

Research Article

Parallel Factor Analysis in Dual-class Tax Impacts of Agricultural Products: An Economic Research from Macro Perspective

¹Qishen Zhou, ¹Yalan Xu, ²Ting Wang and ²Lipeng Chen

¹Institute of Gemmological, China University of Geosciences,

²School of Management, Huazhong University of Science and Technology, Wuhan 430074, China

Abstract: This study aims to investigate the dual-class tax impacts on China agricultural products using the parallel factor analysis. Along with the rapid economic development of China, the growing purchasing power of Chinese residents has been accelerated; particularly in the expensive agricultural products market. China has adjusted taxable items of consumption tax to narrow the gap between rich and poor and to promote social equity. The atrophy of the expensive agricultural products market brought by the tax may curb the growth and development of domestic agricultural products industry. In this study, the parallel factor analysis is employed to investigate the dual-class tax impacts on China agricultural products. The results indicate that the taxation system should be taken from a forward-looking aspect. The market supply and demand for expensive agricultural products and consumer behaviors should be combined with an overall consideration. Hence, specific adjustments China expensive agricultural products market have been eventually put forward.

Keywords: Agricultural products, dual-class tax, parallel factor analysis

INTRODUCTION

"Expensive agricultural products" are defined as consumer goods that exceed the basic needs of survival and development and own the characteristics of unique and rarity. According to the survey of China agricultural bureau, the total consumption of expensive agricultural products in China has amounted to \$6.4 billion in the year 2010 and the growth rate ranked the first in the world for three consecutive years (Wang, 2008). The per capita income in China was less than one-fourteenth of the United States. However, total expensive agricultural products consumption of the Chinese market took more than one-fourteen of the world's expensive agricultural products consumption and has exceeded America and is approaching the world No. 1 Japan (Wang and Zhao, 2008) It can be seen that Chinese consumers have growing interests in expensive agricultural products. Under the general context of the Chinese society, the worship of expensive agricultural products grows rapidly and any changes and adjustments of the tax will stimulate the sensitive nerves of consumers.

The concept of expensive agricultural products has not been rigorously defined. Berry (1994) claimed that because of the different stages of economic development, there was a constant change of the conception of luxury and the division of the luxury level was also very vague. From the perspective of Zhu (1999), the demand for expensive agricultural products

consumption in China usually comes from two sources: the first one is the need for self-actualization in Maslow's Hierarchy of Needs; the second source is personal networking like gifts for various purposes. There are differences in consumers' awareness of expensive agricultural products in China and in the West. Compared with Western customers who focus on the recognition of brand culture and historical heritage, Chinese consumers pay more attention to the pursuit of brand awareness (Silverstein and Fiske, 2003). Though Chinese consumers present a more rational attitude towards expensive agricultural products consumption, showing off is still the main objective at the early stage of the expensive agricultural products market. Yang and Lin (2007) pointed out that there was an irrational notion that the level of brand loyalty was low and the level of expensiveness was used as indicators for consumption.

Consumption tax is accepted as a kind of good tax currently because it combines the advantages of both income tax and turnover tax and has the characteristics of equity and efficiency. Income tax is a front-end adjustment before investment and leads to results of restricting income disparity and limiting the enthusiasm of the high earners. Hu (2009) figured out that it would be harmful from a long-term aspect. Consumption tax emphasizes on back-end control on how people spend money. People who chose to use the money to invest are allowed to pay less tax or even pay no tax. However, people who chose to consume especially

these high-end consumers have to pay the consumption tax to achieve the purpose of adjustment. The growing consumer spending power of luxury market implies the accelerating reinforcement of the economic strength of China. However, the tax system of China still has problems. The enhancement of the upscale consumer spending power did not accompany with the synchronous update of the Chinese tax system (Zhan, 2012). One of the significant reasons for the rapid growth of expensive agricultural products consumption is that the tax system in China is out of touch with international rules. In April 2006, China has adjusted taxable items of consumption tax. The main purpose is to narrow the gap between rich and poor and to promote social equity. The taxation system in China might affect the general public when targeting the heavy taxes on the rich. Changes of rational consumers' choices will result in a loss of tax revenues which will lead to a lack of financial support to the fair income distribution. What is more, the atrophy of the luxury market brought by the luxury tax may curb the growth and development of domestic luxury manufacturing industry. However, very limited work has been done to address the dual-class tax impacts on China dual-class tax impacts on China agricultural products, especially for expensive agricultural products.

To investigate the dual-class tax impacts on China agricultural products, this study has proposed a new method based on the parallel factor analysis to assess the tax impact on expensive agricultural products from point of view of macro perspective. Based on these analyses, the detailed and related tax strategies on Chinese expensive agricultural products market are eventually put forward in this study.

THE IMPACT OF TAX ON THE BEHAVIOR OF CHINESE CUSTOMERS

Chinese consumers have growing interests in expensive agricultural products. Under the context of the growing worship of expensive agricultural products in the Chinese society, any changes and adjustments of the luxury tax will stimulate the sensitive nerves of consumers. In general, there are three groups of consumers who support the huge consumption of expensive agricultural products: the rich, the middle class and the poor.

The impact on consumer behavior of the wealthy class: The division between rich and poor is becoming increasingly serious. Ninety percent of wealth rests in the hands of 5% people. That is why for most people, the disposable money is never enough relative to the endless desire for expensive agricultural products. However, the rich group should be treated differently because millionaires take the leading roles of the luxury market and have rare limits of their consumption on luxuries. The budget for buying luxury is never

necessary. In the view of the rich, expensive agricultural products and necessities are equivalent. So price is no longer the key factor that determines the purchasing decision (Pigou, 1962). Because of the strong rigidity of their consumption, even the price of expensive agricultural products fluctuates, the impact on their consumption behavior is small. As a result, under this condition, the purchasing habits of luxuries of the wealthy class will not be subject to the largely increased price caused by heavy taxes.

The impact on consumer behavior of the middle class: There is no doubt that the middle class can be described as the backbone in expensive agricultural products consumption in China. In this segment of consumers, the group whose annual incomes are in the range of \$250,000 to \$600,000 is the main consumers of expensive agricultural products and the total number is about 14 million. This target group of consumers can be divided into two types. The first kind of consumers is professionals who are well versed in expensive agricultural products or senior buyers. The main purposes for them to purchase expensive agricultural products are to pursue the brand effect of the products and at the same time to buy the merchandise to the bed of roses. The main reason for the second type of consumers to buy expensive agricultural products is to show off their financial resources (Li and Wang, 2009).

Based on the above analysis, different indifference curves can be drawn to present how the two types of consumers' behaviors change when the price of luxuries fluctuates because of tax based on their different levels of satisfaction of their consumption of expensive agricultural products.

As the Fig. 1 shows, AC is the possibility curve presenting the possibility that consumers purchase the expensive agricultural products after tax; AB is the possibility curve presenting the possibility that consumers purchase the expensive agricultural products before tax. First of all, all assemblages of the points on the indifference curve of the first kind of consumers have equal effectiveness. Because the second types of consumers' behaviors belong to conspicuous consumption, their indifference curve is a line that is perpendicular to the horizontal axis, that is, amount of taxable expensive agricultural products.

Begin with an analysis of the first class of consumers, the original consumption equilibrium before taxes is E1; however when luxury prices rise, the cost of buying taxed luxuries increases according to the principles of microeconomics. Based on substitution effect, the consumption of taxable goods decreases and the consumers purchase more duty-free goods. Simultaneously, according to the income effect, when commodity prices rise, the nominal incomes of consumers do not change but the real purchasing power

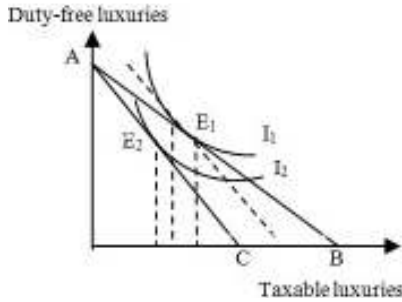


Fig. 1: The impact of luxury tax on consumer behavior of the first kind of middle class

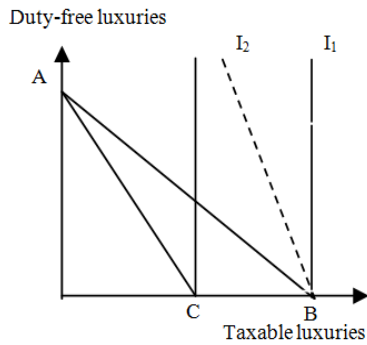


Fig. 2: The impact of luxury tax on consumer behavior of the second kind of middle class

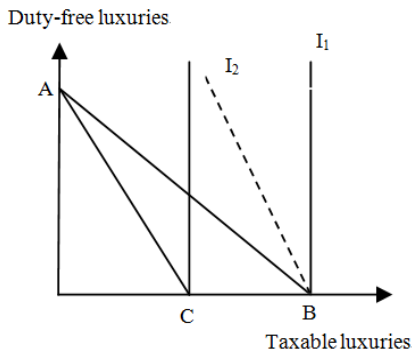


Fig. 3: The impact of luxury tax on consumer behavior of the poor class

decreases and the consumption of expensive agricultural products will drop. Therefore, the final consumption equilibrium tends to be E2.

Focus on the second type of consumer, the consumption equilibrium before the price rises is B. But for this kind of consumers, as previously mentioned, the utility of luxury tends to infinity and the consumer enthusiasm for expensive agricultural products will not decrease when the price increases. On the contrary, only high price could reflect the financial resources of the consumer. Therefore, the substitution effect does not work under the situation. However, besides, the income effect caused by the change in price cannot be ignored. When the price rises, the amount of consumption falls, the final consumption equilibrium

tends to be point C. To sum up, compared with other segments, though the drop of consumption is different and different groups have different reaction to the luxury tax, the rise of expensive agricultural products price will induce a decrease of consumption aside from the differences in consumption goals and habits (Fig. 2).

The impact on consumer behavior of poor class:

Wealth and money determine whether or not people can afford to buy expensive agricultural products. However, the fundamental reason for whether to buy expensive agricultural products is decided by the individual spending habits. Actually, among the composition of buyers of expensive agricultural products, very affluent consumers account for a small part of the total number. Low-income group who has limited purchasing power makes the majority of the total. Their disposable income is only 1000 to 2000 Yuan, but their demand for expensive agricultural products is inversely proportional to their income under the context of the modern city. While, of course, there are a large number of non-direct consumers in the luxury market whose consumption purpose is to make expensive agricultural products as gifts to please others. Therefore, the substitution effect can be negligible because that they present the strong demand for expensive agricultural products. But what cannot be ignored is that because their purchasing power is limited, the income effect caused by price changes is obvious after the substitution effect is ignored. As a result, the changes of their consumption behaviors caused by price adjustment are similar to the second category of consumers in the middle class (Fig. 3).

To sum up, the measures of taxation of expensive agricultural products should be taken from a forward-looking aspect. The market supply and demand for expensive agricultural products and consumer behaviors should be combined with an overall consideration. More importantly, specific adjustments should be taken under specific circumstance. Only by the above premise, careful amendments and reforms in the tax system will make the balance between efficiency and equity and also promote the healthy development of China's luxury market.

DISCUSSION AND SOLUTIONS

Discussions: The Chinese government has adjusted the taxable items of consumption tax and expended the taxable ranges of expensive agricultural products. The main purpose of this measure is to adjust the differences between rich and poor and to promote social equity. However, after a short period of observation, the results are not really perfect because of the shortage of empirical tests and lack of adequate data. From the perspective of economic theory, it is difficult for a tax to narrow the gap between rich and poor and it is also likely to curb the development of the emerging domestic agricultural products industries.

The difficulty for domestic expensive agricultural products manufacturing industry to mature: There is a phenomenon of sacrifice of efficiency during the process of implementing a tax. As the previous analyses said, it is difficult to maintain the size of the expensive agricultural products market as large as the market before tax because the vast majority of consumers will reduce their consumption when the price of expensive agricultural products increases due to tax except the very few top-level rich consumers (Liu and Zhao, 2006). The impact of a tax on the development of the domestic agricultural products industry should not be overlooked.

The development of manufacturing industry is clearly inseparable from the consumer-driven consumption. Consuming size of certain kinds of expensive agricultural products in China still needs further nurturing and improvement. There is a fact that the first leisure boat show held in Hangzhou peaceful international exhibition center in July 2004 did not meet its expectation. The number of both exhibitors and visitors was unsatisfactory. In order to compress expenditure, the organizer had to cancel the economic forum of yachts, the investment forum of the yacht industry and small-scale substantive trade talks after the three-day show.

Obviously, potential does not represent the market capacity. Although the development of yacht industry, related downstream industry and service industry has great potential to realize further growth and improvement, it needs a long period of time for the potential of consumer demand to turn into real consumption capacity. The tax will obviously slow down this process and thus prevent the domestic expensive agricultural products manufacturing industry from being mature.

The sources of tax revenues may be the general social public: The tax might induce another problem of a lack of fairness. There are a large number of expensive agricultural products are outside the scope of taxable items. The main purpose of levying the tax is to generate taxes from the high-income group in order to maintain the social justice. However, currently, the base of tax in China is very narrow. Many expensive agricultural products that have been recognized by the community are not included in the scope of assessment. This might because the concept of luxury is difficult to define or technical reasons during the process of collection. Various types of expensive agricultural products owned by the wealthy in China have been included in the consumption tax base like shark fin and sea-ear. However, the government does not levy tax on the villas owned by the 67% of the wealthy and the private jets owned by the 2% of the wealthy. This is just for tangible luxury. Intangible luxury services are also outside the scope of the tax. While, at the same time, the characteristics of expensive agricultural products have determined that they are alternative to each other. When rational consumers give up taxable luxury and

turn to tax-free expensive agricultural products, the loss of tax revenues is inevitable and the macro-control ability for government is obviously weakened.

Irrational consumer behavior: There is an assumption for the concept that levying consumption tax on expensive agricultural products is to protect the social justice. The assumption is that the people who purchase expensive agricultural products are high-income groups. However, the expensive agricultural products market of China is not mature due to the drive of public opinion, promotion of foreign luxury brands, increase of domestic exhibitions and the abnormal and immature psychology of Chinese consumers. A large portion of luxury consumers in China is actually not high-income people that the policy makers thought about. "Overdraft luxury buyer" is the best evidence. When a large number of consumers who do not have the spending power enter the agricultural products market for the pursuit of expensive agricultural products and become the main consumers of this market, tax revenues may be more likely to come from the ordinary people but not the high-income groups as the policy makers want. The feature of fairness obviously cannot be guaranteed.

Solutions:

Design a reasonable tax base and establish a two-level adjustment mode for turnover: The criteria for the implementation of taxation are the principle of energy burden. It implies an assumption for consumption tax of expensive agricultural products to achieve the purpose of preserving social justice. The assumption is that the buyers of expensive agricultural products must be high-income groups. However, in the Chinese agricultural products market, several relatively low-income groups enter the entry-level luxury market due to specific cultural factors. If the government adopts a tax mode without distinction, the tax burden will be on the shoulders of the majority of the general public but not the high-income groups and the purpose of maintaining justice and fairness cannot be realized. Thus it is not appropriate to introduce a consumption tax on the entry level luxury.

On the high-end expensive agricultural products, its specific target helps identify high income groups through its buying and consumption behavior within a specific range to achieve the objective of regulating income distribution. Special attention should be paid that expensive agricultural products and services at the same level should adhere to the luxury duty in order to plug the space and range of avoiding taxes. When consumers consume a particular kind of high-end expensive agricultural products, the elastic of consumer demand is high. However, when consider the expensive agricultural products as a whole to be consumed, the demand elasticity is low. Consumers want to be recognized by specific sectors of the society through iconic consumption. Thus, purchasing behavior to the same level of expensive agricultural products is inevitable. Therefore, it is very important to break the

existing tax mode of the combination of consumption tax and VAT (Value-Added Tax), to levy sales tax on agricultural products of the existing entertainment taxable items, sauna bath, massage service, upscale catering and accommodation of the existing upscale service projects, to include all these taxable items into the range of consumption tax, to establish a combination of consumption tax, VAT and the sales tax, to build a two-level adjustment mode for turnover.

Raise the tax rate of expensive agricultural products to enhance the role of the consumption tax by regulating income distribution: Realization of a high tax rate of expensive agricultural products consumption needs to be built on the premise of expanding the tax base. If the tax base remains the same and just raises the rate of several luxuries, the consumer behaviors of taxpayers will inevitably be distorted and extra burdens of taxation will be created.

Some people hold the opinion that the rate of the consumption tax of expensive agricultural products should not be high or it will negatively affect the development of the agricultural products industry. In fact, the Chinese agricultural products market is occupied by foreign brands. Therefore, raising the tax rate of expensive agricultural products will have little influence on domestic industries and will generate tax revenues from the foreign luxury brands because China not only has great consumption power but also is a big importer of expensive agricultural products.

Turn the tax within price into tax outside the price and straighten out the relation between price and tax: Adopting exclusive tax will assist in playing the leading role of the consumption tax. Consumers will have the acknowledgement of specific amounts of their own taxes and also be aware that what they purchase are specific commodities or state-restricted products when the price and consumption taxes are respectively indicated on the invoice of the products. When consumers have a clear picture of the exact amount of taxes they have to pay, there will be some influences on their purchasing decisions and behaviors and the supervision from consumers to manufacturers and dealers can be formed. For example, under the context of the tax within price, some investors might take advantage of information asymmetry and increase unjustifiable price during consumption tax adjustment and create the consequence of the detriment of consumer interests. The interests of consumers can be effectively protected if the consumer tax and the rate of tax can be clearly stated on the invoice in addition to price.

CONCLUSION

Expensive agricultural products, as high-end or top commodities, are undoubtedly the objects rich people

usually focus on. The purpose of tax is to generate tax revenues from the wealthy and would not harm the interests of low-income customers. On the contrary, the tax revenues are used to improve the quality of life of low-income people through the form of social public welfare so that the second distribution of social wealth will be achieved. Expensive agricultural products and consuming behaviors of expensive agricultural products should be taken into consideration as a whole. The government should carefully choose the tax base, tax rates and reasonable tax-price mode combined with the features specifically demonstrated in the Chinese market. Only by that, the specific taxation of expensive agricultural products will be able to play its role and to narrow the gap between rich and poor in order to achieve the consequence of social equity.

ACKNOWLEDGMENT

The project was supported by the Fundamental Research Funds for National University, China University of Geosciences (Wuhan), under grant No. CUGW140901.

REFERENCES

- Berry, C., 1994. *The Idea of Luxury: A Conceptual and Historical Investigation*. Cambridge University Press, UK.
- Hu, T., 2009. Taxation of luxury goods and luxury consumption study. *Tax*, 9(3): 9-10.
- Li, D. and M. Wang, 2009. Analysis of luxury tax based on consumption behavior. *J. Zhongnan Univ.*, 1(172): 44-48.
- Liu, S. and H. Zhao, 2006. Several thoughts on luxury consumption tax. *J. Shandong Text. Econ.*, 5(43): 42-45.
- Pigou, A.C., 1962. *A Study in Public Finance*. Macmillan, London, UK.
- Silverstein, M. and N. Fiske, 2003. Luxury for the masses. *Harvard Bus. Rev.*, 81(4): 48-57.
- Wang, W., 2008. Thoughts on the development of luxury consumption market in China. *Chinese Prices*, 3(9): 48-50.
- Wang, Z. and Y. Zhao, 2008. The rise and future development of the Chinese luxury consumption. *ACCF Ms. Tax.*, 4(9): 48-49.
- Yang, L. and P. Lin, 2007. Luxury consumption characteristics of Chinese consumers. *Mod. Commerce Ind.*, 8: 29-30.
- Zhan, K., 2012. Rational definition of luxury consumption tax base. *Chinese Financ.*, 73(12): 77.
- Zhu, X., 1999. Empirical research on luxury consumption motives of Chinese consumers. *Acad. Market. Sci. Rev.*, 3: 237-261.