The Impact of Tax Control on Residents' Consumption in the Context of Big Data

-- Based on Panel Quantile Model Analysis

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Abstract

Will improving tax control promote household consumption or curb household consumption? Based on the panel data of 30 domestic provinces (autonomous regions and municipalities) from 2008 to 2016, try to explore the impact of tax control environment on residents' consumption. The empirical study found that: from a national perspective, improving the tax control environment can significantly promote domestic consumption; from a local perspective, the tax control environment has significant regional heterogeneity in the impact of the tax control environment on residents' consumption. There is a significant negative correlation between them, there is no significant correlation between the tax control environment in the eastern region and household consumption, and there is a significant positive correlation between the tax control environment and household consumption in the central and western regions. Among them, there is a significant negative correlation between the development of product markets in the western and northeastern regions and residents' consumption, and there is a significant positive correlation between the development of intermediary organizations and residents' consumption in the eastern and central regions. Therefore, in the measures to improve the tax control environment, attention should be paid to the differences and focus of the implementation of policies in different regions, so as to achieve the purpose of promoting residents' consumption.

Keywords

Big Data; Tax Control; Household Consumption; Panel Quantile Model.

1. Introduction

The new crown epidemic has caused a short break in the global value chain. Due to the prevention and control of the epidemic and the protection of local industries, the global value chain has a trend of localization and regionalization. Due to the great changes in the outside world, my country has also made a major strategic shift from foreign investment to domestic demand to promote economic growth and high-quality economic development. For this reason, General Secretary Xi Jinping clearly pointed out in the "Proposals of the Central Committee of the Communist Party of China on Formulating the Fourteenth Five-Year Plan for National Economic and Social Development and the Long-term Goals for 2035" that it is necessary to build a domestic and international dual cycle. A new development pattern that promotes each other.[1].

Resident consumption is affected by two factors, innovation and cost. In economic activities, the recessive economy has significantly reduced the level of regional innovation. The performance path is to reduce gray competition and reduce foreign investment. At the same time, there are obvious regional differences. The recessive economy's hindering effect on innovation is most obvious in the western region, and the central region. It shows a positive

correlation effect in the eastern region. Optimizing the business environment can control the scale of the recessive economy by reducing government control and tax burdens, improving the level of the rule of law, and strengthening the protection of property rights, and reduce the negative impact of the recessive economy on innovation. The tax burden will also have an adverse effect on the non-hidden economy and affect the consumption of residents. Government taxation is divided into direct taxation and indirect taxation. Direct taxation has a direct crowding-out effect on residents' consumption, and indirect taxation has a threshold crowding-out effect on residents' consumption[2].

Resident consumption is not only affected by market innovation and cost, but also important factors such as increased market competition brought about by product market development, increased market innovation activities, and increased information transparency. The government can directly provide innovation subsidies and innovation rewards or optimize government services to provide a high-quality governance environment and a legal environment to encourage new market players to enter, increase market competition, and promote the efficiency of enterprise innovation output. With the increase in market competition, the increase in information transparency and the effectiveness of incentives have significantly promoted the innovation efficiency of enterprises. Optimizing the business environment will also promote market innovation, which will affect residents' consumption awareness through the demonstration effects of new products. For example, the annual product launch conference in the mobile phone industry will trigger a new wave of purchase and replacement. At the same time, we should conscientiously improve intellectual property protection measures, maintain innovation achievements in the fields of patent rights, copyrights, and trade secrets, and protect the external environment of innovation.[3].

2. Literature Review

At present, the domestic empirical research on the business environment and household consumption mainly indirectly focuses on the relationship between innovation and household consumption. From the perspective of innovation research, there are three viewpoints:.

The first view is that innovation drives consumption. Technological innovation activities can directly promote residents' consumption. From the perspective of technological innovation, technological innovation has an impact on residents' consumption awareness. The improvement of technological level and the intentional optimization of technological choices will help to expand the scale of consumption. Product-level technological innovation will stimulate consumption desire through demonstration effects. The role of consumption. From the perspective of product innovation, it can promote household consumption by improving product quality, expanding production volume, and product upgrading. From the perspective of institutional innovation, the system should be allowed to act as a booster for the interaction between technological progress and consumer demand. However, the ultimate goal of this view is still to emphasize that technological progress drives consumer demand, and it is only a brief mention of institutional innovation[4].

The second view is that my country's technological progress is mostly manifested as imported technological progress, and this technological innovation takes capital as the carrier, and capital remuneration squeezes labor remuneration, resulting in uneven distribution of labor remuneration and inhibiting the growth of consumer demand.

The third view is that my country's capital-biased technological innovation and consumption have a significant negative relationship. Both the secondary industry and the tertiary industry in my country have a significant trend of capital deepening, increasing the proportion of capital residents' remuneration, which has a significant negative impact on the residents' consumption rate. What is the relationship between the business environment and residents' consumption?

Does the relationship between institutional innovation and household consumption apply to the relationship between the business environment and household consumption? This all needs further study[5].

In summary, the current research on innovation and consumption is relatively rich, but most of them focus on the relationship between technological innovation and household consumption, and opinions are not uniform. There is little research on the relationship between institutional innovation and household consumption. The innovation of this article is to analyze the direct impact and path of optimizing the business environment on residents' consumption from the perspective of institutional innovation, in order to provide a useful reference for residents' consumption research.

3. Theoretical Mechanism

Transaction costs are the operating costs of the economic system and the additional costs caused by system defects, including market transaction costs, administrative transaction costs, and political transaction costs. Optimizing the business environment can effectively solve the problems of excessive government administrative examination and approval, wide administrative control, and weak administrative supervision capabilities that lead to rising production costs of enterprises, which in turn affects corporate decision-making and corporate innovation. The basic argument of this article is: Institutions are essential. Institutional innovation is the force behind technological innovation to promote the increase of residents' consumption, and at the same time, institutional innovation can help activate the market. The vitality of the main body, the formation of a good market competition atmosphere, and the optimization of system and mechanismsystem. Therefore, to improve the business environment, we can take multiple paths and angles.Expand the scale of domestic consumption.

Similar to the impact of innovation on consumer psychological needs, consumer environmental supervision and supporting measures also have an impact on consumer spending. On the one hand, creating a business environment governed by law can effectively alleviate the slow promulgation of government laws and regulations. Related laws and regulations cannot keep up with the development of consumption patterns, which makes it difficult to solve the problems arising from the growth of new consumption patterns in a timely manner and inhibit residents' willingness to consume. For example, the Didi online ride-hailing and ride-hailing incidents have caused consumers to have a fear of taking ride-hailing, causing consumer worries.

4. Establishment and Analysis of the Model

4.1. Variable Selection and Data Description

Among the explanatory variables,all indicators of household consumption expenditure come from the provincial macro annual database of China Economic Net,and all other indicators come from the provincial annual database of the National Bureau of Statistics. Since the National Bureau of Statistics adjusted the household income and expenditure survey plan in 2014,the new and old survey indicators are different,so the statistical data and sample survey data of 31 provincial administrative regions after the two sessions in 2014 were selected to construct the balanced panel data.

At present, domestic consumption rates and consumption expenditures are often used to measure consumption. This article adopts the final consumption rate as the consumption proxy variable. Residents' consumption expenditure may increase due to the expansion of production scale, and the consumption rate can better reflect the residents' willingness to consume.

4.2. Build Panel Quantile Regression Model

This part builds a panel quantile regression model to conduct an empirical analysis of the consumption promotion effect of tax cuts and fee reductions in the context of the new dual-cycle development. The panel quantile regression model is also a weighted minimization residual error that modifies the traditional linear panel model. The regression estimation method of the sum of absolute values,in the form of:

$$Y_{it}(_T | X_{it}, D_{it}) = \alpha_i + \beta_T X_{it} + \theta_T D_{it} + \varepsilon_{T,it} \tag{1}$$

Among them: Yit is the explained variable,Xit is the explanatory variable,Dit is the control variable,βT and θT are the marginal effect parameters at the Tth quantile,and εT,it is the unobserved random item.

In the traditional mean linear model,all sample points are given the same weight in the estimation procedure,so the relative importance of the sample points has nothing to do with the position of the sample points in the sequence;and in the quantile represented by equation (1) In the numerical model,the relative importance of the sample points is constrained by the weight of the sample points in the sequence. The sample points within a given quantile level are given a higher weight.

Therefore,the parameters βT,θT and εT,it are actually conditional estimates under the conditions of a given quantile and a sample set {Yit,Xit,Dit}. In the estimation procedure,the panel quantile model described by equation (1) is estimated by minimizing the conditional loss function in equation (2):

$$\min_{\alpha_{T,i}\beta_T} \sum_{T=1}^{T=M} \sum_{i=1}^{i=N} \sum_{t=1}^{t=T} \left| W_T L_T \right| \tag{2}$$

Among them: WT is the weight of the quantile of T ∈ (1,2,...,M-1,M);LT is the loss function of the panel quantile model parameter estimation,LT is expressed by equation (3):

$$L_T = Y_{it}(_T | X, D_{it}) - (\alpha_i + \beta_T X_{it} + \theta_T D_{it}) + \lambda \left(\sum_{i=1}^{i=N} \left| \alpha_{T,i} \right| \right) \tag{3}$$

The panel quantile model can not only effectively eliminate the normal distribution assumption based on the minimum residual square sum panel model for the unobserved residual items;it can also analyze the heterogeneity and adjustment of the parameter values at different locations in the sample interval. Direction to better reflect the rich information in the sample data set. Therefore,this study chooses the panel quantile model for empirical analysis to improve the value and accuracy of the research.

4.3. Descriptive Statistical Analysis

In order to determine which regression is more appropriate, this article performs Hausmann test on the equation. The results show that the chi-square value is 9.04 and the P value is 0.17 greater than 0.01, rejecting the null hypothesis, indicating that the random effects model analysis is more accurate. In order to test whether the empirical results are stable, and at the same time to explore the impact of the business environment on residents' consumption in each situation, the regression is performed using equation (2), and other control variables are added in sequence according to the sequence of variables. The result of equation (1) indicates that there are no other With the introduction of variables, the business environment has a

significant positive impact on the household consumption rate. For every one percentage point increase in the business environment, the household consumption rate rises by 0.2 percentage points, which is significant at the 1% level. After gradually introducing other variables, equations (2) to (5) all support a significant positive correlation between the business environment and household consumption. After introducing all control variables, for every one percentage point increase in the business environment, the household consumption rate increases by 0.1 percentage point. Assume that H1 is proved. It should be noted that the sales of technological innovation products of large and medium-sized enterprises are significantly negatively correlated with household consumption, which supports Long Jianbo (2020) and Ding Jianxun (2018) proposed that most of my country's technological progress is introduced innovation and capital-biased innovation. the opinion of.

In order to further verify whether the impact of the business environment in different regions on consumption is consistent, the four regions of the eastern, central, western and northeastern regions of the country were analyzed by grouping random effects. The regression results have significant regional heterogeneity. The significance level of the impact of the business environment on residents' consumption in the eastern region is not within 10%. Optimizing the business environment in the central and western regions can significantly increase household consumption. For every 1 percentage point increase in the business environment in the central region, household consumption will rise by 0.34 percentage points, which is within 5%.For every 1% increase in the business environment of western cities, household consumption will increase by 0.09%, which is significant at the 1% level. Optimizing the business environment in the northeastern region has a restraining effect on residents' consumption. For every 1% increase in the optimized business environment, residents' consumption will drop by 0.38%.

5. Research Conclusions and Policy Implications

From a theoretical and empirical point of view, this article proves that there is a significant positive correlation between optimizing the business environment and residents' consumption as a whole, but there are regional differences in this relationship. There is a significant negative correlation between the business environment and resident consumption in the northeastern region, the business environment and resident consumption in the central and western regions have a significant positive correlation, and there is no significant correlation between the business environment and resident consumption in the eastern region. According to the sub-index business environment and empirical results of residents' consumption, there are problems in the development of product markets in the central and northeastern regions of China[6].

Optimizing the business environment and affecting residents' consumption should pay attention to the development of product markets and the development of intermediary markets. The empirical results show that product market development indicators and intermediary market development indicators have the greatest impact on household consumption. For every one percentage point increase in product market development indicators, the consumption of residents in the western and northeastern regions fell by 0.15 and 2 percentage points, respectively. The enlightenment of this conclusion is: in the central and western regions, promoting the normal development of product markets is an important way to promote residents' consumption. Optimizing the business environment should pay attention to regionality and focus. Optimizing the business environment in the western and northeastern regions should focus on market competition and market concentration, eliminate market monopoly, and prevent industry monopoly from causing market distortions and weak consumption. Further activate market innovation vitality, so that residents can truly enjoy the benefits of the business environment. For every one percentage point increase in the

intermediary market development indicator, the consumption of residents in the eastern and central regions rose by 0.09 and 0.11 percentage point. The enlightenment of this conclusion is: optimizing the business environment. During the process, attention should be paid to the development of intermediary organizations in the eastern and central regions. Intermediary organizations have the functions of information transmission, innovation chain development, optimizing innovation networks and optimizing resource allocation. At the same time, the existence of intermediary organizations can give added value to product information, help consumers better understand the reputation of manufacturers and products, reduce hidden information, and enable consumers to better understand the true value of products. Obstruction of information circulation or lack of information feedback will inevitably result in a loss of efficiency. Therefore, optimizing the business environment in the eastern and central regions should further broaden the communication channels between the government and consumers, and at the same time further develop the intermediary market to protect consumers Rights, so that consumers dare to consume.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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