

# 6 COMPETITIVE STRATEGY AND PRODUCTIVITY GROWTH

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## Abstract

*The most of the industrial countries have experienced productivity slowdown, which is a serious concern of policy-makers. The study focuses on a strategy of enhancing the framework conditions of the productivity growth through competition. Its positive effect on both static and dynamic efficiency is a strong reason for governments to promote competition as a way of ensuring an efficient economy and boosting productivity.*

**Key words:** competition, productivity, efficiency, competitive strategy, innovation

**JEL classification:** O31, O47

The economists rank productivity as the most important factor of an economy's health, because, in the long run, the rate of productivity growth is essential to economic welfare (Baumol, Blackman and Wolff, 1991). The most familiar concept is `labor productivity` that may be defined as output divided by the number of workers or by the number of hours worked. Output can be measured in physical units (e.g. tons of steel), but more generally it is a very broad aggregate like gross domestic product. Another concept is `total factor productivity` that captures the contribution to output of innovation, managerial skill, organization, and even luck (Nasar, 1990).

Specialization (such as the Adam Smith's pin factory), better equipment of workers with capital, or advanced manufacturing methods lead to productivity growth. In fact, the potential for increasing total factor productivity is limitless, even if factors of production like land will always be scarce. The economists argue that at least half, if not more, of the growth in labor productivity in the post-World War II period has been achieved through making better use of factors of production, not because of the use of added capital. For example, the United States produced 65 percent more in 1981 than in 1948 from the same quantity of labor and capital resources (Nasar, 1990).

The growth of productivity constitutes the basis of any improvements in real incomes and welfare of a nation. A slow growth limits the rate of raising income, and also creates a likelihood of conflicting demands concerning the distribution of income. Paul R. Krugman wrote: "Compared with the problem of slow productivity growth, all our

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other long-term economic concerns - foreign competition, the industrial base, lagging technology, deteriorating infrastructure and so on - are minor issues"<sup>1</sup>. It is not surprising that there is a growing concern of almost all the nations about the slow rate of productivity growth nowadays.

### **Productivity growth problems**

In the United States, labor productivity growth has averaged about 2 percent a year for the past century, which means that living standards have doubled, on average, every thirty-five years (Nasar, 1990). But although the United States have the highest level of the productivity in the world, the rate of growth has slowed down sharply since 1973.

Productivity growth is considered disappointing in the European countries, especially nowadays when ageing population puts pressures on the distribution of income. There is a gap in GDP per capita between the European countries and the U.S. that could not be removed. Even if one of the productivity dimensions such as hourly labour productivity looks as high in France, Italy and Germany as in the U.S., the economist Jean-Philippe Cotis from OECD suspects it is to some extent a statistical artefact. Jean-Philippe Cotis points out that a lot of people, many of them unskilled and with below average productivity, are unemployed and thus not included in the productivity statistics. Hence, countries where labour utilisation is low are also those where productivity looks the highest.

1. Because most of the industrial countries have experienced a productivity slowdown, it is suggested that worldwide forces must be responsible for this process. The economists tried to find some valid explanations. For example, the Harvard economist Dale W. Jorgenson blamed the sudden raise of oil prices in 1973, which made much of the existing capital stock obsolete. Another Harvard economist, Zvi Griliches, indicated as a cause the slower growth of aggregate demand for goods and services, which kept a great deal of productive capacity idle and hence inputs underemployed. Edward Denison, from Brookings Institution, concluded that much, if not most, of the slowdown remains unexplained.

Specialists focus on three particular causes:

2. *Lagging investment.* More capital per worker increases output per worker, and economists agree that countries with high productivity growth save and invest more than countries with low productivity growth. Baumol explains the superior performance of Japanese growth in labor productivity in the 80's mainly through the accumulation of capital, rather than through increasing efficiency. In the United States, the growth of productivity has been highly correlated with the growth of capital per worker. From 1959 to 1973, productivity grew by 2.8 percent a year while capital per worker in the private sector grew by 2.4 percent a year. From 1973 to 1989, in contrast, annual productivity growth of 0.9 percent coincided with growth of capital per worker of only 0.8 percent annually (Nasar, 1990). However, economists generally agree that most of the slowdown

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<sup>1</sup> Paul R. Krugman, *The Age of Diminished Expectations*, the MIT Press, 1990.



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in productivity growth reflected factors other than investment, namely, a slowdown in total factor productivity.

3. *Innovation.* Zvi Griliches points out that the number of new patents granted each year began to decline as far back as the sixties. The decline in innovation after 1973 as compared to the previous period of time is explained by certain economists as a return to normal growth rates, because after the World War II there was an exceptional need of ideas, technologies and investment projects for rebuilding most of the developed countries (Nasar, 1990).
4. *Skills.* Better schooling determine a notable percent of the growth in productivity. In the United States, there is a concern because years of schooling did not increase since 1976 (with a peak of 12.9 years), and the quality of basic elementary and secondary education stagnated.

Policy-makers have to use a large range of leverages to boost productivity (e.g. investment in education, research, or infrastructure). But also they have to focus on the framework conditions of the productivity growth; Jean-Philippe Cotis advocates that, to a large extent, the roots of the productivity problem lie in poor framework conditions. The degree of competition in a particular country or sector is often considered to be among the most important of such pro-productivity factors. Open, competitive product markets stimulate efficiency via a better allocation of resources within the economy, lead to stronger efforts on the part of managers to cut the slack at the enterprise level, boost innovation. Obviously, a lack of competition reduces the pressure on firms to incorporate better technology, remove organizational slack and improve productivity performance.

### **Competition and efficiency**

In economic terms, static efficiency focuses on how much output can be produced at a point in time from a given stock of resources and whether producers are charging a price to consumers, fairly reflecting the cost of the factors of production they used. Two types of static efficiency can be examined:

- *Productive efficiency.* It occurs when unit costs are minimised and firms are producing at the cheapest feasible average cost. It can be defined as using the least amount of resources to produce a given good or service or the output is being produced at the lowest possible unit cost. Productive efficiency implies firms are using:
  - the least costly labour capital and land inputs;
  - the best available technology;
  - the best production processes;
  - exploiting all potential economies of scale, and
  - minimise the wastage of resources in their production processes.

Graphically (Figure 1), production takes place at quantity  $Q_1$ , representing the bottom of the long run average cost curve.

- *Allocative efficiency.* It occurs when firms produce those goods and services most valued by society. This means scarce resources of land, labour and



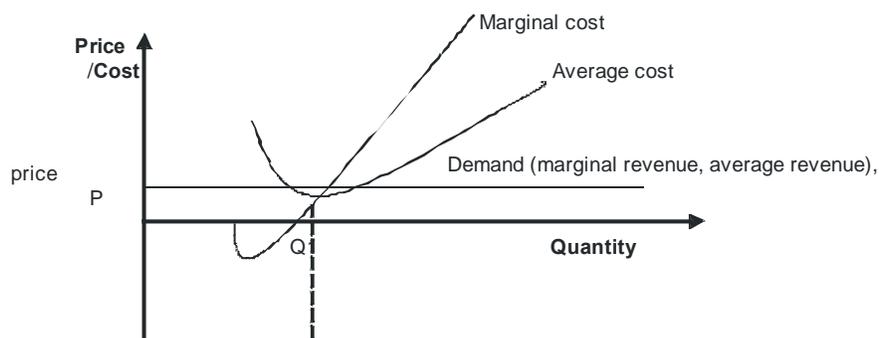
capital are allocated to the production of the goods and services so that consumer wants and needs are met in the best way possible. Extra production occurs as long as society feels that the benefit from the extra production exceeds the cost of extra production. Extra production does not occur if it costs more to produce the thing than the benefit of the production. The benefit of extra production is measured by means of the price that a buyer is willing to pay for the product, because if someone is willing to pay for an item then someone must get at least that much value from it. The cost of extra production is the marginal cost. Thus, three possible levels of output are possible:

- If  $P > MC$ : Increasing the amount of resources used to a certain production is an improvement on resource allocation;
- If  $P < MC$ : Reducing the amount of resources used to a certain production is an improvement on resource allocation;
- If  $P = MC$ : Allocative efficiency is attained.

Graphically (Figure 1), quantity  $Q_1$  ensures allocative efficiency, because it is situated at the point where price curve equals marginal cost curve.

**Figure 1**

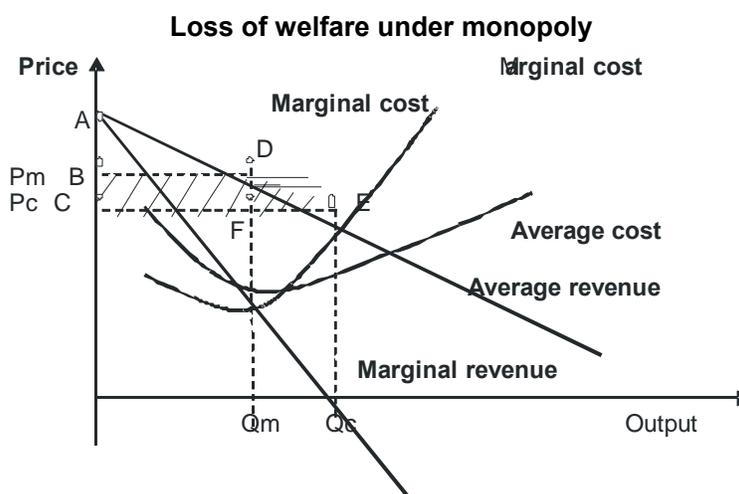
**The productive and allocative efficiency under competitive conditions**



Competition motivates firms to increase efficiency by the means of "carrot and stick" motivators. The carrot is represented by the possibility of firms to maximise profits as a result of reducing costs; even in case that the management establishes other objectives than maximizing profits, the need of decreasing costs still remains valid. The stick is the risk of bankruptcy if the firm fails to produce at low costs as compared to competitors. The risk of closure forces competitive firms to focus on how they can use efficiently the nation's resources. On the other side, under competitive conditions consumers have the possibility of free choice and the way they choose to spend their income determines the ways society uses its economic resources. The consumers determine quantities and prices of the commodities the nation produces. Under monopoly, captive consumers have to buy at higher prices than in the case that alternatives should be available.

Under monopoly, a business can keep price above marginal cost and increase total revenue and profits as a result. Assuming that a monopolist and a competitive firm have the same costs, under monopoly output will be lower and price will be higher than under competitive markets, and thus it results a loss in welfare of the consumers as compared to the competitive conditions. Graphically (Figure 2), under monopoly the output ( $Q_m$ ) is lower than the output in competitive market ( $Q_c$ ), and the monopoly price ( $P_m$ ) is higher than the competitive price ( $P_c$ ). Further, it results that the area BCFD represents extra monopoly profit and the area DFE stands for the loss of welfare.

**Figure 2**



From a managerial perspective, market competition can discipline firms into efficient operation. Monopoly rents to a monopolistic firm can be captured by its managers (and workers) in the form of managerial slack or lack of efforts. Competitive pressure may reduce such slack by giving more incentives to the stakeholders of the firm (i.e., managers and workers) for increasing their efforts and improving efficiency. Competition provides incentives of increasing productivity in various ways (Nickel and Nicolitsas, 1997):

competition creates greater opportunities for comparing performance, hence it makes easier for the owners or the market to monitor managers;

- improvements in productivity can lead to increasing revenue and profit by lowering price in a more competitive market with higher price elasticity of demand;
- the probability of bankruptcy is likely to be higher in a more competitive environment, which will force managers to work harder to avoid it. Lack of competition provides rents that can be shared with workers in the form of higher wages or reduced effort.

### **Dynamic efficiency. Competition and innovation**

Another type of efficiency, i.e. *dynamic efficiency* is probably the most important beneficial effect of competition. Competition stimulates innovation, because it provides incentives to undertake research and development (R&D) and to introduce new production and distribution methods, products and services, as well as to create or enter new markets, in order to stay ahead of competitors.

The link between competition and innovation is however a controversial issue. A perspective is that in some R&D-intensive industries, high concentration may be a necessary condition, because of high R&D costs and because large companies may carry their new technologies to a higher degree of perfection than small firms (Scherer and Ross, 1990). Also, profits over and above marginal costs may be needed to finance both the current and the future R&D. Cohen and Levin (1989) summarise the positive effects of market power on innovation in a similar manner, as follows:

- A firm has an incentive to invest in R&D whether it anticipates some form of ex post market power;
- The possession of ex ante market power also favours innovation, because the rents from market power provide firms with the internal financial resources for innovative activities. Market power also helps reduce uncertainty associated with excessive rivalry which tends to undermine the incentive to invest.

According to Schumpeter (1942), the organisation of firms and markets most conducive to solving the static problem of resource allocation is not necessarily most conducive to rapid technological progress. In the Schumpeter's view of market power and innovation, competition appears to be rather detrimental to innovation and technological progress.

Another perspective on competition and innovation denies the existence of a causal relationship between market structure and firm size, on one side, and innovative activity, on the other side. On the contrary, it is expected that competition will force firms to innovate in order to survive. More than that, in many circumstances, small firms are more innovative than large ones, particularly in making radical innovations in industries where technological progress is rapid. Hence, keeping markets open to new entrants with novel ideas is an important condition for technological progress (Acs and Audretsch, 1996).

Aghion and Howitt (1998) summarise certain ways of thinking about the positive effects of competition on innovation:

- Darwinian effect: Firms should innovate to survive under competitive pressure;
- "Dynamic competition": Based on the Schumpeter's concept of "creative destruction", the so-called dynamic competition notion can be defined as a process in which innovators with new technology enter a market and compete with incumbents with conventional technology. If the innovation is successful, the entrants will be able to replace the incumbents; if not, they will fail. As Schumpeter points out innovators can bring new commodities, new technologies, new sources of supply, new types of organisation. The entrants are the driving force of innovations, and they force incumbents to take risks to



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innovate themselves, even if the last are not so enthusiastic to change or abandon the accumulated substantial experience with conventional technology.

On the other side, the advantages of large firms or firms with market power may be offset to some extent by inter-firm cooperation. But even R&D collaboration and joint exploitation of research results have to be treated with caution, because they may lead to efficiency gains, but can also reduce inter-firm rivalry, deter new entry and have anticompetitive effects on production and marketing and in downstream markets (Groenwegen and Beije, 1992).

However, because of the need to allow innovators the chance to recover their R&D investments, and minimize the risk that "free-riders" will appropriate the results of such R&D, intellectual property rights provide a degree of protection from competition for a given period. The protection refers to restraining competition on the basis of price and quantity in order that competition through innovation should be encouraged. As a result, some anticompetitive effects are deliberately accepted, such as higher prices, or reduction in diffusion of the innovation and its fruits, in exchange of expected benefits on longer terms, resulting from the introduction of new products and processes.

### **Efforts towards opening markets to competition**

Government should promote competition as a way of ensuring an efficient economy and boosting productivity. In exchange, barriers to competition within an economy, whether due to governmental or private restraints, lead to welfare losses.

In the 60's and 70's, many socialist and non-socialist developed or less developed countries tried to ensure the development of their respective economies by means of active and broad government interference in the market mechanisms and by using different devices of the industrial policies. Such instruments as price control, participation of state-owned enterprises in the economy, regulation of entry in the market, control of foreign direct investment, trade protection, or public subsidies had been familiar for the period.

For example, in 1967, Jean Jacques Servan-Shreiber, a renown French politician and talented author wrote: "The problem of an industrial policy for Europe consists in choosing 50 to 100 firms which, once they are large enough, would be the most likely to become world leaders of modern technology in their fields. At the moment we are simply letting European industry be gradually destroyed by the superior power of American corporations. Counterattack requires a strategy based on the systematic reinforcement of those firms best able to strike back. Only deliberate policy of reinforcing our strong points - what demagogues condemn under the vague term of 'monopolies' - will allow us to escape relative underdevelopment"<sup>1</sup>.

Over the years a skepticism has been developed as to the ability of governments to promote the long run competitiveness of the economy through direct interventions. Over, almost thirty years, in 1995, one of the best economist in industrial organization, Frederic M. Scherer wrote: "*France and other major European nations pursued such*

<sup>1</sup> In Frederic Jenny, "Competition Policy in a Global Economy", WTO, Nov. 1997, from Jean Jacques Servan-Shreiber, *Le defi americain*, Ed. Denoel, Paris, 1967.



*policy for nearly a quarter of a century with little discernible success. The toughening and spread of pro-competition policies in part reflects recognition that national champions insulated from competition seldom, if ever, become world class competitors."*<sup>1</sup>

The general picture about the industrial policy is that it could be successful in the initial stage of development and industrialization, as it was in the European Western or socialist countries in the post World War II period, or, more recently, in a number of Asian countries (e.g. Japan, Korea). The governments efforts to to redirect economy's resources into export-generating sectors, or to absorb technology already implanted elsewhere in the world seemed to be well served through industrial policy interventions. But, with the growth of increasingly complex and knowledge-intensive activities, export generating industries changed over time and the governments in developed countries and in Asian tigers as well found that industrial policy failed to work as well as it had apparently done at earlier stages of development (Graham, 1996; Scherer, 1996). Industrial policy became rather a clumsy instrument as economic development proceeded and as products from sophisticated industries became more and more important to the growth of all developed economies (Jenny, 1997).

As a result of the increasing skepticism about the virtues of the government interventions, a reversal tendency is nowadays in force: that of decreasing government interference in market mechanisms, accompanied by increased reliance on market mechanisms and introducing competition in many sectors. In the last years, states make an effort not only towards broad economic deregulation, but also towards eliminating public monopolies and opening to competition "strategic" industries such as electricity, natural gas, telecommunications, airlines or railway transportation a.s.o. A strong belief has been developed that an increased degree of competition in the markets is a way to improve economic performance and to ensure economic and social development. Competition policy has become a major issue that is referring to policy aimed at preserving and promoting competition, both by enforcing competition law against restrictive business practices by firms and by influencing the design or implementation of other governmental policies or measures affecting competition<sup>2</sup>.

Other reason which explains the trend towards the present process of deregulation of economies envisages the political implications of government interference in market mechanisms. Protection from competition can be in advantage of certain businesses of a state. In most countries, there is a concern associated with possible collusions between political parties and interest groups (e.g. large businesses, well organized professions), for example, through exchanging protection for political campaign contributions. In countries where the interference of the government in the market mechanisms is strong enough, the risks of political-business collusions and of limitations of competition is higher. Thus, the market and political opportunities are limited for the citizens who do not belong to successful lobbying groups; also, the perception of such phenomena undermines the confidence of the citizens in the political process (Jenny, 1997).

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<sup>1</sup> In Frederic Jenny, *op.cit.*

<sup>2</sup> Report of the UNCTAD Secretariat, Sept. 1997.



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Finally, another reason of the tendency towards deregulation is that people in developed countries have the perception that barriers to competition within an economy lead to welfare losses for citizens, compared to the level they would enjoy if competition prevails (Jenny, 1997). For example, in Hong Kong consumer organizations are very active in promoting competition.

There is nowadays enough evidence that deregulation, privatization and the introduction of greater competition led to productivity growth. A study elaborated in 1993 estimated that deregulation in seven major United States service industries (airlines, railroads, trucking, telecommunications, cable television, brokerage and natural gas) during the 1980s led to reduced production costs, improved productivity and innovation, market entry opportunities, downward pressures on prices, greater product variety and better quality of service (Winston, 1993). The study undertook a comparison of the effects on welfare of deregulation and of what would have happened if regulation had continued and it estimated an annual increase of \$32-42 billion in consumer welfare and \$3.2 in producers' profits.

A comparative review of European countries found that there was a positive correlation between relatively less regulation of product markets, productivity growth and overall economic growth (Koedijk and Kremers, 1994). The implementation of the Single Market programme in the European Union (involving removal of barriers to trade within the EU) was estimated to had increased income by 1.1-1.5 per cent over the period 1987-1993, created 30,000-90,000 jobs and decreased inflation by 1-1.5 per cent (compared with what it would have been otherwise)<sup>1</sup>. Also, it was estimated that around half of that came from increases in competition and efficiency improvements.

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<sup>1</sup> Commission of the European Communities, *The impact and effectiveness of the single market*, COM(96) 520 Final, Brussels, 30 October 1996.



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