

Public Goods in a Market Economy—

The Case Study of China

Bill Y. Chen, Professor

Abstract

This paper discussed the dilemma of public goods provision under a market economy system. In a free market system, entrepreneurs have insufficient incentives to supply public goods so governments must play key roles in this respect. However, direct government involvement has some serious side effects. The paper explores how the efficiency of the public good provision can be improved, which is particularly by using some theories, principles and management methods that have been successfully used in the private goods markets. The case of China's public goods provision is utilized to illustrate the relevant issues.

Keywords: Public Goods, Private Goods, Market Economy.

I. INTRODUCTION

On September 22, 2008, an official from China's Commission on Economic Development and Reform said that the biggest mistake in China's health care reform in the past is over-emphasizing the roles of the free market system and trying to make its health care systems market-oriented; as a result, governments' spending/investment in the sector has been proportionally lower, healthcare expenses too high to the ordinary people, and quality/services often too low. Similar problems happened in China's higher education system reforms. China has tried to reform its higher education system and make it more market-oriented. As a side effect, some good students with poor financial resources can not afford to enter colleges while some students with bad academic performance but rich successfully entered into prestigious universities through different ways.

All the above problems and wrong reforms/policies in China are associated with the misunderstanding of public goods. Public goods serve the public. Normally private businesses have insufficient incentives to provide them. For example, private businesses have no incentives to build parks for the nearby residents since it will be difficult to decide who should pay for them due to the open access (Buchanan, 1968; Cowen, 1988). Private goods are what private businesses produce exclusively for profit. People can buy them directly or indirectly from the producers. We buy food from supermarkets, books from publishers, or insurance from insurers.

In general, a free market economy system works out well with private goods because: (1) consumers make their optimal choices of the type and amount of goods to be consumed based on their marginal utility compared with the price; (2) firms make its optimal decisions as regards to which products, how many units, and the prices based on their marginal revenues, marginal costs and profit-maximizing; (3) as a result, the market of a private good reaches the equilibrium when the price is set at the level in which its total demand is equal to total supply (Colander, 2006; Stiglitz, 1996; Thomas, 2008).

However, a free market economy system fails with the public goods since consumers are not willing to pay directly for the usage/consumption and private firms have no incentives to produce (Cowen, 1988; Davis, 1977; Fischbacher & Gächter, 2006; Jasay, 1989). Then the market mechanism can not automatically solve the equilibrium problem. As a result, it should be government's responsibilities to produce or finance or sponsor the production of public goods (Cornes & Sandler, 1986; Cowen, 1988; Davis, 1977; Fischbacher & Gächter, 2006). All countries' governments have militaries; many, if not most, schools are financed by the different levels of governments; public parks are financed directly by the governments or some voluntary agencies outside the private sector.

The functions and roles of governments are very important in providing public goods; however, there are some potential problems when the governments become the sole producers (Benjamin, 1980; Breton, 1996; Savas, 1982). First, there is an inefficiency problem pertinent to the resources allocation. Private businesses allocate their resources based on the demand and profitability. Although theoretically the governments can allocate resources better to serve all people, most governments often misuse or even waste resources due to different reasons such as undue influence of the interest groups or lack of accountability. Secondly, there is a bureaucracy problem in organizing and managing the productions/projects. Given these facts, it is interesting to ask how a government can better produce public goods in a market economy with special respect to how some principles and management methods used in the private goods markets could improve the situation.

The rest of the paper is organized as the follows: Section II discusses the special features of public goods; Section III explores why a free market economy system fails with the public

goods; Section IV reviews the government's functions and roles in the public goods provision and its relevant side effects; Section V is a case study of China's public goods markets; Section VI explains how to improve the efficiency of public goods markets by using some theories/principles and management methods used in the private goods markets; Section VII concludes the paper.

II. UNIQUE FEATURES OF THE PUBLIC GOODS

There are some similarities between the private and public goods, such as both are for satisfying people's needs and their productions both involve cost and resource allocations (Buchanan, 1968; Anderson, 2003). Also, there are some significant differences between these two types of goods (Cornes & Sandler, 1986; Head, 1974).

Table 1 Comparison between Private and Public Goods

Private Goods	Public Goods
Rivalry	Non-rivalry
Excludable	Non-excludable
Divisible	Indivisible
Rejectable	Non-rejectable

Rivalry or Non-rivalry.

If one person consumes a private good such as driving a car, another person can not use the same product, i. e. the same car. However, consuming/using the public goods has the non-rivalry feature. The consumption by one person does not reduce the availability of the good to others. Residents can enjoy their activities in the same park without affecting each other; people can use the same freeway, although if too many people use the same freeway, that may affect each other's usage.

Excludable or Non-excludable.

If a person does not want to pay for a private good, the person can be excluded from the consumption of that good; but, a public good is non-excludable. Even if a person does not pay any taxes to the government, the person can still be protected by the national defense or use the public parks financed by the government.

Most literatures distinguish the public goods from private goods by using the above two main features. However, two more features should be added

Divisible or Indivisible.

Private goods can be divided into desired units to meet individual needs. People can buy their desired number of textbooks each time or buy a certain number of the financial securities such as stocks or bonds; but, a public good is indivisible. In other words, the public good is designed as a whole for all potential people's consumptions. National defense is for protection of all people of the nation, not for certain individuals.

Rejectable or Non-rejectable.

If a person does not like a private good, the person can reject to pay for it and change to another one. But, the public goods are financed by all of the public taxpayers and they are paying for it even though they do not like it and use it.

There are some pure public goods as mentioned in the above discussions. Also, there are many other goods and services that look like both public and private goods. For example, providing education such as schools and colleges is a public good so we have many public schools and colleges. But, education can also be a private good as we have many private schools and colleges. A

public park is a public good, but by charging admission fees it can be like a private good. A freeway is a public good, but a toll freeway looks like a private good.

III. WHY IS THERE A MARKET FAILURE WITH THE PUBLIC GOODS?

A free market economy system works well with the private goods because private producers are willing to supply the goods to people and can make reasonable profits. There is a market failure with the public goods. The main reason is that private producers will not supply public goods to people because they are not sure whether they will be able to make reasonable profits. In fact, they even do not know whether they are able to charge fees to the public goods' users due to the free rider problem.

A Free Rider Problem.

Because of the features discussed in the previous section, consumers can take a free ride without having to pay for the public goods or services. A private producer can not build street lightings or flood control systems that can be only used by people who paid for them. All people can benefit from them or directly use them. As a result, no one will be willing to pay for such a public good. Then, no producer will be willing to supply that product (Cowen, 1988; Fischbacher & Gächter, 2006; Jasay, 1989).

Besides the free rider problem with the public goods, the following factors may lead also to the market failure of the public goods.

Marginal Cost of the Public Good.

In a private good economy market, a firm makes its optimal choice of the outputs and price based on profit-maximizing and its marginal cost equals to its marginal revenue ($MC = MR$) (Colander, 2006; Stiglitz, 1996). But, in the case of the public good, the marginal cost of the additional consumption will be zero, i.e., $MC = 0$, so the firm can not decide the optimal output level based on $MC = MR$.

Marginal Utility and Consumers' Choices.

In a private good market, consumers make their product consumption choices based on the marginal utility per dollar spending on each product is the same among all available products, i.e. (assume two types of products X and Y here) (Thomas, 2008):

$$MU_X(X, Y)/P_X = MU_Y(X, Y)/P_Y$$

Where, P_X and P_Y are the prices of the goods, MU_X and MU_Y are the marginal utilities from these two products. In this case, a consumer will select the optimal levels of X and Y to satisfy the above equation.

However, when there is a public good in the consumer's selection, the above method/principle does not work. First of all, the price of the public good such as P_X (assume X is a public good) is difficult to decide since regular demand and supply curves as happened in the private goods markets do not exist in this case (Buchanan, 1968); secondly, even if the price P_X can be decided, the consumer still will have difficulty in making the optimal choice. As outlined in the previous section, a public good is indivisible. In other words, the choice for public good X will be either one or zero (if there is such a choice). As a result, some consumers will choose $X = 1$; and others will choose $X = 0$, depending on their utility functions. Therefore, due to the different utility functions, some consumers are willing to pay for usage of the public goods while the others will not (Fischbacher & Gächter, 2006). In addition, over time, some consumers' preferences may change, so their utility functions will be changed accordingly. As a result, a consumer is better off with using of the public goods and paying for that in the beginning, but later with his/her preference/utility changes, the consumer may be worse off with the consumption of the public

goods. Such an uncertainty will lead to the prediction of the consumers' demand for the public goods more difficult if not impossible.

Pareto Efficiency and Public Goods.

In economics, an economic system is judged based on whether or not it can achieve its efficiency (Colander, 2006; Stiglitz, 1996). A Pareto efficiency is the one in which no one can be better off without some one being worse off. In general, a free market economic system works with the private goods since it can lead to the Pareto efficiency, although there are some exceptions due to asymmetric information, adverse selection, or moral hazard. But, the market system can not lead to the Pareto efficiency of the public goods. This happens because all consumers want to be free riders although they all will benefit and be better off from producing/using the public goods and paying for that. As a result, no private firms want to supply the public goods and all consumers are worse off.

IV. GOVERNMENT'S ROLES IN PUBLIC GOODS MARKETS

Given the above facts that a free market fails with the public goods, it will be the governments' and societies' responsibility to help solve the problems since public goods are desirable. There are different ways for the governments' involvements in the supply of the public goods.

Fully Public Financed and Managed. All governments in the world finance and manage military and other security divisions. Governments finance and manage freeways and other transportation systems.

Financed by the Public but Managed by the Experts. All public schools and colleges are financed by the taxpayers but managed by the relevant experts with the supervision of the relevant government officials.

Financed and Managed by the Relevant Society. Homeowners form a special association to finance and manage their community. They pay monthly association fees to cover the costs for the community's beautification and other facility costs, such as swimming pools and recreation centers.

Regulated by the Governments but Financed and Managed by the Private Sectors.

Governments pass regulations to allow some private firms to build toll freeways or bridges. Also, governments allow private sectors to establish private schools and colleges to compete with the public ones.

There are some potential problems with the governments' direct involvement in the supply of the public goods (Breton, 1996; Norman, 2004; Ping & Bai, 2005; Savas, 1982):

Inefficiency of the resource allocations. The purpose of the government's involvement in the public goods market is to solve inefficiency of the resource allocation to the public goods' supply since the private sectors have no incentives to produce these desirable goods. But unlike a private firm, which is governed by the demand, supply and market equilibrium, and profit-maximization, the government may misuse its resources or even waste them in the production of the goods. This happens because of the special interest groups' influence. Military-related industries push the government to invest more in their industries although that may not be necessary. This also happens because elected government officials want to please their constituents and establish some significant projects with their signatures. The United States government may spend millions of dollars to build a port or a bridge or a freeway in a town that may have little value or usage because some powerful figures in the Congress requested that and so obtained the money, often called pork projects.

Bureaucracy and mismanagement. The decision-making process of the government is usually too slow. It takes too long time to decide whether, where and how to produce a public good. Also, there is a lack of accountability and responsibility among government officials and its management teams. Not like a private sector, its CEO and other senior managers have full incentives and responsibilities for its organizations' performance. In addition, there is a lack of the flexibility with the governments. A private bank or a supermarket will add services immediately during peak hours or when too many people are in the lines; but a post office may never take action even though there are too many people waiting for the services.

Corruption. Business people may make bribes for public contracts; government officials take bribes and then award the bribers. Although such corruptions happen in the supply of the private goods, the situation is usually more serious in the supply of the public goods since the public goods are financed by the governments.

The monopoly. Many public goods are financed and managed by the government with a monopoly. As a result, there is little or even no competition so the management team of the public goods has no incentive to improve its products or services. A government-owned railway with the monopoly may not want to use the new faster engines or a telecommunication firm owned by the government may not want to adopt new advanced communication technologies. They have less incentive in innovations, research and developments.

The lack of entrepreneurship. One of the most serious problems in the public goods markets is the lack of the entrepreneurship. The entrepreneurship is the blood and life of the private economy. Because of the entrepreneurship, we have had telephones, airplanes, automobiles, and computers. Because of the entrepreneurship, new technologies and innovations are generating continuously. Because of the entrepreneurship, the economy is expanding and many people have their jobs. The basic nature of the entrepreneurship is that people evaluate a new project/technology/product's potential opportunity and risk, its cost and benefit, then make a choice whether to take the opportunity/risk. An entrepreneur is motivated by potential profits and is willing to take the reasonable risks. However, entrepreneurs have insufficient incentives to produce the public goods because of free riders and other problems.

Inequality of the public goods distributions. A government is supposed to be for all people, but in reality, governments may distribute public goods unequally to different regions and people. Many times, regions and people who most need them may not obtain the desirable public goods. The country area does not have enough public schools; its roads are bad, and water is in shortage and of low quality. Since private sectors do not have incentives to supply such desirable public goods to these undeveloped areas and people, the economic and welfare inequality is worse in these areas even when its whole country's economy has developed and improved significantly.

V. A CASE STUDY OF CHINA'S PUBLIC GOODS PROVISION

China used to be a centrally planned and central government dominated economy. Until the 1970s, its whole economy was mostly planned and managed by the central/federal government. The majority firms were owned by the central government; all tax revenues went to the central government and the part of that later was returned to some local governments. As a result, the majority of the public goods were provided and financed by the central government. Each Province competed and strived to obtain the central government's money so it could develop and invest more in its public projects.

With its reform and openness to the world since 1978, China has gradually decentralized its economy and fiscal system. As a result, state and local governments are having more resources to

finance and invest in its public projects. In addition, China is opening and trying to attract foreign direct investments and private investments to its traditional public product industry. For example, China, now, allows private and foreign-owned schools and colleges, and some railways and airports to invest in and be owned by private businesses. Also, with the fast economic growth and revenue increases, China is investing more in its public products. As a result, we have witnessed very fast progress and developments of the China's public products industries and which have better served its people's needs. More high school graduates have been admitted to colleges; more villages have had bus transportation; more people are having fresh water. For example, an estimated 300,000 kilometers of roads are scheduled to be either built or upgraded in rural areas in 2007, with plans for a total of 1.2 million kilometers of new rural roads by 2010, according to Communications Ministry, China (CSA Net-News, 2007; Ping & Bai, 2005; Shue & Wong, 2005).

However, there are many serious problems with respect to China's public goods provision.

Corruption.

As China itself has recognized, corruption in the public product markets has been very serious. Some senior government leaders were sentenced to death because they took money from businesses and awarded public projects to bribers.

Inequality.

China's fast economic growth to some extent has made wealth and development inequality gaps larger among people and regions (Ping & Bai, 2005; Zhang & Fan, 2006). People in developed areas, mostly in the coastal areas, are having better public services than the others; their public schools and colleges are better, health insurance coverage and medical facilities are better; public transportation systems are more advanced and better. However, many poor people and many underdeveloped areas are still living with very low standards. Many farmers have no health insurance coverage and they do not have minimum wage/income guarantees. Roads and transportation in their areas are poor or even no public transportation or roads are available. Public schools are shaky with a shortage of qualified teachers. Many young students have dropped out of school because of their families' economic hardships.

Over-emphasizing Number 1.

Sometimes, Chinese people over-emphasize being Number 1 in the world. They want to build the longest bridge, the highest building, and the largest facility in the world. They want to be Number 1 in the world in terms of everything, from the total amount of exports, to the total number of cell phones, and to the total number of internet users. Ambition is good and dreaming big is fine, but, over-emphasizing on these may lead to potential problems. In particular, the governments should decide the size and investment in the public projects based on people's needs, available resources, and technical feasibilities. Otherwise, rare resources will be wasted.

Over-market-orientation.

China has been changing its economic system from the centrally-planned into the market-oriented. That has helped its economy. China is now trying to reform its health care system and education system and make them semi-market-oriented. However, a market economy system cannot solve all problems. Especially, a market system will fail with the public goods. Because of the market-orientation, some hospitals have refused to accept seriously ill and emergency patients and some of these patients have died consequently; because of the market-orientation, students from poor families could not afford to study in colleges, although they were admitted; because of the market-orientation, some students entered the best reputation schools and universities by paying extra money, although their examination scores were lower than the required ones. As a result, people have unequal and unfair access to the public goods.

Lag on quality control.

Some of China's public projects lack necessary quality control. We have heard that a newly built bridge or building suddenly collapsed or a newly constructed freeway was broken. Such a bad quality of public projects could result from corruption or from lag on quality control.

Lag of regulations on standards.

Some China-made products recently have scared the world because of their low standards or bad quality or even poison. One serious problem of China's public goods and projects is its lag in regulations on standards and quality requirements or lag of the implementation of the regulations and standards.

It will take time for China to solve the above problems relating to its public goods provisions. With its continuous economic growth and wealth increases, with its reforms and learning from its own and other countries' mistakes, and particularly with its leadership's attention on improving people's benefits and welfare, we expect that China will perform better in the future in the public goods provision area to better meet and serve people's needs.

VI. HOW TO IMPROVE THE EFFICIENCY OF THE PUBLIC GOODS PROVISION

As analyzed in the previous sections, a free market fails with the public goods; but the government's involvement in supply of the public goods, on other hand, has many serious potential drawbacks. Thus the issues here are how to improve the efficiency of the public goods supply; and in particular how some theories, principles and management methods successfully used in the private markets may be used in the public goods market.

Appropriate, clear long-term objectives and goals.

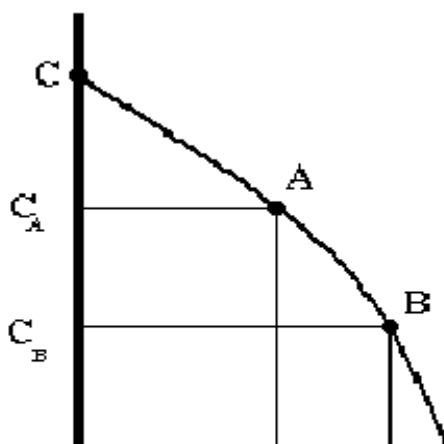
A private business succeeds or fails depending on whether it has the appropriate and clear long-term objectives and goals, which in turn rely on the firm's forecast of future demand, supply and others. A country has a shortage of public schools, colleges and teachers because its government does not recognize population growth and its demand for education and, thus does not have a good appropriate long-term plan.

Production possibilities frontiers and opportunity costs.

A government often tries to do too much without recognizing its resource limits. A government may promise mandatory free school education but does not have enough resources to build schools and hire teachers. It may promise welfare to retirees but does not have money for that. People need the actual good quality public goods to be delivered, not on-paper promises from their governments. The government needs to recognize its production possibilities frontiers and opportunity costs. Since it has limited available resources, the government, in a given period, can only produce the limited maximum amounts of different products and services. If the government spends more on the military, it will reduce its spending on others. Any additional spending on one product will have its relevant opportunity cost, which is the potential benefit if spent on the others.

Graph 1 Production Possibility Frontier

Civil Good



CABD- Production Possibilities Frontier (PPF)

Inside PPF, inefficiency points

Outside PPF, unfeasible

The above graph shows the production possibilities frontier of producing civil goods and defense goods. One needs to make its optimal choice of combinations of these two products.

Using shadow prices to better allocate resources.

A shadow price of a resource such as raw materials (oils) is the additional value to the economy or the objective function for one-unit increase of that resource to the economic system. When a resource has its surplus, its shadow price is zero. When there is a shortage, its shadow price is positive. The more valuable the resource is to the economy, the larger the shadow price. Using such a theory/method, the government can better allocate its resources and better produce the public goods to meet its people's needs.

Using private sectors to help supply the public goods.

As discussed in the previous section, many public-type goods can be supplied by the private businesses. There can be private schools and colleges; there can be toll freeways and bridges built by the private firms; there can be railways and airports invested by the private sectors.

Using competition.

Fair competition among private businesses is the key to better serve consumers and improve quality and services of the private goods. In the public goods market, the government should also use the competition as much as possible. An open bidding process is necessary for most public projects. This can save resources, improve quality, and better guarantee the project's completions on time. This will also help reduce or eliminate the possible bribes and corruption.

Charging some reasonable fees.

Certainly, many public goods are free of charge to the users such as mandatory school attendance. But, in many cases, some reasonable fees should be charged to the users. Requiring government-sponsored health-insurance holders to pay some doctor's visit fees can reduce their misuse or unnecessary use of the services.

Entrepreneurship and innovations.

As mentioned before, the crucial aspect of the private business development and success is its entrepreneurship and innovations. Although entrepreneurs have insufficient incentives to directly supply the public goods due to the profit issue, the government should encourage and award entrepreneurship and innovations in its process of the public goods supply. For example, they can hire entrepreneurs to manage public projects, and outsource some parts of productions and services to the entrepreneurs.

Regulations and laws.

It is the government's responsibility to pass laws and regulations to better protect people. Particularly, relevant laws and regulations are needed to protect people's safety, the fair use of the public goods and to maintain the quality of the public goods. Admission standards to the public schools and colleges must be understandable and fair to all students; safety and other standards must be set up for mass transportation; and air and water must be maintained at the required quality.

VII. CONCLUSIONS

In this paper, the dilemma of public goods provision under a market economy system has been discussed. In a free market system, entrepreneurs have insufficient incentives to supply public goods so governments must play key roles in this respect. However, governments' direct involvement has some serious side effects. The paper explores how the efficiency of public good provisions can be improved by using some theories, principles, and management methods, including concepts of the production possibilities frontiers and opportunity costs and shadow prices used in the

private goods markets. The case of China's public goods provision is further utilized to illustrate the relevant issues.

NOTES

The author thanks valuable comments and suggestions from John Marshall, University of California, Santa Barbara; Iskandar Hamwi, University of the Southern Mississippi; Marc Fetscherin, Harvard University. In particular, the author greatly appreciates financial support from the University of the West.

REFERENCES

- [1] Anderson, John 2003. *Public finance*. Boston: Houghton Mifflin, Boston.
- [2] Anton, Anatole, Milton Fisk and Nancy Holmstrom 2000. *Not for sale: in defense of public goods*. Boulder, Colo.: Westview Press.
- [3] Balakrishman, N., Render B. & Stair R. 2007. *Managerial decision modeling*. New Jersey: Prentice Hall.
- [4] Barrett, Scott. 2007. *Why cooperate? the incentive to supply global public goods*. Oxford: Oxford University Press.
- [5] Barrett, Scott. 2007. *Understanding global public goods*. Oxford : Oxford University Press.
- [6] Benjamin, Roger W. 1980. *The limits of politics : collective goods and political change in postindustrial societies*. Chicago: University Of Chicago Press.
- [7] Bobrow, Davis B & Mark A Boyer 2005. *Defensive internationalism : providing public goods in an uncertain world*. Ann Arbor: University Of Michigan Press.
- [8] Birulin, Olekii 2006. Public Goods with Congestion, *Journal of Economic Theory*, 129 (1): 289-303.
- [9] Brenna, Geoffrey, & Michael Brook 2007. Esteem-based contributions and optimality in Public Goods Supply, *Public Choice*, 130 (3-4): 457-470.
- [10] Besley, Tomothy, & Mairtreesh Ghtak 2001. Government versus Private Ownership of Public Goods . *The Quarterly Journal of Economics*, 116 (4): 1343-1372.
- [11] Breton, Albert 1996. *Competitive governments: an economic theory of politics and public finance*. Cambridge: Cambridge University Press.
- [12] Buchanan, James M 1968. *The demand and supply of public goods*. Chicago: Rand McNally.
- [13] Colander, David 2006. *Economics*. 6th Edition, San Francisco: McGraw-Hill.
- [14] Cornes, Richard and Todd Sandler 1986. *The theory of externalities, public goods, and club goods*. Cambridge: Cambridge University Press.
- [15] Cowen, Tyler 1988. *The theory of market failure: a critical examination*. Cato Institute. Fairfax, Va.: George Mason University Press.
- [16] CSA Net-News 2007. *China's Public Goods Investment*, [cited 27 February, 2007.] Available from URL: <http://www.csasc.org>.
- [17] Davis, J Ronnie and Joe R Hulett 1977. *An analysis of market failure: externalities, public goods, and mixed goods*. Gainesville : University Presses Of Florida.
- [18] Fischbacher, Urs and Simon GäChter 2006. *Heterogeneous social preferences and the dynamics of free riding in public goods*. Bonn, Germany: IZA.
- [19] Head, John G.1974. *Public Goods and Public Welfare*. Durham, N.C.: Duke University Press.
- [20] Jasay, Anthony De 1989. *Social contract, free ride: a study of the public goods problem*. Oxford: Oxford University Press.
- [21] Jefferson, Gary 1998. China's State Enterprises: Public Goods, Externalities, and Case. *The American Economic Review*, 88 (2): 428-443.
- [22] Kotchen, Mathew 2006. Green Markets and Private Provision of Public Goods, *The Journal of Political Economy*, 114(4): 816-828.
- [23] Labaree, David 1997. Public Goods, Private Goods: The American Struggle over Educational Goals. *American Educational Research Journal*, 34 (1): 39-81.
- [24] Meier, Stephan 2006. *The economics of non-selfish behavior: decisions to contribute money to public goods*. Cheltenham, UK: Edward Elgar Publishing.

- [25] Mitchell, Robert Cameron & Richard T Carson 1989. *Using surveys to value public goods: the contingent valuation method*. Maryland: The Johns Hopkins University Press.
- [26] Norman, Peter 2004. Efficient Mechanisms for Public Goods with Use Exclusions. *The Review of Economic Studies*, 71 (4): 1163-1188.
- [27] Peacock, Alan T 1979. *The economic analysis of government, and related themes*. New York: St. Martin's Press.
- [28] Ping, Xinqiao & Jie Bai 2005. *Fiscal decentralization and local public goods provision in China*. Unpublished working paper, China Center for Economic Research, Peking University.
- [29] Savas, Emanuel S. 1982. *Privatizing the public sector: how to shrink government*. Chatham, N.J.: Chatham House Publishers.
- [30] Stiglitz, Joseph 1996. *Economics*. 2nd Edition, London: Norton Publishers.
- [31] Shue, Vivienne & Christine Wong 2005. *Is China moving to a more equitable development strategy?* Unpublished working paper, University of Washington.
- [32] Thomas, Christopher & Charles Maurice 2008. *Managerial economics*. 9th edition, New York: McGraw-Hill.
- [33] Tullock, Gordon 2005. *Public goods, redistribution and rent seeking*. Cheltenham, UK; Northampton, MA : Edward Elgar.
- [34] Viscusi, W Kip, Joel Huber and John M. Olin 2006. *Hyperbolic discounting of public goods*. Cambridge, MA: John M. Olin Center For Law, Economics, and Business, Harvard Law School.
- [35] Zhang, Xiaobo & Shenggen Fan 2006. *Public investment and regional inequality in rural china*. Unpublished working paper, Environment and Production technology Division, International Food Policy Research Institute, Washington D. C.