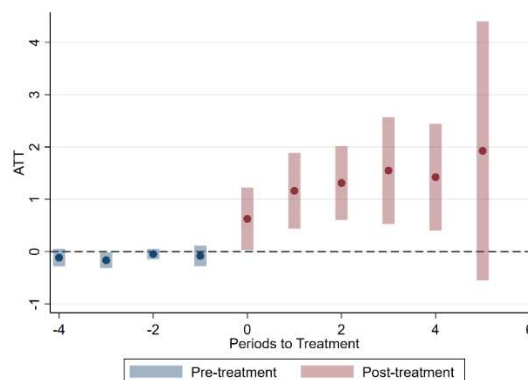
#### 4.4. Heterogeneous Multi-Time Point DID Estimation Results

The estimation of unbiased effects using multitemporal DID presupposes that the parallel trend assumption is satisfied and that the treatment effects are constant between the non-simultaneous experimental and control groups. The weighted average estimated coefficients of the multi-temporal DID are biased in the presence of individual or temporal heterogeneity in the treatment effects of the non-contemporaries. The typical approach is to utilise the Bacon decomposition to identify the weights associated with the experimental group that contribute to bias in a fixed model that controls for time and individuals. These weights are then employed in an inverse probability-based weighted least squares estimation procedure to re-estimate the DID estimates [33]. Consequently, this paper re-estimates the treatment effects for the experimental group using the heterogeneous multi-temporal DID with inverse probability-weighted least squares. As demonstrated in Table 8, the estimated coefficients derived from heterogeneous multi-temporal DID are consistently and significantly positive, regardless of the weighting method employed. This indicates that the market entry reform has a positive effect on the level of integration of the three rural industries. The estimated coefficients of the traditional multi-temporal DID (Model 1), the regression coefficients of the heterogeneous multi-temporal DID Simple ATT (Model 2), the weighted sum grouped according to the time of the first imposition of the policy (Group ATT, Model 3), the weighted sum grouped according to the distance from the first time of being treated (Event ATT, Model 4), and the weighted sum grouped according to the normal time group weighted summation (Calendar ATT, Model 5) are presented.

**Table 8.** Mean treatment effects for heterogeneous multi-period DID estimation

Variant	(1)	(2)	(3)	(4)	(5)
Market access reform	1.227*** (0.445)	1.293*** (0.462)	1.266*** (0.436)	1.333** (0.525)	1.209*** (0.464)

Furthermore, Figure 4 illustrates the results of the parallel trend test based on heterogeneous multi-period DID estimation. Figure 4 illustrates that the market entry reform has a significant effect on rural triple integration, with a notable increase in the level of rural triple integration from year 1 to 5.



**Figure 4.** Parallel trends in heterogeneous DID for rural tertiary integration

### 4.5. Placebo Test

In order to ascertain the extent to which the estimation results of this paper are influenced by unobservable factors that may affect the effects of the entry reform policy, this paper employs the research method of Feng et al [35], to conduct a placebo test by randomly setting up an experimental group for the entry reform. The specific research methods employed in this study entail the random selection of 33 county-level cities from a total of 1839 county-level cities. These 33 cities were selected on the assumption that they have implemented the pilot market entry reform, while the remaining cities were designated as the control group. The random sampling methodology ensures that the independent variable of the article's construct, the entry reform pilot reform, has no effect on the level of rural industrial integration. In conclusion, any significant regression results may indicate that the regression results of this article are biased. The results of the test are shown in Figure 5. After 500 iterations of a random process, the scatter plot and kernel density estimation of the coefficients of the pilot market entry reform policy were plotted. It can be observed that the coefficients of the pilot market entry reform are still centrally distributed in the vicinity of 0, which is clearly distinct from the coefficients of the pilot market entry reform policy in Model 4 of Table 5 (1. The majority of the coefficients corresponding to P-values are greater than 0.1, indicating that the placebo test estimation is rejected as not differing from the true estimation results. This implies that the other unobserved factors do not significantly affect the estimates.

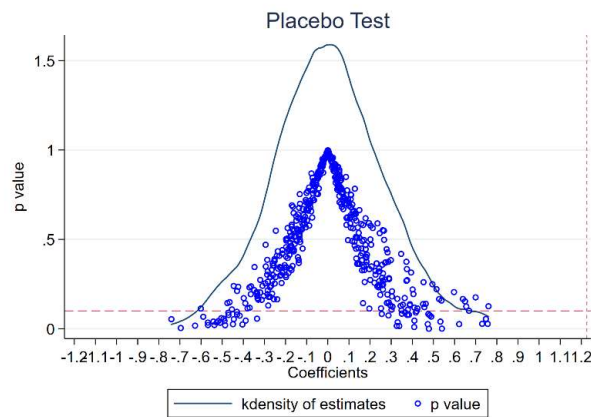


Figure 5. Placebo test

Note: The X-axis represents the estimated coefficients derived from the 500 randomly selected samples of market entry reform pilots. The curve represents the kernel density distribution of this random sample estimate, while the dots represent the p-values of the associated estimated coefficients. The vertical line represents the true estimate derived from Model 4 of Table 5.

### 4.6. Heterogeneity Analysis of Geographical Location

In light of the considerable disparity in the applicability of the market entry reform pilot across different cities, as well as the stark differences in the level of economic development, industrial structure, and scientific and technological innovation among these cities, this paper employs a classification regression analysis on the sample data to ascertain whether there is urban heterogeneity in the impact of the market entry reform on rural industrial integration.

The classification of counties into agricultural and non-agricultural categories is a useful tool for understanding the distribution of economic activity. This paper draws on the research method of Zhang Y and Wang Y to divide the pilot counties (districts) into agricultural and non-agricultural counties according to the proportion of the added value of the primary industry to

GDP [11]. This is achieved by calculating the annual average value of the added value of the primary industry as a percentage of GDP for the sample of each city from 2011 to 2022. Cities with the first 50% of the value are then divided into agricultural counties, while those with the last 50% are divided into non-agricultural counties. As demonstrated in Table 9, the regression results indicate that the policy effect of the entry reform policy is more pronounced in county-level cities with a higher proportion of primary industry. This is because rural industrial integration is based on the modernisation of rural agriculture, and cities with a higher proportion of primary industries are more suitable for industrial integration.

The provinces that are the main producers of grain and those that are not. This paper divides the sample into two groups: main grain-producing provinces and non-main grain-producing provinces. It then conducts regression analyses on each group separately. The results show that the regression coefficients of the pilot municipal reforms in the main grain-producing provinces are lower than those in the non-main grain-producing provinces. The reason for this is that the main food-producing provinces are responsible for food security and have stricter land-use control, which results in a relatively smaller effect of land system reform in promoting the integration of the three industries.

**Table 9.** Heterogeneity analysis (1)

Variant	(1) Agricultural county	(2) Non-agricultural counties	(3) Major grain- producing province	(4) Non-food- producing provinces
Market access reform	1.630*** (0.554)	0.673** (0.354)	0.738*** (0.242)	1.678** (0.758)
Control variable	Control	Control	Control	Control
Time/individual	Control	Control	Control	Control
R <sup>2</sup>	0.113	0.328	0.259	0.140
N	9190	9200	8530	9860

The study considers two categories of local government units: county cities and district counties. The sample is divided into two categories: county-level cities and district counties. Each category is then regressed separately. As illustrated in Table 10, the estimated coefficients of entry reforms for the county-level city sample are higher than those for the district county sample. This is due to the fact that the upgrading of a county to a county-level city necessitates that the population density of the county-level city must reach more than 400 people per square kilometre and that the population of the non-agricultural industry must reach more than 120,000. It is estimated that 000 people, representing more than 30 per cent of the total population of the county, should be engaged in the non-agricultural industry. Furthermore, it is projected that no less than 150,000 people should be employed in non-agricultural industries, representing a total population of the county engaged in non-agricultural industries of more than 30 per cent. The industrial output value of the county should account for more than 70% of the total industrial and agricultural output value, and not less than 1.5 billion yuan. Furthermore, the gross domestic product should not be less than 1 billion yuan, the financial income should not be less than 100 yuan per capita, and the total income should not be less than 60 million yuan. Additionally, the 'withdrawal of the county and the establishment of a city' is conducive to the promotion of the county's economic development [35]. Consequently, county-level cities are endowed with a high labour resource base, and the greater proportion of secondary industry in their industrial structures is conducive to the promotion of rural industrial integration.

Classification based on GDP per capita. This paper calculates the annual average per capita GDP of each city sample for the 10 periods from 2011 to 2020. This is then used as a basis to classify the sample into three categories of cities, namely the first 1/3, the middle 1/3 and the last 1/3. Among the estimated coefficients, that of the first 1/3 of cities with lower per capita GDP entering the market reform pilot is correctly insignificant, while that of the middle 1/3 is significantly positive at the 10% level. The estimated coefficient of the sample with the highest per capita GDP is significantly positive at the 1% level, while the estimated coefficient is lower than that of the middle 1/3 sample. This indicates that the policy effect of the entry reform exhibits heterogeneity among cities with different levels of economic development, and that there is a significant difference in the average per capita GDP of the sample. This evidence demonstrates that the policy impact of market entry reform is heterogeneous among cities with varying levels of economic development. In particular, the effect is less pronounced in cities with lower per capita GDP, as the integrated development of rural industry necessitates a robust industrial base. The overall industrial base of the original underdeveloped counties is relatively weak, which suggests that merely addressing the issue of land supply does not immediately enhance the level of rural integration.

**Table 10.** Heterogeneity analysis (2)

Variant	(1) County-level city	(2) County seat	(3) First 1/3	(4) Middle 1/3	(5) Last 1/3
Market access reform	1.229** (0.478)	0.958* (0.511)	0.094 (0.178)	1.986* (0.981)	1.427*** (0.476)
Control variable	Control	Control	Control	Control	Control
Time/individual	Control	Control	Control	Control	Control
R <sup>2</sup>	0.203	0.136	0.317	0.203	0.184
N	2780	15610	6130	6130	6130

In conclusion, the policy impact of market entry reform is more pronounced in pilot counties (districts) with a higher level of economic development and a well-established industrial base. Furthermore, the specific use of land has the potential to diminish the policy impact of market entry reform.

#### 4.7. Heterogeneity Analysis of Human Capital

The role of human capital in the process of industrial integration development is of great significance. As a novel approach to rural revitalisation, rural industrial integration necessitates the involvement of individuals and entities with a certain degree of technological and intellectual capital. In regions with a lack of developed human capital, residents typically exhibit low levels of information technology application and a reluctance to embrace new concepts. This may serve to constrain the impact of the market entry reform on the development of rural three-product integration. Consequently, this paper will analyse the heterogeneous effects of the pilot counties of the market entry reform of collective operating construction land in different counties based on human capital.

This paper employs a two-pronged approach to characterise human capital. Firstly, it utilises data availability and draws upon the methodology proposed by Wang Q et al. [36]. Secondly, it considers the age structure of the population and the educational attainment of the population. This paper employs two metrics to assess regional demographic structure: the proportion of the regional working-age population and the proportion of the population in the ageing phase. The data originate from the 2010 Chinese Census Sub-county Data, which do not include

temporal changes. Consequently, their own effects are absorbed by individual fixed effects, which are not added to the model separately. This paper employs the years of education per capita as a proxy for the level of education. As illustrated in Table 11, the regional ageing population has a dampening effect on the contribution of market entry reform to rural industrial integration. The impact of market entry reform on rural industrial integration is found to increase with the proportion of the working-age population in the region and the level of education of the population. The findings demonstrate that human capital is a crucial factor in attaining rural industrial advancement.

**Table 11.** Collective management construction land market reform, regional human capital and rural tertiary integration

	(1)	(2)	(3)
Market access reform×Ageing ratio	-0.213*** (0.002)		
Market access reform× Average level of education		0.112* (0.061)	
Market access reform× Proportion of population of working age			0.008* (0.004)
Market access reform	1.121*** (0.035)	1.021*** (0.042)	1.018*** (0.031)
Control variable	Control	Control	Control
Time/individual	Control	Control	Control
R <sup>2</sup>	0.163	0.182	0.192
N	18 390	18 390	18 390

#### 4.8. Mechanism Analysis

In order to further verify the mechanism of the market entry reform to promote the integration of rural three industries, this paper refers to the practice of existing research literature and adopts the number of Taobao villages to characterise the emergence of the platform economy. The ratio of the number of people employed in the secondary and tertiary industries is employed as a measure of the level of non-farm employment. The level of industrialisation is employed as a measure of the growth of non-farm industries. The balance of loans from financial institutions at the end of the year as a proportion of the GDP is employed as a measure of the level of financial development. These explanatory variables are employed to analyse the market entry reform. The DID variables were subjected to regression analysis.

The market entry reform can effectively liberate the constraints of land resource use and allow the platforms and compounds for three industries to successfully establish themselves in rural areas. As demonstrated in Table 12, the dummy variable representing the market entry reform pilot in Model 1 is significantly positive at the 10% level, indicating that the number of local urban Taobao villages significantly increases following the implementation of the market entry reform. This is due to the fact that Taobao villages represent a distinctive rural e-commerce aggregation in China. They facilitate the advancement of the local tertiary industry, establish an integrated industrial chain encompassing production, processing, and sales, and enhance the level of rural industrial integration. In Model 2, the estimated coefficient of market entry reform is significantly positive at the 5% level, indicating that market entry reform can effectively increase the proportion of people employed in secondary and tertiary industries. The land system reform permits a greater number of industries and projects to enter the countryside, with capital flowing into the countryside to establish factories and enterprises that make use of the inexpensive human resources available in rural areas to develop manufacturing and service

industries. This provides a platform for the in-depth processing and sales of agricultural products. The estimated coefficient of the market reform in Model 3 is significantly positive at the 5% level, indicating that the pilot reform, which promoted land market transactions and contributed to the improvement of the financial market, had a significant impact on the level of financial development of the explanatory variables by the end of the year. This is evidenced by the financial institutions loan balances/GDP ratio, which is a measure of the financial development of the explanatory variables to the end of the year. Furthermore, the explanatory variables of Model 4, the ratio of the level of industry to the value added value of industry to GDP, are employed to measure the level of financial development of the financial institutions loan balances to GDP. This is to ascertain whether the explanatory variables are capable of alleviating the financing constraints of farmers and collectives, thereby increasing the investment of farmers and collectives in the real industry. This should, in turn, facilitate the integration of the industry. The variable measuring the industrial level is the ratio of industrial added value to GDP. The estimated coefficient of the market entry reform is significantly positive at the 1% level, indicating that the market entry of collective operational construction land effectively alleviates the land tension of enterprises and promotes the development of rural industrial integration.

**Table 12.** Mechanism test results

Variant	(1) Taobao Village	(2) Percentage of employees in the secondary and tertiary sectors	(3) Financial level	(4) Industrial level
Market access reform	6.062* (3.601)	3.712** (1.705)	0.102** (0.046)	0.086*** (0.012)
Control variable	Control	Control	Control	Control
Time/individual	Control	Control	Control	Control
R <sup>2</sup>	0.094	0.025	0.271	0.342
N	18 390	18 390	18 390	18 390

#### 4.9. Dynamic Impact of the Reform of Market Entry of Collectively Operated Construction Land

The market entry reform is a pilot programme that is being implemented in a gradual manner. The initial phase of the reform of the market entry system for collective construction land was implemented in 15 regions in 2015. By September 2016, the market entry of collective construction land had been expanded to 33 pilot regions. In order to explore the time trend characteristics of the impact of the market entry reform on rural industrial integration, this paper sets up five dummy variables, Year2016, Year2017, Year2018, Year2019, and Year2020, and assigns values of 1 to the above dummy variables in 2016, 2017, 2018, 2019, and 2020, respectively. In 2020, a value of 1 was assigned, while the other years were assigned a value of 0. Treat was then multiplied by the five dummy variables to generate interactivity, with the interaction terms being Treat\_2016, Treat\_2017, Treat\_2018, Treat\_2019, and Treat\_2020. These interaction terms were placed into the equation (1) and did not add the market entry reform pilot variables. The regression results are shown in Table 13. The regression results of model 2 demonstrate that the estimated coefficients of Treat\_2016, Treat\_2017, Treat\_2018, Treat\_2019, and Treat\_2020 are all significantly positive at the 1% level. Furthermore, the size of the coefficients gradually increases with the time trend. This implies that the market entry reform policy has a sustained impact on the promotion of rural integration levels. Furthermore, the estimated coefficient of market entry reform is increasing in size, indicating that the policy effect is becoming more and more obvious.

**Table 13.** Time-trend characterisation of the impact of market access reforms on rural industrial integration

Variant	(1)	(2)
Treat_2016	3.043*** (0.737)	0.689** (0.313)
Treat_2017	3.269*** (0.767)	1.187*** (0.324)
Treat_2018	3.508*** (0.851)	1.345*** (0.459)
Treat_2019	3.746*** (0.902)	1.536*** (0.520)
Treat_2020	3.844*** (0.944)	1.616*** (0.619)
Control variable	Control	Control
Time/individual	Uncontrolled	Controll
R <sup>2</sup>	0.223	0.126
N	18 390	18 390

The double-difference estimation results represent the average effect over a period of time following the implementation of the policy. This paper conducts regressions by deleting the sample data from 2017 to 2020, 2018 to 2020, 2019 to 2020, and 2020, respectively. The DID estimated coefficients represent the policy effects observed in different years' perspectives. The regression results are presented in Table 12. With the exception of Model 1, all regression coefficients are significantly positive at the 1% level, and the estimated coefficients are increasing in magnitude. The results indicate that the exogenous impact of the policy is not immediately apparent in the second year following the implementation of the market entry reform. However, from the third year onwards, the market entry reform has a significant positive impact on the integration of rural industries, which is consistent with the above findings.

## 5. Conclusion and Policy Recommendations

### 5.1. Conclusion

The integration of rural industries is a crucial step towards their sustainable growth and prosperity. This integration must be underpinned by a robust factor supply system. The reform of market entry for rural collective operating construction land, which aims to enhance the supply of land factors, plays a pivotal role in the integration of rural industries. In this paper, we utilise panel data from Chinese county cities from 2011 to 2019 to construct a double-difference model with the objective of exploring and testing the influence mechanism and effect of the market entry reform on rural industrial integration. The study indicates that, in comparison to non-pilot counties (districts), the level of rural industrial integration in pilot counties (districts) is considerably higher. Furthermore, there is evidence of an upward trend in the policy effect of market entry reform over time. Secondly, in comparison to county-level cities, major food-producing regions and regions with lower levels of economic development, agricultural counties, non-major food-producing regions, and regions with higher levels of economic development have a more pronounced role in the promotion of market entry reforms. Furthermore, the impact of market entry reforms on rural industrial integration increases with the level of regional human capital. Finally, the mechanism analysis demonstrates that market entry reform facilitates the development of financial markets and e-commerce platforms,

enhances non-farm employment and non-farm income, and provides impetus for the advancement of rural three industries integration.

## 5.2. Policy Recommendations

In summary, the conclusions of the above studies indicate that the following policy recommendations should be considered: firstly, the crucial role of land elements in supporting rural three industries integration should be recognised, and the market entry reform should be utilised to its full potential in promoting the integration of the three industries in the countryside. Localities should implement the concept of "leaving more land value-added gains to farmers and staying in farmers' villages," improve the protection mechanism for landless farmers and the reasonable land value-added distribution mechanism, and mobilise rural residents to participate in the reform of the agricultural land system. Concurrently, the rural land acquisition, collective management of construction land into the market, residential base system reform synergistic mechanism for the development of new industries in the countryside should be enhanced to provide land elements to support the development of new forms of industry. Furthermore, farmers in new industrial parks should be encouraged to seek employment and engage in entrepreneurship. Finally, the development of new industries in the countryside should be facilitated by providing power to support the development of new forms of industry. Secondly, it is important to consider the regional differences in the impact of market entry reform on the integrated development of three industries and its causes. The three-product integration effect of the market entry reform in the main grain-producing areas is less pronounced than in non-main grain-producing areas, suggesting that aspects of the policy system related to the establishment of the main grain-producing areas may be hindering the three-product integration effect. In comparison to the lower level of economic development of counties (districts) and non-county cities, the higher level of economic development of county-level cities and regions has a relatively higher three-sector integration effect. This indicates that the development of three-sector integration requires a certain foundation of economic development as a prerequisite. Finally, the pilot scope of market entry reform should be expanded and the efforts of market entry reform should be accelerated. The reform of the land system should facilitate the revitalisation of land resources for the construction of parks and platforms, while also increasing the effective supply of rural land resources. This will enable the creation of advantageous industries, with industrial development oriented towards the excavation of special agricultural products, the development of rural tourism, and the creation of deep processing of agricultural products.

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