

## **EFFICIENCY**

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**Keywords:** Efficiency, equity, market failure, policy failure, government failure, corruption

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### **Summary**

The article analyzes the efficiency problem from the two aspects of eco-efficiency and social and economic efficiency, pointing out that in terms of eco-environment and sustainable development, eco-efficiency is an important notion with a whole set of practical systems. Eco-efficiency and social and economic efficiency are interrelated yet distinct from each other. When probing the problem of economic efficiency, it is indicated that, compared with per capita gross domestic product, Pareto efficiency is a more comprehensive concept of efficiency for measuring social and economic systems in analyzing the problems of sustainable development and eco-environment. And the article tries to make it clear that when exploring the efficiency problem, it is impossible not to engage with the problem of efficiency and equity. The different effects and disadvantages of the efficiency-oriented policy and equity-oriented policy in the U.S., Britain, and European countries are compared overall. A comparison is also made between the different consequences of the developing countries that develop independent national economies and those that rely on the developed capitalist countries. Finally, when discussing the relationship between market economy and government regulation, analysis is also made of various cases of market failure and government failure, with the stress on the limitation of the internalization of such external problems as environment problems and the universality of government failure caused by corruption.

### **1. Eco-efficiency**

The efficiency issue is very complicated and comprehensive. The efficiency of ecological environment (eco-environment) management, the efficiency of social progress, and the efficiency of the micro and macro economy are different concepts that are interrelated yet distinct from each other. From the perspective of sustainable development, we place more emphasis on eco-environment efficiency and the efficiency of social and economic development at large. Here, we underline eco-efficiency.

The Organisation for Economic Co-operation and Development (OECD) and the World Business Council for Sustainable Development (WBCSD) have defined eco-efficiency as “the efficiency with which ecological resources are used to meet human needs.”

Faced with growing environmental challenges throughout the globe, there is an imminent need for instruments that can translate sustainability requirements into working targets. Human pressures on the environment depend on both the volume of consumption and production, and the environmental pressure per unit produced and consumed. This can be considered a ratio of an output divided by an input, the “output” being the value of products and services produced by a firm, a sector, or the economy as a whole, and the “input” being the sum of environmental pressures generated by the firm, sector, or whole economy. Measuring eco-efficiency depends on identifying indicators of both input and output.

The WBCSD has pioneered a business strategy to improve eco-efficiency that involves:

- Developing indicators and goals.
- Innovation in technology, modes of organization to reach the goals.
- Monitoring the indicators and modifying the strategy, WBCSD’s goals for eco-efficiency require firms to enter into partnership with governments, customers, and suppliers by the delivery of competitively priced goods and services that satisfy human needs and bring quality of life, while progressively reducing ecological impacts and resource intensity throughout the life cycle to a level at least in line with the earth’s estimated carrying capacity.

The WBCSD has introduced criteria for eco-efficiency:

- Minimize the material intensity of goods and services;
- Minimize the energy intensity of goods and services;
- Minimize toxic dispersion;
- Enhance material recyclability;
- Maximize the use of renewable resources;
- Extend product durability;
- Increase the service intensity of goods and services.

The OECD has studied numerous initiatives to improve eco-efficiency at the firm or community level. Under current market conditions and environment policy, manufacturers have found profitable ways to reduce their use of materials, energy, and water per unit of production by 10%–40% and cut the use or emission of toxic substances by 90% or more. Government incentives and support can increase the potential for improving eco-efficiency at the level of the firm and the role of government in promoting efficiency economy-wide is also very important. Economy-wide improvements in eco-efficiency depend on the policy framework established by government, including:

- Ensuring that economic incentives are coherent and consistent. This entails reform of subsidies and tax incentives that support polluting or resource-intensive activities.

- Internalizing environmental damage costs wherever possible, whether through price or regulatory instruments.
- Developing policies in areas including land-use planning, education, and technological innovation that support the aim of improving eco-efficiency.

It is perceivable from the above that eco-efficiency is not only related to the microeconomic efficiency of enterprises and sectors but also has relations with the macroeconomic efficiency of social and economic development. It is a comprehensive theoretical and practical system covering the improvement of the eco-environment as well as social and economic development.

## 2. Economic Efficiency

The concept of efficiency in economics is expressed variously: micro production efficiency, macro general efficiency, Kaldor efficiency, Pareto efficiency, etc. In modern times, the standard to measure the efficiency of economic development is not merely the growth of gross national product (GNP) or per capita GNP. A relatively well-received standard for assessing the efficiency of the social and economic system is Pareto concept of efficiency. This concept bears in mind the welfare position of the members of society. “A certain state in a given system is Pareto’s optimal state, and the system does not have a workable alternative where, when at least one person’s circumstance is bettered, the others’ circumstances are worsened.” Such a principle has provided a relatively comprehensive method for assessing the efficiency of a system. When considering eco-environment issues and sustainable development, it is reasonable to apply Pareto efficiency as the standard for assessing economic efficiency. Because of the nature of public products in the eco-environment problem, merely adopting the concept of market economic efficiency in measuring efficiency is inappropriate. When any enterprise or legal persons adopt economic measures to pursue their own economic profits and the environment is thus disrupted or influenced, it is inevitable that the others’ circumstances are worsened. Even if internalization measures are taken and related enterprises are forced to pay corresponding economic expenses for it, the fait accompli that the eco-environment has been disrupted can not be reversed. This, without Pareto optimal economic efficiency, constitutes a deviation from Pareto’s optimal state that must be restricted through legislation and other government intervention.

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### **Biographical Sketch**

**Qing Teng** is a lecturer at Beijing Language and Culture University (formerly Beijing Language Institute). She graduated from the People's University of China (English Department), perfected her Chinese at Beijing University, and studied French at Bordeaux University in France. She worked as a librarian at Tsinghua University, Beijing, and as an assistant researcher at the Electronic Science Research Institute of China before joining Beijing Language and Culture University, where she teaches contemporary Chinese literature and history to foreign students, while writing freelance for several Chinese and French newspapers and magazines.