Regulatory Barriers to Entry in Industrial Sectors

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Abstract

The entry of new competitors operates as a balancing force against high levels of industrial concentration and the abuse of dominant position by firms with large market shares. Entry increases supply, lowers prices, intensifies innovation and brings equilibrium to the markets that don't operate in a socially desirable manner. This paper examines the impact of regulatory restrictions to the entry of new competitors in industrial sectors. It provides a short description of the 13 most important sources of regulatory barriers and assesses their role and importance as entry barriers. The conclusion is that regulatory restrictions can be a very important, almost insurmountable barrier to the entry of new competitors, but their role is not always socially harmful. The use of certain sources of regulatory barriers is effective in protecting social welfare instead of harming it. Barriers that promote new competition or are applied in order to protect consumer welfare are socially useful, while barriers that restrict competition and limit new competitor entry, in cases other than natural monopolies, are socially harmful.

Introduction

This paper's goal is to examine the impact of regulatory restrictions to the entry of new competitors in industrial sectors. Firstly barriers to entry and then regulatory barriers to entry are defined. Following is a description of the most important sources of regulatory barriers and next there is an analysis of the various arguments for and against their application in relation to social efficiency. Next is a brief outline of empirical studies on the topic. Policy recommendations regarding each source of regulatory barriers are made in the final part of the study.

Definition of a barrier to entry

The entry of new competitors relates with the appearance of a new producer in a market (OECD, 2005) and can take many forms such as foreign direct investment, trade licenses, joint ventures, strategic alliances, acquisitions, direct export or greenfield investments in new industrial facilities. The entry of new competitors operates as a balancing force against high levels of industrial

concentration and the abuse of dominant position by firms with large market shares. Entry increases supply, lowers prices, intensifies innovation and brings equilibrium to the markets that don't operate in a socially desirable manner. The ease of entry is adjusted according to the number and height of barriers to entry. Various definitions of barriers to entry have been proposed in the economic literature, as the ones from Bain (1956), Stigler (1968), Caves & Porter (1977), VonWeizsacker (1980), Demsetz (1982), Baumol & Willig (1981), Gilbert (1989) and McAfee et al (2004). The definition adopted in the present study is a mixture of the definitions proposed by Fisher (1979) and OECD (2005). A barrier to entry is defined as anything that restricts competition in a sector, when competition would be socially beneficial. This definition can include a large number of possible barriers to entry, covers intra- and extra-sector mobility situations and clearly points out the aim of the analysis, which is social welfare enhancement.

In regard to the categorization of barriers to entry, the most practical separation that has been proposed in the literature is the one from Geroski et al (1990), followed also by Oustapasidis (2003) and OECD (2005). They distinguish between structural and strategic barriers to entry. Structural barriers arise from the exogenous demand, cost and technology conditions of an industry and are the same for all firms, new or incumbent, while strategic barriers are created from the actions and strategic choices of incumbent firms. Even though this separation is far from perfect, as many barriers fall in both categories, however it is a good starting point for a thorough analysis of the barrier to entry theory. Examples of structural barriers are economies of scale, sunk costs, capital costs, product differentiation and diversification, while examples of strategic barriers are limit pricing, predatory pricing, investments in capacity, patent hoarding and collusion. The present study will focus on regulatory barriers to entry.

Regulatory barriers belong to the category of structural barriers to entry, but they could as well be treated as strategic barriers. They belong to structural barriers because they constitute a part of the fixed, exogenously determined conditions that a new firm will have to face during it's entry in an industry. However, they also belong to strategic barriers because their height is sometimes strategically affected by firms' actions. Incumbent firms can raise the power and influence to affect government policies and regulations in their favor.

Definition of regulatory barriers

Regulatory barriers are considered by many authors (such as Geroski, 1991; Parker & Stead, 1991; Church & Ware, 2000; European Commission, 2004; OECD, 2005; Bitzenis, 2009) as very important barriers to the entry of new competitors, mainly due to the fact that they are created from government action and they have the support of the law for their application. Regulatory barriers include laws and regulations as well as the state industrial policy. These two are mentioned together

because they both derive from a country's government. The difference between legal restrictions and economic policies that are applied by a government lies mainly on their time duration: laws usually have long time duration, while economic policies can be adjusted relatively quickly according to the general economic environment.

A distinction that has to be made is according to the effects that regulatory barriers have to various types of entrants. The number and height of entry barriers that a foreign firm will face while trying to enter in a national industrial sector, may be more compared to those that will be faced by a new domestic firm that wishes to carry out entry in the same sector. This is why regulatory barriers are one of the factors that affect the choice of foreign firm entry mode. The sources of legal barriers to entry are many and these will be mentioned in the following part.

Sources of regulatory barriers to entry

The most important sources of regulatory barriers to entry are the following:

i. Natural monopolies, monopoly rights and licenses

In many cases governments grant monopoly rights in certain firms though legislation. These firms acquire exclusive rights in the supply of products or services for a limited or unlimited period of time. This situation is met more frequently in industries known as *natural monopolies*. A natural monopoly exists when the attainment of the minimum efficient scale of production is achieved only if the entire production of an industry is concentrated in the hands of a single firm. In these sectors the minimum efficient scale is equal or almost equal to the size of the entire market and the long run average cost curve decreases significantly as production quantity increases. The presence of other competitors in sectors that constitute natural monopolies is not considered useful, on the contrary it is considered as a waste of economic resources.

In other cases governments intervene legally in sectors through the issuing of licenses. This occurs when the number of those that provide a good or service is regulated externally by the government. The entry of new competitors is allowed only with the purchase of an existing license or through an increase in the number of licenses by the government (eg taxis).

ii. Tariffs

Legal restrictions in imports can be observed from tariffs. A tariff is the most usual protective barrier imposed by a state in the import of products of foreign origin. It consists in the collection, by the border authorities responsible for the custom clearance, of a percentage on the value of the imported quantity of products (Gklavinis, 2009). The height of the tariff differs from product to product depending on the degree of protection that the government wants to offer in the domestic industry (Krugman & Obstfeld, 1994). The tariff raises the costs of imported products and automatically renders them less competitive from the domestic ones, since it increases their final

prices to the consumers. The main objectives of tariffs are the increase of state revenues and the protection of domestic industries and products against foreign competitors.

iii. Quotas

Quotas are limitations imposed by a state in the imported quantities of a product. The most usual way of imposing quotas is the obligation of the importer to receive a special permit by the government. This permit allows the import of specific quantities of a product during its valid period and restricts the import of further quantities during that period. Quotas, however, can also be imposed in the exports of a domestic product by blocking a producer to expand in foreign markets where he could possibly earn higher profits. Moreover, in many cases quotas are used by governments as a means of pressure, with embargos being the most characteristic example of trade restrictions of this kind. Embargos in trade are forced between countries with political, financial, territorial or security disputes (Gklavinis, 2009).

iv. Subsidies

The term subsidy refers to the state financial allowance of public organizations or private firms in order to support their operation and competitiveness. Subsidies can take many forms, such as the payment of sums in the form of donations, loans or shares, the elimination of debts, the granting of credit in the payment of taxes and the granting of energy, water, or telecommunication services in prices lower than normal market prices. A separation has to be made between two subsidies schemes, the general and the specific subsidies schemes (Carlsson, 1983). In general subsidy schemes all the companies of a sector, new or incumbent, can be subsidized, while in the specific ones only particular companies or persons are subsidized.

v. Taxes

A state's taxation can also affect the entry of new competitors. The height of taxes like income tax, property tax, profit tax and value added tax increase the operating cost of a firm and can play an important role in the final entry decision of a possible newcomer. Taxation can also determine the structure of a sector, since the differences in tax rates can affect concentration levels. A low tax rate in high profits, for example, can lead in merger waves among small firms. Very important is also the issue of double taxation. Double taxation occurs when a firm has to pay taxes both in its country of origin as well as in the foreign markets that it operates. Double taxation raises firms' costs and can have a negative impact on the viability and profitability of companies that enter new geographical sectors. Also important is the issue of special consumption taxes, which again can negatively affect competition in a sector.

vi. Loans

Governments can also intervene in the structure of an industrial sector through the loans that they administer to firms. The term loan refers to the lending of monetary sums on interest. Government

intervention can play a role in the process of a loan's approval, in the size of the loan, as well as in the height of the paying off interest and time duration. In other cases the role of governments is limited in providing the guarantees for the approval of the loan.

vii. Government procurement

Many authors (such as Geroski et al, 1990; Scherer & Ross, 1990; Geroski, 1991; Kovacic, 1992; Duggan & Scott-Morton, 2006) claim that government procurement can also play a role in the determination of market structure and consequently in the ability of new firms entry. The contracts that accrue from government procurement agreements – taking under consideration the fact that the government is usually the largest domestic consumer – can provide incumbent firms the financial resources they need in order to achieve economies of scale in production and survive for a long period of time. These companies can win large market shares in the industries that they operate. Important is also the fact that foreign companies are in many cases excluded from these contracts for national security (etc defence industries) or state revenue reasons.

viii. Intellectual property rights

Another form of legal barriers to entry are intellectual property rights. Intellectual property rights are administered by governments in the creators of new ideas in order to protect them from imitation and competition (Church & Ware, 2000). The three most important types of protection for intellectual property are patents, copyrights and trademarks. The three types of protection differ in their content and valid time period.

A patent provides an inventor with exclusive rights for a new product, process, substance or design. New products include machines (mechanisms with moving parts) or manufactured objects (without moving parts) such as tools. New processes or methods include chemical processes for metals or for the manufacturing of drugs, mechanical processes for the manufacture of goods or electric processes. New substances include chemical compounds and mixtures, but can also include species of animals and plants. New designs include the shapes of products that serve a functional purpose. Moreover, improvements in products, processes, and substances can also be granted with a patent, as well as computer software inventions (Carlton & Perloff, 2000). With the issuing of patent rights the law grants a legal monopoly in the company that has received the patent, as it protects the company from copying and competition in production for a constant period of years. The years of patent validity differ from country to country, although patents are not accepted in all the countries around the globe.

Copyrights give their creators the exclusive production, publication and sale rights to artistic, dramatic, literary or musical works. Examples are articles, books, drawings, maps, musical compositions, distinctly designed items and photographs. Copyright law also covers the original "work of the author's profession" provided that they are "fixed" in a "tangible medium" such as a

book (Carlton & Perloff, 2000). While patents protect the function and the purpose (ideas, appliances, mechanisms, methods, and means), copyrights cover artistic expression. An important distinction between patents and copyrights is that copyrights protect the particular expression of an idea, while the patents protect any tangible incorporation of that idea.

Trademarks are words, symbols or other marks that are used in order to distinguish a company's product or service from those that are provided by other firms. A *commercial trademark* is a mark as a word or a logo that represents a product. A *service trademark* is a mark for a service. A *common law trademark* is a mark that is not registered formally, but has acquired minimal rights through use. The state registration of a trademark or service trademark provides better protection than the common law, but is only useful in the state of issuance. A *trade name* is the name that a company uses in order to do business. Contrary to copyrights and patents, brand names do not expire after a predetermined period, although a company can lose the protection of its brand name, if its name ends up stating all the products in the industry (Carlton & Perloff, 2000).

ix. Sanitary and phytosanitary protection measures and measures for the environment

The term sanitary and phytosanitary protection measures refers to every measure that is imposed by the law of a state in relation to the attributes of a product but also concerning the conditions of its production, storage, transport, maintenance and consumption. The aim of these measures is the protection of the life and health of the population, of animal and plant production and more generally the flora and fauna, from the spreading of illnesses or pollution (Gklavinis, 2009). The application of these measures must be based on scientific principles and their usefulness must be proved by scientific data. In most cases countries comply in their requirements with international specifications and recommendations, it is however likely for certain countries to issue stricter measures, provided that such measures are justified scientifically or constitute a consequence of the level of sanitary or phytosanitary protection that the state considers suitable. These measures also include measures for the protection of air and water from industrial facilities, as well as measures for employee safety.

x. Technical Barriers

Technical barriers refer to barriers that result from the adoption and application of "technical regulations", that determine the technical characteristics of a product or the processes of its production (Jacobson & Andreosso - O' Callaghan, 1996; EC, 2009). A technical regulation can also concern the nomenclature, the symbols, the labeling or the packaging of product. Technical barriers can also result from the use of technical specifications (standards) that are published by recognized certification organizations, and contain rules, guidelines, directives and characteristics of common and repeated use for products or processes of production that are not obligatory for the producers or the tradesmen of such products (Gklavinis, 2009). Thus the difference between

technical regulations and technical specifications lies in the fact that the first are binding, while the second are not. Regulations for the recognition of education titles are also included in technical barriers.

xi. Registration, certification, licensing and social security procedures

Another aspect of legal barriers to entry is the one that relates with registration, certification, licensing and social security procedures faced by new firms. The number, the duration and the cost of these procedures can affect the ease and the cost of new firm entry and also affect market structure (Lipczynski & Wilson, 2001; Bitzenis, 2002; Djankov et al, 2002: Bitzenis, 2009). These procedures are another way of state intervention in the economy through legislation. Research carried out by Djankov et al (2002) pointed out that the costs of these procedures are high in many countries and that their number and duration differ considerably in each case, with the most numerous procedures being met in developing countries.

xii. Price Fixing

Another source of legal barriers to entry arises in cases where governments intervene by fixing prices. In these cases the state, in order to protect consumers' best interest, determines the minimum or maximum prices of products or services (Carlton & Perloff, 2000).

xiii. Dumping

The policy of dumping that is followed occasionally by some governments can also influence market structure. The term dumping refers to the deliberate export of a product in a foreign market in a price lower than the one that is in effect in the domestic market (Ktenidis, 1996). Governments use dumping in order to support domestic producers and capture market share in foreign markets.

Are regulatory barriers socially desirable or not?

The evaluation if, and to what extent, the laws and policies that were mentioned in the previous section, constitute barriers to the entry of new competitors and whether these are useful or not from a social point of view, will be carried out in the following part. The evaluation will be made by outlining the arguments that have been put forward for and against legal barriers to entry. Before the analysis of the arguments begins, however, it would be useful to note that the evaluation of the impact of legal barriers to entry could escape the limits of present study and be placed in the more general discussion about the role of government intervention in the economy. The degree of intervention in the economy by the government can characterize a political system as liberal or socialist (at least from an economic point of view). These two political systems emanate from two different opinions for the function of the economy. The one supports that political power must ensure social effectiveness in favor of citizens and hence contains a large degree of intervention in the economy (if not total control), and the other supports that social effectiveness and growth can

emanate only via free market operation and competition. In reality it is exceptionally infrequent, almost impossible, to find an economy in the world without absolutely no intervention at all. However, because examining the effects of intervention is not one of the objectives of the present study, the analysis will focus on the specific arguments for and against regulatory barriers to entry. The term arguments for regulatory barriers, in this case, does not mean the apposition of arguments that try to convince that legal barriers do not constitute barriers of entry, but arguments that try to convince that legal barriers are barriers to entry, but exist because they are socially beneficial.

Arguments in favor of regulatory barriers to entry

One of the main arguments for the existence of regulatory barriers to entry springs from the need for protection of natural monopolies. Legal protection in cases of natural monopolies is necessary because an increase in competition in these industries would lead in a reduction in the monopolistic firm's market share and this in turn would undermine its ability to exploit all available economies of scale (Waterson, 1987; Waldman & Jensen, 2000). This means that the restriction in the number of producers comes from the need to minimize production costs (Church & Ware, 2000). If production is characterized by economies of scale and average cost decreases as production increases, then it is always less costly the production to be carried out by a single firm than by many firms. This is the reason why Domberger & Piggot (1986) claimed that public property is essential in cases of natural monopolies. Through monopoly in these cases, society avoids unnecessary investments in capacity reproduction and the waste of economic resources that these investments involve (OECD, 2004). The protection of natural monopolies from governments can also protect the positive externalities that these create for other related companies and for consumers in general.

Another argument in favor of the protection of natural monopolies through regulatory barriers emanate from the view that the government in these cases functions as a guarantor of the quality and quantity of the products and services produced. This argument is based on the principle that the mechanisms of political direction and responsibility are most suitable to control a market than private individuals. If a natural monopoly belongs to the state, the effectiveness of the state monopolistic company is associated with the general effectiveness of the government. A failure to meet society's objectives would have an impact on the following elections, rendering the government responsible for the failure.

Government intervention can protect consumers' interest, even if a natural monopoly is transferred in private ownership though the issuance of monopoly rights. Through the terms of the contract (especially in regard to prices and quality) as well as through the regulation of the terms of supply, governments can again function as effective market regulators. If a government doesn't take any precautionary measures while opening up these industries, the result may be socially harmful. An

industry can be monopolized by a private firm who may abuse its market power and raise prices in very high levels. But even if these markets do not lead in private monopolies but in a large number of competitors, then a situation named *excessive competition* may appear. Excessive competition is a situation characterized by excessive capacity, increased production costs, reduction of total demand, reduction of investments and exit of many firms from the industry (OECD, 2004).

The legal protection of natural monopolies can also guarantee the service of markets that would not be efficient for the private sector to serve (e.g. consumers in frontier areas) and also ensures that these monopolistic companies will gather the financial resources they need in order to achieve technological change and innovation through R&D (Waldman & Jensen, 2000). The availability of economic resources earned by monopolies is considered by many authors as a prerequisite for technological change (e.g. Schumpeter, 1943). A large number of small companies would not permit the gathering of the resources required for conducting R&D and creating innovative products and services.

Some other arguments in favor of the application of regulatory barriers to entry arise from the need to protect the domestic economy and state revenues. Legal barriers as tariffs and monopoly rights can offer precious income for the state (Krugman & Obstfeld, 1994; Church & Ware, 2000). These can be used for the support of the national economy and for the improvement of the citizens' quality of life in general. In many cases these revenues are transferred in other industrial sectors. Moreover, legal barriers as duties, quotas, taxes, subsidies, loans, procurement policies and price fixing can be used for the support of domestic production. The restriction of competition in an industry can help domestic producers to increase their sales and gain the capital they need in order to survive in the long-term. The capital raised can be used for the achievement of economies of scale as well as for investments in R&D. These policies are mainly used for "infant" industries, meaning those that are still in their initial stage of development and need the support of the state in order to survive (Carlton & Perfloff, 1999). This support is essential especially in cases where the other competitors of the industry are large diversified multinational firms.

Apart from the improvement of the competitiveness of domestic firms, important is also the argument that connects legal protection with the increase in domestic employment. More advanced arguments are those that support government intervention for the avoidance of dependence in foreign economies and their economic precessions, as well as those that relate with the national security issues (e.g. defensive industries). Moreover, legal barriers may also arise due to the influence of pressure groups such as trade unions and consumers associations, which some times "besiege" political power in order to protect their own interests (Thilmany & Barrett, 1997).

Another line of arguments in favor of legal barriers emanates from the usefulness of the measures for protection of health, safety and intellectual property. All governments impose regulations for

health, safety and protection of the environment though the specifications in domestic and imported goods and services, but also though certification, licensing and inspection procedures. These regulations aim to protect the health and the quality of life of the residents of a country, to protect the natural environment in which they live and to provide safety measures for employees (Jacobson & Andreosso - O' Callaghan, 1996). Regulations for safety can also solve problems of incomplete information in relation to the quality of products. The marking of products along with strict safety regulations can increase total active demand because of the alleviation of consumer's concerns about quality. This is the main difference between technical barriers and other traditional trade restrictions such as tariffs and quotas: technical barriers can strengthen demand.

On the other hand legal barriers that concern intellectual property are also considered justified. The protection of intellectual property is required in order to ensure the motives for new creative efforts and innovations. Innovations play a vital role in economic and technological growth. Some claim that these could not be achieved if the law does not guarantee to innovative firms the monopolistic rights and profits they need in order to redeem the investments that they have made in R&D (Lipczynski & Wilson, 2001). This means that patents lead to the availability of products that would be impossible or not practical to be created without legal protection. These new products and services have multiple benefits for the economy. Apart from the improvement of production techniques and the cost efficiency that they can create for producers and consumers, they can also improve the competitiveness of the economy (e.g. via exports). Ginarte & Park (1997) found a strong correlation between the income of country and the strictness of laws that protect intellectual property. Another argument that has been put forward in favor of the protection of intellectual property rights is the one that concerns trademarks. If a firm's trademarks are not protected legally from copying, then this firm would not have a motive to be differentiated in regard to quality and price by other firms in the market. Advertising would be pointless as it would be very difficult for consumers to separate advertised products during their purchases.

Arguments against regulatory barriers to entry

Although all the arguments mentioned above certainly stress the usefulness and the positive consequences of regulatory barriers to entry, however there are many arguments claiming exactly the opposite. Regulatory barriers can have negative effects in economic efficiency as they constitute the most important and difficult to overcome barriers to the entry of new competitors. Neo-Austrian economists Parker & Stead (1991) supported the view that all other barriers should be ignored because they are not important. From an Austrian perspective, the divergences of cost between firms, new or incumbent, are inevitable, as inevitable are also the efforts of new businessmen to overcome these barriers though innovation and advertising. For their new-Austrians, the only true

barriers are those that result from government activity, as these are the only barriers that cannot be overcome from new firms. The advocates of the so called Chicago school of economic thought agree with this opinion.

The reasons for the rising of these barriers have been connected by many authors with the influence of economic circles in politicians (Posner, 1971; Stigler, 1971; Sykes, 1995; Thilmany & Barrett, 1997; Church & Ware, 2000; Lipczynski & Wilson, 2001; OECD, 2005; Bitzenis, 2009). This theory was developed in modern economics by Stigler (1971). Stigler's basic principle is that the government possesses a monopoly in the exercise of legal power and this monopoly firms seek to influence for their own interest. Politicians are willing to provide legal protection in return for help in the achievement and maintenance of political power. In return for the utilization of laws and regulations that limit competition and deter entry, firms provide politicians and political parties what that need in order to win the elections: money and votes. Consequently politicians are controlled by the firms which they are supposed to control. In return to votes, economic resources or the promise of future employment, regulators use their power in order to serve private firms' and their own personal interests (Stead et al, 1996). Posner (1971) extended further this opinion by supporting that state intervention in markets is influenced not only by firms, but also by various other pressure groups, such as consumer associations and trade unions. Based on this principle later on Peltzman (1976), claimed that market intervention through legal restrictions in reality creates imperfections instead of solving them. As companies are more organized than consumers that regulators represent, they have the power to influence political circles more effectively. This can lead in the long run to a situation named *regulatory capture*, meaning the formation of current legislation to the best interest of the private firms and to not of society as a whole.

Economists often refer to these firms' pressure efforts as *rent seeking*, which means the expense of resources for the achievement of government created monopolistic profits (Church & Ware, 2000; OECD, 2005). Another relative argument is the one that stresses that the cost of controlling a market is high (because of the committees that have not be organized in order to decide the form of intervention), as high are also the time delays in the entry of new companies that these procedures can create.

The restriction of competition in industrial sectors constitutes in substance the most powerful argument against legal restrictions and industrial policy. Either in cases of government-protected monopolies or in cases of exercise of industrial and trade policies that intervene, control and delay entry, the results are similar: exclusion or restriction of entry, reduction in the number of competitors, high concentration, lack of consumer choice and finally transfer of resources from consumers to producers. Taking for example tariffs, quotas and subsidies: these barriers reduce the competitiveness of imported products and limit the social gains they could create. An increase in the

number of products and services through imports, can increase consumers' available choices and offer a price competition that will decrease final market prices. Many domestic producers could also benefit though the import of more efficient raw materials and production factors.

In regard to dumping, its use has obvious negative effects in the operation of competition in industrial sectors, as the import price of new products does not represent their real cost, but is rendered low due to government intervention with a sole aim to take over a sufficient share of the targeted market. This practice can lead other, more efficient, domestic producers on the fringe of a sector. The agreements of the World Trade Organization on the application of compensatory measures for dumping *(GATT article 6 "Anti-dumping and countervailing duties" 1994),* and the legislation of the European Union *(EE L 56, 6.3.1996. p.1)* on the defense from imports of this kind have been put forward for protection against dumping.

On the other hand procurement policies followed by some governments can also negatively influence competition and growth (Kovacic, 1992; EU, 2009). As a country's government usually constitutes the largest domestic consumer, the choice of suppliers that it makes can play a very important role in the development of market structure. Opaque and discriminatory procurement policies sometimes result to the support of specific companies and to the degrading of all the rest in the sector, up to the closure of some them. Companies that gain government contracts are in place to secure the resources they need in order to develop faster than their competitors and capture large market shares.

But also taxes imposed by governments have some negative consequences in firm competition. Beyond the obvious consequences of double taxation and the high tax rates in production and income, other negative consequences are those related with increasing concentration in markets where small companies are forced to merge with larger ones in order to pass in more favorable scales of taxation and depreciation (Carlton & Perloff, 2000).

Another line of arguments against legal barriers to entry are those that relate with the application of technical barriers to entry. According to the European Commission for Trade (2009) *"the gradual reduction of tariff barriers to trade has been accompanied by an increase in the number of measures creating technical barriers to entry, such as regulations on packaging, labeling or conformity assessment procedures. These regulations can be intended to pursue a legitimate objective, such as the protection of human health or safety. However, they are also sometimes wrongfully used in order to erect protectionist barriers around a domestic market"* (online). This is why the EC has signed with the WTO the Technical Barriers Treaty (TBT), which tries to ensure that regulations, standards, test and certification procedures do not create unnecessary barriers to the entry of new competitors.

As noted by Thilmany & Barrett (1997), trade liberalization agreements as NAFTA that decreased traditional protection methods as tariffs and quotas, can provide a motive for the development of more complex, less transparent means for the protection of domestic industries. The reason is that this trade protection can be less vulnerable in critics from outside parties, especially if the trade restrictions are connected with sensitive political matters, as health and safety (Kramer, 1984; Chambers & Pick, 1994). These barriers, however, in contrast to tariff barriers, are difficult, if not impossible to measure. Often they are hidden in the switching costs for compliance with specific standards or regulations and to time consuming expenses for testing and certification procedures (Thilmany & Barrett, 1997).

According to the European Commission technical barriers: *"not only add extra costs, but also distort production patterns, increase unit costs, increase stockholding costs, discourage business cooperation and fundamentally frustrate the creation of a common market for industrial products. Until all these barriers are removed, community producers are forced to focus in national rather in continental markets and are unable to benefit from the economies of scale that a truly unified market offers"* (CEC, 1985, p. 17). The elimination of technical barriers can improve market access, rear the protection of large incumbent firms and lead to a higher degree of competition.

Finally, another negative aspect of technical barriers to entry has been highlighted by Scherer & Ross (1990) and concerns the effects in small businesses that cannot correspond with the cost of conformity with technical regulations. The cost of the necessary equipment required for the control of water supplies, air and worker safety in industrial facilities that has been imposed by environmental laws and laws for work safety, has led many small business in closure.

The last line of arguments against legal barriers to entry comes from the concerns about the effectiveness of the intellectual property rights system and especially for patents. As patents issue monopoly rights to their holders for a large number of years, they are in turn able to charge high prices and earn monopoly profits. Apart from the well known consequences that every monopoly has in relation to the loss of consumer surplus, further negative effects come from the inability of other firms and organizations to exploit new technology and produce new products and services in a more rapid rate. This is why in some cases the duration of patents is judged as excessively high from a social point of view. This critic is also based on the opinion that knowledge is a public good and no one should be excluded from its use (non-exclusivity). This argument is more clear especially in cases where innovative products and services can have an instant impact in people's lives (e.g. medicines).

The issuance of a long term patent can, however, have more extensive consequences for an industrial sector. The monopoly profits and market power that are earned by the firm that holds an important patent may allow it to monopolize the sector and drive all other firms out of competition.

This harms social welfare, as the monopoly power of the firm escapes the monopoly of a product and extends in the whole industry. This process is partially owed in a negative parameter of the patent system that relates with who wins the patent first. Many companies are involved in the process that has been named *patent races*, and means the excessive focus in R&D with an aim to win a patent. As patent offices can grant a patent in only one firm, the first one that presents all the necessary certificates, this means that all other firms that have invested in R&D of the same technology will get nothing. This phenomenon has been named in modern economics as "winner takes all" (Lipczynksi & Wilson, 2001) and implies the waste of resources in R&D activities of the same kind.

Problems with the process of patent issuance can also be created from the different systems adopted by various countries (Church & Ware, 2000). Another issue also relates with the differentiation criteria of innovation. The stricter the differentiation criteria from previous innovations are, the harder it is to win a patent, and this in turn extends the period for which a current patent can win monopoly profits. Other negative parameters of patents relate with the recent burst in patent applications for plants and living organisms. This process has created serious criticisms from the supporters of the view that natural chemical compounds and organisms belong to manhood and they should not be legally secured and commercially exploited.

Although the above tell us that in substance governments must balance, through legislation, between providing motives to private companies for investing in R&D and the diffusion of knowledge as a public good, there have been completely different proposals for the promotion of R&D and technology. Alternative plans for the promotion of innovations are those that relate with government awards for those companies or organizations that produce innovative products and services. These opinions are strengthened from research that has proven that R&D does not relate with the issuance of patents, but it is something that would also happen without them (Taylor & Silberston, 1973; Schankerman, 1998; Lipczynksi & Wilson, 2001).

Empirical studies on regulatory barriers to entry

Due to the large number of regulatory barriers and the different form they take in each case, the empirical studies on the topic are many. In this part of the study there is going to be a short reference to empirical studies for each source of regulatory barriers. The issue of natural monopolies and monopoly rights was examined by Joskow & Rose (1989) and Mosca (2008). The OECD has also published many investigations into sectors which are considered natural monopolies (e.g. 2000, 2001). Another study is that of Gelfond & Spiller (1987) in relation to the banking industry. The relationship between government intervention and private sector was examined in the

study of Spiller (1990), while Pittman (1988) examined the relation of rent seeking with industrial structure. Jacobsen & Soysa (2006) examined the relationship between rent seeking and FDI.

An interesting research related to tariffs is that of Geroski & Murfin (1991) for the UK car market. An overview of the effects of tariffs, quotas and other trade policies was made by Corden (1971) and a study of the effects of tariff barriers to entry is that of Rousslang & Suomela (1985). Tarr (1989) on behalf of the U.S. Federal Trade Commission, has published an assessment of the impact of tariffs on three major sectors: textiles, automobiles and steel. Hoekman et al (2004) examined the relation between tariffs and country size.

Regarding subsidies, an important empirical study is that of Carlsson (1983) on the role of industrial subsidies in Sweden, while very interesting is also the one of Dixit & Kyle (1985). Typical is the study by Majumdar (1988) for the aircraft industry. The legal side of subsidies was examined by Stewart & Dwyer (1998) and Hernandez de Madrid (2007). The role of taxation in industrial structure was examined in the studies by Prais (1981), Spiller & Favaro (1984) and Bitzenis (2009), while for loans characteristic is the study by Gonzalez-Maestre & Granero (2003). In relation to procurement policies important are the studies made by Duggan & Morton (2006) on the role of government procurement in drug prices in the U.S. and Burnett & Scherer (1989) for the U.S. defence industry.

Taylor & Silberston (1973) and Schankerman (1998) examined the relation of patents with innovation. The relation among IPR protection and economic growth was examined by Horri & Iwaisako (2006). IPR in relation to drug access was examined by Heywood (2002). In relation to sanitary and phytosanitary measures and environmental protection measures, a complete analysis is that of Gruenspecht & Lave (1989), while a specific industry study (food) is that of Thilmany & Barrett (1997). Policy considerations regarding the application of such measures were examined by Miljkovic (2005). Technical barriers were examined by Cecchini (1988) and Hanson & Saykiewicz (2007), but important are also the legal studies by Marceau & Trachtman (2002) and Henson & Wilson (2005). Technical barriers in the EU were examined by Brenton et al (2001).

The number, the cost and the duration of registration, certification, licensing and insurance procedures were researched by Djankov et al (2002), while a very good analysis of the operation and impact of price fixing is made by Carlton & Perloff (2000). Legal barriers to the Balkan markets and in particular the case of Bulgaria were examined by Bitzenis (2002), Bitzenis and Marangos (2008) and Bitzenis (2009). Finally in relation to dumping typical are the studies of by Czako, Human & Miranda (2003) and Kong (2003).

Policy recommendations

By examining the arguments for and against the various sources of regulatory barriers to entry, it is possible to make some policy recommendations about their application and impact. Natural monopolies should be legally protected by the governments, as more competition in these industries is not socially beneficial. More competition in these cases would increase production costs through unnecessary investments in capacity reproduction. Strict state legal and financial control of these industries is a necessary prerequisite for safeguarding their social effectiveness. Where monopoly rights are issued, the terms of the contracts must again ensure the socially desirable level of prices and quality of products and services provided. The use of licences can limit competition, so the opening of these industries can create socially desirable effects.

Tariffs and quotas can limit competition so their application is not useful from a social standpoint. Subsidies, taxes and loans should only be used only in order to promote more competition. These regulatory tools should be used only in order to promote new firm start ups in concentrated markets, and not as a strategic tool for restricting current and future domestic or foreign competition. Government procurement on the other hand, should be made with transparent selection procedures so as not to distort industrial competition. The contracts signed should not be very long in duration, so that the fear of replacement will prohibit private firms from degrading the products or services they provide to the state. Industry specific adjustments are needed in each case.

In regard to IPRs, there has to be a distinction among them. While copyrights and trademarks are useful from a social point of view, the role and the duration of patents needs to be reconsidered. Trademarks are necessary for the effective operation of competition in the economy, as they provide the basic motive for differentiation regarding the price and quality of the products and services. Copyrights are also useful in order to promote new ideas. The patent system needs to be reconsidered by governments and international organizations. The long duration of patents, the monopoly rights they provide, their exclusivity, the restriction of competition and the different patent systems around the globe are the main reasons for a complete rethinking of the patent system. A free patent system, some claim, would lead in less innovation, as less financial resources will be invested in R&D. Others claim that on the contrary, a system without patents would lead in more innovation, as firms would need to introduce new products and services more often in order to survive. A step towards that direction would be to decrease the patents' time duration and discover new means for rewarding innovation.

The application of sanitary, phytosanitary and environmental protection measures, as well as technical barriers, should all be used in order to protect social health and welfare and not as anticompetitive tools that restrict competition. In order to achieve that, the use of these measures and standards must be based on core scientific data published by international organizations. Registration, certification, licensing and social security procedures should be minimized to a

minimum in order to promote and simplify new firm entry. Once new firms are established, then governments can apply the desirable level of firm inspection. This has a double effect: on the one hand new competition is encouraged and on the other hand the government can more easily control established firms.

Price fixing is a policy that must be used with caution. A very high price may create a black market for products and services, while a very low price can undermine the ability of the firms to survive. Price fixing can be effective only in monopolistic or highly concentrated oligopolistic industries. However before setting a price, the government must first calculate the profit margins in all stages of production. Finally dumping is a policy that needs to be examined carefully, as price competition is desirable from s social point of view. As with predatory pricing, this strategic tool cannot be applied without the backing of some structural advantages. The effects of dumping on competition however cannot ne long-term. The country applying dumping is in risk of making more losses in the long run than gains.

The basic criterion for the application and of each regulatory barrier is the effect it has on social welfare. If social welfare, in cases other than natural monopolies, is connected with more competition, than it is easy to separate those regulatory barriers that restrict domestic or foreign competition from those that are applied in order to increase the number of firms. Specific attention has to be given in providing motives for new firm entry and the intensification of competition though technological progress and innovation. New innovative products and services can lower production costs, make better use of the available economic resources and help new firms to surpass structural and strategic advantages of incumbent firms more effectively.

Conclusions

Regulatory barriers constitute the most difficult to surpass barriers to entry as they spring from government action and have the power of the law for their application. Through the various sources of regulatory barriers governments can intervene in the process of industrial competition and affect market structure and social efficiency. Regulatory barriers can also completely block, delay or undermine in terms of cost the entry of new competitors in industrial sectors. The presence of regulatory barriers and the restriction of competition that they create is socially effective only if it takes place in order to protect competition and social welfare. In cases where politicians erect these barriers in order to serve private companies' or their own personal interests, these barriers have socially undesirable effects. In order to correctly assess the importance and usefulness of each regulatory barrier to entry it is always necessary firstly to assess the motives behind its application and its long term effects in competition.

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