The Unsustainability of Street Vending Business- Taking Yiwu Santing Road Night Market as an example

Yu Liu

Shanghai Starriver Bilingual School, China

ABSTRACT

Started in 2019, the epidemic swept across the globe and has not ceased. The Covid-19 virus can be spread easily through people by contacting each other. As a result, most factories and businesses are forced to be shut down, which negatively affects the economic and gross domestic product. To resolve this situation, the Chinese government declares a policy of promoting vending economy to bring up the unemployment rate and promote the economy. While looking at the long-run sustainability, this paper would use game theory to provide theoretical evidence. There would also be interviews and case studies to show the long-run unsustainability of the vending economy.

Background

Covid-19 had made 2019 a very different year. After reaching its peak in mid-2020, the number of infected patients began to decline gradually. So far, there are 90,239 accumulative confirmed cases and 4,875 deaths out of China's population of 1.41 billion.

According to China's National Bureau of Statistics data, China's GDP in 2020 is 101,598 billion RMB. Compared to 2019, The annual GDP growth rate is 2.3%, which is lower than the 2019 GDP growth rate of 3.8%. The epidemic has a major impact on China's economic development. Accordingly, the epidemic has a negative impact on people's livelihood. The street vending economy is to achieve the purpose of "employment stabilization and people's livelihood protection". It is particularly important to study whether the post-epidemic street vending economy can help increase the employment rate and achieve the goal of national economic recovery. The author explores the sustainability of the street vending business model through its market entry difficulties, attractiveness to the customer, and street vendors' competitiveness using game theory and policy evaluation framework.
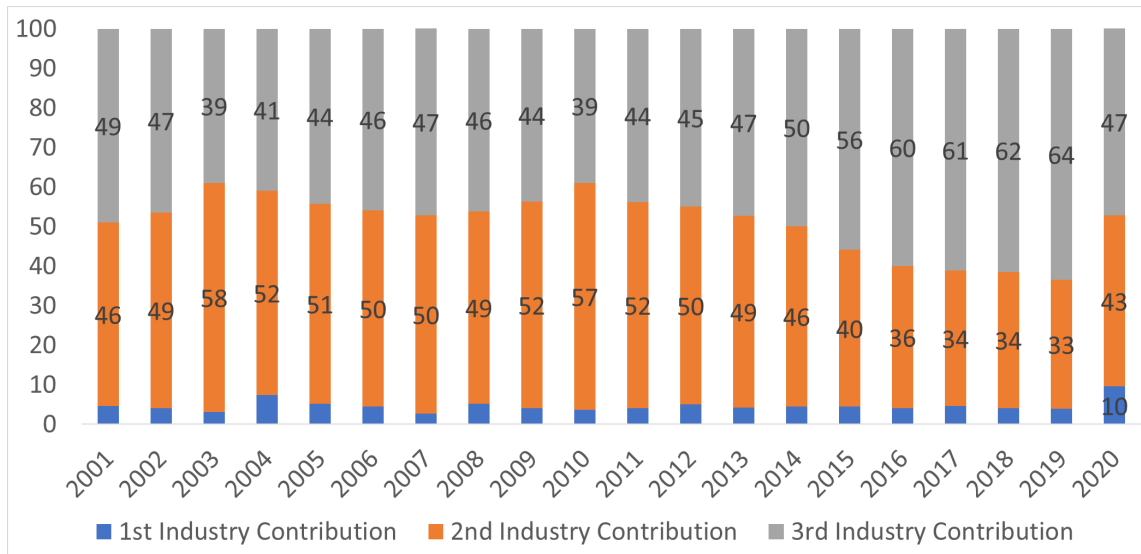
Figure 1. GDP composition by industry from 2001 to 2020.

China's 2020 economic recovery policy has created more job opportunities for unemployed people, and it has also strengthened the people's confidence for future economic growth. However, due to the government's regulations on city appearance and business environment, the government will still moderately supervise the street vendors. At the same time, the increase of street vendors has led to intensified competition. Small vendors' bargaining power with consumers remained unknown. Whether opening up for street business will activate, the economy remained unknown. This article will use game theory and qualitative research interviews to explore the rationality and effectiveness of the open-up street vendor policy on China's economic recovery and the livelihood improvement of street vendors.

Literature Review

Based on the literature review, we conclude there are two existing voices over whether street vendor form of business will promote the economies' growth:

Positive viewpoints

Bell and Sideris (2014) claims that China's policy and regulations will formalize street vendors' informality and energize the economy by encouraging more small businesses.
A study shows that China's policy and regulations will formalize street vendors' informality and energize the economy through encouraging more small businesses (Bell & Sideris, 2014)
Wang Ziwei made a game theory analysis for the current situation of the market economy since the outbreak of the epidemic to justified that vending market economy is sustainable. She put forward the problems related to management, and gave suggestions for some improvements. (2020).

Negative viewpoints

Chia and Kim (2016) use two cases of street vendors, one successful and one failed to illustrate the disadvantage of higher rank vendors managing the street vendors system.

Five case studies done by Deore and Lathia argues that street vendors let street become truly public and change it would made the community a more significant improvement. (2019)

Introduction of Santing Road Night Market

There are a total of 733 commodity stalls in the Santing Road Night Market. The stalls are available in the form of annual rental, monthly rental, and daily rental. The street vendor can choose the sale date and address by himself, and vending is flexible. The vendors are mainly non-locals, and the locals in Yiwu own the ownership of the night market. Locals make a profit by collecting rents, and vendors make a profit by operating stalls. Before the epidemic, the flow of people in good weather could reach 2.5w people/day, and more than 90% were tourists. They all come to Yiwu at most once a year, so they are all one-time businesses. Tourists come here once, so the night market is very fluid.

Among them, the number of foreigners reached 8k+ person-times/day. After the epidemic, the number can still be maintained at 1.9w+ person-times/day, reaching a maximum of 4w person-times/day on weekends. The number of foreigners is close to zero due to visa and travel restrictions.

According to field surveys, the stability of the street vendor business is affected by external factors such as weather and industry consolidation. According to the reaction of the stall owner, online methods such as We-Chat groups provide convenience for flexible stall location and time. If the stall owner is willing to set up a stall, he only needs to pay the daily rental fee, and he can freely arrange his work, rest, and time to return to his hometown.

Method

Game theory studies the decision-making process in a dilemma where the outcome for each participant depends on the actions of all. In the system of street vending economy, there are both internal and external conflicts in the vendors, the government, and the consumers. The government needs to consider the environmental condition and the pollution the vendors could bring. The vendors and the consumers would consider their individual profit as their priority. The dilemmas and conflicts can be applied to the game theory so that the decisions made by the three parties can be revealed, which is essential while considering the sustainability of the vending economy.

Result

Although to reduce the unemployment rate and promote economic development, various regions have loosened the control of the street vendors, the tripartite game among stall owners, the government, and consumers still exist.

In China cities, such as Shanghai and Hefei, vendors can only be set up and sold in specific locations with permits. Therefore, the government can manage the potential hygiene, noise, and food safety issues and implement corresponding controls and penalties for street vendors who overstep the rules.

Table 1		
	Street Vendor	
	Run the business	Don't run the busi-

			ness
Government	Manage	a+t, a-t	a, 0
	Don't manage	0, x	0, 0

Figure 2. Game theory matrix between government and street vendor.

The goal of the street vendors is to maximize personal profits, and the purpose of the government is to maximize society's profits. Assuming that vendor's profit is x if the vendor chooses to set up the stall, the cost of government management is a, and the tax and management fee paid by the stall owner to the government is t. Since the government's non-supervised situation generally does not exist in life, only the problem of stall owners under government management is considered: the street vendors' after-tax and management fee revenue is (x-t), and the government's total profit is (-a+t). When the stall owner does not set up, the stall owner's benefit is 0, and the cost of government control is a. As a result, Nash Equilibrium is dependent on the value of t and x:

When the street vendor's income is larger than the tax/management fee (x>t), the vendor can make a profit, and the payoff is greater than 0, so s/he will choose to run the business; and when the management fee and the tax is greater than or equal to the income (x<t or x=t), the stall owner cannot make a positive profit so that the street vendor will choose not to set up a stall.

Under government control, there will be games among vendors on whether to run a business.

Table 2			
		Street Vendor X	
		Run the business	Don't run the business
Street Vendor Y	Run the business	z-b, z-b	z+b, 0
	Don't run the business	0, z+b	0,0

Figure 3. Game theory matrix between street vendor X and street vendor Y.

Both the goal of street vendor X and street vendor Y is to maximize personal interests. Suppose that the expected income of the vendor's apportionment is z, and the negative effect brought by market competition is b; that is, when the market competition is less, the actual income obtained by the street vendor owner apportionment is (z+b), and when the market competition is fiercer, the real income of the stall owner is (z-b). When vendor X chooses to run the business and vendor Y chooses not to share, the income of both is (z-b). And when vendor X chooses to run, and vendor Y chooses to share, the income of X is (z+b), and Y's income is 0. Conversely, when vendor Y chooses to run the business and vendor X also chooses to share, the income of both is (z-b). And when vendor Y chooses to share, and vendor X chooses not to share, the income of vendor Y is (z+b), and the income of vendor X is 0. When vendor X and vendor Y both choose not to run the business, the income of both is 0. Therefore, the only Nash Equilibrium is (Run the business, Run the business). So, no matter what the other party chooses, the vendor owner chooses to run the business, which makes the competition fiercer.

There will be games between consumers and vendors.

Table 3			
		Street Vendor	
		Run the business	Don't run the business
Consumer	Consume	m-p, p-c	-m, 0

	Don't consume	0, -c	0,0

Figure 4. Game theory matrix between consumer and street vendor.

Both street vendor X and consumer Y aim to maximize personal interests: street vendor X wants to maximize income; consumer Y wants to minimize spending. Assuming that the cost of stall owner is c, the product's price is p, so the vendor's profit is (p-c); the consumer's psychological price is m, and the price is p, so the consumer surplus is (m-p). When vendor X makes an offer, consumer Y wants to maximize his consumer surplus, and the stall owner wants to maximize his income. That is, the consumer wants a lower price, and the stall owner wants a high price. The specific value of p depends on the bargaining power of both parties. And when vendor X does not run the business, and consumer Y is willing to buy the product, the utility of the consumer's loss of the psychological price is -m, and the owner's income is 0. When vendor X runs the business, and the consumer Y has no intention to buy, the consumer has no psychological price, and the stall owner will lose the operating costs c. When the vendor has no willingness to run the business and the consumer has no willingness to spend, the gains for both parties are 0.

Nash equilibrium needs to be discussed in different situations: when the consumer's psychological price is greater than the price (m>p) and the stall owner's cost is less than the price (c<p), there will be two Nash equilibriums, namely (Consume, run the business), (Don't consume, Don't run for the business).

When the consumer's psychological price is greater than the price (m>p) and the vendor's cost is greater than the price (c>p), there will be a Nash equilibrium (Consume, Don't run the business).

When the consumer's psychological price is less than the price (m<p) and the vendor's cost is less than the price (c<p), there will be a Nash equilibrium (Don't consume, Don't run for the business).

When the consumer's psychological price is less than the price (m<p) and the stall owner's cost is greater than the price (c>p), there will only be a Nash equilibrium (Don't consume, Don't run for the business).

After the epidemic discussed in this article, when the government loosened its control on the street vendors, that is, when t<x, most stall owners chose to share under the principle of maximizing benefits. The game of various stall owners will positively drive the number and frequency of stalls. In the game with consumers, the increase in the number of stall owners may weaken the bargaining power of stall owners, increase consumer choices, and lower psychological prices. Then it is most likely that the consumer's psychological price is less than the price (m<p) and the stall owner's cost is greater than the price (c>p), that is, there is only a Nash equilibrium, that is, the consumer does not consume, and the street vendor does not sell. In the case of the government's relaxation of carpet control, it will encourage the increase in the number of stall owners and the increase in the frequency of stalls, but at the same time, it will also lead to intensified economic competition for stalls. When the stall owner cannot achieve the balance of payments for a long time or the efficiency is not good, it will cause the stall owner to withdraw from the market. Therefore, in the long run, the incentive policy can only drive short-term employment for some people and cannot significantly positively impact long-term employment and economic growth.

Interviewing Santing Road night market

According to the manager of Santing Road night market, the government's control is based on vendors' different business types. For food operators, inspections are mainly conducted on the environment and food safety: all hot food must be equipped with oil fume purifiers to ensure that the city's appearance is not affected. The operators' health certificates, masks, and white hats must be ready before the opening in terms of food safety. And the food raw materials will be traced; for the retail part, the management indicators are more flexible, ranging from business licenses to service attitudes. Once the regulatory requirements are not met, the market manager has the right to withdraw the vendor's certificate for operation, and the stall owner will stop business

for rectification. First, the vendor will be reminded through the billing warning. If it is not corrected, the operation rights will be withdrawn.

The level of government supervision of the stalls is reflected in the management intensity of the market managers. When the street vending policy is loose, the government implements weak supervision of vendors, and when the stall policy is tightened, the government implements strong supervision of vendors.

The industry has low barriers to entry, low resistance, and high liquidity. The long-term street-vendor lease can release information through online communication software and subcontract to other vendors. The sublease period ranges from one day to one week, minimizing the investment cost of time and money each time. Renting once a day makes it extremely convenient to set up a stall, creating a business model that everyone can enter.

A 5-year street vendor said: "Almost vendors will go to other vendors to see if the sales are high; they will then purchase the same products the next day and keep the price lower. The same goods will appear throughout the market within a week. The vendors kept the costs down, and there were fewer profit margins, resulting in no profit for everyone.

Moreover, the main target consumer groups are foreigners and locals who consume randomly. Due to the epidemic's impact, the number of consumer groups has decreased, and the demand has decreased. Locals currently dominate the consumer group.

The number of consumers decreases, and the Demand curve shifts to the left. Street consumption is impulsive consumption. The higher national income will promote street consumption. The stickiness of consumer groups is also relatively weak, and one-time consumption accounts for more. As a result, the profit decreases further, even result in negative earnings.

The epidemic has changed consumption habits

The emergence of the e-commerce industry and many Internet shopping industries has led people to shop more online instead of going to stores. Mr. Chen, the street vendor, felt stressed about this negative impact.

"The concept of the current generation is to buy things online."

The impact of the Internet age on the real economy has profoundly affected the development of the street-vending industry. First, the purchase source of the street vending goods has to be changed hands many times to reach the actual stall owner, but the product has been changed hands many times by the middleman, resulting in higher costs. On the contrary, online product merchants often get the agency rights of specific products or manufacturers due to large sales volume and can get the products at a lower purchase price without changing hands. To compete with it, stall owners have to lower their profit margins.

Second, most of the products sold at street stalls are consumer goods or gadgets that can be seen everywhere. For buyers accustomed to Internet shopping, online shopping will be a more convenient purchase channel, and the types of related products on the online platform will be more suitable. Far more abundant and more convenient to choose from than the products on the street stalls. Third, the time efficiency of street shopping is different from that of online shopping. Consumers often think that street shopping will consume more time and energy, while online shopping in the information age will save time for shopping and stopping inquiries. Fourth, the epidemic has made everyone passively accept shopping without leaving home, and more audiences feel the convenience of Internet shopping.

Conclusion

Through the analysis of the game theory part of this article on the impact of the open stall economy on the economic recovery after the epidemic, it is found that the open stall economy will promote market prosperity in the short term. However, at the same time, it will also intensify competition within the industry, making it

difficult for street vendors to make profits, which is not conducive to long-term industry stability and long-term growth.

Intensified competition in the industry: When the government relaxes its control over the stalls, that is, when t<x, most stall owners choose to share under the principle of maximizing benefits. The game of various stall owners will positively drive the number and frequency of stalls. In the game with consumers, the increase in the number of stall owners may weaken the bargaining power of stall owners, increase consumer choices, and lower psychological prices.

It is difficult for the stall owner to make a profit: it is most likely that the consumer's psychological price is less than the price (m<p) and the stall owner's cost is greater than the price (c>p), that is, there is only a Nash equilibrium, that is, the consumer does not consume, and the stall owner does not sell goods.

It is not conducive to the long-term stability of the industry: in the case of the government's relaxation of carpet control, it will encourage the increase in the number of stall owners and the increase in the frequency of stalls, but at the same time, it will also lead to intensified economic competition for stalls. When the stall owner cannot achieve the balance of payments for a long time or the efficiency is not good, it will cause the stall owner to withdraw from the market. Therefore, in the long run, the incentive policy can only drive short-term employment for some people and cannot significantly positively impact long-term employment and economic growth.

Acknowledgments

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