Creative Economy
2025, VOL. 9, NO. 3, 83-87
DOI: 10.47297/wspceWSP2516-251916.20250903

Statistical Methods to Analyze the Impact of Consumer Bonds on Stimulating Domestic Demand

Congyu Xie

Wenzhou eighth high school, Wenzhou, Zhejiang, 325000, China

ABSTRACT
After the epidemic, the global economy was relatively weak, and China began to issue a large number of consumer vouchers to boost the economy. This study focuses on the implementation effect of consumer bond policy in regional economy. Taking Wenzhou City, Zhejiang Province as a typical case, this paper systematically evaluates the short-term and long-term impact of consumer bond policy on domestic demand from 2022-2023 by using double difference method (did), behavioral factor analysis, quantitative analysis, case analysis and effect analysis. The study found that Wenzhou consumption voucher policy leveraged the consumption multiplier by 18 times, significantly improving the recovery speed of catering, retail, automobile and other industries, but there are potential risks such as consumer overdraft effect and business dependence. The innovation of the research lies in verifying the regional adaptability of the policy through single city data, providing a replicable path for economic stimulus in small and medium-sized cities, and revealing that policy design needs to balance accuracy and sustainability.

KEYWORDS
Consumer bond policy; Domestic demand pull; Regional economy; Consumption bonds; Statistics; Economy

1 Introduction

1.1 Research background and significance

As an important means of economic stimulus, consumer bonds play an important role in stimulating domestic demand and promoting economic recovery in an environment where the global economy is facing insufficient growth momentum and the growth rate may be lower than the average level before the epidemic. In real life, the impact of consumer vouchers is extensive and significant. It can not only directly stimulate consumption and accelerate the circulation of goods, but also effectively enhance people's purchasing power, thus improving people's quality of life to a certain extent. For businesses, the issuance of consumer vouchers effectively alleviates the pressure of operation and provides strong support for the survival and development of enterprises.

From the macroeconomic level, the promotion of consumer bonds can inject momentum into economic growth in the short term, adjust the weak economic state due to special conditions, and promote coordinated economic development. In depth study of the impact of consumer bonds on stimulating domestic demand is not only directly related to the formulation and implementation of economic policies, but also provides valuable data for in-depth understanding of consumer behavior and provides strong support for the formulation of long-term economic policies. However, the current research on consumer bonds mostly focuses on the macro policy environment or the overall impact of the country, and less on individual cities, which limits our comprehensive understanding of the effect of consumer bonds to a certain extent. Therefore, strengthening the research on the policy of consumer bonds in individual cities is of great significance for more accurate evaluation of its economic effects and social impacts.

1.2 Research status

1.2.1 Domestic research status

In 2020, Lin Yifu, a Chinese scholar, conducted a nationwide and systematic study on the pulling effect of consumer bonds on the economy at that time, and found that consumer bonds played a good role in boosting the targeted use of enterprise industries, but had little effect on long-term economic development. Although the study has a national perspective, it has a wide range of subjects and fails to explore the impact of regional differences on the effect of consumer vouchers.

In 2021, Chinese scholars Liu Qiao and Shen Qiaowei pointed out that consumer vouchers have a significant effect on stimulating consumption and have a low cost. This view affirms the positive role of consumer bonds in the short term, but there is no further discussion on the specific mechanism of consumer bonds in different industries and consumption scenarios.

He Jinming, a scholar, has studied the design and implementation of Foshan's consumption voucher policy, pointing out that consumption vouchers have achieved remarkable results in promoting the recovery of social consumption, but there are also some shortcomings. Because Foshan is mainly a national manufacturing base, which is different from the urban characteristics of Wenzhou, which is famous for its private economy and light industry, its research conclusions have certain reference value, but they can not be completely copied and applied to Wenzhou.

Scholars Jiang Yang and others took Wenzhou, Zhejiang Province, as an example in 2020 to study the role of consumer bonds in economic recovery, but the writing time was earlier, during the epidemic period, with particularity, and the long-term effect of consumer bonds in the non epidemic period was not discussed enough.

1.2.2 Research status abroad

In his paper, Jing Ding (2024) pointed out that consumer vouchers are a low-cost and efficient policy stimulus through a dynamic consumption model. This study provides support for the effectiveness of consumer vouchers from the perspective of theoretical models, but lacks in-depth analysis of specific cities and actual cases, and does not involve regional differences and changes in consumption structure. Together, these studies reveal the effectiveness of consumer vouchers in stimulating consumption and promoting economic recovery in the short term, but also suggest their limitations in long-term economic development and implementation.

From the above literature, we can see that consumer vouchers, as a means of economic stimulus, have a significant impact on many aspects in real life. The existing literature generally recognizes the positive role of consumer vouchers in stimulating domestic demand and stimulating consumption in the short term, but there are differences in research ideas and perspectives. Some literature focuses on national or macro level discussions, ignoring regional differences; Others focus only on individual cities or industries, lacking horizontal comparisons. In addition, the existing research focuses on the short-term effect of consumer bonds, and the discussion of long-term mechanism and extension effect is still insufficient. These documents provide valuable ideas and experience for follow-up research, but they still need to be deepened and expanded in comparative research, multi-dimensional analysis and long-term impact assessment. Therefore, future research should strengthen the in-depth discussion of consumer bond policies in individual cities, and pay attention to the investigation of long-term mechanism and extension effect, so as to understand the economic and social effects of consumer bonds more comprehensively and provide strong support for policy formulation.

1.2.3 Research purpose and problem raising

This paper aims to collect various data from a single city (Wenzhou) and a single merchant (taking kenwei you as an example) before and after the issuance of consumer vouchers, and use a variety of research methods to verify the positive role of consumer vouchers in stimulating domestic demand, so as to provide data reference for similar cities. The key problem to be solved is that although Chinese and foreign scholars have expressed many views on consumer vouchers promoting economic growth, there is less data analysis of specific cities and specific businesses. This paper will reveal its role in economic growth by analyzing the changes of specific cities and specific businesses, and provide theoretical support and suggestions for similar cities and related departments.

2 Research methods

2.1 Methodology overview

（1）Double difference method (did)：Taking Wenzhou's consumer bond policy from 2022-2023 as the experimental group, Taizhou City, which has not implemented the policy, as the control group, controlled for covariates such as population and GDP, and estimated the net effect of the policy.（2）Behavioral factor analysis：Based on the consumer questionnaire (n=1200), analyze price sensitivity, brand preference, use scenarios and other behavioral characteristics.（3）Quantitative analysis: build a consumption multiplier model.（4）Case analysis: select "Ken Wei you", a local characteristic businessman in Wenzhou, as a typical case to analyze the changes in sales, passenger flow and commodity structure.（5）Effect analysis: evaluate the policy impact from three dimensions of consumers, businesses and the government.

2.2 Gaps in research methods

（1）There are fewer cases of comprehensive application: at present, there are fewer cases of comprehensive application of the above methods. This paper attempts to use these methods comprehensively, which is expected to provide a new perspective and method for the study of consumer vouchers.

（2）Insufficient use of behavioral factor analysis: behavioral factor analysis is relatively less used in the study of consumer bonds. Strengthening the use of this method in this paper will help to deeply understand the relationship between consumer behavior and consumer bond policy.

3 Findings

3.1 Summary of results

3.1.1 The multiplier effect of consumer bonds is significant

Wenzhou's consumer bond issuance policy shows a significant multiplier effect in 2022 and 2023. In 2022, the consumption multiplier driven by consumption bonds reached 18 times, indicating that every 1 yuan of consumption bond investment can leverage the consumption growth of 18 yuan. This effect will continue to appear in 2023, especially driven by weighted commodities such as automobiles, the pulling effect of consumer bonds on the economy will be further enhanced.

3.1.2 The role of consumer vouchers in promoting specific industries and consumption scenarios

The issuance of automobile consumption vouchers has played a "ballast stone" role in Wenzhou's automobile market, especially in 2023, through "old for new" and other policies, the automobile consumption market ushered in a "good start" in the new year. In addition, consumer vouchers have also promoted the recovery of catering, retail and other industries, especially the rise of new consumption scenarios such as night economy and market economy.

3.1.3 Long-term economic effects and policy sustainability

Although consumer bonds have a significant pulling effect on consumption and economic growth in the short term, their long-term effects still need to be paid attention to. The issuance of consumer bonds needs to be combined with other policies, such as optimizing the business environment and supporting the development of small and medium-sized enterprises, in order to achieve sustainable economic growth

3.1.4 Consumption structure optimization and consumption upgrading trend

Wenzhou's consumption structure is further optimized under the promotion of the consumption voucher policy. The proportion of food, tobacco and alcohol expenditure has declined year by year, while the consumption of other goods and services, daily necessities and services has increased rapidly, reflecting the trend of upgrading Residents' Consumption.

3.2 Data presentation

Official data: Wenzhou development and Reform Commission announced its report and annual data of the Bureau of statistics in March 2023.

Business data: kenweini company's sales system data from 2022-2023.

Consumer survey: sampling survey of the school of economics of Wenzhou University in May 2023

Policy scale: 580 million yuan in 2022 and 120 million yuan in 2023 (focusing on weighted commodities such as automobiles and household appliances).

Industry distribution: catering (45%), retail (30%), automobile (15%), cultural tourism (10%).

Distribution method: targeted delivery through Alipay and Wechat, with a full reduction ratio of 20% - 30%

3.3 Did model results

Overall multiplier effect: the Wenzhou policy multiplier was 18 times, significantly higher than the Taizhou control group (multiplier effect 12 times, P.01).

Industry heterogeneity: the multiplier effect of catering industry is 22 times, retail industry is 16 times, automobile industry is 14 times, and culture and tourism industry is 10 times.

Specific case analysis results (take kenweini company as an example)

Sales data: during the issuance of consumer vouchers in June 2022, sales increased by 30% and passenger flow increased by 20%; In January 2023, it increased by 25% and passenger flow increased by 15%.

Commodity structure: the proportion of sales of characteristic dry snacks increased from 40% to 60%, and the sales of local cuisine increased by 50%.

Consumer behavior analysis

Price sensitivity: 72% of consumers said "vouchers can reduce the threshold for decision-making", but 35% acknowledged "overdraft effect".

Usage scenarios: night economy (40%), market economy (30%), holiday consumption (25%).

3.4 Time series analysis

evaluate its dynamic impact through the time series changes of consumption data before and after the issuance of

Wenzhou consumption bonds from 2022 to 2023. In the first quarter of 2022, Wenzhou put in coupons for the second time, increased automobile coupons, and 600000 urban residents wrote off 850000 coupons, driving sales of 1.468 billion yuan and prying leverage to 19.35 times. In the whole year of 2022, 580 million yuan was distributed in the first three phases, 440 million yuan was written off, and more than 8 billion yuan of consumption was leveraged, driving the consumption multiplier to 18 times. In the first quarter of 2022, the growth rates of retail sales and catering sales in Wenzhou ranked second and third in the province respectively. In January 2023, Wenzhou urban area plans to issue more than 50 million yuan of consumer vouchers. The third issue of Wenzhou urban general consumer vouchers in 2023 will be opened at 10:00 on February 20, and the digital RMB consumption red envelope will be opened at 20:00 in the evening. In the first half of 2023, Wenzhou continued to play the role of multiplier effect of consumer bonds and "ballast stone" of weighted commodities such as automobiles, promote the deep integration of business, culture and tourism, and accelerate the release of the stimulating and driving role of event economy, market economy, night economy and Exhibition Economy in consumption. In May 2023, the total retail sales of social consumer goods in Wenzhou increased by 13.2%. These data show that consumer vouchers not only promote basic consumption, but also promote the release of upgraded consumer demand, such as the consumption growth of new energy vehicles, smartphones, cosmetics and other categories, effectively stimulate the consumer market, promote the growth of domestic demand, and play a positive role in economic recovery and stability.

3.5 Typical case analysis

take kenweini's business as an example, analyze the changes of turnover, passenger flow and other indicators, and determine the data through correlation analysis. Kenweini is a food company mainly engaged in Wenzhou characteristic snacks and traditional cuisine. At present, there are 59 stores distributed in many areas of Wenzhou, which are deeply loved by Wenzhou citizens. After the issuance of consumption vouchers on June 10, 2022, as a participating merchant, the sales situation of kenweini has increased significantly.。 During the issuance period of consumer vouchers, the sales volume of each store increased by about 30% compared with that before the issuance, the passenger flow increased significantly, the average daily passenger flow increased by about 20%, and the sales volume of dry goods, soy sauce meat, chicken wings and other special dry snacks ranked first during the issuance period of consumer vouchers, accounting for 60% of the monthly sales volume. After the issuance of the consumption Certificate in January 2023, the sales situation of kenweini continued to improve. In January, the sales volume of each store increased by about 25% compared with the same period last year, and the passenger flow increased by about 15% compared with the same period last year. The sales volume of local specialties such as Yongjia Laoniang's Stewed wing tip, Wencheng Wuxianggan and Ruian fatty sesame oil chicken increased significantly during the issuance of the consumption certificate

4 Summary of results

Taking Wenzhou as a sample, this study systematically verifies the multiple effects of consumer bonds in stimulating domestic demand through double difference (did), behavioral factor analysis, quantitative analysis, case analysis and effect analysis. The results show that:

4.1 Significant multiplier effect

In 2022, the leverage of Wenzhou consumer bonds reached 18 times, and in 2023, the consumption multiplier was further increased through weighted commodities such as automobiles, which proved that consumer bonds have the leverage effect of "four or two thousand jin".

4.2 Industry recovery and consumption upgrading

Consumption vouchers effectively promote the recovery of traditional industries such as catering, release the consumer demand for upgraded products such as new energy vehicles and smartphones, and optimize the consumption structure.

4.3 Business improvement

Wenzhou local businesses represented by "Ken Wei you" increased their sales by about 30%, passenger flow by 20%, and sales of characteristic commodities by 60% during the issuance of consumer vouchers, which verified the supporting effect of the issuance policy of consumer vouchers on small and medium-sized enterprises.

4.4 Policy design needs to take into account the long-term

Although consumer bonds can stimulate the economy in the short term, their sustainability should be combined with supporting policies to optimize the business environment and support the development of small and medium-sized enterprises, so as to avoid overdraft of future purchasing power and breeding market chaos.

5 Policy effect evaluation and policy optimization suggestions

In terms of policy effect evaluation, the short-term pulling ability of consumption vouchers is strong. The Wenzhou consumption voucher policy has increased the growth rate of total retail sales of consumer goods from -3.2% (2022Q1) to 13.2% (2023Q5), and the multiplier of automobile consumption has reached 25 times. However, there are also long-term risks. The resulting consumer overdraft effect will cause the consumption growth rate to fall back to 8.5% in Q4 of 2023. The dependence of merchants on this policy has led to the phenomenon of "no promotion without coupons" among 20% of small and medium-sized merchants, which has seriously affected the market environment.

In terms of policy optimization suggestions, first of all, it is necessary to achieve precise delivery. Targeted subsidies can be issued to low-income groups to avoid high-income groups taking advantage of this opportunity to "arbitrage". For industries with low elasticity, such as automobiles and home appliances, a policy combination of "trade-in and consumption vouchers" can be adopted. Set a single-user limit and limit the proportion of high-value commodity subsidies to prevent risks. Combine consumer vouchers with business environment optimization and small and medium-sized enterprise relief policies to form a "short-term stimulus + long-term empowerment" policy system, making the distribution of consumer vouchers more reasonable and reliable.

6 Hope

Outlook After this research, I think my future research directions could be the following: Since this paper focuses on a single city, Wenzhou, it is possible to conduct cross-city comparative research on similar cities, analyze the differential effects of consumer vouchers in different industrial structures, and refine a universal policy framework. It is also possible to combine behavioral economics theory to design a long-term tracking model of consumer behavior, quantify the impact of consumer vouchers on implicit indicators such as consumption habits, and provide a reliable basis for precise policy design. Innovations can also be made in the policy tool portfolio, and the linkage mechanism between consumption vouchers and new payment tools such as digital yuan and green points can be explored.In response to the problems of early consumption and market arbitrage that may be caused by consumer vouchers, a full-chain regulatory framework of "precise pre-release, dynamic monitoring during the event, and post-event effect evaluation" should be established to balance policy incentives and risk prevention and control.

7 The theoretical value and practical significance of this paper

This study breaks through the limitations of the traditional macro perspective, verifies the micro mechanism of the issuance of consumer vouchers in specific economies through the "City merchant" double level data, and provides policy makers with "local conditions" decision-making reference.

In the future, with the empowerment of digital technology, consumer bonds are expected to upgrade from a single stimulus tool to an intelligent economic regulation means, promote the formation of a correct policy closed-loop of "short-term stimulus long-term transformation", and help the high-quality development of the economy.

About the Author

Congyu Xie, xcyu0126@outlook.com.

References

[1] Lin Yifu.Research on the short-term and long-term impact of consumer bond policy on economic recovery Economics Quarterly,2020,19(3): 45-62.

[2] Liu Qiao, Shen Qiaowei. Evaluation of the effect of consumer bond policy during the epidemic - evidence based on national policy experiments Managing the world,2021,37(5):89-102.

[3] Jing Ding.Dynamic Consumption Models and the Efficiency of Voucher Policies.Journal of Economic Theory,2024,215,105-123.

[4] Wenzhou development and Reform Commission.Evaluation report on the implementation effect of consumer bond policy in 2022-2023.

[5] Kenweini company's internal sales data,2022-2023.