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## Financing Public Goods Through Markets: The Case of Advertising

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# Financing Public Goods through Market - The Case of Advertising

Feng Wu

## Abstract

This article investigates the phenomenon of advertising in a scope of private provision of public goods, regarding it as a means to bridge the public goods and private goods. Unlike certain theories which consider the literal advertising merely as a limited additional source of revenue of the public goods providers, I expand the concept of "advertising" into a much broader extension by endowing it the function of attracting public "attention", which must resort to public goods as the vehicle, for the advertised private goods. After examining such mechanisms as "tying arrangement" between public and private goods in previous economic literatures, I deduce the several issues of providing public goods for free into a case called "financing public goods by advertising" and classify the relationship between public and private goods mediated by advertising into four categories. Afterwards, I contrast such an arrangement with the Tiebout model, and then aiming at four important problems the advertising-financing method is facing, bring forward a simple model to prove that, in some circumstances, the provision of public goods financed by advertising may be Pareto efficient in conceptual meanings. At the end of the paper, brief analyses about the preconditions of optimality are presented, followed by a few cursory policy implications and an estimation of the application prospects.

## I. Introduction

A great number of economic literatures have questioned the Pareto efficiency of the provision of public goods through competitive market<sup>1</sup>. They consider the pure public goods as the extreme opposite to the pure private goods, with most goods in the economy lying between these two extremes. And, for these impure public goods, there exist certain private (or market) solutions to the free rider problem on the consumption. Two types might be roughly seen, depending on the different approaches to this problem: one type pays more attention to the "public" aspect of impure public goods, mainly investigating the demand revelation problem. The literatures include the theories of "voting with feet" (Tiebout 1956) and "club" (Buchanan 1965). The other one emphasizes

the "private" aspect, or the excludability and congestion in the consumption of impure public goods, trying to abate the negative economic consequences of positive externalities in the public goods provision by some market solutions such as charging the consumers or monopolistic competition. These two approaches have one characteristic in common: no matter in the voluntary arrangements like the Tieboutian method for local public goods and the Buchananian method for club goods, or in the monopolistic firms' pricing systems, people have to take out the money DIRECTLY from their pockets to pay for the consuming of public goods in forms of either local tax or club fee, or the user fee charged by the private providers.

However, numerous public goods (or mixed goods) may be consumed without DIRECT payment. The air-conditioned shopping plazas make our shopping pleasant and leasurable; pianists in hotels add a mental daintiness to our dinner tables, while, maybe, our cars were resting on the free parking lots outside the restaurants; public broadcasting and TV programs are free; and even the paradigm of a public good--the light house, can also be used freely by the vessels (Coase (1974)<sup>2</sup>). Indubitably, according to Samuelson's classical definition, all of the above things -- air-conditioner, piano music, parking lot, video and aural program, as well as light house -- suffer from both nonrivalrous and nonexcludability consumption which distinguish public goods from other commodities and services, but the consumer do not DIRECTLY defray any tax or fee to consume them, at least, no direct payments like those in last paragraph exist.

Is it really free to enjoy those public goods? The answer is: No. Experiences confirm us that merchandises sold in comfortable shopping plazas, though being of the same style, quality, or even brand as the ones in you back-fence tiny supermarkets, are almost always priced higher. It is the part of the "extra-charged" money that recoups the cost of the air-conditioning, and the owners of the plazas would never use their own money. In other words, public goods may INDIRECTLY finance itself through the pure private goods market, without relying on the compulsive or club-voluntary means to foot the bill. It appears unwise to split the two markets for public goods and private good peremptorily; the interpenetrations between the two financing methods should not be neglected. Unfortunately, many (if not all) economic literatures exclude the operations of pure private market out of their concern, or regard them as merely some parameters in the utility (or

welfare) function, and do not fully take into consideration the relation between private and public goods.

In this article, I attempt to exam the financing mechanism of public goods from another perspective. Based on the property of public goods of conveying information about private goods, the cases of “free” public goods provision in the examples above are generalized into an arrangement called "financing public goods by advertising". After demonstrating the universality of this arrangement, I contrast it with Tiebout's "voting with feet" model, then aiming at four important problems the adverting-financing method is facing, bring forward a simple model to describe it, and conclude that, from pure theoretical perspective, the provision of public goods through advertising may achieve the first best. At the end, brief analyses about the necessary efficiency conditions are presented, followed by a few pieces of cursory policy advices and the application prospects.

## **II. The Phenomena of Financing Public Goods by Advertising**

Some economists analyzed the interactions between the financing methods of public goods and private goods. Demsetz (1964) mentioned a kind of mechanism called "tying arrangement" or "combination sale", anatomized the phenomenon that shopping plazas recouped the cost of the free parking they offered by the revenues from selling private commodities, and concluded that there existed a tying relationship between the park lots as public goods and the ordinary commodities as private goods<sup>3</sup>. Coase (1974) made a historical retrospection about the financing of the lighthouses in Britain, pointed out that, ever since the 17<sup>th</sup> century, the lighthouses in Britain had been financed not by the taxes, but by tolls exacted from the vessels that used the nearby ports. So the lighthouses' status as the paradigms of public goods was undermined<sup>4</sup>. Demsetz announced that it is advisable as long as the tying arrangement could lower the exchange costs, but did not answer directly whether such an arrangement was efficient. Coase's comment on the efficiency of the lighthouse case was straightforward: "how such governmental (finance) system actually operate I don't know", and his paper was not "intended to settle the question of how lighthouse service ought to be organized and financed". In other words, Demsetz and Coase didn't give much care to the efficiency aspect of the tying arrangement. Furthermore, in their discussions, such a tying arrangement was confined

to a very limited range, only public and private products of some complementary nature could be tied together, just like the shopping services (such as air-conditioning and free parking) and the private commodities. Moreover, it seems that such an approach does not obviate the free rider problem, people can wander in the shopping plaza without doing any purchase, or merely occupy a parking slot without entering the store, or just enjoy the services of lighthouses without anchoring in the nearby ports.

Then, are tying arrangements really rare? Is it thoroughly helpless facing the free rider problem? Whether a public good and a private good can be tied together depends on whether the tying "strap" exists or not. Unlike the limited types as Demsetz appointed, such straps are in fact diversiform. They can be direct, but more are indirect; can possess certain nature of complementation or physical interrelation, but more don't. So the tying straps can be classified according to these two criterions.

For the first criterion (direct/indirect), the direct straps are intangible, people provide public goods just in the process of supplying private goods, and the tangible procedures of financing public goods do not come into being by themselves. The strap between air-conditioning and private commodities in the shopping plazas falls into this form; the shopkeepers provide private goods (commodities) and public goods (air-conditioning) simultaneously without making any separate and medium-reliant payment for the latter, which resembles the barter activity, i.e. trade without money as a medium. The indirect straps, on the contrary, are tangible, sometimes take money as the medium of exchange - the private goods providers pay the public goods providers for the tied public goods. If, for instance, the free park keeper and the shopkeeper is not a same person, then the latter can give the former some money to "buy" the free open of the park, which is just similar to the indirect exchange of merchandises facilitated by money.

For the second criterion (complementary/non-complimentary), complementary straps can be regarded as the relations determined by the physical properties of the concerned public and private goods, the two direct and indirect straps mentioned above both belong to this kind, and the Demsetzian tying arrangement also belongs to this type. On the other hand, non-complementary straps certainly don't require the physical match of the tied products, but can still ascertain stable and beneficial tying arrangements. It is not

hard to understand this if when we consider a ubiquitous phenomenon -- advertising. Advertisements made by private firms are almost all-pervasive: public transportations can be the advertising carriers for a dairy manufacturer, financing themselves by charging the latter, but you can hardly spot any direct physical complementary relationship between a city bus and a glass of milk.

Therefore, according to such taxonomy, we may classify the tying straps into four categories, i.e. the strap of direct complementation, indirect complementation, direct non-complementation, and indirect non-complementation (see Table 1).

It is obvious that the interposition of advertisements has greatly expanded the possibility of tying relationship between public and private goods. Nowadays, advertising has grown into an omnipresent phantom with its antennae reaching every corner of the economy. In fact, the four kinds of tying straps mentioned above are all mutations of it, all public goods, in some senses, are acting as the vehicles (or media) for advertising. Free parking, pleasing shopping circumstances, pianists in the hotels attract more customers; ports with lighthouses in vicinity are more likely to become the sojourn stops for vessels; broadcast and TV are more common advertising media. Beside this, famous scenic spots are serving as billboards for the local enterprises; expressways are bringing more development opportunities to the regions along the line; some goods and services with "public" nature such as museums, scientific funds, sports tournaments, are arresting substantive private donations. Considering it merely from the economic rationality perspective, those patrons are also "purchasing" the advertising effects. Now that public goods can also be called "collective consumption goods"<sup>5</sup>, perhaps they in nature possess certain ability of attracting mass attention, just like advertising does. And along with the emergence of so-called "eyeball economy", such "attention" is becoming more and more precious for private goods manufacturers. Upon that, it turns out that financing public goods by advertising private goods has been endowed with not only universal significance, but also inevitabilities due to the co-existence of public and private goods.

**Table 1:**

**A Classification of the Tying Straps between Public Goods and Private Goods**

erion1		Crit	Whether there exist independent providers of public goods	
			Direct (No)	Indirect (Yes)
Criterion2	Examples			
Whether there exist relations on utilitarian or physical character	Complementary (Yes)	The relation between air-conditioning and the private commodities in the shopping plazas	The relation between independent free park lots and the private commodities sold in nearby stores	
	Non-complementary (No)	The relation between the irrelevant information provided by private firms on its Internet pages and the commodities produced by them	The relation between the programs sent by public broadcast or TV stations and the private productions advertised on them	

**III. The Mechanism and Efficiency of Financing Public Goods by Advertising**

**1. Contrast with the Tiebout Model**

"Financing public goods by advertising" seems very simple, and is quite similar with Tiebout's "voting with your feet"<sup>6</sup>. The difference is only that advertising-financing means voting not only by "feet", but, in a broader context, by "attention". Voting is no more than a procedure of revealing the individual demand for public goods, or a process in which people express his/her preference for public goods and actually pay out. Everybody knows that the items in top grade shopping centers are almost always more expensive than their counterparts in crude bazaars, even though they are completely same except for the selling locations. But not all people are willing to shop in the bazaars, a good many

still prefer the luxury shopping plazas where they must pay more money for the probably same items, for they have realized that the extra money has not be wasted, but returned them the wonderful shopping feeling as well as more hospitable after-services, and even more reliable quality guarantee, all of which bear the idiosyncrasies of public goods. During such a process of choosing or voting, the purchasers have disbursed the money rationally and voluntarily. At first glance, such an arrangement goes near to a perfect duplicate of Tiebout model, and surely enough, it indeed expresses the similar efficiency orientation: the preferences are revealed by the means of choosing different public goods (here being denoted as shopping circumstances, etc.), which are financed simultaneously through disbursements for the private goods (here being denoted as the commodities in shops). The higher the value of public goods is assessed, the more the tied private goods are purchased, thereby the more costs of the public goods are assigned to the consumers. What people obtain is the benefit of consuming public goods, and what they pay out is "attention", which takes the form of the "extra payment" to tied private goods and in turn, finances its carrier -- public goods -- through the channel of private firms' advertising expenses. The willing payment and actual payment are both realized.

But the advertising-financing is far from being that simple as the "voting with feet" model. Since the advertising financed public goods are supplied in the private goods markets, then at the equilibrium, which is achieved under the private firms' profit-maximizing incentives, whether the matching of the advertising expenses and the monopolistic profits produced by advertising is guaranteed? In other words, it is possible that part of the extra payments are snatched by private firms as their extra monopoly profits and not used entirely as advertising expenses disbursed to purchase public goods. In addition, even if the customers' defrayals for the public goods are completely put into the advertising campaigns, whether the money is fully used to produce or buy public goods by the advertising revenue receivers (who are also profit seekers) is worthy of doubt<sup>7</sup>. If, say, the parking lot doesn't belong to the shopping plaza in vicinity, and the plaza pays money (being regarded as advertising expenses) to the park for its free open, then whether or not will the park keeper fail to dispend ALL the money to built and maintain the free parking lot? All these do not matter in the Tiebout model, where the payments for the chosen communities are direct, not having to rely on the private goods to transfer; and the municipal administrators are not subject to the profit seeking motivations, which

induces that all the revenues are used to finance the public goods. But in the case of advertising financing, such issues have proved to be extremely troublesome.

The more troublesome matter seems still to be the problem of free riding, which becomes more complicated here and at least dwells in two categories: the first is the externalities among the different firms, for the public goods produced or purchased by the firms which have advertised are likely to be used for free by other competitive firms with no advertising. For instance, an emporium SOLELY pays the full sum for the construction and maintenance of a neighboring free parking lot, then any other store in the vicinity will become free rider, for it can gather more customers than otherwise and doesn't have to burden any cost of the parking lot, which will dampen without fail the enthusiasm of the firm to provide the parking lot as a public good. Not only the advertising effects for the original store will be greatly discounted (the demand for its own private goods shrinking) because of other stores' free riding, but also the free riders may certainly provide the same commodities at a lower price (suppose that all other cost statuses are same for the stores), which will be followed by the firm that bears the cost of public goods being eliminated through the contest, and eventually, no actual provision of any public goods taking place. To such a problem, Tiebout's solution was extraordinary simple, he merely assumed that there were no spillover effect among the public goods providers (the communities), that is, he excluded any possible free ride problems just before he began his analysis. But in the advertising-financing arrangement, since the free rider phenomena appear to be up against us everywhere all the time, it would be hard to avoid being accused of being imprudence if we adopted Tiebout's approach hastily.

The other kind of free rider problem resembles the phenomena that people merely enjoy public goods without buying tied private goods, which hasn't been mentioned in the Tiebout model. Yet if being driven into extreme, it would appear quite awful: is it imaginable that everybody is regaling himself on the convenience of free parking, but nobody enters the stores that provide it?

## ***2. A Simple Efficiency Model***

Obviously, if we intend to exam the efficiency of the advertising-financing arrangement, it will be logical to try to find out respectively whether the several issues mentioned able

could be solved as well as the necessary conditions for the solutions. In the following very simple model, I will deal with these problems separately through several sub-models, the assumptions of each don't conflict with each other and are all listed in front of the models just for the convenience of summarization. Moreover, when one topic is discussed, other problems should be supposed to have been solved.

### **The General Assumptions of the Model**

- 1) There exists a criterion to measure the quantity as well as quality of public goods, which might be appointed as one unit of standardized public goods, any public goods of any form and any nature should be weighed and compared in accordance with it. And the cost of per unit of public goods is constant, so that if we mention, say,  $N$  units of goods, this " $N$ " may denote both quantity and quality, and serves as the yardstick to make comparisons between public goods of different kinds.
- 2) In a similar way, the private goods manufactured or provided by different firms are also measured by an unified unit, which indicates both quantity and quality. Furthermore, in favor of simplicity, the production and selling costs are same except for the advertising expenses.
- 3) Except for the competition on advertising, any monopolistic factor has been eliminated, and no natural monopoly exists, so the new entrants would not be in an inferior position as a result of higher average costs.
- 4) The consumers are aware of the information with respect to the advertising consequences and the according price changes of private goods, which does not mean that the individual's demand for the private goods would unaltered. In other words, people have "quasi perfect" information except being influenced by the advertising<sup>8</sup>.
- 5) The consequences of advertising exhibit themselves on the private goods market merely as the increasing of price, the more the advertising expenses are disbursed, the higher the price of the private goods will be, but the number of units that are sold prior to or past the advertising campaign maintains unchanged<sup>9</sup>.
- 6) The costs on the programming and promulgation of the advertising campaigns are left out of account.
- 7) Each person can choose costlessly among public and private goods.
- 8) All the advertisements are homogenous, and the consequences of which -- the expansive effect imposed on the demand -- are indicated merely by the quantity of

expense, just like the stipulation about the measurement of the public and private goods prescribed above. The larger one commodity's advertising quantity is, the further its demand curve will shift out in a normal demand-supply curve figure, which means that the demand increases to a higher level. During these courses, the price elasticity of demand and the advertising elasticity of demand both keep constant, that is, the marginal increase of demand does not diminish along with the marginal addition of advertising.

### **Part One**

In this part, I attempt to answer the question of whether the customers' volunteer "extra" payments for the advertised private goods will be dispensed exactly as the advertising expenses.

According to the above assumptions, while no other factors impair the efficiency<sup>10</sup>, the private firms' advertising expenses (i.e. the cost of advertising,  $Cad$ ) are used to purchase public goods as the media, which incurs the increases of the prices of the private goods. Without the advertising expenses, the price would be, say,  $P$ , and after advertising, the price is actually, say,  $Pad$ , then, as in our stipulation,  $Pad$  is greater than  $P$ . With the constant selling quantity  $Q$ , in exchange for the advertising-financed public goods, the extra payments ( $E$ ) for the tied advertised private commodities are  $E=(Pad-P)Q$ . What the firms pursue is the maximum positive margin between  $E$  and  $Cad$ <sup>11</sup>.

Yet, as in the assumptions, no monopolistic factor exists except for the influences of advertising, and new firms can enter or exit the market without restrictions. In such circumstances, the competition force besides advertising will impel  $E$  to approach close to  $Cad$ . The reason is that, to one of the firms, if  $E$  were greater than  $Cad$ , then other firms that are providing the same public and private goods would manage to win more consumers by slightly lowering the prices of private goods they sell (in calculation, they are now possessing a room of depreciation as large as  $(E-Cad)/Q$ ). As a result, the demand faced by original extra revenue obtainer would be decreasing greatly, until becoming zero. Had all the firms followed such strategy, the equilibrium would be obtained at the moment when  $E$  equals  $Cad$ . In other words, threatened by the possibility of being eliminated, the "extra" money paid for advertised goods by customers is used entirely as advertising expenses; the advertised firms could not gain any windfall from

among. This resembles the situation in which, for instance, if two supermarkets bordering upon each other have exactly same shopping facilities (public goods) and same items to sell (private goods), then they will inevitably request same price for the private items, and this price will also be inevitably pushed down to the possible nadir.

### **Part Two**

Here I will discuss the problem about the profit of the public goods providers. In his club model, Buchanan (1965) substituted the providers of public goods with a certain cooperative or governmental arrangement, thereby did not expatiate this problem at length. But he still touched upon it in the footnote: "since profit opportunities exist in all such situations, the emergence of profit-seeking firms can be predicted in those settings where legal structures permit, and where this organizational form possesses relative advantages"<sup>12</sup>. Prior to him, Coase (1937) had penetrated into it more deeply<sup>13</sup>. Our following consideration is nothing more than an extremely cursory framework.

In light of the assumptions and conclusions in part one, all the payments for the public goods coming from the customers have been transferred to the advertising expenses ( $Cad$ ) of the private firms that manufacture or sell tied private goods. These advertising disbursements correspond to the revenue (or advertising income) of public goods providers, i.e. the advertising carriers. Having precluded the costs incurred by the advertising itself, we know that the costs of the advertising should be exactly the costs of the vehicular public goods (denoted as  $Cpg$ ). Similarly, the advertising media are in pursuit of the maximum balance of their revenues and costs, i.e. the maximizing of the difference ( $Cad - Cpg$ ), where  $Cad$  may be regard as the selling price of the public goods provided by the advertising media. That is, just like the private goods provider in part one, the advertising media here also wants to snatch a part of the payments disbursed by consumers as extra profit. And in the similar way, in the "pseudo" competitive market we have arbitrarily prescribed, the equilibrium could not be obtained in the condition that  $Cad$  is greater than  $Cpg$ . Facing the same cost statuses, the advertising media providing the same quantity of public goods will have to emulatively lower the prices up to the point where all the vested interests have been completely eliminated. Note, therefore, if two broadcasting stations transmit programs of the same contents and quality to the same bounds of receiving area, then the uncooperative games between them will eventually

reduce their charges for advertising to the level where the advertising revenues have just compensated the cost of the program, anyone who attempts to extort higher price will invariably lose all of his advertising clientele.

### **Part Three**

In this part, I try to probe into the issues of externalities, i.e. the free rider problems in the sense that some private firms don't contribute enough to the advertising campaigns for the purchase of public goods but still benefit from other firms' donations<sup>14</sup>.

It might be easier to understand such an issue from the perspective of public goods providers. Suppose that these providers are assigned the rights to charge the other private gainers of the advertising benefits in form of, say, rent or fee. In this way, any private firm that recurs to the public goods as its advertising medium must have to burden some parts of the total costs of the public goods in forms of rent, the sum of which ought to equal the provision costs of public goods (*C<sub>pg</sub>*). Under the condition that any firm that decline to pay the rent could be efficiently excluded from the benefit-receiving group, the free rider problem would be spontaneously eliminated. The realization of such an efficient excludability still relies on the force of competition. If the sum of the rents claimed by certain public goods provider exceeds the total costs of the public goods, then other competitors who offer the same public goods would have a chance to capture some competition advantages by requiring lower rents, which is what has been described in part two. By all appearances, this mechanism imitates the process in Coase Theorem where the externalities have been internalized through the property rights arrangements. Suppose property rights to the public goods such as air-conditioning are assigned to the shopkeeper, and then he will bargain with all of the private goods sellers in the shopping building to sign an agreement (Coase assumed such a bargain costless), in virtue of which he can receive payments according to such indicators as business area or selling quantity to finance the public goods, obviating the possibility that one or some of the sellers bear the whole expenditures. A good many financing activities of common advertising media can all be analyzed in accordance with this, and no medium will be willing to advertise any firm or product for nothing.

The slightly complicated instances appear in the situation of tying arrangements such as

shopping plaza and free parking lot. It's true that the free parking lot will impose some advertising effects upon its neighboring store, but the latter are not located exactly on the parking land, and the park keeper does not possess the property rights of the store, thus is unable to receive the land rent from the sellers in it. If he extorted some kind of charge like "advertising benefit fee" directly, then the free rider problems would appear again, presenting as insufficient revelation of the benefit each seller indeed obtained. Nevertheless, the emergence of the free park lot will enhance the rent of the surrounding land, and the shopkeepers or private goods sellers have to pay more rent -- being it the actual cost or opportunity cost -- for the area where the shops located to exchange for the benefits of the park. And then, park keeper can contract with those adjacent landowners, or buy into the lease rights of those lands to reap the part of payments and maintain his free services<sup>15</sup>. In the absence of relevant transaction costs and other monopolistic forces, the capitalized sum of the proceeds in such a lease should recoup the expenditure on the parking plot<sup>16</sup>.

#### **Part Four**

Now, I have to come down to the most intractable free rider problem on the consumption of public goods.

In classical models about the provision of public goods, every consumer's rational willingness to free ride will almost always result in non-rational collective consequences -- though everybody would be better off, such a benefit-all business would not have happened automatically on the perfect competitive market. However, even though, for instance, every free parker is looking for the windfalls of free ride, we can find out that such individual motives have unnecessarily induce the result of collective free riding problem: the owner of the shopping plaza can still charge the merchandises higher prices, through which finance the free parking lot. Such a paradox of free rider comes from within the demand-expanding forces of advertising, which appears that, as long as a certain individual had consumed certain public goods with advertising effect, he would be impressed by it without exception, resulting in his demand for the tied private goods being subtly increased, even if only a iota amount of public goods had been consumed. For example, a ONE time of parking in the free parking plot would at least inform his/her that there is a store nearby and shopping in which would exempt a little sum of park fee, etc.

Such information will be enough to bring the store a kind of monopolistic advantage that other competitors without free parking facility don't possess, be it that this time the parker doesn't even enter into the store, i.e. acts as a "free" rider. But the parking is not really "free"; the parker has already paid some "attention" to its provider just as he/she moors his/her car in it, and such an "attention" will in turn secure the owner of the parking lot and store sufficient payments through the provision of private goods such as clothes, foods, or books. Expand this influence to all the individual participators, the monopolistic advantage induced by advertising would be very distinct, which is just the magic power of advertising. But that where such a power comes from, and why it is able to persist, has always proved to be an unexplainable issue. Perhaps the relevant things outside advertising itself are much more complex and comprehensive than its economic meanings. Due to this, Mrs. Robinson pointed out that, the fact that in the real world the demand curve and the cost curve of individual firms are not independent presents a very formidable problem to economic analysis. It is impossible to review the issue of advertising in full scale in this single essay, so we have to accept without proving that in some way advertising is able to attract attentions and expand demands. In this sense, it can be perceived that, by nominating the arrangement as "financing public goods by advertising", we have borrowed the term of "advertising" somewhat irresponsibly.

If we had admitted that the influences of advertising on every public goods consumer had always been existed, in other words, if we had admitted that the forces of advertising had been much considerable and much easy to handle and measure, then, in a certain sense, we would have to admitted that there exists no free rider problem that could impair the efficiency in the provision of public goods. There is no harm in treating the collectivity as an aggregation of a certain number of representative individuals; and from this perspective, each representative individual may be regarded as being of no free rider motivation, because, according to our stipulation, the more the public goods are consumed, the larger quantity of private goods will be purchased by the public goods consumers, which means that the representative consumer's demand for the private goods rises along with the increase of the consumption of the public goods. Of course, such a representative is merely a purely theoretical conception, resembling the median voter in public choice theorem, whose behavior in the free rider problem represents the summation of all the individuals' behaviors. The magic force of advertising exempts this

representative individual from the free rider problem, which doesn't deny, however, that even under such a condition, individuals haven't lost the economic rationality.

### **A Brief Summarization of the Model**

Owing to the analyses in the above four parts, the theoretical silhouette of financing public goods by advertising would shape up smoothly: the provisions of public goods and private goods should not be separated abruptly, people pay certain "attention" to public goods when they seek for private goods, the greater the demand for public goods is, the more attention is paid to it, the former exhibits as an increasing function of the latter. Private firms can purchase such attentions as advertising for their private products, and at the same time, the advertising enhances the demand for private goods and drive up their prices, offering the firms some "extra" profits. In certain competitive system, those profits are counteracted by the advertising expenditures used to buy the "attentions" while the earnings of the public goods providers by "selling" the "attentions", which equal the advertising expenditures of the private firms in quantity, are again counteracted by the provision costs of the public goods, followed by the real preferences for the public goods being indirectly revealed in forms of "extra" payments for the private goods. In the aforementioned process, by voting with his feet, each customer has showed his real demand for public goods, and in the meantime has completed the payment unconsciously but voluntarily. In pure theoretical scope, the arrangement of financing public goods by advertising may be possible to achieve Pareto efficiency.

### **IV. Policy Implication and Conclusion**

It can be noticed with no difficulty that, in the analyses of this essay, two assumptions are extremely rigor and therefore deviate far from the economic realities. One is that there were no monopolistic factors besides advertising; the other one is every individual would increase his demand for private goods under influences of advertising. The former seems quite absurd, for advertisements have originally been the product of non-perfect competition, eliminating monopolistic factors would imply the vanishing of the living spaces for advertising. It might be suspected of being lopsided to treat advertising merely as a strap to tie together public and private goods, making it the additive cost without begetting any additive extra profit (economic profit should exist), but such a theoretical simplification would prove to be helpful in investigating the respective magnitude and

improvement margin of each of the complications that influence the efficiency of public goods provision, which would provide the non-market powers such as governments some indications about the opportunity and orientation for their interventions. To different public goods, especially the local public goods, even if advertising could finance most of them, the degree of such an advertising-financing activity -- which perhaps could be denominated as "advertising-financing rate" -- could differ in thousands ways. Moreover, it can be seen that whenever other monopolistic powers except advertising are mighty, the advertising-financing activities will inevitably inefficient, expressed in a way that the advertising-financing rate is either too high (the providers of public goods or private goods snatch massive extra profits) or too low (public goods could impossibly be financed solely by advertising revenue). When such inefficiency occurs due to the spontaneous monopolistic power of the market, it should be necessary for the government to redress the behaviors of the market participants, for example, to control the excessive profits induced by advertising that should have been used to finance public goods, or to subsidize or take part in directly the production of public goods that otherwise could not have been offered sufficiently. The most important thing is that government should rectify the monopolistic behaviors that root purely in the distortion of market structure and artificial interference, and bolster competitions in any possible fields, by such means as inviting public bidding equitably and extensively for the relaying rights for TV or radio information as well as the agency rights for advertising, or canceling the unnecessary regulations for the establishments and service extensions of advertising media under the permission of political concerns. The more intensive such competitions become, the more efficient the advertising-financing arrangement will be.

Throughout the whole investigation on the behaviors of the firms that provide private goods as well as public goods, we have not expatiated in detail the particular equilibrium for the monopolistic manufactures and the optimal price or expense strategy for advertising<sup>17</sup>, but simplified the consequences of advertising in an arbitrary way. The reason is that, for the academic researches on advertising in microeconomics, there has hardly been any conclusion accepted universally by economists, even the answer to whether advertising is mainly an economic issue has been equivocal, because advertising touches upon too many other matters in psychology, art, and even politics. Just as mentioned above, we have merely taken advantage of using the term

"advertisement" to facilitate our expatriation, so what we have borrowed is merely the most general conception of advertising in economics. We would have to be bewildered by its numerous, complicated, and miscellaneous properties had we not appointed the consequences of advertising artificially. However, the actual advertising has showed us that, even the Pareto efficient advertising-financing arrangements might unnecessarily be favorable for the welfare of the collectivity. The president elections in the U.S. financed sufficiently by the donations from a small pinch of economic magnates might not certainly be a good thing for American citizens, even though they could save such a sum of tax they should otherwise have burdened and free ride<sup>18</sup>. Hence to pursue solely the advertising-financing efficiency in pure economic means might possibly induce certain "Public Bads", which require the government's interventions to regulate.

In any case, we at least should not deny that the imperfect market system may finance certain public goods through advertising activities, which is similar to the voting mechanism in the Tiebout model. The demands for some public goods being larger, the consumptions on them are correspondingly larger, and the consumers are more deeply influenced by the advertisements promulgated by the public goods. As a result, the demands for the advertised private goods increase, and the payments increase too. In the meantime, though the costs of more public goods are higher, they can yet arrest more advertising revenues, which come from the extra payments for the private goods. Perhaps there were no public goods and private goods cooperating so perfectly in the actual economy, but paralleling to the development of information and communication networks, an arena for certain public goods to take advantage of advertising as a financing means effectively has been emerging, and that uncommon public goods is: information. It would not prove to be difficult to prospect that, the impending of the cyberculture would deepen the degree of competitions among advertising media. Under an extreme condition, each individual could provide certain information to browse by others through Internet, and at the same time reap the rewards -- attention, thereby advertise himself. The reason why certain ICP web sites have managed to survive by offering free access is no other than exchanging the public goods they have produced for the public attention, and then resell these attentions to those private goods manufactures. Such a rudiment of advertising-financing mechanism will convey us much enlightenments and confidence: maybe on the day when attention had really become an indispensable

production factor, the private privation of public goods (at least the information) would not remain a hard nut to crack.

## Notes

1, Refer to Samuelson, Paul A. 1954. "The Pure Theory of Public Expenditure." *Review of Economics and Statistics* 36: 387-89 and Bator, Francis M. 1958. "The Anatomy of Market Failure." *Quarterly Journal of Economics* 72: 351-79 for more detail.

2, Coase, Ronald H. 1974. "The Lighthouse in Economics." *Journal of Law and Economics* 17: 357-76.

3, Demsetz, Harald. 1964. "The Exchange and Enforcement of Property Rights." *Journal of Law and Economics* 7: 11-26.

4, Coase, Ronald H. 1974. "The Lighthouse in Economics." *Journal of Law and Economics* 17: 357-76.

5, Samuelson, Paul A. 1954. "The Pure Theory of Public Expenditure." *Review of Economics and Statistics* 36: 387-89.

6, Tiebout, Charles M. 1956. "A Pure Theory of Local Expenditures." *Journal of Political Economy* 64: 416-24.

7, It seems that no independent public goods provider can be perceived in the case that the stores provides shopping circumstances, but we can just imagine that in the abstract conception there exists an invisible work division between the provisions of public goods and private goods, and the two imaginative providers had the same objective: to maximize the combined profit. If the payments by the customers had not been used entirely for financing the public goods, the "extra" profit then could be divided optionally between them. However, in the following case of free parking, since the park and store belong to different firms respectively, such a division of "extra" profit, if exist, would be obvious, and non-optionally.

8, Assumptions 3 and 4 are only expediencies, for although it is only imperfect competitive market that makes advertising possible, to avoid unnecessary confusions, we suppose that the firms share equal market background except for the monopolistic influences of advertising.

9, The consequences of advertising may be divided into two parts, one of which is quantity increase -- selling a greater quantity of commodity at the same price, and the other is price increase -- selling the same quantity of the commodity in question at a higher price (refer to Zingler E. K. 1940. "Advertising Costs and the Maximization of Profit." *Economica* VII (New Ser.): 318-21). Here, to make our narration more convenient and understandable, we have expressed the

quantity-increasing effect as a price-increasing one. But note that such an expedience would never represent all the possible cases, for the uncooperative game of advertising between the firms might result in even constancy of price and quantity. All of these, as well as the several complicated problems in micro advertising economics, will not be discussed in this essay.

10, As mentioned above, it is our general stipulation on the addressing of each sub-model.

11, According to our general stipulation, at this time there is no free rider on the consumption of public goods, i.e. each consumer has contributed payment, which comes out as  $E$ . So there would be no negative balance between  $E$  and  $Cad$ , that is,  $E$  would never be less than  $Cad$ , but does can be greater than it. In other words, the private firm may detain part of  $E$  as their extra profit, and disburse the remaining to provide public goods.

12, Buchanan, James M. 1965. "An Economic Theory of Clubs." *Economica* 32: 1-14.

13, Coase, Ronald H. 1937. "The Nature of the Firm." *Economica* IV: 386-405.

14, Demsetz and Coase had both made similar analyses. Refer to Demsetz, Harald. 1964. "The Exchange and Enforcement of Property Rights." *Journal of Law and Economics* 7: 11-26 and Coase, Ronald H. 1937. "The Nature of the Firm." *Economica* IV: 386-405.

15, Demsetz, Harald. 1964. "The Exchange and Enforcement of Property Rights." *Journal of Law and Economics* 7: 11-26.

16, In the case of parking lot, the existence of geographical monopolistic factors is obvious, we have to eliminate it by assuming that there are a large number of parks lots of the same qualification that the customers may choose to use.

17, For the economic literatures on these subjects refer to Bagwell, Kyle. ed. 2001. *The Economics of Advertising: The International Library of Critical Writings in Economics*: 136. Cheltenham: Edward Elgar Publishing Limited & Northampton: Edward Elger Publishing, Inc..

18, Mandle, Jay., and Mandle, Jon. 1999. "Elections as a Public Good." *Challenge* 42: 50-62.

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- 7, Hyman, David N. 1999. *Public Finance: A Contemporary Application of Theory to Policy* \_Sixth Edition\_. Harcourt, Inc..
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- 9, Samuelson, Paul A. 1954. "The Pure Theory of Public Expenditure." *Review of Economics and Statistics* 36: 387-89
- 10, Samuelson, Paul A., and Nordhaus, William D. 2000. *Economics* \_Seventeenth Edition\_. McGraw-Hill Companies, Inc..
- 11, Tiebout, Charles M. 1956. "A Pure Theory of Local Expenditures." *Journal of Political Economy* 64: 416-24.
- 12, Zingler E. K. 1940. "Advertising Costs and the Maximization of Profit." *Economica* VII (New Ser.): 318-21.