【特集・論文】

Estimating the Competitive Advantages of SOEs and Rivals in China: A Preliminary Result

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1. Introduction

This paper seeks to quantify and to visualize the outcome of competition in the mixed market in China. The mixed market is a market where heterogeneous agents, that is, state-owned enterprise (SOEs), privately owned enterprises (POEs) and foreign-owned enterprises (FOEs), compete with each other. To accomplish the goal of the study, I depicted a value map, i.e., cost-benefit supply curve. This is a very familiar concept in management studies as "competitive strategy" by Porter (1980). To quantify benefits of products comprehensively, I computed the consumer surplus and benefit utilizing estimates of differentiated demand function. Results reveal that foreign brands maintains a "benefit advantage" and private firms holds a "cost advantage" and SOEs were in the middle. At the same time, estimated data indicate that the benefits of products, a valuation by the consumer to the products, were not appropriately priced in some industries.

Previous studies argue that the institutional treatment toward SOEs, POEs and FOEs varies, which is substantially different from the characteristics of markets in developed economies such as those in US, EU or Japan. In particular, SOEs have had preferential treatments such as access to financial resources, regulations or permissions on entry etc.. On the other hand POEs or FOEs were limited to access these treatment. In spite of this inequality, all agents have competed with each other in a market. Favored treatment to SOEs lowers the hurdle to keep staying in the market; if SOEs faces shortage of working capital, the banking sector will provide the funds so easily, that is not the case for POEs. This paper is motivated to see how these institutional forces impact on the quality of the

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market.

An anecdote in Zhou (2006) indicated that this mixed market environment is the cause of "excess capacity". Zhou notes that the excess capacity problem appeared only in markets in which SOEs and FOEs, POEs are competing with each other. Zhou attributed the phenomenon to the differentiated standard for exiting the market among SOE and other ownership type that causes "excess capacity." This paper is motivated by this argument and attempted to document the tendency by depicting value maps, which are described by the axes of benefits and prices of products that firms are offered to consumers.

Here, I must note that concept of the mixed market is different from the concept of "mixed ownership" that Chinese government has recently advocated as a step of economic reform. Mixed ownership describes a situation in which a firm is owned by heterogeneous agents, that is, SOEs POEs and FOEs. I define the mixed market as "a market in which heterogeneously constrained firms are competing with each other" as will be detailed later. This paper proceeds as follows: Section 2 presents strategy of analysis for this paper. Section 3 presents economic models as an analytical framework, and Section 4 reports the estimated results. Section 5 discusses the results and implication for understanding the characteristics of the Chinese markets, then concludes.

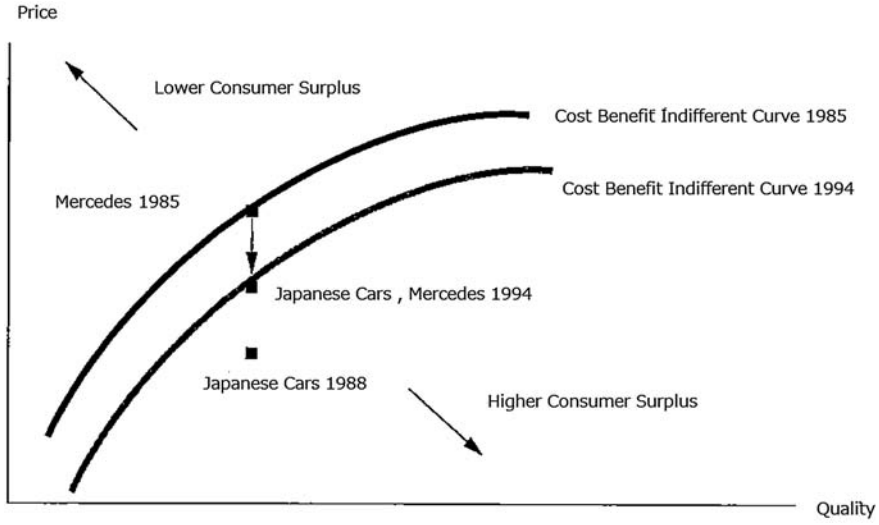
2. Research Strategy

To evaluate the nature of the market outcome, I will quantify the value supplied to the society by firm or ownership types. This paper attempts to identify the competitive advantage of Chinese brands, or by ownership type, referring to an idea of Porter's generic strategies, that is, the cost advantage strategy and benefit advantage strategy. I created value maps based on the estimates of demand functions.

A theory behind my exercise is as follows: Consumers prefer more benefits and lower priced/cost products. At the same time, there is a trade–off between benefit and cost at a certain level of total utility. Figure 1 indicates this indifferent relationship. In 1985, Mercedes' products stayed on the cost benefit indifferent curve 1985. In 1988, Japanese cars appeared on the point that named Japanese Cars 1988. The positioning of the Japanese cars product 1988 is far superior to Mercedes 1985 in terms of consumer surplus. Japanese cars in 1988 is much cheaper and better in quality than Mercedes then. In 1994, Mercedes recovered their positioning which is equivalent to Japanese cars in terms of consumer surplus. As is seen in this story of Mercedes positioning, the utility of the consumer remains the same on the bold line in Figure 1 for Japanese cars and Mercedes, but the configuration of price and benefit changes along the line. Consumers will buy the products as long as the configuration of benefit and price of the product remains along with indifferent curve or left down the curve.

Faced with this consumer's preference, the supplier can follow either of the following two strategies. One is the "cost advantage strategy" whereby a manufacturer lists a product with lower cost and price and its benefit remains along with the indifferent curve. The other is the "benefit advantage strategies" whereby the manufacturers lists a product with greater benefits products but the price is along the indifferent curve. This is the familiar concept of the value map in management studies (Porter (1980), Besanko, et.al (2010)).

Figure 1: Concept of Cost and Benefit Indifferent Curve



Source: Besanko, et.al (2002, Japanese edition), Figure 12.5

Once the cost-benefit curve were depicted, we can identify where a brand locates on the value map. This is the goal of this paper. When the curve is going to be depicted, we need to get the data of benefit. I use estimated utility from the product as the benefit of transaction that explained below.

When a products are traded, the product that are generating a benefit B that was valued by a consumer/buyer. The net value or social welfare[1] of an economic transaction is defined as a difference between a benefit B of product j for consumer i, and its production cost C. As long as $B-C$ is not smaller than zero, the business is viable. The larger the benefit of transaction, $B-C$, the larger is the contribution provided by the business to the society.

$$\begin{aligned} Value\ of\ transaction &= (B-P)+(P-C) \\ &= B-C \end{aligned}$$

Table 1: Cost Advantage Strategy and Benefit Advantage Strategy at Equilibrium

	Cost	Benefit
Cost Advantage Strategy	Lower than rival	Maintaining the level on the indifferent curve.
Benefit Advantage Strategy	Maintaining the original level on the indifferent curve	Greater than rivals

Source: Author. Based on Besanko et.al (2010: Chapter 9) and Porter (1985)

Value of the transaction are divided between the consumer and producer: Consumers/buyer receives a fraction as much as $B-P$. This is called consumer welfare or consumer surplus. The seller receives another fraction of value as much as $P-C$, which is called producer's welfare or profit. Once we obtained the data of consumer surplus, $B-P$, we can quantita-

1 If the transaction generates positive or negative externality, we need to grasp its impact and we can explicitly describe them out in the model.

tively compare the size of welfare produced by particular type of sellers or products. Then, question remains as to how to obtain the benefit or consumer welfare? I obtained them by estimating demand function for the markets. Demand function induced from product choice model based on individual utility will be detailed in Section 3.1. In this paper, I estimated demand functions for color TVs, mobile phone and air conditioners in China for the 2000s.

Based on this estimated parameters of demand function for products supplied by manufacturers, I can depict cost–benefit curves for the consumers.

2.1 Description of Industries

In this paper, three electronics industries in China were the target of analysis: color TV, air conditioner and mobile phone. Among these, CTV industry was the earliest to emerge, dating back to the late 1980s. There was a technological transfer from the Japanese manufacturer, Panasonic, to several SOEs including Changhong. The air conditioner industry started to grow in the 1990s, nearly ten years later. Initial technology was also transfered from Japanese manufacturers, such as Sanyo, Mitsubishi and German companies to SOEs. The mobile phone industry is the newest one among the three industries and emerged in the 2000s. In the very initial stage, Nokia and Motorola dominated the industry. Since the late 1990s, the government has encouraged foreign investment firm to transfer the technology by forming joint ventures. However, because the government lifted the regulation in 2006, massive entry of private brands was repeated[2].

Figure 2.1 indicates how much products were supplied by private owned, SOE or foreign investment enterprise. This shows a very contrasting profiles among the three industries. In color TV industry, SOE dominates the industry. More than 80 per cent of units were produced by SOEs. Contrastingty, the mobile phone industry is dominated by foreign and private owned industry.

2.2 Institutional setting: Law and Politics of SOEs

In China, three types of ownership, foreign investment, SOEs and private owned firms are faced with different institutional settings. Though they are sometimes competing with each other in a market, the institutional constraints they are faced with are often substantially different each other. In terms of this, I regard the three ownership types are heterogeneous agents in a market and the market should be called "mixed market." Legal institution since the 1980s clearly discriminate private enterprises to SOEs until the middle of 2000s: Company Law, Security Law, Bankruptcy Law provided respective clauses to SOEs and private enterprises. Foreign invested enterprises are regulated by independent special laws and regulations. There was a substantial reform of these legal institution around 2006. Major institutional discrimination among ownerships disappeared, but the enforcement remains widely a preferential toward SOEs.

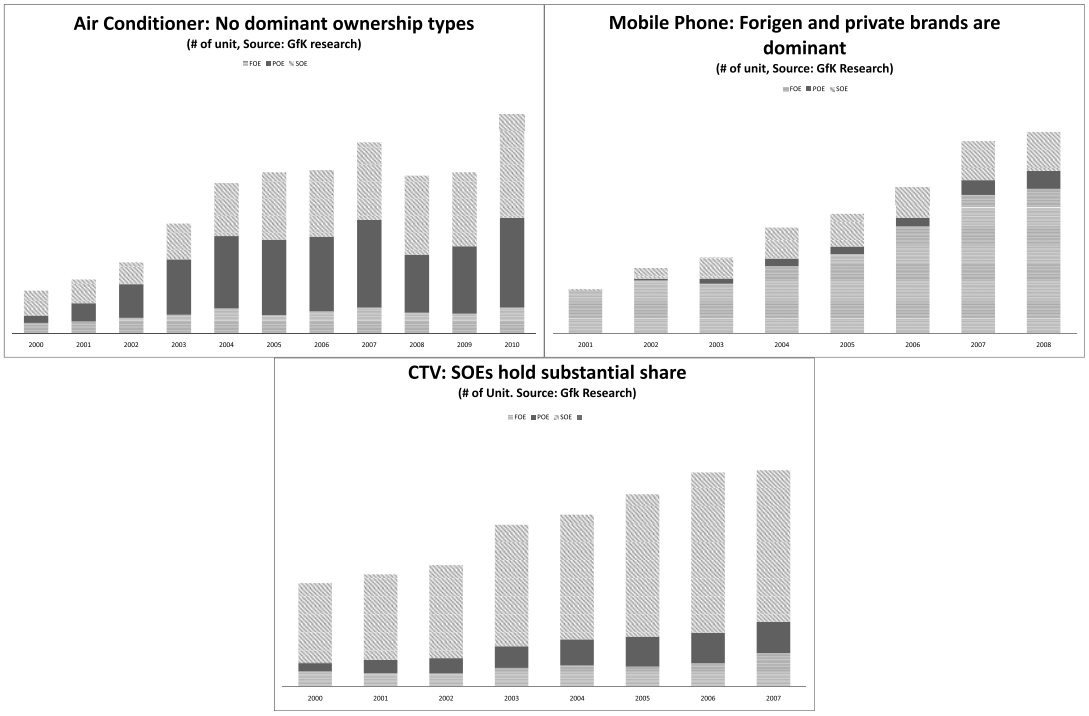
3. Model and Estimation

3.1 Estimation model

Here, I develop a model for estimation. Consumer demand is modeled using a discrete-

2 Detailed case studies of these industries were extended in Watanabe ed.,(2014).

Figure 2: Shares of production by ownership types Color TV, Air Conditioner and Mobile Phone



Source: GfK Market Auditing Survey.

choice formulation. This model describes a process that consumer will choose a product according to the size of the utilities. On the supply side, I assume competition between several brands in different geographical markets at different timings.

3.1.1 Utility and Demand

First, I describe the utility of consumer i that consists of the benefit product j. Consumers chose a brand j in a given market (=city and year, here) to maximize their utility. I view a product as a particular brand sold in a city market $m = 1, 2, ...M$. (I delete m hereafter simply for the reader's convenience). The indirect utility U_{ijt} of consumer i from purchasing brand $j = 1, 2, ...J$ at time $t = 1, 2, ...T$ is,

$$u_{ijt} = -\alpha_i p_{jt} + \beta X_{jt} + \xi_{jt} + \epsilon_{ijt}. \quad (1)$$

p_{jt} denotes price of brand j at market m in time t. Other factors affect product choice, such as the features of product x_{jt}. ξ_{jt} is a product–market specific unobservable. ϵ_{ijt} is the random unobservable error. To predict consumer surplus as much as appropriately, we need capture difference of elasticity of price to the same product by attributes of consumers. We need some random coeffcient of the price. The random coeffcients of price in this paper are defined as $\alpha_i = \alpha / Y_i$, where Y_{it} is the observed income[3].

Mean utility of product[4] j can be rewritten as,

$$\delta_{jt} = -\alpha_i p_{jt} + \beta X_{jt} + \xi_{jt}, \quad (2)$$

3 I used average income of each city-year segments in this paper because we do not have data of individual income. That means $Y_i = Y_{mt} = \sum Y_i / I_{mt}$ and $\alpha_i = \alpha_{mt} = \alpha / Y_{mt}$. I_{mt} is population at market m and time t in this paper.

where ξ_j represents unobservable and product specific characteristics and time specific characteristics. Each consumer i in market m will choose product j to maximize her utility. Therefore, the aggregate market share for product j in market m is the probability that product j yields the highest utility across all products including outside goods 0. Therefore, the predicted market share of product j = 1, ... J, s_j is a function of mean utility δ_{jt} and parameter vector θ = (α, β, ρ[5]). If the unobserved error, ϵ_{ijt} in the equation (1) follows i.i.d. extreme value, this relationship can be rewritten as a logit choice probability (see Train (2009)) as below.

$$\begin{aligned} P_{jt} &= s_{jt}(\delta_{jt}, \theta) \\ &= \frac{e^{u_{jt}}}{\sum_k e^{u_{kt}}} \\ &= \frac{e^{-\alpha_i p_{jt} + \beta X_{jt} + \xi_{jt} + \epsilon_{ijt}.}}{1 + \sum_k e^{-\alpha_i p_{kt} + \beta X_{kt} + \xi_{kt} + \epsilon_{ikt}}} \end{aligned} \quad (3)$$

Here, 1 in denominator in equation (3) represents value of outside option, because $exp(u_0) = exp(0) = 1$. Remaining variables in the denominator is the sum of exponential utilities of all of the choices in every market.

Under this logit assumption, consumer surplus CS_i for consumer i, previously indicated by $B - P$, takes the following closed format.

$$E(CS_i) = \frac{1}{\alpha_i} E[Max(u_{jt})] \quad (4)$$

The expectation is over all possible values of error ϵ_{ijt}. Here, expected consumer surplus can be written as follows.

$$E(CS_i) = \frac{1}{\alpha_i} ln(1 + \sum_{j=1}^{J} D_g^{1-\rho}) + C.^{6} \quad (5)$$

Absolute value of consumer surplus is meaningless because of the unknown C. But the difference between several states of consumer surplus as a figure generated from the structure. This paper focused on difference between two different agents, for example, agent i or ownership type i comparing to agent h or ownership type h, it can be written as follows: follows:

$$\Delta CS_{ih} = \frac{1}{\alpha_i} [ln(\sum_{j=1}^{J} e^{u_{ijt}}) - ln(\sum_{j=1}^{J} e^{u_{hjt}})] \quad (6)$$

Once you obtained CS_i from above estimates, we can compute the value of benefit of product j, B_{jt}.

$$Benefit_j = CS_j + Price_j \quad (7)$$

Here, we can see the relative size of benefits of the product following the same way as we can do for consumer surplus.

3.1.2 Nested Logit Model and Identification

The logit-based utility model provides an estimating equation of utility in the following form (see Train (2009) for an explicit explanation.). Based on the model, I estimate the demand parameters following Berry (1994) and Nevo (2000) and other BLP literatures.

Our estimation equation is,

$$\begin{aligned} ln(s_j) - ln(s_o) = &-\alpha_i p_{jt} + \beta X_{jt} \\ &+ \rho ln(s_j t|g) + \xi_{jt}. \end{aligned} \quad (8)$$

4 Because this is the mean of utility, unobserved independent error ξ_{jt} in equation (1) can be regarded as zero.

5 ρ is the nesting parameter that explained later referring to equation (9).

6 C is an unknown constant that represents the fact that absolute value level of utility cannot be bserved.

Here, I set the outside option as a difference between population and total number of air conditioner for individual market and year that represents number of potential buyer of the products.

The parameters of this demand can be identified as the previous empirical industrial organization literatures claimed (see Ackerberg and Crawford (2009)). Identification of price parameters, which is critical for our benefit computing, relies on the fact that the unobserved determinants of demand are uncorrelated with input prices. To account for this potential endogeneity of prices that may be caused by the presence of changes in unobserved attributes, we use the GMM estimator with either type of instruments variables discussed in Section 3.3.

To account for the degree of preference correlation between products of the same group, I impose a further assumption on the error term, ϵ_{ijt} in equal on (1).

$$\epsilon_{ijt} = \eta_{igt} + \rho\bar{\epsilon_{ij}}t \tag{9}$$

ρ is a "nesting parameter", $0 \leq \rho \leq 1$ that captures the correlation between preference and product characteristics.

When estimating demand estimates based on the nested logit model, consumer surplus will be computed as follows (see Ivaldi and Verboven[2005:677]).

$$E(CS_i) = \frac{1}{\alpha_i} ln(\sum_{j=1}^{J} e^{u_{ijt}}) + C. \tag{10}$$

$$D_g = \sum_{k=1}^{G_g} exp(\delta_j/(1-\rho)) \tag{11}$$

3.2 Data

I use the market survey data of GfK market services for the three industries: air conditioner, color TV and mobile phone. Sales value and number of units for individual model are available for each top 10 brands and others for several features of the products for 30 cities in China. The features of the products are as follows: Air conditioners are divided by (1) horsepower (1 HP, 1 to 2 HP and 2 HP and above) (2) grades of the energy effciency labels, and (3) types of installment. Color TV data are divided by (1) types of panels (CRT, LCD, PDP), (2) screen size 2 inches and below, 21 to 32 inches, 32 inches and over). Mobile phones are divided by (1) types of networks (CDMA, GSM, TDS-CDMA), (2) types of operation system (no OS installed, Linux, Symbian, Windows Mobile and others) (3) Number of colors in the panel, and (4) Whether it has a camera or not.

Regarding the air conditioner data, the data on sales and information related to energy consumption begins with the year 2008 and is obtained from the GfK market auditing data. Data for power consumption are not available directly from this data base. We supplemented the information from the catalog on e-commerce site, SOHU.

3.3 Instruments

The estimation of the models I employed here is typically done using IV or GMM using instruments for p_{jt} and nested variables. Instruments z_{jt} that are correlated to p_{jt} but are independent to ϵ_{ijt}. In this case, candidates of instruments here mainly come from following four sources: (1) cost shifters; fees of electricity etc. (2) price of the same products of the same brand in other city. Here, we need to assume that difference of prices of the same products across cities only reflects demand factors, and that the price of other city of the same products are correlated with price via

only cost factors. (Berry, Levinson and Pakes, 1995 Hausman, 1996. Nevo, 2001). (3) Price of the same type of products by competitor brands in a same city (Berry, Levinson and Pakes, 1995) (4) characteritics of products; it is natural to assume that characteristics of products are designed and planned in advance, before the price is fixed. Exploiting this natural assumption, we use the characteristics of products as instruments that predetermined to the price. (i) The first type of "quality" dummies are the sum of index of characteristics within the own brand, such as capacity of air conditioners or size of visual panels of color television. (ii) The second type of this category's IV is the sum of the characteristics of other products of rival firms, and (iii) the third one is the sum of the characteristics of other products of own firms (see Grigolon and Verboven (2011) Verboven (1996)). (iv) The fourth is the average index of the characteristics of a competitor. The Hausman instrument approach 2 relies on the assumption that prices in two different markets be correlated via common cost shocks and not via common demand side shocks such as nationwide demand shock. If a situation such as particular two markets' demand shrink a certain common shock occurring when shrin-kage in demand tales place between two particular markets, the instruments are invalid. However, in our estimation case, this IV works effectively[7].

7 GMM c-statistics of demand estimates results in Figures 3 (GMM c-statistics is 1.185 p = 0.2763), Figures 4 (GMM c-statistics is 3.05299 (p = 0.2173)) and 5 (GMM c-statistics is 1.6e-07 (p = 1.0000)) show that the IV were confirmed as exogenous to our demand.

4. Estimation Results

4.1 Estimated Parameters

Estimated demand parameters are presented in Figures 3, 4 and 5. The CTV and mobile phone markets demands are estimated with nested logit model and air conditioner market demand is estimated with a logit model. For the air conditioner and mobile phone markets, it is confirmed that the instrument variables used were exogenous to price variation. Nesting parameters in the color TV and mobile phone market indicates that color TV market is homogenized (ρ=0.995), whereas mobile phone market is more differentiated (ρ =0.245). For the air conditioner markets, I could not find effective instruments variables for the nested logit model, but could find appropriate IVs for the logit specification.

4.2 Comparing Consumer Surpluses and Benefits

Estimated demand parameters allow us to compute the benefit and consumer surplus of each brand or firm. Here, I compare whether there is a systematic difference in consumer surplus or benefit across ownership types (Figures 6, 7 and 8 summarize the results.). Across three industries, foreign-invested firms offer greatest benefit to the Chinese market, but its price is also the highest. Privately owned firms offer prices that are either the lowest or not higher than others prices across industries. State owned enterprises provide products that offer lower benefit than foreign-invested firms and not lower benefit than private firms. Their prices are higher than those of privately owned firms, and lower than those of foreign-owned firms. On the whole, the ownership types that provide the greatest consumer surplus differ among the industries.

Figure 3: Demand Estimates: Air Conditioner

	(1) $ln(s_j) - ln(s_o)$
price/wage	−5.496*** (0.431)
cooling capacity	0.0001*** (0.000)
power consumption capacity	−0.0004*** (0.000)
HP: 1 to 2 (Reference=1HP below)	0.544*** (0.124)
HP: 2 and over	0.476*** (0.090)
Label Introduced	0
Introduced X Label 1	4.816*** (0.125)
Introduced X Label 2	−1.844*** (0.056)
Introduced X Label 3	−1.052*** (0.047)
Introduced X Label 4	−0.522*** (0.041)
Inverter Introduced	−0.983*** (0.041)
Non Inverter Period	0.000*** (.)
Installment: Stand Alone (Reference=Others)	0.0046*** (0.058)
Installment: Split	−3.137*** (0.125)
Brand dummies	+
City dummies	+
Year dummies	+
Constan	−5.243*** (0.247)
N	17914
R^2	0.487
IV	average cooling capacity of competing products sum of horse power of products of the same brand average horse power of own brand price of other city of the same brand products, wage

Standard errors in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Note: Wage is a proxy of income specified in equation (1). This is the same for Figure 4 and 5.

Figure 4: Demand Estimates: CTV market

	(1) $ln(s_j) - ln(s_o)$
price/wage	−1.110*** (0.060)
ρctvtypes	0.995*** (0.060)
CTV Type: LCD (Reference= CRT)	−2.096*** (0.037)
CTV Type PDP	−3.356*** (0.088)
Screen size: 21 to 32 inches (Reference= 21 inches and below)	0.316*** (0.034)
Screen size: 32 inches and over	0.658*** (0.059)
Year dummies	+
City dummies	+
Brand dummies	+
Constant	−2.432*** (0.243)
N	12432
R^2	0.850
IV	average price of other markets of the same products by the same brand sum of the screen size among the same type products the same brand wage, population of other city

Standard errors in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$
Source: Author's Estimates

In the CTV market, in which a substantial share of the products are supplied by the state-owned enterprises, foreign-invested firms offers the greatest consumer surplus, and that of privately owned and state-owned enterprises remains the same level.

In the mobile phone market, in which foreign-invested firms shared the largest but private firms vigorously entered, private firms provided the largest consumer surplus, whereas foreign invested firms supplies products with the highest benefit.

In the air conditioner market, in which no single type of ownership had a dominant share, foreign-invested firm supplies products with the greatest benefit, but their prices are high as well. As a result, the consumer surplus offered by foreign nvested firm and private firms remains approximately the same level, but both are definitely greater than those of products supplied by the state owned enterprises.

In summary, foreign-invested firms supplies products that provide greater benefit, in other

Figure 5: Demand Estimates: Mobile phone market

	(1) $ln(s_j) - ln(s_o)$
price/wage	-6.422*** (0.797)
ρOS	0.245** (0.106)
Network GSM (Reference=CDMA)	1.669*** (0.240)
Network: TDS-CDMA	0.823*** (0.158)
Panel: Color (Reference= B&White)	0.131*** (0.042)
No Camera	-0.562*** (0.077)
OS: Others (Reference=Linux)	-2.489*** (0.390)
OS: Symbian	0.410*** (0.075)
OS Windows mobile	-0.170 (0.153)
OS: No OS	1.940*** (0.279)
Brand dummies	+
Year dummies	+
City dummies	+
Constant	-8.418*** (0.461)
N	46741
R^2	0.598
IV	price in other markets of the same products by the same brand square of price in other markets of the same products by the same brand

Standard errors in parentheses
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

words, they follow the benefit advantage strategy. At the same time, privately owned firms offers the cheapest class of products: i.e. the cost advantage products. State-owned enterprises fell into the trap of the middle, and the size of the consumer surplus that offered by SOEs to the Chinese markets is lower than that of either the privately owned firms or

Figure 6: Difference in mean among ownerships: Air Conditioner

unit: RMB	Consumer Surplus	Benefit	Price
F–P	–335***	1227***	1559***
F–S	136***	1140***	1005***
P–S	470***	–87*	–553***

Standard errors were not displayed
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Figure 7: Difference in mean among ownerships: CTV

unit: RMB	Consumer Surplus	Benefit	Price
F–P	4352***	8532***	4180***
F–S	4190***	8138***	3948***
P–S	–162	–393	–232

Standard errors were not displayed.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

Figure 8: Difference in mean among ownerships: Mobile Phone

unit: RMB	Consumer Surplus	Benefit	Price
F–P	-735***	243***	980***
F–S	-237***	348***	587***
P–S	498***	104	–393***

Standard errors were not displayed.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$

foreign–invested firms.

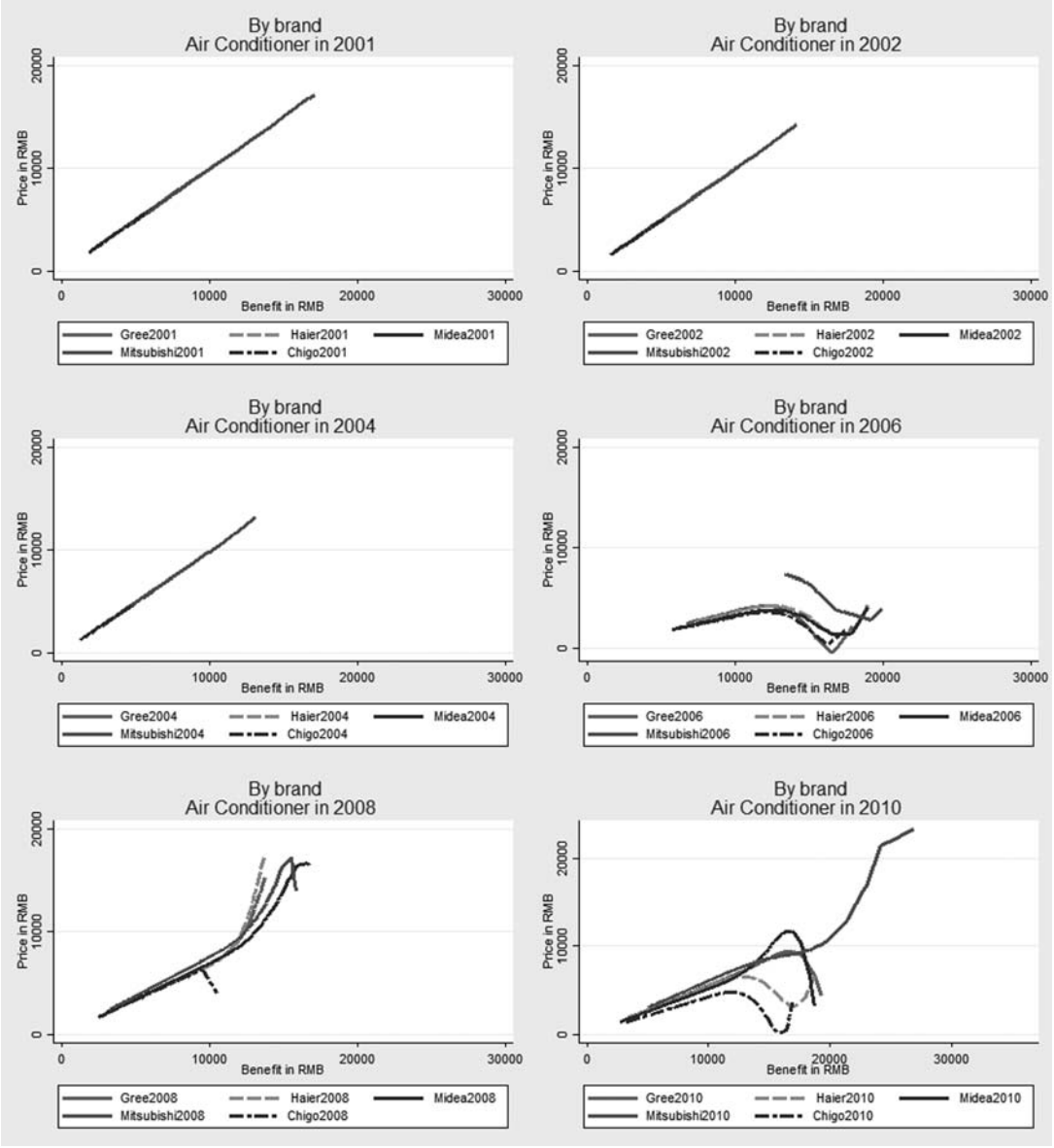
4.3 Drawing Cost Benefit Curves

Now, we have the data on the price and benefit of the products, and we can draw the cost benefit supply curve for the three industries[8]. The procedures are as follows: First, utilizing the demand function estimates obtained above, I obtain the predicted value of the benefit of individual products in equation (7). Secondly, draw a spline within the group, such as ownership or brand. I employ a linear spline with equally spaced knots based on the prices and benefits of all units sold in each year. Figures 9, 10 and 11 graph the cost and benefit supply curve for selected brands. I chose the brand that has data for the entire period of the data and for which the number of sales units are relatively large.

Graphs visualize the competitive positions of the ownership types or the brands. If a brand or one type of ownership listed the products with higher benefit and keeps price at approximately the same level with a competitor, the brand or ownership type have a "benefit advantage". On the other hand, a brand or a type of ownership that provides a product with a lower price and keeps the benefit more or less the same as that of a competitor has a "cost advantage" (Besanko, et. al 2010: Chapter 9). Figure 11 clearly indicates this positioning pattern. This indicate that foreign brands, such as Nokia, Samsung and Motorola listed the products with nearly all the support of the benefit distribution. Foreign brands monopolize the higher benefit ranges, for example, 12,000 RMB and above range for 2001, 20,000 RMB and higher for 2005 and 35,000 RMB and above for 2008. Foreign brands succeeded in taking the "benefit advantage" position. On the contrary, the private and SOE cost–benefit supply curves moves nearly horizontally over the benefit. They are positioning at a lower cost and offer the same benefit to foreign brands. This relationship basically holds in the color TV market (Figure 10). For air conditioner market (Figure 9), the support of benefits for SOEs,

8 What we depict here is the cost–benefit supply curve, because we connected the predicted value of benefit and consumer surplus by brands or ownerships. This is the line chosen by the suppliers. When you connected the predicted values of benefits and consumer surplus according to the equivalence of consumer surplus or benefit levels, it becomes the cost–benefit indifferent curve that Figure 1 showed.

Figure 9: Cost and Benefit Supply Curve of Selected Brands: Air Conditioner



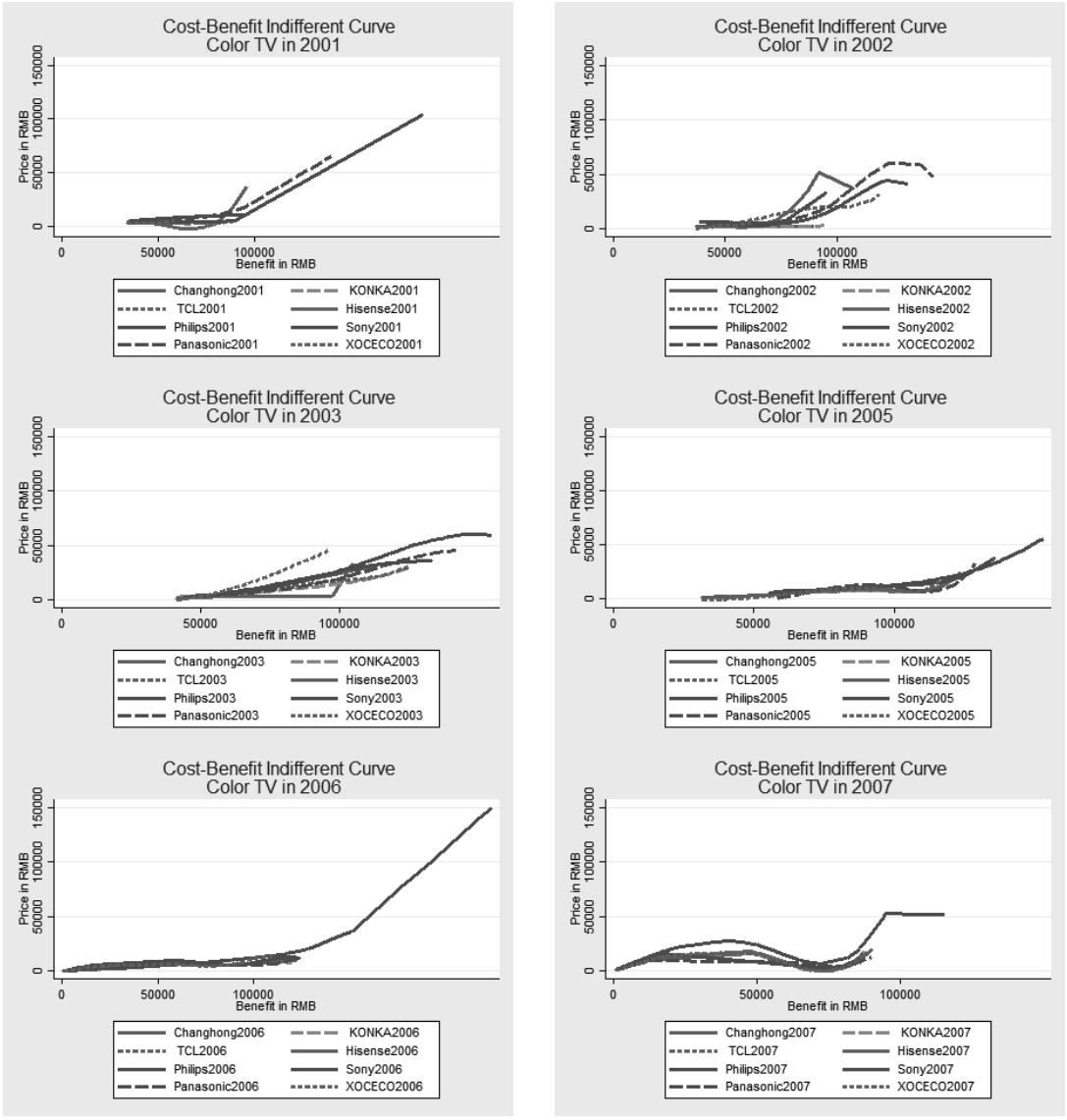
Source: Author's estimation.

POEs and FIEs coincide each other, though FIEs supplies in relatively higher prices than their counterparts.

A comparison of the positioning among ownership types indicates that SOEs fail to take an advantageous position and are "stuck in the middle" argued by Porter (Besanko et.al, 2010, Chapter 9. Porter 1980: Chapter 2). In terms of benefit, SOEs are inferior to foreign invested brand, however, in terms of cost, they are inferior to the private brands.

In addition, it is important to note the direction of correlation between benefits and price (cost of consumer). When the benefit is large, the consumer values the products to a larger degree, and there is more room for

Figure 10: Cost and Benefit Supply Curve of Selected Brands: Color TV



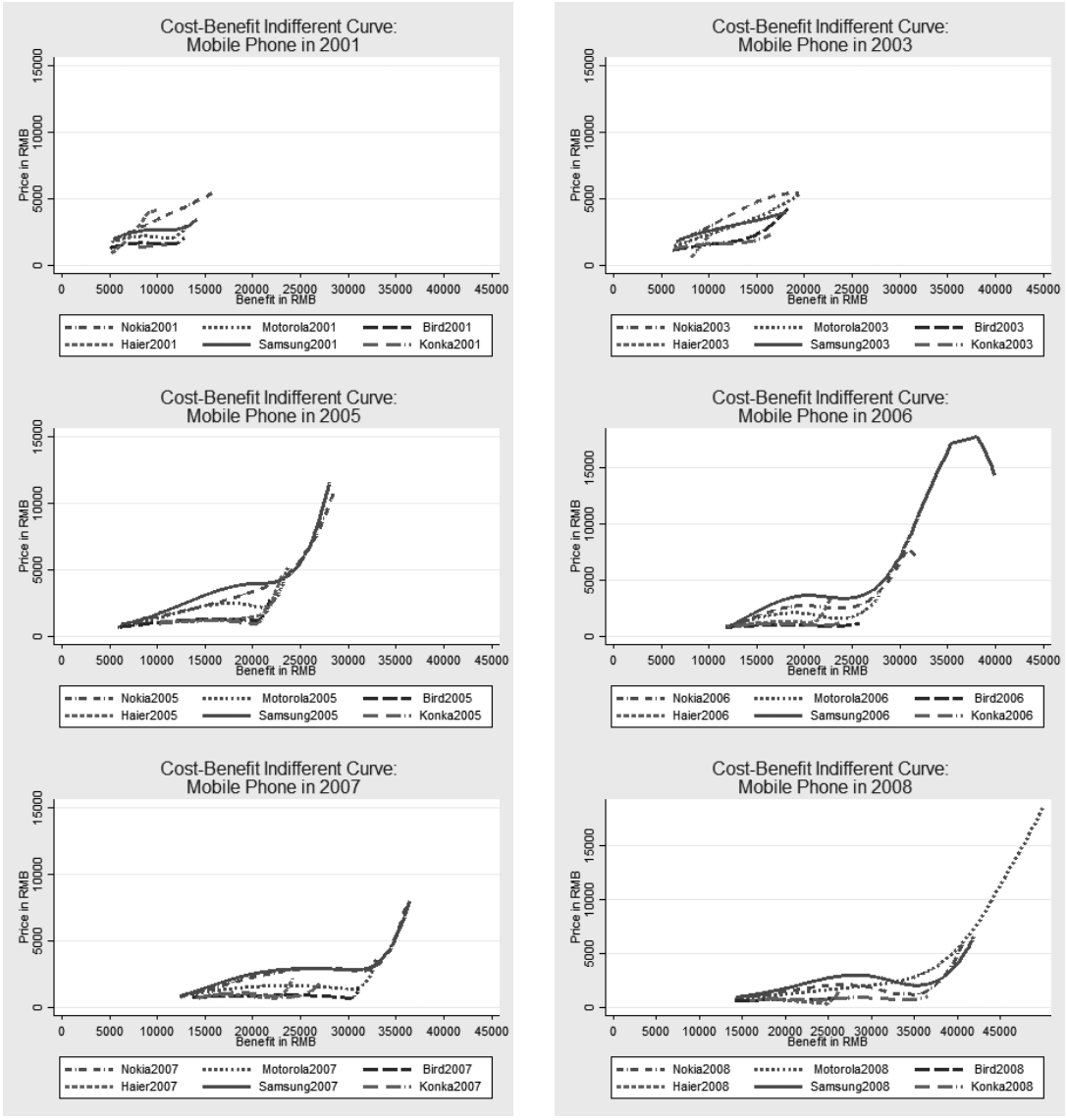
Source: Author's estimation.

raising the price. Usually, this is the necessary for supplier, as suppliers bear the additional cost of producing products with greater benefits. Relatively speaking, foreign brands can enjoy positive correlation between price and benefit. However, private firms and SOEs are facing with the horizontal cost benefit indifferent curve. That is, price is independent of benefits. For suppliers, this is a harsh market condition, and they may lose the incentives to invest in upgrading the quality or benefit of the products.

5. Summary of Findings and Discussion

The main findings of this paper can be summarized as follows: (1) Foreign brands exhibit relative superiority to local brands in terms of the benefit advantage, but inferior in

Figure 11: Cost and Benefit Supply Curve of Selected Brand: Mobile Phone



Source: Author's estimation.

terms of cost advantages. (2) Private brands succeeded in realizing a "cost advantage" across the three markets. (3) However, for private firms and SOEs, the greater benefit is not priced proportionally. The product that provides greater benefit is priced unfairly. This implies that the market mechanism does not works in an ideal way. This might have suppressed the profits of suppliers and prevent them from investing in creating greater benefits and might causes a vicious cycle that creates "excessive" price competition that hinders the benefit and quality improvement that the market supplies to the consumers in Chinese markets. This tendency appeared in the color TV market and mobile phone market and is more pronounced in the air conditioner market that exhibit negative correlations

between benefits and price until 2007[9].

6. Conclusion

This paper attempted to estimate the "competitive advantage" of brands in Chinese markets. The results reveal that there is a tendency across three industries for foreign brands to hold a "benefit advantage" and for private brands to maintain a "cost advantage". The SOEs are trapped in the middle, failing to hold competitive advantages. An additional important feature is the SOEs and private firms are trapped in the "excess" price competition equilibrium where higher benefit products is priced as the same as lower benefit products. This implies market were not working as expected as an ideal. This "excess price competition" phenomenon may be correlated with the "excess capacity" problem noted in Zhou's essay. Identifying the mechanism that is generating the market equilibrium will be the next step of this research.

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9 Positive correlation between benefit and price get apparent since 2008, 2009 and 2010. In 2008, the Chinese government implemented a energy effciency standard and labeling system so as to mitigate information asymmetry between consumer and suppliers in terms of energy effciency of products. Further study to investigate how the system intervene the market outcome.

Estimating the Competitive Advantages of SOEs and Rivals in China: A Preliminary Result

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Keywords: Demand estimates, competitive advantage, cost advantage, benefit advantage, SOE, POEs, FOEs
JEL Classification Numbers: L11, M21, L63, P52

This paper estimate value maps of three electronics industries of China in the 2000s. Utilizing the estimated demand estimates of the three industries, I draw a cost-benefit supply curve that can visualize the positioning strategies, such as "cost-advantage strategies" and "benefit-advantage strategies". Results indicate that FOEs takes a benefit-advantage position and private owned enterprise keeps a cost-advantage position, whereas SOEs were trapped in the middle. An additional findings is that benefits of POEs and SOEs were not priced proportionally. Higher benefit products are priced as much the same as lower benefit products. This might implies "excess" price competition among SOEs and POEs.