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Article

Pathways to Progress: Market Regulation Transformation and Social Security Enhancement in China

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Abstract: The sustainability of social security is increasingly important to countries worldwide, yet the impact of regulation on social security remains controversial. Most scholars and policymakers focus primarily on the influence of social regulation on social security, while to varying degrees neglecting the effects of market regulation. This study employs data on the relaxation of market regulation (RMR) from the Marketization Index of China's Report (MICR) and balanced panel data for 31 provinces in China from 2008 to 2019. Using instrumental variable methods to address endogeneity issues in the model, we empirically evaluate the impact of China's RMR on the level of social security (SSL) and its underlying mechanisms. The conclusion indicates that for every standard deviation increase in the intensity of RMR by local governments, there is a 2.25% increase in SSL. The study also found that social security expenditure and efficiency serve as mediating variables for the impact of RMR on SSL, but it did not support the mediating role of social security fairness. These findings offer valuable insights for optimizing regulation and social security reform in China, as well as useful references for other emerging market economies in identifying priorities for their coordinated regulatory and social security reform.

Keywords: social security; market regulation; medical security; marketization transformation

1. Introduction

1.1. Social Security Level (SSL) in China

Social security in any country is one of the key institutions aimed at safeguarding the basic livelihood and health of its residents. China has established the most extensive social security system globally [1]. However, China is also one of the countries with the highest level of population aging worldwide, with the population aged 65 and above surpassing 200 million and continuing to grow at an accelerating pace. According to calculations based on the method proposed by the renowned Chinese scholar Professor Mu [2], China's SSL is rapidly increasing to ensure the basic rights of all citizens in areas such as healthcare, old-age support, and employment. Influenced by the 2008 global financial crisis, the SSL in China experienced a brief decline, followed by slow growth from 2009 to 2013. However, it is noteworthy that since 2013, China's social security level has exhibited an accelerating growth trend. In 2019, the ratio of China's social security expenditure to GDP reached 14.9%, the highest level ever recorded (Figure 1).

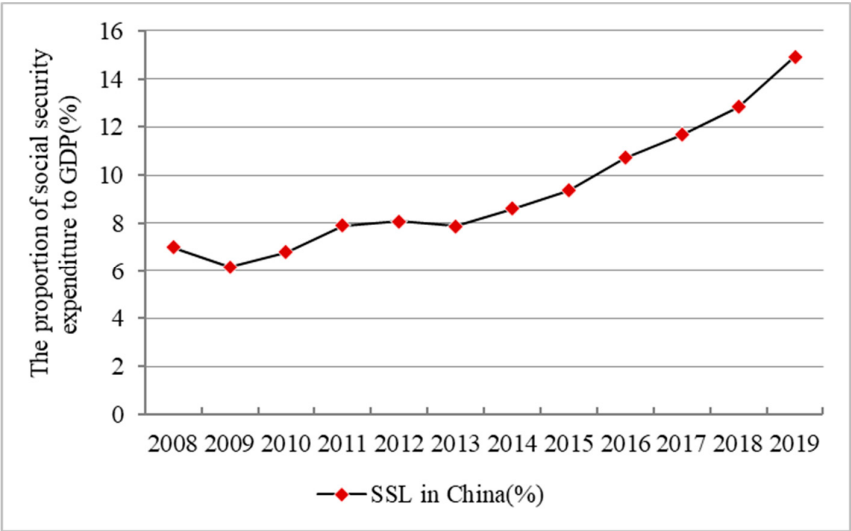


Figure 1. Annual trends of China’s SSL.

Figure 2 displays the annual trends in the SSL across various provinces in China. Overall, the SSL in all regions is increasing. Additionally, we observed a turning point in many provinces around 2013. Before 2013, the trend lines for SSL in many provinces were fluctuating, but after 2013, it in most provinces showed a more stable growth trend. In terms of major social security programs such as healthcare, pension, and unemployment (Figure 3), pension expenditure accounts for the largest share of social security spending and shows the most significant growth. This is mainly due to China’s large retired population and the accelerated aging process [3,4]. Following pension, healthcare expenditure is the next highest, driven by the aging population, which has led to increased spending on long-term care insurance, health insurance, basic health care [5,6], and the expansion of medical insurance coverage [7].

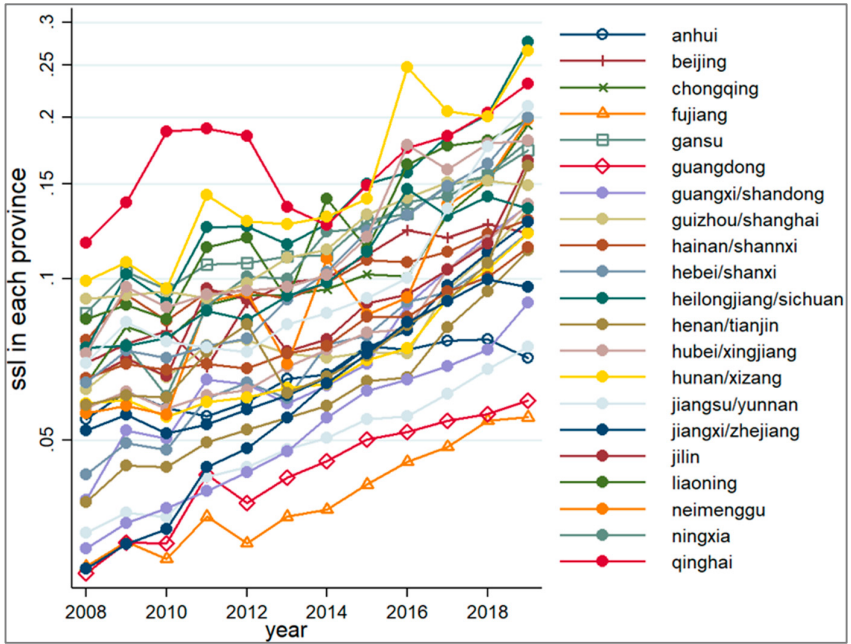


Figure 2. Annual trends in various provinces’ SSL of China.

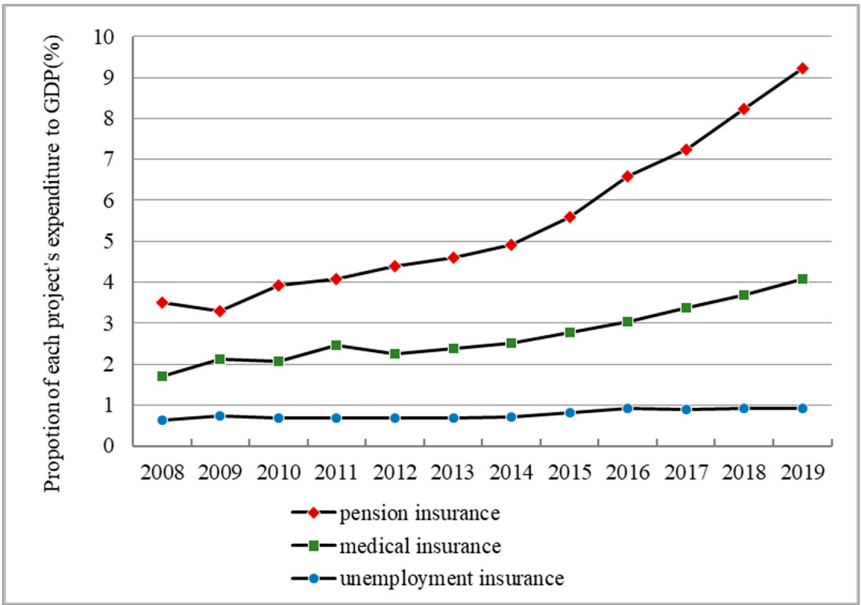


Figure 3. Annual trends in China’s pension, medical and unemployment security projects.

1.2. Relaxation of Market Regulation (RMR) in China

Market regulation plays a crucial role in modern market economies. China, as a typical country undergoing global marketization transformation in this century, the data from MICR shows that the level of marketization in China has increased from 4.19 in the year 2000 to 8.19 in 2019, representing a growth rate of 95.4%. However, the index reflecting the level of market regulation, the “Index of Reduced Government Intervention”, shows a trend of increase followed by decrease. Specifically, this index was at 4.19 in 2000, peaked at 5.76 in 2007, and then declined to 3.67 in 2019 [8]. This changing trend of the index indicates that China’s market regulation reform has experienced a fluctuating process alongside continuous marketization transformation. However, this fluctuating reform process may bring about more uncertainty to social security, and these impacts have not yielded consistent conclusions in a series of empirical studies on countries and regions such as the United States [9], the European Union [10], Germany [11], and Greece [12], etc.

During the process of RMR, local governments have adjusted their regulatory strategies, reducing direct involvement and micro-intervention in economic activities. Instead, they have employed macroeconomic policies in areas such as finance, land, and taxation to regulate the allocation of market and social resources. Previous research has indicated that in the political and economic environment characterized by fiscal decentralization systems like the “promotion tournament”¹²and “fiscal federalism” [13], where economic growth is prioritized, local governments in China intervene in directing market and social resources towards economic production rather than social welfare [14]. The RMR reforms has to some extent weakened the intervention of local governments in the allocation of market and social resources, aligning more with market allocation and competitive mechanisms. However, variations in market conditions and economic foundations across different regions have led to significant differences among local governments in relaxing market regulation (figure 5) [15]. This may exacerbate the uncertainty of the impact of RMR on social security in China.

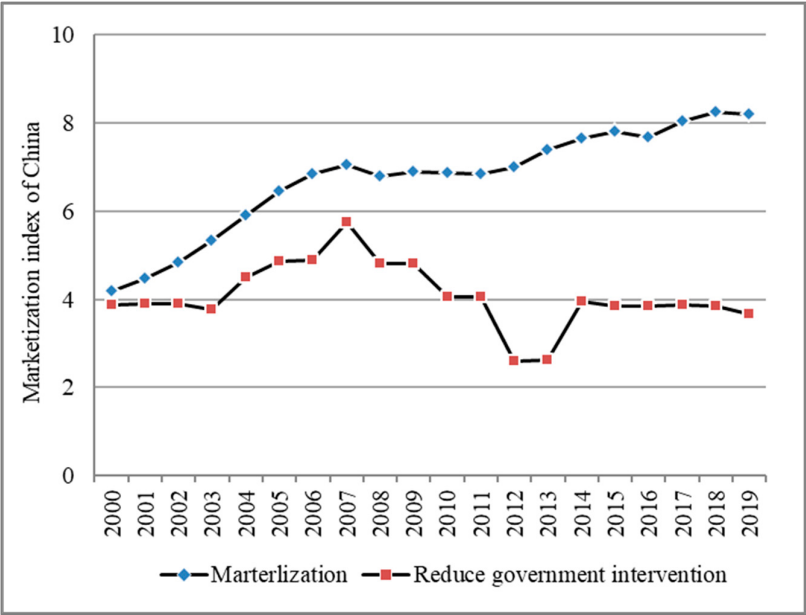


Figure 4. China’s Marketization Index and Relaxation of Market Regulation Index.

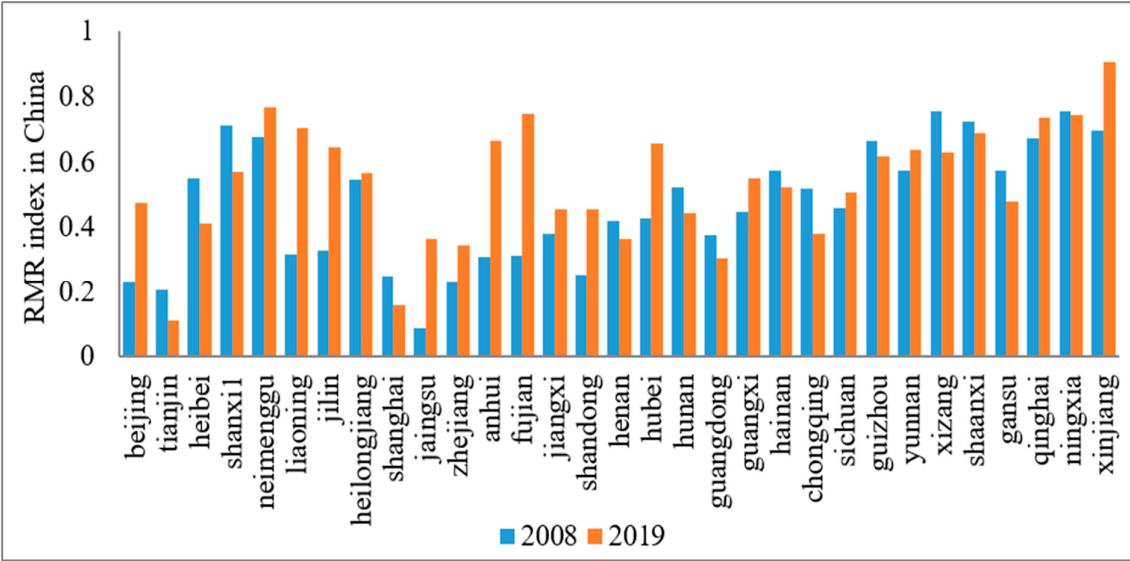


Figure 5. RMR index in China.

1.3. The Impact of RMR on SSL: Pros and Cons

In China, the authority over social security management and market regulation decision-making is mainly concentrated in local governments, creating an inherent relationship between social security and market regulation. However, there is still controversy regarding the impact of RMR on SSL. On the one hand, from the perspective of local government political rights and resource allocation motives, the dual challenges of intensified population aging and economic downturn [16] imply that RMR means local governments will increasingly rely on measures such as land, finance, and taxation to achieve their political performance goals. This shift may transfer the contradictions between the market and society to the political governance sphere, and under crisis or high-pressure environments [17], it may exacerbate their errors or abuse of power, thereby intensifying the problem

of resource misallocation. This will impose significant pressure on them to maintain good social security performance.

However, on the other hand, relaxing market regulation may also bring positive effects. Since Xi Jinping took office in 2013, China has implemented reforms to RMR [18]. Not only has it re-established the responsibilities of local governments in economic and social governance, but it has also transformed the assessment mechanism from a single focus on economic growth as the priority political goal to a “dual target” of maintaining both economic growth and social stability [19,20]. Social security governance performance has become an important criterion for assessment. At the same time, the reform has promoted the RMR based on the maintenance of public interests as the basis and standard [21]. It has relaxed entry restrictions on social security projects such as healthcare and pension [22], increased market freedom and competitiveness, and better coordinated the relationship between the government and the market in the provision of public services such as healthcare, pension, and education [23]. In this regard, China’s reform to RMR may provide new opportunities for the SSL.

1.4. Aims of This Study

Clearly, assessing the impact of RMR on SSL in China is a complex and important issue. Previous research has shown that the impact of market regulation on social security has been controversial, especially for countries undergoing market-oriented transitions. The sustainable development of social security faces challenges not only from institutional pressures but also from uncertainties in the political and economic environment. China, as a typical country transitioning to a market economy in this century, has also established the world’s most extensive social security system. Studying the impact of relaxing market regulation on social security in China not only helps optimize the coordination mechanism and pathways for the development of market regulation and social security in China but also provides valuable experience for other emerging countries.

In this study, we utilized data on market regulation from the “China Marketization Index Report” and matched it with balanced panel data for 31 provinces in China from 2008 to 2019. We employed instrumental variable methods to assess the impact of RMR on the SSL. In comparison to prior literature, this study contributes marginally in two aspects.

Firstly, from the perspective of local government’s political power and resource allocation, it provides new explanations for the relationship between market regulation and social security. Previous studies have predominantly focused on perspectives such as how market regulation affects employee welfare in enterprises [24,25] and how it breaks monopolies to enhance liquidity and market efficiency [26–29]. However, in China, local governments also play a crucial role in the allocation of market and social resources. Therefore, clarifying the motives of local governments in managing the relationship between market regulation and social security is an important task for promoting the coordinated development of market regulation and social security.

Secondly, this study not only empirically examines the impact of RMR on SSL but also carefully analyzes the specific mechanisms of this influence. Typically, the improvement of SSL requires that expenditure needs are met, the system is fair, and operational efficiency is high. Therefore, RMR may affect the enhancement of SSL by influencing these three aspects. This research enriches the understanding of the relationship between market regulation and social security impact, providing an effective reference for other emerging countries in selecting priority areas for their social security reforms.

Thirdly, previous research has focused more on the impact of social regulation reforms on social security, while to varying degrees neglecting the effects of market-oriented regulatory reforms. In reality, any productive activities of enterprises are both economic and social, and attempts to improve the economic aspects of enterprise activities through economic regulation will inevitably also affect the social aspects, thus influencing the enthusiasm of enterprises and employees to participate in social security. Additionally, countries worldwide are moving towards a “competent state” [30] transformation to enhance their economic and social governance capabilities. This aligns with the important viewpoint of the New Structural Economics Theory, which emphasizes “efficient markets

and proactive government” [31]. Therefore, understanding the impact of market regulation on social security holds significant practical significance.

2. Materials and Methods

2.1. Data

The data sources used in this paper are essential for assessing the effects of Chinese market regulation on social security. The main sources of data are as follows.

MICR. Marketization index of China's report (MICR) is jointly researched and published by scholars from institutions such as the Chinese Academy of Social Sciences, Peking University, and the State Administration of Foreign Exchange. It aims to continuously track and study China's marketization process. So far, this research report has released the score and ranking data of China and its provinces' marketization process from 2008 to 2019. It serves as an important literature and data source for current research on China's marketization reform. This study mainly extracted the “Degree of Government Intervention in Enterprises” data of 31 provinces from the MICR for the years 2008 to 2019 to measure the RMR. These data were compiled by the MICR research team based on enterprise survey.

Wind Database. Wind is an authoritative economic database covering financial data, commercial data, macroeconomic indicators, and information on public opinion. It provides extensive historical data on various aspects including finance, population, economy, and employment for each province in China. For this study, the authors extracted basic data measuring the SSL and other variables for various control factors from this database.

The data from these sources are crucial for conducting empirical research on the impact of market regulation on social security in China. Researchers can utilize this data to examine various variables and indicators relevant to the research objectives and hypotheses.

2.2. Variable and Measurement

The study involves dependent variables, independent variables, mediating variables, and control variables. The availability and consistency of data measuring these variables are crucial for conducting robust empirical research. The following are some key points regarding variable setup in this paper.

Dependent variable. SSL is the dependent variable in this study. The author calculated it based on the method proposed by Professor Mu [32], which is grounded in the actual operation of China's social security system. The equation is constructed based on population structure theory and the Cobb-Douglas production function as follows:

$$S = \frac{S_a}{W} \times \frac{W}{G} = Q \times H \quad (1)$$

In Eq.(1), S represents the level of social security, S_a denotes the total social security expenditure, W stands for the total wage expenditure, G represents the GDP, Q denotes the social security burden coefficient, and H represents the proportion of labor factor input distribution. Based on this equation, the author is able to directly calculate the SSL for each province. This indicator has been widely used by scholars in research on China's social security in relevant literature [33–36].

Independent variable. RMR is the independent variable of this study. The author employs the “reduction of intervention in enterprises” index from MICR to measure it. The basic data for this index is derived from surveys conducted by researchers on over 2,000 companies nationwide, based on evaluations provided by corporate executives regarding whether “government administrative approval, industry access, and other government interventions are excessive”.

Mediating variables. The theoretical analysis of this study suggests that the impact of LGMR on SSL in China is primarily mediated by three important mechanisms: the scale of social security expenditure, equity, and operational efficiency. For instance, local governments may use market regulation to encroach upon social security resources, thereby adversely affecting the development of social security. Therefore, in the mechanism analysis section, this paper examines the mediating effects of these three variables separately.

Control variables. The inclusion of control variables is necessary for regression estimation model, and all control variables must be independent of both RMR. Control variables used in this study include: fiscal autonomy of each province, per capita GDP, elderly dependency ratio, as well as central fiscal transfers to each province and intra-provincial competitiveness. All these variables have an impact on the SSL, hence incorporating these control variables can enhance the model fit.

Table 1 provides the measurement methods and statistical descriptions of each variable.

Table 1. Measurement methods and statistical description of variables.

Variable	Definition	Average value	Standard Deviation
SSL	Calculated according to Formula 1, i.e., the ratio of social security expenditure to regional GDP. A higher value indicates a higher SSL; conversely, a lower value indicates a lower SSL.(<i>ssl</i>)	0.0933	0.0433
RMR	Measured based on the index of “reducing intervention in enterprises” in the MICR. A higher value indicates a higher level of RMR; conversely, a lower value indicates a lower level of RMR.(<i>rmr</i>)	3.8359	2.9622
Social security expenditure	The ratio of total social security expenditure to the total population in each province.(<i>expenditure</i>)	4.4869	3.5262
Social security fairness	The ratio of per capita social security benefits for urban employees in each province to per capita social security benefits for urban and rural residents.(<i>fairness</i>)	23.0786	13.4292
Social security efficiency	The ratio of the number of individuals participating in medical, pension, and unemployment insurance in each province to the total population.(<i>efficiency</i>)	0.6147	0.0805
Fiscal freedom	The ratio of general public budget expenditure to revenue in each province.	2.5971	1.9821
Economic growth rate	The annual growth rate of Gross Regional Product (GRP) in each province.	9.5961	2.9551
Elderly dependency ratio	The ratio of the population aged 65 and above to the working-age population in each province.	13.485	3.2527
Internal competition	The ratio of the number of cities to the number of districts and counties in each province. [37]	0.1179	0.0406
Central transfer payments	Measured by the transfer payments from the central government to local governments for social security in each province. [38]	0.0135	0.0263

2.3. Models

The author employed STATA 14 software to conduct empirical tests on the effect and mechanisms of China’s RMR on SSL, using MICR data from China and matching panel data from 31 provinces. The specific empirical model was as follows:

$$ssl_{it} = \mu + \beta rmr_{it} + \alpha X_{it} + \rho_i + \tau_i + \varepsilon_{it} \quad (2)$$

In model (2), i and t represent provinces and years, ssl represents the level of social security in China’s provinces, β denotes the estimated coefficient of the effect of RMR on SSL. rmr represents the variable of RMR, X_{it} represents the control variables, α represents the coefficient matrix of the control scalar, ρ_i denotes individual-specific effects that do not vary with location, τ_i represents the controlled year-fixed effects, and ε_{it} represents the random disturbance term.

In the model, when there is a correlation between the independent variable and the error term, this variable is referred to as an endogenous variable. In China, in recent years, various provinces

have been implementing multiple institutional reform projects in the social security system. These include expanding social insurance coverage, facilitating inter-regional transfer and continuation of social security, and adjusting the social security tax base, all of which are closely related to business activities. For instance, to improve the quality of social security information statistics and promote information sharing and mutual recognition, the Chinese government has adjusted the statistical matters of enterprise social security, which may to some extent affect the non-production business activities of enterprises. Therefore, there is a high likelihood of a reverse effect of SSL on RMR.

To mitigate this potential effect, the authors will re-estimate Model (2) using the instrumental variable approach. Specifically, the authors will employ the lagged one-period market regulation variable ($L.rmr$) as an instrument for rmr . Additionally, considering that the use of only one instrumental variable does not allow for the test of over-identification of instrumental variables to determine strict exogeneity, we select historical data of the RMR index from 1997 to 2008 instead of the contemporaneous data of the independent variable as the second instrumental variable ($history-rmr$). Then, we conduct a two-stage least squares regression. The first-stage regression equation is as follows:

$$rmr_{it} = \mu + \beta IV_{it} + \alpha X_{it} + \rho_i + \tau_i + \varepsilon_{it} \quad (3)$$

In addition, to examine the mediating effects of RMR on SSL, the author also established a model to test the intermediary mechanism [39,40], as follows:

$$ssl_{it} = \mu + \varphi rmr_{it} + \theta M_{it} + \alpha X_{it} + \rho_i + \tau_i + \varepsilon_{it} \quad (4)$$

$$M_{it} = \mu + \delta rmr_{it} + \alpha X_{it} + \rho_i + \tau_i + \varepsilon_{it} \quad (5)$$

where M represents the mediator variable, φ denotes the estimated coefficient of RMR affecting SSL, θ represents the estimated coefficient of the mediator variable affecting SSL, δ stands for the estimated coefficient of RMR affecting the mediator variable, and other symbols retain the same meanings as in Model (2).

The Model (2) suggests a causal effect of RMR on SSL; here, Model (5) indicates a causal effect of RMR on M ; Model (4) signifies, on one hand, the causal effect of M on SSL, thereby establishing a causal chain of $RMR \rightarrow M \rightarrow SSL$, and on the other hand, it suggests that apart from M , RMR may independently affect SSL. The estimated coefficients of Models (2), (4), and (5) have such a relationship, $\beta = \varphi + \delta\theta$. If all four coefficients pass significance tests, it indicates the establishment of the mediating mechanism.

3. Results and Discussion

3.1. The Impact of RMR on SSL

In Table 2, the OLS estimation results are reported in columns 1 and 2. Regardless of whether control variables are considered, the coefficient of the independent variable rmr fails to pass the significance test. Furthermore, the 3 and 4 columns report the Two-Stage Least Squares (2SLS) estimation results. In the 3 column, the first-stage estimation results show that the instrumental variable, $L.rmr$, is significantly correlated with the endogenous variable, rmr . The over-identification test indicates that the instrumental variable is uncorrelated with the disturbance term (ε_{it}), confirming exogeneity. Moreover, the robust F-statistic is significantly greater than the empirical value of 10, further confirming that there is no weak instrument problem. This result demonstrates that the selected instrumental variables in this study are reasonable. The 4 column reports the second-stage estimation results, which show that the estimated coefficient of the independent variable is positive and passes the significance test, indicating that the RMR has a positive effect on SSL. For every standard deviation increase in the intensity of RMR, there is a 2.25% increase in the SSL.

Table 2. The impact of RMR on SSL.

Variables	OLS		2SLS	
	Model (2)	Model (2)	Model (3)	Model (2)
	Column 1	Column 2	Column 3	Column 4
rmr	0.0008(0.0010)	0.0013**(0.0007)	-	0.0021*** (0.0008)
L.rmr	-	-	0.7541*** (0.0435)	-
history-rmr	-	-	0.0521(0.0324)	-
constant	0.0868*** (0.0136)	0.6640*** (0.1417)	0.3834 (0.7766)	0.1384*** (0.0172)
control variables	NO	YES	YES	YES
individual effects	YES	YES	YES	YES
annual effects	YES	YES	YES	YES
R-squared	0.5822	0.5364	0.7758	0.7211
estat overid (p)	-	-	-	0.4628
robust F	-	-	-	175.741
capacity	372	372	341	341

Source: Authors’ calculations using STATA software. Robust standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.2. Robustness Test

The primary purpose of conducting robustness tests is to verify the stability of model estimation results, ensuring their validity and reliability in the presence of potential data biases or incomplete model assumptions. Although the preceding model employed instrumental variable methods to address endogeneity issues, the model may still be susceptible to instability arising from factors such as data processing or external shocks. Firstly, the independent variable undergoes a two-tailed trimming of 1%, and the model (2) is re-estimated using both OLS and 2SLS. The estimation results are reported in columns 1 and 2 of Table 3. The results indicate that the coefficient of the independent variable in column2 remains positive and statistically significant at 1% under these conditions.

Secondly, the article examines the impact of policy shocks. Since 2013, the central government of China has implemented reforms to relax market regulations, which have become a significant initiative in deepening the market-oriented transformation in China [41]. To test whether the effect of RMR on SSL remains robust under this policy shock, we set a dummy variable, denoted as policy, with a breakpoint in 2014. Values assigned to this variable are 0 for the years 2008-2013 and 1 for the years 2014-2019. We include this variable in model (2) for OLS estimation, and the results are reported in column 3 of Table 3. Under this scenario, the coefficient of the independent variable rmr remains statistically significant and positive.

Table 3. Robustness test.

Variables	Winsor processing examination		Policy shock examination
	Model (2)	Model (3)	Model (2)
	Column 1	Column 2	Column 3
rmr	0.0015*** (0.0007)	0.0022*** (0.0008)	0.0014** (0.0007)
policy	-	-	0.1505*** (0.0185)
constant	0.6651*** (0.1417)	0.1286*** (0.0135)	0.6641*** (0.1417)
control variables	YES	YES	YES
individual effects	YES	YES	YES
annual effects	YES	YES	YES
R-squared	0.5358	0.7210	0.5364
capacity	372	341	372

Source: Authors’ calculations using STATA software. Robust standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.3. Mediation Analysis

In China, the pathways through which RMR may affect social security could be threefold: the scale of social security expenditure, equity, and operational efficiency. To examine whether these pathways hold true, this study employs the mediation analysis method and conducts regressions using the 2SLS method for models (4) and (5). Table 4 presents the results.

The 1 and 2 columns show the estimation results when expenditure is used as the mediating variable. Firstly, the coefficient of the independent variable *rmr* in model (5) is positive and significant, indicating that RMR effectively expands the scale of expenditure. Secondly, the coefficient of the mediator variable, expenditure, in model (4) is also positive and significant, suggesting that the growth of expenditure promotes the improvement of SSL. Therefore, it can be concluded that expenditure serves as a positive mediating variable in promoting the improvement of SSL through RMR. Similarly, fairness can also be explained as a mediating variable. However, in the 5 and 6 columns, the coefficients of the main dependent variables fail to pass the significance test, indicating that efficiency may not be a mediating variable.

Table 4. Estimation of the mediation effects of RMR on SSL impact.

Variables	The Mediating Effect of Social Security Expenditure		The Mediating Effect of Social Security Fairness		The Mediating Effect of Social Security Efficiency	
	Model (5)	Model (4)	Model (5)	Model (4)	Model (5)	Model (4)
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
<i>rmr</i>	0.2937*** (0.0663)	0.0002 (0.0006)	-1.4186*** (0.4467)	0.0024*** (0.0011)	0.0033 (0.0031)	0.0027*** (0.0010)
<i>expenditure</i>	-	0.0066*** (0.0007)	-	-	-	-
<i>fairness</i>	-	-	-	-0.0022*** (0.0002)	-	-
<i>efficiency</i>	-	-	-	-	-	0.0018 (0.0022)
<i>constant</i>	9.4069*** (1.1656)	0.0675*** (0.01213)	8.7550 (11.5655)	0.1962*** (0.0177)	0.5890*** (0.0528)	0.1931*** (0.0213)
<i>control variables</i>	YES	YES	YES	YES	YES	YES
<i>individual effects</i>	YES	YES	YES	YES	YES	YES
<i>annual effects</i>	YES	YES	YES	YES	YES	YES
<i>R-squared</i>	0.4567	0.5776	0.5589	0.6098	0.5980	0.4998
<i>capacity</i>	341	341	248	248	248	248

Source: Authors’ calculations using STATA software. Robust standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.4. Further Discussion: Why Didn’t Social Security Equity Play a Mediating Role?

The conclusions of Table 4 indicate that the relaxation of market regulation (RMR) may not enhance social security levels through its impact on equity. The authors suggest that this phenomenon is not solely due to the strategy of China’s market regulation relaxation reform, but also involves structural issues within China’s social security system. To further investigate, Table 5

examines two key questions: First, has the rapid pace of China’s RMR led to uncertainty in its effect on social security equity? Second, is the structure of China’s social security system an important factor contributing to this outcome? Addressing these two questions will help us accurately understand why China’s RMR cannot improve social security equity and, as a result, promote the overall improvement of social security levels.

The results in Column 1 of Table 5 indicate that the estimated coefficient for *rmr* is significantly positive, suggesting that China’s RMR has effectively promoted improvements in pension equity. However, Column 2 shows that while the estimated coefficient for *rmr-speed* is positive, it fails to pass the significance test, and the coefficient is relatively small, indicating that the effect of the speed of RMR on pension equity is extremely weak and unstable. In Column 3, the estimated coefficient for *rmr* is negative, but it does not pass the significance test, suggesting that the impact of China’s RMR on healthcare equity cannot be consistently concluded. In Column 4, the estimated coefficient for *rmr-speed* is negative and passes the significance test at the 1%, indicating that the speed of RMR may have exceeded the capacity of the healthcare system, thereby having a negative impact on healthcare equity.

Table 5. The speed of RMR and structure of social security system’s explanation.

Variables	Pension fairness		Medical benefit fairness	
	Model (3)	Model (3)	Model (3)	Model (3)
	Column 1	Column 2	Column 3	Column 4
<i>rmr</i>	0.0053*** (0.0019)	-	0.0109 (0.0152)	-
<i>rmr-speed</i>	-	0.0002 (0.0131)	-	-0.0299*** (0.0133)
constant	0.0301** (0.0015)	0.1255 (0.0992)	0.2921*** (0.1092)	-
control variables	YES	YES	YES	YES
individual effects	YES	YES	YES	YES
annual effects	YES	YES	YES	YES
R-squared	0.5409	0.2209	0.2091	0.5001
capacity	372	372	372	372

Source: Authors’ calculations using STATA software. Robust standard errors in parentheses, **p* < 0.10, ***p* < 0.05, ****p* < 0.01.

3.5. Discussion

In this study, the authors utilized data on the RMR from the MICR and matched it with balanced panel data for 31 provinces in China from 2008 to 2019. We employed the instrumental variable method to overcome potential endogeneity issues in the model and empirically evaluated the impact of China’s RMR on SSL and its mechanisms. The empirical results indicate a significant positive effect of RMR on SSL. Specifically, a one-standard-deviation decrease in the intensity of market regulation by local governments is associated with a 2.25% increase in the SSL. This conclusion is consistent with previous research findings on the impact of RMR of labor market on social security and welfare in Western countries [42].

As China undergoes continuous deepening reforms towards a market economy, the reform of RMR has become an integral part of China’s reform agenda. However, the impact of RMR on social security is a complex and significant issue.

Firstly, from the perspective of the political power and resource allocation motives of Chinese local governments, RMR can enhance the accessibility of resources for social security, thereby promoting effective growth in social security expenditure. This is because Chinese local governments have long been engaged in a “tournament” competition [43]. On one hand, as the central government gradually establishes social security governance performance as a political priority for local governments, ensuring the adequacy of social security resource supply becomes an important

criterion for interaction among local governments in adjusting resource allocation strategies [44,45]. On the other hand, the relaxation of market regulation can also improve economic efficiency. Under the context of “Race to Bottom” among local governments, RMR can bring about Pareto improvements in the provision of public services by local governments [46,47]. For example, in the reform of China’s medical insurance payment methods, local governments have promoted Pareto sub-improvements in the allocation of medical insurance resources through effective market supervision and tournament competition between regions [48,49].

Secondly, RMR can effectively promote the efficiency of social security. In this study, the efficiency of social security operations is measured by social security coverage. RMR can encourage entrepreneurship and innovation, increase job opportunities [50], and balance employment opportunities [51] for different groups, which has a positive effect on increasing the participation rate in social security [52]. Additionally, RMR may enhance the flexibility and competitiveness of enterprises, prompting them to pay more attention to employee welfare and social responsibility [53], thereby enhancing the inclusiveness of social security policies [54] and better meeting the needs of different groups. For example, in the past, the cumbersome market regulations imposed by the government were closely linked to specific industries and enterprises, restricting market access, and setting up market barriers, leading to disorderly competition in the market, wasting a large amount of resources and costs for enterprises [55]. With the RMR, market mechanisms determine the allocation of funds, technology, and market shares, improving the production efficiency and investment enthusiasm of enterprises, especially in labor-intensive enterprises and industries, making more enterprises willing to contribute to social security payments for their employees [56].

Clearly, the above viewpoints are confirmed in this study. The authors respectively regard social security expenditure and social security efficiency as mechanisms through which the RMR affects SSL. Regression studies using instrumental variable methods found that both are positive mediating variables for promoting the improvement of SSL in China by RMR.

However, our tests do not support the mediating role of social security equity, meaning that China’s RMR cannot promote the improvement of social security levels through enhancing fairness. International experience shows that in the context of emerging market economies, the process of deregulating market regulations is often accompanied by slow negotiations among various stakeholders (governments, trade unions, employers, social organizations, etc.) regarding social security, which restricts individuals’ freedom of choice and exacerbates welfare inequality [57]. In China, the speed of RMR reforms may have outpaced social development, putting certain groups at a disadvantage in accessing social security resources. For instance, although the integration of medical insurance has increased the utilization of healthcare services among residents, the accessibility and fairness of medical benefits across different groups remain questionable [60].

Further empirical conclusions support this viewpoint. Specifically, the speed of China’s RMR and the structural characteristics of its social security system are key reasons why RMR has failed to improve the fairness of social security.

On the one hand, as illustrated by the statistical data in Figure 1, China’s RMR index increased from 3.38 in 2000 to 5.76 in 2007, before fluctuating and decreasing to 3.67 by 2019 [8]. Although the government’s intervention in the market has generally decreased over the past decade, this process has been uneven and, in some cases, even intensified. These fluctuations reflect the complex interactions and bargaining between the government, employers, and other interest groups. During the RMR process in China, the government’s intervention in enterprises did not continuously diminish but, at times, stalled or even increased. According to the “private interest theory” of regulation, market regulation is often designed to serve private interests rather than public welfare, with the aim of redistributing welfare among different groups. Therefore, the goals of RMR are not always aligned with maximizing social welfare, but rather are tied to the redistribution of benefits [61,62]. Consequently, the volatility in China’s RMR reflects a power struggle among the government, enterprises, and other stakeholders, which leads to an uncertain impact on the fairness of social security benefits.

On the other hand, China's social security structure has its own unique characteristics. Currently, the pension system in China is more reliant on public decisions and government actions, with fiscal influence playing a much larger role than market forces. In contrast, medical insurance has undergone market-oriented reforms since 2009, meaning that market mechanisms now play a more prominent role than public decision-making in the healthcare sector. Consequently, in our empirical findings, the RMR shows a significant positive impact on the fairness of the pension system, largely driven by Pareto improvements in the allocation of public resources under RMR.

However, the effect of RMR on the fairness of healthcare benefits is less certain. The pace of RMR reforms seems to have outstripped the healthcare system's capacity, exacerbating challenges to fairness in healthcare benefits. While China's healthcare system is largely market-driven, there remain substantial regional disparities [63], urban-rural divides [64,65], differences in implementation standards [66], and barriers to the mobility of accounts across regions [67]. Coupled with delayed legal oversight and inconsistencies in policy reforms [68,69], the rapid implementation of RMR has struggled to improve fairness in the healthcare system. In fact, it may have worsened existing inequalities, making it difficult to foster equitable access to medical services across different populations.

4. Conclusions

The impact of market regulation on social security has been a subject of significant debate. In the past, both scholars and policymakers have primarily focused on the effects of social regulation on social security, while somewhat overlooking the impact of market regulation. This study uses data on the relaxation of market regulation (RMR) in China, along with a comprehensive regional balanced panel dataset, and employs instrumental variable methods to address potential endogeneity risks in the empirical estimation model.

The empirical results demonstrate that since 2008, RMR has effectively contributed to the improvement of social security levels. On average, a one-standard-deviation reduction in market regulation intensity leads to a 2.25% increase in social security levels. Further analysis of the underlying mechanisms, focusing on three dimensions—social security expenditure, operational efficiency, and equity—shows that the positive effect of RMR on social security is primarily driven by improvements in expenditure scale and institutional efficiency. However, the mediating role of social security equity is not supported by the data. This is largely because the pace of RMR has exceeded the capacity of certain highly marketized welfare programs, such as medical benefits, which has led to challenges and even deterioration in the fairness of these programs. As a result, the overall effect of RMR on social security equity remains indeterminate.

Clearly, these conclusions provide not only valuable insights for optimizing market regulation and social security reform in China, but also offer meaningful guidance for other emerging economies when prioritizing social security development. First, assessing the impact of RMR on social security is both a significant and complex issue, requiring careful consideration of regulatory reform strategies as well as the intricate structure of social security systems. In China, the advancement of RMR must align with the capacity of the social security system, especially for welfare programs that have a higher level of marketization. In the absence of adequate legal and institutional support, over-reliance on market mechanisms risks undermining social security equity.

For other emerging market economies, this implies that when pursuing market regulation reforms, it is crucial to fully account for the structural characteristics of their social security systems and the system's capacity for reform. Accelerating marketization without careful consideration may exacerbate issues of social inequality. Policymakers should seek a balance between market efficiency and social equity, ensuring that reforms not only improve overall welfare but also promote equitable benefits across different social groups.

Certainly, this study may still have some limitations. First, the data used to measure the relaxation of market regulation (RMR) from the MICR are available only at the provincial level, and do not include firm-level microdata. This could make it difficult to completely eliminate the potential interaction effects between variables in the macro estimation model. However, the study adopts

instrumental variables to address this issue as much as possible, and also considers winsorization and external policy shocks to ensure the robustness of the empirical results. It is worth noting that the MICR remains the most authoritative and systematic database for studying China's market reform processes.

Second, the measurement of social security levels and the three mediating variables are based on indicators selected to reflect the unique characteristics of China's social security system. Scholars conducting research in other countries may consider adopting indicators that better reflect the specific contexts and conditions of their respective social security systems. Overall, while this study may have certain limitations, it still provides important empirical evidence for understanding the relationship between China's market regulation relaxation and social security levels. Moreover, it offers valuable policy insights for other emerging market economies as they seek to advance market-oriented reforms and optimize social security systems.

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References

1. Zheng, G.C. Forty Years of Social Insurance in China (1978–2018)—Institutional Transformation, Path Selection and Chinese Experience. *Teaching and Research*, 2018, 11, 5-15. [<http://jxyj.ruc.edu.cn/EN/Y2018/V52/I11/5>]
2. Mu, H.Z. Research on the Optimal Level of Social Security. *Economic Research*, 1997, 2, 56-63.
3. Cai, Y.; Cheng, Y. Pension reform in China: Challenges and opportunities. *China's Economy: A Collection of Surveys*, 2015, 45-62. [<https://doi.org/10.1002/9781118982433.ch4>]
4. Zhu, H.; Walker, A. Pension system reform in China: Who gets what pensions? *Social Policy & Administration*, 2018, 52(7), 1410-1424. [<https://doi.org/10.1111/spol.12368>]
5. Feng, Z.; Liu, C.; Guan, X., et al. China's rapidly aging population creates policy challenges in shaping a viable long-term care system. *Health Affairs*, 2012, 31(12), 2764-2773. [<https://doi.org/10.1377/hlthaff.2012.0535>]
6. Li, X.; Zhang, W. The impacts of health insurance on health care utilization among the older people in China. *Social science & medicine*, 2013, 85, 59-65. [<https://doi.org/10.1016/j.socscimed.2013.02.037>]
7. Li, X.; Lu, J.; Hu, S., et al. The primary health-care system in China. *The Lancet*, 2013, 390, 2584-2594. [[10.1016/S0140-6736\(17\)33109-4](https://doi.org/10.1016/S0140-6736(17)33109-4)]
8. Fan, G.; Wang, X.L.; Zhu, H.P. *NERI index of Marketlization of China's Provinces 2021 Report*. Economic and Science Press: Beijing, China, 2021. [cser.org.cn]
9. Eichhorst, W.; Marx, P.; Wehner, C. Labor market reforms in Europe: towards more flexicure labor markets? *Journal for labour market research*, 2017, 51, 1-17. [<https://doi.org/10.3390/su15129154>]
10. Bothfeld, S.; Rosenthal, P. The end of social security as we know it—The Erosion of status protection in German labour market policy. *Journal of Social Policy*, 2018, 47(2), 275-294. [<https://doi.org/10.1017/S0047279417000332>]
11. Kongtip, P., Nankongnab, N.; Chaikittiporn, C., et al. Informal workers in Thailand: occupational health and social security disparities. *New Solutions: A Journal of Environmental and Occupational Health Policy*, 2015, 25(2), 189-211. [<https://doi.org/10.1177/1048291115586036>]
12. Zhou, L. A. Official Promotion Tournament and Competitive Impulse. *People's Forum*, 2010, 15, 26-27. [[10.16619/j.cnki.rmlt.2010.15.014](https://doi.org/10.16619/j.cnki.rmlt.2010.15.014)]

13. Qian, Y.; Weingast, B. R. Federalism as a commitment to preserving market incentives. *Journal of Economic perspectives*, 1997, 11(4), 83-92. [https://doi.org/10.1257/jep.11.4.83]
14. Fu, M. J.; Zhang, P. Economic Growth in the Reform of Socialist Market Economy System: A Political Economy Exploration. *Economic Research*, 2022, 57(7), 189-208.
15. Li, H.; Zhou, L. A. Political turnover and economic performance: the incentive role of personnel control in China. *Journal of public economics*, 2005, 89(9-10), 1743-1762. [https://doi.org/10.1016/j.jpubeco.2004.06.009]
16. Lo, D. China confronts the Great Recession: 'rebalancing' neoliberalism, or else? *Emerging Economies during and after the Great Recession*, 2016, 232-269. [https://link.springer.com/chapter/10.1057/9781137485557_7]
17. Bardhan, P. The Chinese governance system: Its strengths and weaknesses in a comparative development perspective. *China Economic Review*, 2020, 61, 101430. [https://doi.org/10.1016/j.chieco.2020.101430]
18. Zheng, W. Transplanting antitrust in China: economic transition, market structure, and state control. *U. Pa. J. Int'l L.*, 2010, 32, 643. [https://scholarship.law.ufl.edu/facultypub/221/]
19. Huang, G.; Cai, Z. Understanding social security development: Lessons from the Chinese case. *SAGE Open*, 2021, 11(3), 1-13. [https://doi.org/10.1177/21582440211032633]
20. Huang, X. The politics of social welfare reform in urban China: Social welfare preferences and reform policies. *Journal of Chinese Political Science*, 2013, 18(1), 61-85. [https://doi.org/10.1177/21582440211032633]
21. Feng, H. Public Interest, Government Regulation, and Substantive Rule of Law. *Political and Legal Forum*, 2024, 42(02), 132-141.
22. Xing, H. F. On the Guarantee Responsibility of Government Purchasing Public Services. *Legal and Business Research*, 2022, 39(01), 144-158. [10.16390/j.cnki.issn1672-0393.2022.01.011]
23. Haveman; Heather, A., et al. The dynamics of political embeddedness in China. *Administrative Science Quarterly*, 2017, 62(1), 67-104. [https://doi.org/10.1177/000183921665]
24. Barbieri, P.; Bozzon, R. Welfare, labour market deregulation and households' poverty risks: An analysis of the risk of entering poverty at childbirth in different European welfare clusters. *Journal of European Social Policy*, 2016, 26(2), 99-123. [https://doi.org/10.1177/0958928716633044]
25. Rodríguez-Pose, A.; Storper, M. Housing, urban growth and inequalities: The limits to deregulation and upzoning in reducing economic and spatial inequality. *Urban Studies*, 2020, 57(2), 223-248. [https://doi.org/10.1177/0042098019859458]
26. Enev, P. Monopoly and competition on Bulgarian pension market. *Trakia Journal of Sciences*, 2015, 13(1), 207-211.
27. Hastings, J.; Hortaçsu, A.; Syverson, C. Sales force and competition in financial product markets: the case of Mexico's social security privatization. *Econometrica*, 2017, 85(6), 1723-1761. [https://doi.org/10.3982/ECTA12302]
28. Heidenheimer, A. J. Education and social security entitlements in Europe and America. In *Development of welfare states in Europe and America*. Routledge, Arnold J. Heidenheimer, Publisher: Routledge, USA, 2017.
29. Liebman, J. B.; Luttmer, E. F. P. Would people behave differently if they better understood social security? Evidence from a field experiment. *American Economic Journal: Economic Policy*, 2015, 7(1), 275-299. [https://doi.org/10.1257/pol.20120081]
30. Von Mises, L. *Omnipotent government*. Read Books Ltd. ,2011.
31. Lin, J. Y. New structural economics: A framework for rethinking development. *The World Bank Research Observer*, 2011, 26(2), 193-221. [https://doi.org/10.1093/wbro/lkr007]
32. Mu, H.Z. Research on the Optimal Level of Social Security. *Economic Research*, 1997, 2, 56-63.
33. Gao, L. The Level and Adequate Selection of Social Security in Shandong Province. *Population and Economics*, 2002, 05, 64-72.
34. Guo, G. Z.; Yang, C. Y. The Study on the Fiscal Responsibility of Local Social Security and Its Relationship with Economic Development: Based on Panel Data Analysis of 31 Provinces in China. *Northwest Population*, 2010, 31(06), 1-4.
35. Liu, L. L.; Ren, B. The Impact of Official Exchanges on the Development of Social Security Undertakings: Empirical Evidence from Exchanges between Provincial Governors and Provincial Party Secretaries. *Southern Economic Journal*, 2015, 10, 64-84. [10.19592/j.cnki.scje.2015.10.005]
36. Liu, P.; Yang, Y.; Yang, Y., et al. Different impact on health outcomes of long-term care insurance between urban and rural older residents in China. *Scientific Reports*, 2023, 13(1), 253. [https://www.nature.com/articles/s41598-023-27576-6]
37. Chirinko, R. S.; Wilson, D. J. Tax competition among US states: Racing to the bottom or riding on a seesaw. *Journal of Public Economics*, 2017, 155, 147-163. [https://doi.org/10.1016/j.jpubeco.2017.10.001]
38. Tang, R; Liu, H.Q. From GDP Competition to Binary Competition: The Logic of Change in Local Government Behavior in China. *Journal of Public Administration*, 2012, 1, 9-16.
39. Wen, Z.L.; Zhang, L.; Hou, J.T., et al. Testing Procedures for Mediation Effects and Their Applications. *Acta Psychologica Sinica*, 2004, 5, 614-620.
40. Jiang, T. Mediation and Moderation Effects in Empirical Research on Causal Inference. *China Industrial Economics*, 2022, 5, 100-120. [10.19581/j.cnki.ciejournal.2022.05.005]

41. Chen, B. The Legal Route of Government Regulation Reform under the Simplification of Administration and Delegation of Power. *Law Review*, 2016, 2, 28-41.
42. Eichhorst, W.; Marx, P.; Wehner, C. Labor market reforms in Europe: towards more flexicure labor markets [J]. *Journal for labour market research*, 51, 1-17(2017). [<https://link.springer.com/article/10.1186/s12651-017-0231-7>]
43. Zhu, Q. W. Understanding the New Dimension of Public Administration: Interaction between Government and Society. *China Public Administration*, 2020, 3, 45-51.
44. Huang, G.; Cai, Z. Understanding social security development: Lessons from the Chinese case[J]. *SAGE Open*, 2021, 11(3), 1-13.[<https://doi.org/10.1177/21582440211032633>]
45. Huang, X. The politics of social welfare reform in urban China: Social welfare preferences and reform policies. *Journal of Chinese Political Science*, 2013, 18(1), 61-85. [<https://link.springer.com/article/10.1007/s11366-012-9227-x>]
46. Ashworth, J.; Geys, B.; Heyndels, B., et al. Competition in the political arena and local government performance. *Applied Economics*, 2014, 46(19), 2264-2276. [<https://doi.org/10.1080/00036846.2014.899679>]
47. Boyne, G. A. Competition and local government: A public choice perspective [J]. *Urban Studies*, 33(4-5), 703-721(1996).
48. Li, L. Government Regulation and Benchmark Competition: Governance Path Analysis of Medical Insurance Payment Reform. *Comparative Economic & Social Systems*, 2021, 03, 80-88 .
49. Li, L.; Yu, Q. Government Regulation, Benchmark Competition, and Medical Insurance Payment Reform. *Chinese Public Administration*, 2022, 10, 90-98.
50. Gebel, M.; Giesecke, J. Does deregulation help? The impact of employment protection reforms on youths' unemployment and temporary employment risks in Europe. *European Sociological Review*, 2016, 32(4), 486-500. [<https://doi.org/10.1093/esr/jcw022>]
51. Chen, G. Regulation and Entrepreneurship: Micro Evidence from China. *Management World*, 2015, 05, 89-99+187-188. [10.19744/j.cnki.11-1235/f.2015.05.009]
52. Heyes, J.; Lewis, P. Employment protection under fire: Labour market deregulation and employment in the European Union. *Economic and Industrial Democracy*, 2014, 35(4), 587-607. [<https://doi.org/10.1177/0143831X13491842>]
53. Mai, W.; Hamid, N. Short-selling deregulation and corporate social responsibility of tourism industry in China. *E3S Web of Conferences. EDP Sciences*, 2021, 251,03032. [<https://doi.org/10.1051/e3sconf/202125103032>]
54. Rubery, J.; Piasna, A. Labour market segmentation and deregulation of employment protection in the EU. In *Myths of employment deregulation: how it neither creates jobs nor reduces labour market segmentation*. Brussels: ETUI, 2017, 43-60. [<http://pinguet.free.fr/etuideregula.pdf#page=42>]
55. Yaprak, A. Market entry barriers in China: A commentary essay. *Journal of Business Research*, 2012, 65(8), 1216-1218. [<https://doi.org/10.1016/j.jbusres.2011.06.040>]
56. Vergeer, R.; Kleinknecht, A. The impact of labor market deregulation on productivity: a panel data analysis of 19 OECD countries (1960-2004). *Journal of Post Keynesian Economics*, 2010, 33(2), 371-408. [<https://www.tandfonline.com/doi/abs/10.2753/PKE0160-3477330208>]
57. Findling, L.; Arruñada, M.; Klimovsky E. Deregulation and equity: the Obras Sociales reconversion process in Argentina. *Cadernos de Saúde Pública*, 2002, 18, 1077-1086. [<https://doi.org/10.1590/S0102-311X2002000400013>]
58. Ren, Y.; Zhou, Z.; Cao, D., et al. Did the integrated urban and rural resident basic medical insurance improve benefit equity in China. *Value in Health*, 2022, 25(9), 1548-1558. [<https://doi.org/10.1016/j.jval.2022.03.007>]
59. Zhang, L.; Chen, R.; Fang, Y. Effects of urban and rural resident basic medical insurance on healthcare utilization inequality in China. *International Journal of Public Health*, 2022, 68, 1605521. [<https://doi.org/10.3389/ijph.2023.1605521>]
60. Liu, Y.; Luo, S. Study on the Heterogeneity of Social Security Affecting the Sense of Security of Urban and Rural Residents. *Complexity*, 2022, 9, 8193726. [<https://doi.org/10.1155/2022/8193726>]
61. Stigler, G. J. The Theory of Economic Regulation .*Bell Journal of Economics and Management Science*, 1971,2, 3-21.
62. Viscusi, W. Kip, Joseph E. Harrington Jr, and David EM Sappington. *Economics of regulation and antitrust*. MIT press, 2018.
63. Meng, Q., et al. Consolidating the social health insurance schemes in China: towards an equitable and efficient health system. *The Lancet*, 2015, 386(10002), 1484-1492. [[https://doi.org/10.1016/S0140-6736\(15\)00342-6](https://doi.org/10.1016/S0140-6736(15)00342-6)]
64. Zhang, X.; Dupre, M. E.; Qiu, L. Urban-rural differences in the association between access to healthcare and health outcomes among older adults in China. *BMC geriatrics*, 2017, 17, 1-11. [<https://doi.org/10.1186/s12877-017-0538-9>]

65. Ma, C.; Song, Z.; Zong, Q. Urban-rural inequality of opportunity in health care: evidence from China. *International Journal of Environmental Research and Public Health*, 2021, 18(15), 7792. [https://doi.org/10.3390/ijerph18157792]
66. Li, L.; Fu, H. China's health care system reform: Progress and prospects. *The International journal of health planning and management*, 2017, 32(3), 240-253. [https://doi.org/10.1002/hpm.2424]
67. Zhang, D.; Shi, L.; Tian, F.; et al. Care utilization with China's new rural cooperative medical scheme: updated evidence from the China health and retirement longitudinal study 2011–2012. *International journal of behavioral medicine*, 2016, 23, 655-663. [https://doi.org/10.1007/s12529-016-9560-0]
68. Liu, G. G.; Vorthers, S. A.; Hong, X. China's health reform update. *Annual review of public health*, 2017, 38(1), 431-448. [https://doi.org/10.1146/annurev-publhealth-031816-044247]
69. Li, X.; Krumholz, H. M.; Yip, W.; et al. Quality of primary health care in China: challenges and recommendations. *The Lancet*, 2020, 395(10239), 1802-1812. [https://doi.org/10.1016/S0140-6736(20)30122-7]

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