

Economic considerations in education policy making: a simplified framework

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Keywords

Education, Policy, Economics

Abstract

Attempts to propose a simplified framework from an economic perspective for analyzing education policy. The framework takes into account the demand for and supply of education, the education system structure, the economic effects and consequences, and their interrelations. Maps out some key economic areas, issues and concerns in analysis and discussions of education policy. The framework will serve to facilitate economic considerations and analyses in current education policy debate in different parts of the world.

Introduction

In facing up to the challenges from the economic downturn in the Asia-Pacific region since 1997, the rapid international rise of knowledge-driven economies and the drastic impacts of information technology and globalization, numerous educational reforms have been initiated in the region and other parts of the world (Cheng, 1999; Cheng and Townsend, 2000). Given the scope of the impact of these reforms and the magnitude of the resources required, inevitably, the economic effectiveness of these educational reforms and related policies have attracted much attention from stakeholders and policy analysts.

Some people are concerned about whether the existing education can meet the needs of new economic developments in this millennium and how education should be changed to prepare future generations for the knowledge-based economy (see, for example, Education Commission, 1999a, b, 2000a, b; Klor de Alva, 2000; Walshok, 1999). Others are concerned about how the education system should be resourced and funded in a more efficient and effective way in order to meet diverse growing demands for education (see, for example, Davis, 1999; Grosskopf and Moutray, 2001; Psacharopoulos, 1999; Wyckoff and Naples, 2000). The first concern relates to the issues of external economic effectiveness for the future of economic development and the second concern to the issues of internal economic effectiveness for using resources to fund different types of educational services.

For the case of Hong Kong, the government has substantially increased its investment in

education and put forward many new education policies since the 1980s (Education Commission, 1984, 1986, 1988, 1990, 1992, 1996, 1997, 1999a, b, 2000a, b; Education and Manpower Branch and Education Department, 1991; Education and Manpower Bureau, 1997). Unfortunately, there was often a lack of clear and sophisticated economic analysis of how the education policy could address the external or internal economic effectiveness issues in the policy papers. To many people who are interested in the economic aspect of education policy, most economic concepts and considerations encompassed in the debate on education policies are often too abstract, complicated, and comprise multiple layers. Many education policies have not been discussed and analyzed in depth from an economic perspective, even though plans have been made to inject a huge volume of resources. Consequently, it is no surprise that the economic effectiveness of many past and ongoing education policies is still unknown to many people.

In response to such an urgent need in education reforms, this article seeks to delineate a simplified framework for educators, policy makers, policy analysts and all those concerned in conducting economic analysis in policy debate and formulation of education policies[1]. Hopefully, this simplified framework can contribute to advancing rational education policy making and to ongoing education reforms for the new economic development and the effective use of resources in providing educational services to meet diverse needs in the new millennium.

Education as a system

When one reviews the infrastructural changes of societies and communities in the

Part of this paper was re-developed from a Chinese article by Cheng and Ng (1992).



The International Journal of Educational Management
16/1 [2002] 18-39

© MCB UP Limited
[ISSN 0951-354X]
[DOI 10.1108/09513540210415514]

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<http://www.emeraldinsight.com/0951-354X.htm>



past two decades, one can observe the prevalence of neo-liberalism in the globalization of education, resulting in “the subordination of education to labor market requirements” (Elliott, 1999, p. 139). Given that humans are now facing a serious problem of the depletion of scarce resources, thus making productivity improvement a critical concern in all countries, it is inevitable that economic considerations must be entertained in education policy making. In brief, from an economic point of view, education policy needs to include economic considerations, such as the following:

- meeting the short-term and/or long-term economic demands of society at different levels for education;
- identifying, procuring, and allocating appropriate resources for inputs into the education system;
- making appropriate education provisions (e.g. school places for students, number of trained teachers, schools, education facilities, levels of education, etc.);
- changing the internal structures of the education system to meet different purposes in operation and education; and
- enhancing the efficiency of internal processes of the system and its sub-systems (such as schools, training institutions, etc.).

All these considerations and related efforts are aimed at improving educational services and practices, enhancing internal and external economic effectiveness and generating other social benefits to different levels of society (Behrman and Stacey, 1997; Solmon and Fagnano, 1994).

The proposed simplified framework, furnishing a basis for clarifying the above economic considerations, rests on a premise that education can be considered a system. In brief, an education system comprises all kinds of subsystems – such as schools and educational institutions at different levels and of different modes – receiving different types of inputs from multiple sources (including resources, manpower, needs and expectations of stakeholders, national goals, etc.). As shown in Figure 1, through internal processes of the education system, some outputs that encompass direct and indirect benefits and impacts are produced to individuals, educational institutions and the local community. Then, these outputs eventually generate long-term impacts on the whole society and even beyond. From this perspective, a new education policy often means a set of proposed initiatives, measures, or changes to the inputs and/or

internal processes of the education system, with a hope of achieving some planned changes in education effects. According to Coombs (1994), education policy making is often characterized by extraordinary complexity (involving so many participants and stakeholders at different levels), visibility of the education system and most policy deliberations (i.e. almost all citizens have education experience and believe that they are “experts” in education), dispersion of authority in education policy making at different levels, ambiguity about goals in most educational settings, and labor-intensive processes involving the majority of the education budget on staffing.

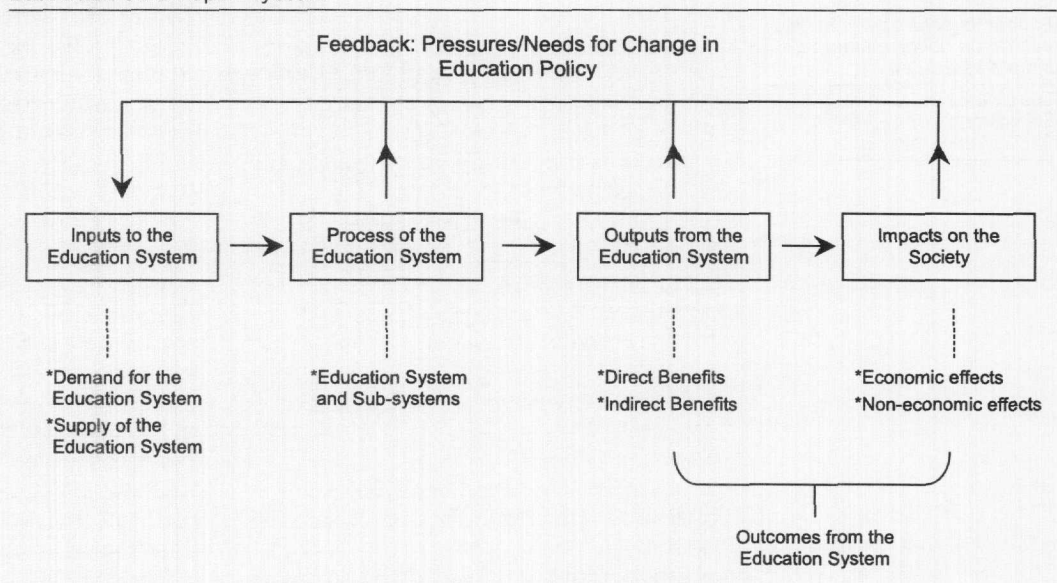
The education system is by nature an open system that interacts with the external environment. It means that the education system produces some outputs to the external environment, and the latter reacts with some feedback to the education system.

Responding to the feedback, the education system may change its inputs as well as internal processes. Accordingly, whether the performance and efficiency of internal processes of the education system, the positive or negative impacts of education outputs, and the subsequent economic benefits can meet the expectations and needs of stakeholders and the community is often a crucial concern. This concern will determine whether or not the existing education policies should be changed. If the aforementioned cannot meet the expectations and needs, there will be greater pressure from the public and those concerned to change the existing education policies and ask for reforms and new initiatives to induce changes in inputs to the education system. It forms a feedback loop to the education policy cycle, as illustrated in Figure 1. With the change in inputs, the education system may change its internal structures and processes, thus hopefully produce in the next cycle more preferable outputs and effects that meet the needs of stakeholders as well as societal developments.

A simplified framework for economic considerations

From the above perspective, we can illustrate a simplified preliminary framework for understanding and analyzing the economic aspect of education policy, as shown in Figure 2. The framework includes three main parts: first, the inputs to the education system; second, the structures and processes of the education system; and third, the economic effects and consequences of

Figure 1
Education as an open system



education from the system. In this section, the outline of the framework will be presented, while the details will be explained and discussed in the next sections.

Among the numerous inputs into the education system, the demand for and the supply of education are the two major and basic elements in economic consideration of education policy. Depending on the demands from different levels of society, education demands are often categorized into “national demands”, “social demands”, and “private demands”. The supply of education to meet these demands is often limited by the amount and types of available resources. Consequently, the pursuit of a match between demand and supply is the kernel concern of education policy. In reality, however, supply often does not meet demand in certain, if not all aspects, whether it is over-supply or under-supply. Inevitably, how to ensure the match between supply and demand becomes the core issue in education planning and financing. Mismatch usually creates serious policy problems related to equity and equal opportunity in education (Lynch, 2000; Psacharopoulos, 1987; Woodhall, 1987c).

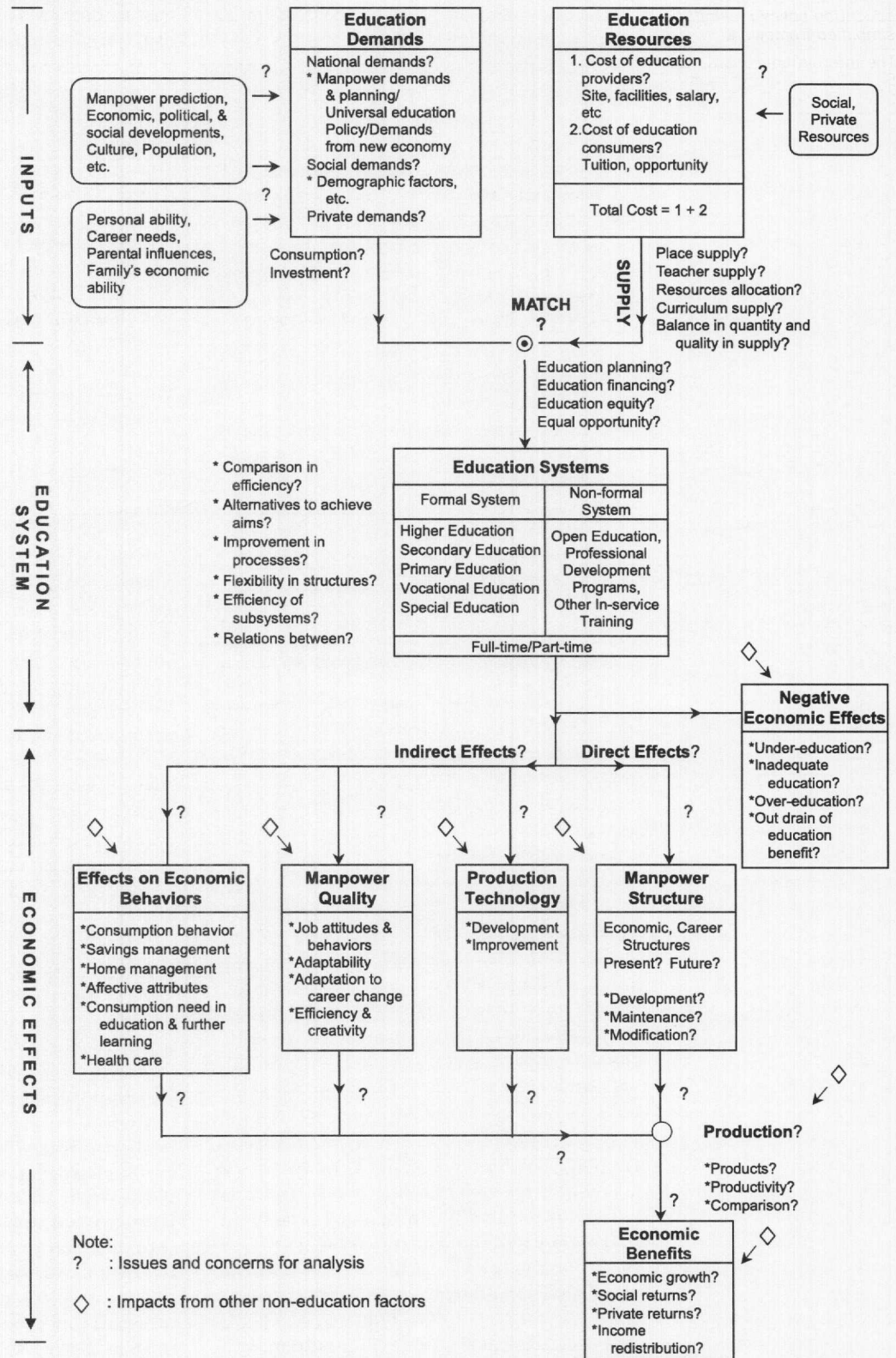
In addition to the concerns with demand and supply and their match at the input level, policy analysis and discussion should also place a strong emphasis on the effectiveness, flexibility and adaptability of the structures and processes of the education system, with an expectation of maximizing the economic benefits of education outputs. An education system can be categorized into formal system and non-formal system, which can be further categorized into different grades, levels and

types of education sub-systems. The composition and size of sub-systems and the resources allocation among these sub-systems for optimal conditions to provide educational services to meet diverse needs are important issues in educational planning and policy making.

The economic effects of an education system can be classified into direct economic effects and indirect economic effects. Direct economic effects refer to the impacts of education outcomes on developing, sustaining, or modifying manpower structure and economic structure to meet the demands of an existing traditional economy and developing a new knowledge-driven economy. Indirect economic effects usually refer to the impacts of education outcomes on production technology, quality of human resources, and social-economic behaviors that indirectly affect the development and productivity of the economy. Of course, all these direct or indirect economic effects can manifest eventually as economic growth, social returns, private returns and redistribution of income in society (Behrman and Stacey, 1997; Carnoy, 1994a; Cipollone, 1994; Hicks, 1994; McMahan, 1987b; Owen, 1998; Solmon, 1987; Woodhall, 1987b).

In addition to positive economic effects, an education system, if not well-planned and managed in inputs and processes, may have negative consequences on the development of the economy. For instance, the mismatch between education outcomes and economic demands (e.g. education but unemployment or over-qualification for employment) and the phenomenon of brain drain from one country to another can both be considered as

Figure 2
A preliminary framework



loss of education benefits. These negative consequences may finally cause damage to the development of the local economy.

Therefore, education policy and planning need to consider the potential impacts of education inputs and processes on economic benefits, and search for the best education arrangements within the context of various limitations.

In Figure 2, a simplified framework for economic consideration and analysis in education policy making is proposed. The framework indicates which domains and which relationships among domains should be the major concerns or foci in considering education policy and its relation to the economic factors. Question marks in Figure 2 denote possible questions, concerns or relationships for analysis. The above provides a brief overview of the framework and, in the following sections, the discussion and analysis will focus on the specific components of the framework in order to explicate how the framework can be used to highlight important economic issues and considerations for policy making.

Inputs into the education system

As discussed above, there are many types of inputs into the education system. From the economic perspective, education demand and education supply are key concerns in education policy and planning.

Education demands

Demands for education can come from the country, the community, or the individual (see Figure 2). At the country or national level, social control is often a fundamental policy of all governments to maintain country stability and survival, and provide fair allocation of limited resources to meet the diverse needs and demands of multiple stakeholders and the public. In order to achieve such social control and stability, the country needs to sustain and develop its economic, social and political structures for enhancing its international competitiveness and consolidating all its citizens of diverse background. Education has often been recognized as an effective tool in sustaining and developing the current economic, social, and political structures (Behrman and Stacey, 1997; Cheng, 1996). Consequently, most governments make great efforts to expand education for all or universal education (see, for example, Boli *et al.*, 1986; Chabbott and Ramirez, 2000; McMahan, 1998; Nespoli, 1991).

National demands

At the country level, demand for the development of a production workforce to serve national economic growth has been reflected in school education in many countries. They have implemented free primary education and enlisted a huge part of the population in the preparation of the workforce through education and training. To a great extent, education has become a huge "industry" in most countries of the world.

Given different historical and cultural backgrounds, many countries may use different models for economic and social development and therefore their economic structures as well as human resource structures may be quite different. Naturally, the diversity in human resource structure and demand is reflected in education demand at the country level (see, for example, Foster, 1987; Heyneman, 2000; Hinchliffe, 1987a, b; Levin, 1987; McMahan, 1998).

Social demands

At the society or community level, the size and composition of the total population of society are often key factors affecting the social demand for education. For instance, an increase or a decrease in the total population of on-age students will directly affect the volume and type of education demand. Analysis of student enrollment demand is necessary in education planning and policy making (Wetzel *et al.*, 1998).

Private demands

There is also private demand for education at the individual level. Each citizen needs to be educated, trained and equipped to survive in a competitive society. A free society provides an open labor market and renders different market prices for different qualities of labor. Individuals who want to pursue a better paid job often like to enhance their personal qualities in terms of qualifications through education and training. Career opportunity and development give an impetus to the individuals and their family to invest money for better education and higher qualifications (Arkes, 1999; Newell, 1999; Robst, 1999). Of course, the capacity of individuals and their family to support education expenses, their own learning ability and the level of their interest in education all have an effect on their demand for education (Harnqvist, 1987; Hlavna, 1992; Schultz, 1987).

Demands from the new economy

Responding to the drastic impacts of globalization, information technology, and international competition in the new

millennium, there is a strong emphasis on the shift from the traditional economy toward the new knowledge-driven and technology-intensive economy. The economic structure and human resource are experiencing some fundamental changes. New education is expected to be the key for facilitating such radical changes for the future (Burton-Jones, 1999; Ohmae, 2000). As mentioned at the beginning of this chapter, numerous education reforms have been conducted in different parts of the world, and a paradigm shift has been pursued in education in order to produce a new breed of quality workforce and to meet the needs of development of a new knowledge-driven and technology-intensive economy (Cheng, 2000; Mok and Cheng, 2001). In other words, there is a demand for new education to meet the needs of a new economy in the new millennium (Klor de Alva, 2000; Levin, 1997; Mingle, 2000).

According to Cheng (2000), the paradigm shift of education is from “traditional site-bounded education” to “new CMI-triplization education,” which emphasizes the development of students’ contextualized multiple intelligences (CMI) (including technological, social, political, economic, cultural, and learning intelligences) and the tripling in education includes globalization, localization, and individualization for the creation of unlimited opportunities for learning and developing each student’s multiple potentials and creativity to meet the challenges from the new economy as well as other drastic social transformations in the new century.

From the above, we can see that the economic analysis of education policy should be concerned with the existing and emerging education demands at different levels, such as the country, the society/community, and individual levels. Inevitably, the relationships between these demands and their relative importance also become an important concern in policy making and planning. The setting of priorities for these demands on policy goals and objectives to be achieved is clearly a crucial issue when considering the allocation of the limited resources and supply of the education services to meet these demands (Samoff, 1996).

Consumption and investment

Depending on the nature of expected outcomes from education, education demands can be classified into “consumption demands” and “investment demands”. The consumption demands refer to demands on those education services that can bring in short-term benefits and interests only. For

example, many people take some short courses just for personal leisure purposes. That is a consumption demand. The investment demands refer to demands on education services that can contribute to long-term benefits for development of individuals or society. For example, taking a professional diploma in education aims at achieving a qualified teacher status for teaching in a school. This education demand is an investment demand. Traditionally, the pursuit of education qualifications is perceived as a very important investment. How education qualifications are related to the future job opportunities, incomes, and returns is often a key concern in the economic consideration of education policy (Arkes, 1999; Light, 1999; Vila and Mora, 1998).

Comparing these two types of education demands, which one should be accorded higher priority is an important consideration in education policy and planning. Given that the investment demand tends to generate greater impact on social and economic development, it is generally considered by stakeholders in many countries that it should receive more support in the allocation of resources, particularly from the public funding.

Education supply

Education resources

In general, there are many different and competing demands to be fulfilled by education services in every society. Nevertheless, the quantities and types of education supply are often limited, depending on the amount of available resources that can be supplied by society and individuals. According to the nature of available resources and costs, as well as the methods of supply, we can classify education resources into two major categories:

- 1 resources supplied by the provider; and
- 2 resources supplied by the consumer (see Figure 2).

Cost for resources is an important and necessary concern in education policy (Rice, 1997). The resources supplied by the provider can be further divided into the direct cost and the opportunity cost. In the case of public education, the direct cost of the provider refers to the education expenses for which the country or society is directly responsible, including such explicit costs of organizing education as the set-up costs of education institutes, the maintenance costs, and salaries of the teaching staff. The opportunity cost of the provider refers to the possible loss of the country’s total production due to the

consumption of human resources (including teaching staff and students) and all related physical resources for education, rather than for other economic activities. It means that there is opportunity loss for all such human and physical resources to be invested in other production functions because of education.

Resources supplied by the consumer can also be divided into the direct cost and the opportunity cost. The direct cost to the consumer refers to education expenses borne by the student or his/her family, including sundry items, books, stationery, and transport. The opportunity cost to the consumer refers to possible incomes from employment forfeited by the student by studying in schools.

From the discussion, it is obviously that the cost of education in education policy should include the total costs of both provider and consumer in terms of direct cost and opportunity cost (Woodhall, 1987a).

Forms of education supply

Education supply manifests in several forms: supply of different kinds of school places, teacher quality, school facilities, contents of curriculum, resources allocation, etc. In education policy, education supply can be provided in terms of its quantity and quality. Since resources made available for education services are usually limited, there may exist contradictions between the quantity and quality in education supply. Enhancement of quality in supply often needs more resources. For example, provision of high-quality teachers may need more professional training and better salary package to attract and keep high-quality people in the teaching profession. To meet the needs of numerous stakeholders, it is technically and politically easier to supply the quantity than the quality in education. Therefore, the quality is often sacrificed to satisfying the demands of quantity. For example, in many developing countries, the increase in the number of primary school places was more important and urgent for implementing the universal education policy than the provision of quality primary education. In Hong Kong, after the basic needs of primary and junior secondary school places had been met in the 1980s, an increasing demand was expressed by the public on improving education quality (Education Commission, 1988, 1990, 1992, 1997).

From the above discussion, we can see that, bounded by limited resources and a fixed time frame in education supply, education policy has to cope with the conflict between quantity and quality and to establish an appropriate balance between

them to meet the diverse and competing expectations of the public. Setting up priorities and strategies to meet the diverse demands in education is inevitably necessary, even though it is often a difficult task in education policy (Samoff, 1996).

The match between education demand and supply

The match between education demand and education supply can be considered as the core problem of education policy making. In theory, education policy-makers will try their best to avoid over-supply or under-supply situations and to strive for a balance between demand and supply. Mismatch may result in huge wastage of scarce education resources and lead to different types of education equity issues (Paquette, 1998; Vahey, 2000). Nevertheless, because of the multitude of factors that can influence the match between demand and supply – for instance, changes in demographic or environmental factors, changes in people's education needs, and changes in amount and types of available resources – will all affect the demand and supply and their relations, leading to an imbalance. Koshal (1999) has shown an example of analysis of demand and supply of educational service in a case of liberal arts colleges.

Practical questions for education supply

Given that resources for education are limited, even in rich societies, it is often the norm rather than the exception that education demands – whether at the country, community, or individual level – cannot be fulfilled entirely by public and even private funding (Tsang, M.C., 1994). In making education decisions, therefore, the following three practical questions are considered in determining the allocation of education resources:

- 1 *What combination of education services should be supplied?* Depending on the subject of service, kind of service and form of service, policy makers need to formulate different combinations of education services in meeting identified education demands and achieving certain policy goals. For example, what percentages of 18-22-year-old adolescents should receive tertiary education? What percentages should receive vocational education? In order to pool resources to provide education services for reaching the goal of universal secondary education for all, which other services should be reduced?
- 2 *What technology and facilities should be used in supplying education services?* To

satisfy different education needs, different technology and facilities may be utilized. For example, should a school operate on the scale of several thousand students or several hundred students? Are students better educated in private or public schools? How can parents and students have a fair choice between public and private education? Should the traditional mode of teaching be replaced by distance learning or information technology in education?

- 3 *Who should be supplied with education opportunities particularly by the public funding?* For instance, if not all children have the opportunity of secondary education, who should have priority? What criteria should be used to identify and select students for limited education opportunities? Which students or families should bear the cost of higher education? In what proportion should they pay?

Equity and efficiency for matching demand and supply

Without doubt, there are many possible answers or solutions to the three practical questions alone. The point to be considered is which answers are “better” than the others? “Better” in what sense? This often involves two basic issues: issue of equity and issue of efficiency. The former issue is concerned with the responsibility of education cost and equality of education opportunity such that it is equitable to all those concerned. The latter issue is concerned with how the provision of education can be economically efficient in achieving the expected goals at the lowest cost. These two important and competing concerns are often the guiding values in the consideration of education provision and financing. Thus, among the many possibilities of education supply to meet the education demand, the policy which can better satisfy these two concerns should be the best. In considering how to analyze various policy alternatives in education supply and how to identify which one should be the optimal choice, meeting the two basic concerns is a crucial issue related to policy analysis. Figure 3 outlines how the issues of equity and efficiency can be analyzed by different methodologies and what other major concerns and ideas will be involved in the analysis.

Economic efficiency of education

In analyzing or planning education policy, the concern with economic efficiency of education is about how to maximize total benefit through differential allocation of resources to different education services. The

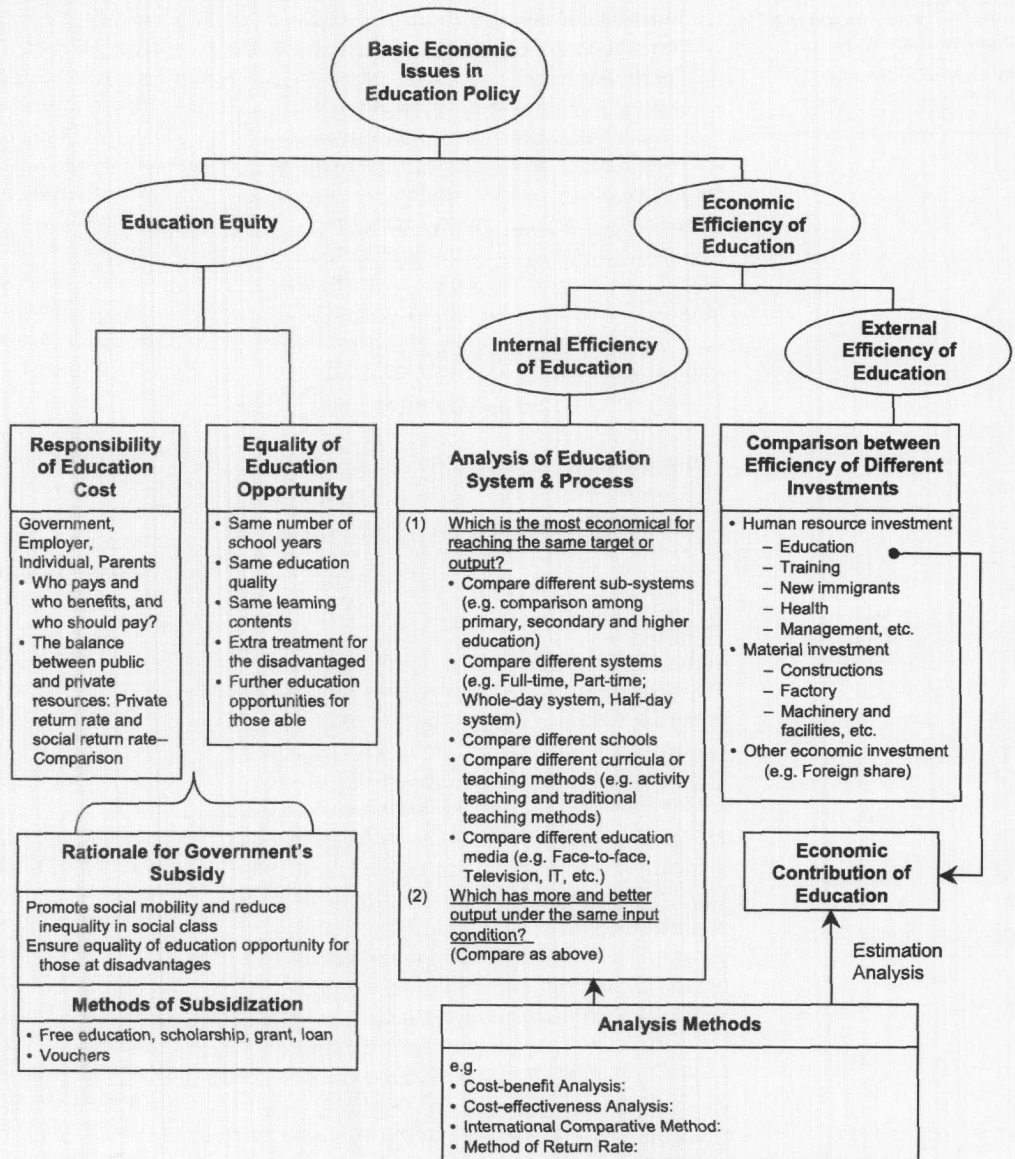
specific methods for analyzing the economic efficiency of education include the following:

- *Cost-benefit analysis of education.* This analysis aims to find out which education investment among a number of alternatives is most beneficial in terms of given invested cost and the possible benefits and outcomes (Psacharopoulos, 1996; Woodhall, 1992). Particularly the cost-benefit analysis is used to address only those types of alternatives where the outcomes or benefits can be measured in terms of monetary value (Levin, 1994a, b). For different policy alternatives, the needed cost as well as the expected benefits may be different. For example, on-campus education and distance education need different facilities and operational costs and also their educational benefits are different. The policy alternative that can generate the largest benefits in terms of both quantity and quality at a given cost is considered to be most cost-beneficial. The results of the analysis are often used as a guide for resource allocation in policy making. Benefits here usually are represented by monetary units in the analysis, particularly for comparison of return rates of different types of education supply or investment.
- *Cost-effectiveness analysis of education.* The analysis is used to estimate the cost of achieving certain policy objectives or education programs through different approaches, in order to determine which approach is the best at minimum cost. Consider a hypothetical case: to provide an additional 30,000 school places for senior secondary students in three years, different approaches may be taken to achieve this policy target. One is to expand the present capacity of each classroom from 30 to 40 students in each school. The second one is to provide more classes of senior secondary students in some schools, in which some rooms can be converted into classrooms. The third one is to split some whole-day schools into bi-sectional schools (i.e. including morning schools and afternoon schools), such that the number of students to be accommodated can be doubled. This analysis helps identify the best saving method for achieving some planned goals under given resource conditions.

Education equity

Equity is often one of the core concerns in education policy (Paquette, 1998). Two types of economic considerations are possible in analyzing the equity aspect of education policy: the first is equality of

Figure 3
Economic analysis of equity and efficiency in education policy



education opportunity and the second responsibility of education cost. According to Coleman's analysis and other academics' interpretations of his definition (see, for example, Tsang, W.K., 1985), equality of education opportunity for the same generation is often defined in terms of four aspects, as follows:

- 1 Equality of access to education (e.g. attending the same number of school years).
- 2 Equality of participation in educational process (e.g. receiving education of the same quality and same content).
- 3 Equality of education results (e.g. achieving the same standard in education results).

- 4 Equality of education effects (e.g. receiving the same education effects and impacts from education on personal development and achievement in the short or long term).

In addition, some people are very concerned with whether extra treatment can be provided to those disadvantaged, such that they can enjoy the equality of education opportunity in access, process, result and effect. Also for those able or gifted students, some are concerned with whether further education opportunities can be provided to them, such that they can develop their potentials in a more appropriate way. Research questions on education equity have

always been an important topic among education sociologists in different parts of the world (see, for example, Cheng, 1995; Cohen, 2000; Epstein and Sanders, 2000; Lynch, 2000).

The above issues of education equity often refer to the same cohort or the same generation of students, but, when comparing across cohorts or generations, there will also be inter-cohort or inter-generation equity issues. For instance, who should bear the cost of higher education? Should it be the parents, the students, or the government? If it should be the students' own responsibility of education beyond basic education, then should the students be supported by themselves or by a loan from the government or their parents?

Responsibility of education cost becomes an increasingly important issue in a context of ongoing education reforms, emphasizing privatization in education (Cheng and Townsend, 2000; Psacharopoulos, 1999). In general, the government has the public responsibility of financing and subsidizing education. There are some important reasons. First, education can serve the national purpose, including the economic, social, political and cultural functions for developments at the individual, community, society and even international level (Cheng, 1996).

Second, as a crucial responsibility of promoting social mobility and eliminating social inequality, the government needs to support through education those who are at a disadvantage or have a low social-economic status (Bowman, 1991; Lynch, 2000). From an economic point of view, unequal family income means that individuals have different investment capacities for education and an uneven distribution of education opportunity. If the government does not subsidize the aforementioned, then unequal education opportunity will remain. Because of this remaining unequal education opportunity, the future income of those persons will be unequal and, as a result, there will be a lack of social mobility, and the inequality in social class of society will remain (Cheng, 1995).

From the above discussion, we can see that who pays education fees is an important policy issue for education equality (James, 1994). According to the literature, in many developing countries, the government's subsidy on free primary education has the effect of income re-distribution. Nevertheless, the equality effect of government subsidizing higher education is often dubious (Chabbot and Ramirez, 2000; Saha and Fägerlind, 1994).

What proportion of cost responsibility should be divided between education consumer and education provider? At present, in Hong Kong, for example, the universal education policy provides nine years free education to all students from primary one to secondary three, while only students at secondary four or above need to pay school fees. How much in tuition fees should be paid? Who should pay the fees? When should they be paid? For different levels of education and different country background, the answers to these basic questions may be different. All these involve issues of education equity (Bowman, 1991).

Education system and processes

Education system includes different types of education organization and sub-system. Usually, it can be divided into formal education and non-formal education systems (see Figure 2). In general, there is a lack of clear-cut distinction between them. To different countries, their classifications and definitions may be different. Formal education often refers to the comprehensive, full-time, and comparatively long-term education for students. It is organized, planned and provided by formal education institutions, and is also often conducted in fixed formal education venues by professional teaching staff. In general, formal education often means a type of school education or institutional education. In Hong Kong, for example, formal education has different levels and categories including higher, secondary, primary, vocational, and special education. If classified according to its nature, school education can be further divided into grammar school or vocational school, half-day or whole-day schooling, full-time or part-time mode, etc. As described by Coombs (1985, p. 23), "formal education is a 'true' system in the sense that all of its parts, at least in principle, are interconnected and mutually supporting".

Non-formal education often refers to "any organized, systematic, educational activity, carried on outside the framework of the formal system, to provide selected types of learning to particular subgroups in the population, adults as well as children" and, unlike formal education, non-formal education activities are generally independent of one another (Coombs, 1985, p. 23). It is often organized, not as well-institutionalized. Basically, non-formal education often takes place outside school premises. Its contents, methods, formats, progress and assessment are more flexible

and less formal than formal education. Non-formal education in Hong Kong, for example, includes different types of short-term adult learning, open education, and in-service professional development programs offered by different organizations. Because of the fast development of information technology in education, many high-quality online courses and Web-based education programs have been adopted by both formal and non-formal education (Ryan *et al.*, 2000). Also, with the support of information technology, the formal education gradually becomes more and more flexible in the mode of delivery than previously, not limited by the mode of face-to-face instruction. It seems that the distinction between formal and non-formal education inevitably becomes unclear.

Education system and its subsystems are designed with the aim of providing various types of educational services and of serving various education policy objectives. Based on different historical traditions and social assumptions, there are many possibilities and combinations that can be used to construct the education system and even to change it if it is not effective. With the limited social resources available to education, the analysis of education system from an economic perspective is clearly necessary. The following aspects deserve due attention.

Comparison of economic efficiency between systems

As discussed above, economic efficiency of education is one of the core concerns in education policy. The analysis of economic efficiency of the education system and its subsystems is therefore necessary in education policy formulation. Economic efficiency comparison can be further classified into external efficiency comparison and internal efficiency comparison (see Figure 3). They are explained as follows:

1 *External efficiency comparison.* It is the comparison between the education system and other non-education or social systems to determine whether the education system has a higher economic efficiency in investment. For example, comparison may be taken between efficiency between education system and other forms of human resources investment, which may include vocational training, introduction of new immigrants, training, health promotion, improvement of management, etc. Another example is making a comparison of investments in the school premises and teaching materials against building factories, machinery, and

facilities to see which one has better efficiency. A further example is the comparison between education system investment and other economic investments (e.g. foreign shares) to determine which has greater returns or makes greater contributions to the society.

2 *Internal efficiency comparison.* It is the comparison between the subsystems within education or between different modes of education to determine which one has a better economic efficiency. The examples can be listed as follows:

- compare the economic efficiency of different sub-systems such as comparing cost-effectiveness among primary, secondary and higher education;
- compare different modes of education such as comparing the efficiency of full-time mode against part-time mode, or between whole-day schooling and half-day schooling;
- compare the efficiency between different education units (i.e. compare the efficiency between individual schools);
- compare the efficiency between different education media (e.g. television, Web-based learning, face-to-face instruction, etc.);
- compare the efficiency between different teaching programs or teaching approaches (e.g. comparing the activity approach and the direct instruction approach).

In general, the above comparisons are to be conducted to answer two questions: Which is the more economical in achieving the same goals or products? Given the same input or investment, which has more or better outputs?

Analysis of characteristics of sub-systems

Understanding the effectiveness and efficiency of individual characteristics or elements in a subsystem of education is also important to formulating policy choices in education change. This includes cost-effectiveness of different key elements of education, such as school governance, school scale, staff structure and salary, facilities and funding models. For instance, is it necessary to have public schools to be funded and governed by the government? What proportion between public schools and private schools should be more appropriate? What is the ideal school size? Should more large schools be built instead of many small schools and why? Traditionally, school

effects are the important area for policy analysis in education in the last two decades (Getz, 1998; Lee, 2000; Pallas, 2000; Persell, 2000; Sorensen and Morgan, 2000).

Analysis of interface among sub-systems

The analysis may focus on the vertical linkages among sub-systems or interface between levels of education (Figure 2). For example, analyzing the relative efficiency between a system with seven-year secondary education and three-year university education and another system with six-year secondary education and four-year university education, so as to determine which one is cost-effective. How effective is the interface between secondary schools and tertiary institutions, and between primary schools and secondary schools? What proportions of resources should be allocated among various sub-systems, say, between formal and non-formal education, and between basic education and higher education? How can the formal and the non-formal education systems mutually complement each other to meet the needs of economic development in a new era of information and globalization?

Analysis of flexibility of the system

The analysis can target the flexibility of horizontal linkage among sub-systems (Figure 2). In the current education reform, continuous life-long education and maximum opportunity for learning are strongly emphasized (Education Commission, 2000a, b). How to enhance the flexibility of the education system such that students can have more opportunities to develop their potentials at different stages of their life is one of the top issues in education policy formulation. For instance, can students transfer horizontally between grammar school and technical school, between remedial class and gifted class, between formal education and non-formal education, between degree program and diploma program, and between full-time and part-time modes? Depending on demographic changes of some districts during a certain period of years, can primary school premises be converted into secondary school premises to meet the needs of an increasing secondary cohort in these districts?

Analysis of different possibilities or combinations in achieving the goals

There may be many different approaches or possibilities to achieving the same policy goals. As mentioned above, the education system has different sub-systems in both formal and non-formal education (Figure 3).

These subsystems have their own strengths and limitations in operation and cost-effectiveness. How to find out the optimal combinations of these subsystems and their operation modes that can provide the cost-effective education should be a key issue in policy formulation. For example, if an increase in higher education places funded by the government is necessary, what proportions of places should be given to comprehensive universities, normal universities, or polytechnic institutions? Should there be some publicly funded places allocated to the private tertiary institutions? Should open universities or Web-based learning providers be funded by the public funding? If so, in what forms or proportions should the funding be provided? Another example in school education is that of what should be the distribution of school places between private and public schools?

From the above discussion, we expect the optimal combinations to have the following characteristics, they:

- can serve the purpose of education equity;
- are cost-effective to achieve the planned goals;
- are flexible to maximize opportunity for students' learning at different stages of their development; and
- are based on the strengths of subsystems, but minimizing their limitations.

Analysis of equity issues in education system

In addition to economic efficiency issues, how to ensure education equity in terms of equality opportunity of education and education cost responsibility is also a core concern in analysis of education system and its subsystems (Paquette, 1998). For instance, in these sub-systems, does the same cohort of students have equitable entrance opportunities for education? In the learning process, do students have equitable learning experiences and contents? In other words, are school facilities and premises, teacher qualification, teaching materials, curriculum and learning experiences equitably provided to ensure equal opportunities for students' learning and protect them from any disadvantages due to their family background? Can the education system ensure that every student's learning results and outcomes have reached a certain standard or level, such that their development in future will not suffer from any under-achievement (Betts and Shkolnik, 1999)? Further, do they have equitable promotion and employment opportunities after education? Traditionally, all these

questions are important in the sociology of education (Hallinan, 2000).

Education effects

The direct effects of education investment on economic and other developments are often not so obvious and tangible in the short term. It requires a long period for human development through education, even though we believe that human resource development is the key to economic development, particularly in the new century. To a certain extent, education is an indirect long-term force to support and develop the economic production and development of a society. Only after those educated in the education system have participated in the workplace and production activities of the economy, can education outcomes be converted into direct productivity of society. Further, the knowledge or skills learned during the study or training period need a rather long adjustment period in a workplace before they can be applied to satisfy work requirements. Thus, the effectiveness of education investment usually requires a rather long time before it becomes observable.

Policy making and analysis in education need to take into account different types of education effects and outcomes to be observed. It means that the effectiveness of an education policy is often evaluated by the extent of its education effects and the quality of its education outcomes. As shown in Figure 2, economic effect of education can be classified into two types: direct economic effects and indirect economic effects. Both types can affect the economic productivity, the quality of products and the economic needs of society, which in turn have impacts upon the economic development of the whole of society at different levels (Carnoy, 1994b; McMahon, 1987a; Solmon, 1987).

Direct effects

The function and success of different trades and occupations in a society depend on the quality of work completed by people of different abilities. Investment in education can directly develop human resources and stabilize the workforce structure for economic growth. If there is any change in the needs of human resources arising from changes in the economic structure, the education system can help modify the supply of human resources as well as the workforce structure. In Hong Kong, for example, the Manpower and Education Bureau, as well as the Education Commission of the Hong Kong Special Administrative Region (HKSAR)

Government, are responsible for policy formulation with the target of meeting this need for human resources development through education. The following three considerations, as highlighted by Hinchliffe (1987) and Vaughan (1991), can be taken for analyzing the direct economic effects of education:

- 1 *Develop human resources.* Grounding on estimations of the social economic situation and projections on human resources needs, the education system is planned to develop the necessary workforce structure and related human competencies required by the various economic sectors like business and industrial sectors in advance. Particularly, due to the economic transformation from traditional manufacturing industries towards the globalized and knowledge-based economy in many countries, there is an urgent need for new human resources equipped with new competencies such as high technology knowledge and skills, continuous learning skills, creativity, communication skills and international outlook (Burton-Jones, 1999; Education Commission, 1999a, b, 2000a, b; Ohmae, 2000).
- 2 *Sustain human resources.* Aging, retirement, mortality, transfer between occupations, or various other factors may cause drainage on the current labor force or manpower structure. There is often a strong demand for sustaining the present workforce structure in order to keep the economic productivity of society. Human resources development through the education system that targets the drainage of different occupations can fill this demand.
- 3 *Regulate human resources.* The education system itself is a huge occupation system involving the employment of many teaching staff, administrative staff, and various supporting personnel at different levels. Therefore, it has the function of regulating the existing workforce of society. For example, in Hong Kong, at times when the economy is slow, many employees from the business and technology sectors, as well as university graduates, will take up teaching posts temporarily in the school system or will pursue further full-time study in different educational institutions, like universities or polytechnics. When the economy picks up again, these people will return from the education system to the other occupations. Such kind of entrance and departure of human resources through the education system to the economic system is analogous to the effect of lakes

in regulating the water-flow to rivers. Such kind of “lake effect” of the education system is also a contribution to regulation of human resources and manpower structure for economic development.

Indirect effect

In addition to bringing direct effects on human resources and workforce structure for economic development and effectiveness, the education system can give indirect effects to the technology of production, quality of human resources and the social economic behavior of society (Cheng, 1996; Levin, 1987; McMahon, 1987a). Therefore, the analysis of education policy has also to consider these indirect effects of education.

Technology of production

Due to the rapid advancements in high technology and information technology, the quality and efficiency of economic production can be largely enhanced by the new technology in the processes of production, transportation, communication, and marketing (Elliott, 2000; Heyneman, 2000). In general, education, particularly higher education, is believed to be the major channel for development, transmission and application of new scientific knowledge and technologies for economic productivity and development (Klor de Alva, 2000). Delicate and precise technology of production (and its development and improvement in such new industries as generic engineering, computer, aeronautic and energy) all demand the participation and contribution of a higher education élite. Accordingly, it is necessary to analyze whether the current or proposed education policy can promote the development of new technology and the improvement of existing technology in all economic productions and services.

Quality of human resources

The quality of human resources becomes more and more important in work, particularly when the working environment is often changing very quickly towards the new economy and the nature of the task is very demanding and challenging to personal qualities and job attitudes (Burton-Jones, 1999; Frey, 1999). Education needs to prepare students with appropriate personal qualities and competencies (Fallon, 1987). For example, Levin (1997) suggested that there are 12 personal competencies for high value-added industries in the new century, including initiative, cooperation, working in groups, peer training, evaluation, reasoning, problem solving, decision making, obtaining and using information, planning, learning skills and multicultural skills.

In response to the shift towards knowledge-based and value-added economy in the new millennium, creativity receives growing emphasis in education and human resources development. Thus, education is now expected to promote creativity and to prepare students to have the capability to generate new ideas and new approaches and to make innovations in their future career and work life (Cheng, 2000).

In addition, workers who have received higher education are more adaptable to changes both in environment and in work. If it is necessary to alter positions and responsibilities at work, to change servicing organizations, or even to change occupations, education has positive effects on workers' self-confidence and efficacy in face of these changes. From the above discussion, we can see that the impact of education on the quality of the workforce is an important consideration in the analysis and planning of education policy.

Impacts on economic behavior

Research suggests that education also has effects on the economic behavior of individuals and this in turn leads to other economic effectiveness. From Kiker (1998), McMahon (1987b), and Varcoe (2001), the following areas can be included in this part of the analysis:

- *Change in consumption behavior.* Consumers' buying and payment methods have strong relationships with their education level. Consumers with higher levels of education are more likely to use credit cards, payment in instalment and telephone shopping modes of consumer behavior. In brief, education helps socialize the economic beliefs and behaviors of young people (Weber, 1998).
- *Return to savings.* After controlling for work and income, there is a positive association between people's education level and their ability regarding financial management. People with higher education levels have a better performance in their saving and investment. Through education, young people would know how to handle financial management in their daily life (Varcoe, 2001).
- *Home management.* People with higher education levels, in addition to their better buying power, are also more inclined to accept new matters. For example, in home habitat, they are more inclined to buy new electrical appliances to replace work normally performed by manual labor or old models, and to use computer-operated washing-machines and vacuum cleaners. Such changes in home

management can greatly reduce the original workload.

- *Affective attributes.* Increase in education level can broaden people's vision, reinforce their interest in reading books and magazines or in travel. In addition, interest in such cultural activities as concerts, theatres or art exhibition will be correspondingly enhanced.
- *Effects on further learning.* Those educated, having realized the joy of learning, would love learning and consider education as a meaningful consumption; and they are therefore willing to pay in order to have further learning. On the other hand, those who recognize the benefits brought by higher academic qualifications will also join in the queue of further learning.
- *Health.* Health education is included in primary education. There are also contents designed to help people in understanding our body and health in the secondary curriculum. In addition, with the enhancement of people's reading ability, they come into contact with more information about human health and living environment. All these different learning experiences will help people maintain good health and reach longevity (Grossman and Kaestner, 1997). The relationship between education and health is often an important concern in considering education policy (Kiker, 1998).

To summarize, analyzing the pros and cons of an education policy from an economic perspective requires the investigation of the costs and benefits of the policy both from its direct economic effects and from the indirect economic effects. Surely, the direct effects on economic production and outputs are important, but the importance of indirect effects to the long-term development of economy should not be neglected. As to which of the two is more important, it is hard to reach a final conclusion. It depends on the contexts within which the policy is being formulated.

Economic consequences of education

Education policy can affect the structure and operation of the education system, which in turn produce various effects on different aspects of the economy, directly or indirectly, and in the short term or the long term. According to Cheng (1996), in the new century, the education system should have different functions, such as technical-economic, human-social, political, cultural and educational functions at individual,

institutional, community, society and international levels. All these functions represent the contributions or consequences of the education system to the economic, technological, human-social, political and cultural development as well as educational development at different levels. To a great extent, all these developments mutually support in the long term, if not in the short term. It means that the developments in some aspects will benefit the development in other aspects. Therefore, we may consider the technical-economic functions of the education system as the direct economic effects/consequences of education and the other functions as the indirect economic or other non-economic effects/consequences[2].

In general, both economic and non-economic functions can be perceived as favorable consequences of education. Education policies and new initiatives should aim to facilitate the achievements of these functions and consequences of the education system. If education policies can help the education system and its subsystems to perform and achieve these functions, they can be perceived as effective.

In addition to the favorable consequences, there may also be some unfavorable economic consequences, if the education system is not well planned and managed. Education policy often has to deal with some potentially unfavorable consequences from the education system, as follows:

- *Inadequate education.* For example, education provision has to meet the needs of the demographic characteristics that are influenced by some changing factors such as birth-rates and new arriving immigrants. Unfortunately, however, education provision planned a few years ago may not match exactly the current needs for education places. There may be inadequate education for students in terms of quantity or quality or both. Another example is that, responding to the rapidly changing and very competitive economic environment, the demand for a new and high quality workforce is increasing quickly. Nevertheless, due to limitations of resources, there is often a lack of adequate education and training to meet this increasing need in human resources development. For instance, there is serious consideration in different countries to change the existing structure of higher education in order to meet the challenge from the transformation towards the knowledge-based economy (see, for example, Klor de Alva, 2000; Mingle, 2000; Walshok, 1999).

- *Inappropriate education.* In the case when education policy becomes an outcome of irrational political stipulation, chaos in the education system may surface and the education system may lose its rationality, coherence and integrity (Cibulka, 1994; Scribner *et al.*, 1994). To meet irrational political needs or due to ignorance of economic development needs in policy making, misallocation or misuse of resources in education will result in a maladjustment or mismatch between manpower structure and economic structure. That is, education investment cannot meet the needs of the economy, resulting in great wastage. For example, if the economic structure of a society is mainly based on business and light industry, but tertiary education concentrates on producing experts in heavy industries or petroleum chemical industries, then this will not satisfy demands of economic infrastructure, but at the same time will result in difficulties in the employment of university graduates. These graduates will have to change their expected occupation very soon after graduation, attributing this to the great wastage of social resources in education.
- *Over-education.* In many countries, due to the rapid expansion of higher education, there may be too many graduates who cannot find an appropriate job to match their education levels. They often become over-qualified to be employed at a lower level job that needs only a secondary education qualification. To a certain extent, it is a type of over-education for employment or economic development. In the worst case, many graduates cannot find a job: that is, they are in an educated unemployment situation. All these phenomena reflect that the supply of education is more than the demand of economic development such that the educated workforce is not fully utilized by society or utilized only under diminished situations. Over-education also leads to wastage. Therefore, it is no surprise that over-education is also an important topic in policy research and debate (see, for example, Cohn and Ng, 2000; Dolton and Vignoles, 2000; Groot and Maassen van den Brink, 1999)
- *Drainage of education benefits.* The brain drain represents the loss of an educated workforce from one place to another, for instance, the trained proficient workforce emigrating or being poached by companies in other regions that can afford to pay high wages. All these indicate the

drainage of local education benefits, often resulting in difficulties of the local economic development. Currently, the issue of large numbers of well-educated people or experts draining from some developing countries, such as China and India, to developed countries has received serious attention.

Change in education policy

As shown in Figure 1, the processes, impacts, and consequences of the education system may produce feedback to the formulation and review of education policy. If the education system and process were to yield good impacts and consequences, then the original policy would be strengthened. Otherwise, the original policy and practice would be modified or even changed totally. In general, if the processes and outcomes of education policy implementation violate the principle of equity or the principle of efficiency, or both, then the policy will face pressure and demand for reform. The pressure may come from the public, the education field, social surveillance bodies or internal monitoring mechanisms of the government. These different bodies may demand modification, change, or even abolition of the education policy and related practice. Therefore, the policy analysis of the processes, structures, costs, benefits and consequences of the education system and related policy practices is an essential component in supporting the development and improvement of education policy.

In addition to ensuring equity and efficiency, education policy will need to be changed in the following situations:

- *Inaccuracy of the original plan.* Technically, it may not be at all difficult to reach high precision in the projection of need for school places and teachers or plan for the supply of workforce, if all information is available and stable during a few years. In reality, however, there are many changing factors or parameters that cannot be predicted beforehand. For instance, the overall school places may be enough but the places in some specific regions may be inadequate or in over-supply. Another example is unemployment after higher education. If the mismatches between supply and demand of education are serious, then there is urgent need to modify the education policy and planning, such that the type and quantity in the supply of different education places can meet the needs.

- *Change in internal context.* Changes in the internal context of society often result in changes in demand for or supply of education such that the original matching situation becomes mismatched. For instance, due to economic downturn and limited public resources, the government has to reconsider the relative importance and urgency of policy needs in education in allocation of resources. If the investment in education is reduced as a result, then the original supply of places will be reduced or the package for quality education will be downgraded. For example, the student-teacher ratio will be reduced and the enhancement programs will be eliminated.
- *Change in external context.* For instance, the rise or fall of the US market, the implementation of protectionism, the participation of China in the World Trade Organization, the new international labor division (Carnoy, 1994c), and the globalization of new economy will certainly affect the economic development and transformation in, for example, Hong Kong. If the original workforce cannot satisfy the rising needs from changes in the economic structure and occupation market, then the government will have to make adjustments and even big changes in education policy to face up to this challenge. It is expected that the change in the economic structure may result in people changing their occupation four or five times during their lifetime. It is envisaged that young people have to pursue lifelong education in order to adjust to continuous changes in the occupation structure (Education Commission, 2000a, b). As a consequence, education policy as well as the education system and its practice have to change.

Conclusion

Economic development is a key concern in ongoing education reforms in different parts of the world. From an economic perspective, education policy and reform need to deal with the issues of the internal and external economic effectiveness of the education system. The external economic effectiveness issue concerns whether the existing education policy can meet the needs of new economic development in the new millennium and how education should be changed to prepare the new generations for the knowledge-driven and technology-intensive economy. The internal economic effectiveness issue focuses on how the

education system should be resourced and funded in a more efficient and effective way to meet diverse growing demands for education. In addition to economic effectiveness issues, education equity relating to equal opportunity of education and responsibility for education cost is also a crucial concern in education policy.

To support the ongoing policy debate and education reform, this article proposes a simplified framework from an economic perspective for analyzing education policy. The framework takes into account the demand and supply of education, the education system structure, the economic effects and consequences and their interrelations. It maps out some key economic areas, issues, and concerns in analysis and discussions of education policy.

It is strongly suggested that economic analysis of education policy should focus not only on the direct effects on human resource structure and economic development but also on the indirect economic effects and non-economic effects. The discussion should not be confined to the explicit short-term benefits but should also include various types of long-term benefits. Attention should be paid not only to those favorable economic consequences but also to the unfavorable economic consequences. Figures 2 and 3 summarize some key guidelines and concerns for comprehensive economic analysis of education policy.

In addition, the five functions of the education system: technical-economic, human-social, political, cultural and education functions at different levels provide a further frame for understanding the complexity of education and its role for economic development in the new century. It is suggested that the consideration of consequences of education should include not only economic functions but also non-economic functions, because all these functions are relevant to the long-term economic developments and other developments of individuals, local communities, and societies as well as the international communities.

It is hoped that the framework will serve to facilitate economic considerations and analyses in current education policy debates in various parts of the world. Further, this simplified framework can contribute to advancing rational education policy making and to ongoing education reforms for the new economic development and the effective use of resources in providing educational services to meet the diverse needs in the new millennium.

Notes

1 Cheng and Cheung's (1995) article provides a general framework for analyzing education policy. But this framework does not include economic considerations. For those interested in such an overall framework, please refer to their article.

2 *Technical-economic functions* refer to the education system's contribution to the technical or economic developments and needs at each of the five levels. At the individual level, education helps students acquire the knowledge and skills necessary to survive and compete in a modern society. At the institutional level, educational institutions provide quality services for clients, employers and others connected with the organization. At community and societal levels, schools and education institutions aid the economic and instrumental needs of their local community and economy, modify or shape economic behaviors and contribute to the development and stability of the broader society. These then feed the international level through the education system and subsystems, providing economically, technologically and environmentally sensitive adults to the constantly shrinking world community.

Human-social functions refer to the contribution of the education system to human development and social relationships at different levels of society. At the individual level, education helps students to develop as fully as possible psychologically, socially and physically. At the institutional level, schools or education institutions help invent and reinforce the quality human relationships which frame organizational behavior. From a functionalist perspective, education serves certain social functions in their local community. These functions include social integration of diverse constituencies, facilitation of social mobility within existing class structures and reinforcement of social equality. From the alternative viewpoint of conflict theory, education reproduces the existing social class structure and perpetuates social inequality (Cheng, 1995; Blackledge and Hunt, 1985). Due to the growing global consciousness (Beare and Slaughter, 1993), education needs to prepare students for international harmony, social co-operation, global human relationships, and work toward the elimination of national, regional, racial, and gender biases at the international level.

Political functions refer to the contribution of the education system to the political developments at different levels of society. At the individual level, education helps students to develop positive civic attitudes and skills and to exercise the rights and responsibilities of citizenship. At the institutional level, education institutions act as places for

encouraging critical discussion of political issues. At the community and societal levels, education plays an important role in promoting awareness of democracy and facilitating political developments and changes. The growing awareness of international dependence reinforces the need for education to contribute to international understanding and elimination of international conflict.

Cultural functions refer to the contribution of the education system to the cultural transmission and development at different levels of society. At the individual level, education helps students to develop creativity and aesthetic awareness, and to become familiar with the dominant values underpinning their society. At an institutional level, education institutions act as agents for systematic cultural transmission, cultural integration among their multiple and diverse constituencies, and cultural revitalization. At the community and society levels, education institutions often serve as a cultural unit carrying the explicit norms and expectations of the local community. Again, conflict theory provides an alternative view. It suggests that schools and teachers socialize students from different levels of society with different sets of values and beliefs and, in the process, benefit some groups more than others. At the international level, education can encourage appreciation of cultural diversity and acceptance of different norms, traditions, values and beliefs in different countries and regions.

Education functions refer to the contribution of the education system to the development and maintenance of education at different levels. Traditionally, education has been perceived as a means of achieving the economic, social, political, and cultural values only. Rapid and widespread change, however, has prompted now an acceptance that education in and of itself is a crucial goal. The content, system and structure of education, then, need to be developed and maintained. At the individual level, education helps students to learn how to learn, and teachers to learn how to teach. At the institutional level, education institutions serve as a place for professionals working together to improve learning and teaching through mutual support and shared innovation. At the community and society levels, education provides services for different educational needs within their communities, facilitate developments of education as a profession, disseminate knowledge and information to the next generation, and contribute to the formation of a learning society. In order to encourage mutual understanding among nations, education can contribute to the development of global education and international education exchange and co-operation.

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