



Barriers to entry: An empirical assessment of Portuguese firms' perceptions[☆]

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ABSTRACT

This paper attempts to assess the variety and relevance of barriers to entry perceived by Portuguese firms. Based on a questionnaire, Portuguese firms' perceptions were surveyed using a sample of 168 firms. The results suggest that sunk costs, capital requirements, capital costs, and cost disadvantages are the most important barriers to entry. Applying a factor analysis, six underlying dimensions of entry barriers – investment in R&D, strategic behaviour, investment risk, advertising, cost disadvantages, and capacity – were identified. These findings are quite consistent among industries and firms' sizes. Still, micro firms have lower perceptions regarding entry barriers than SMEs and large firms. Portuguese firms' perceptions on entry barriers suggest that both structural and strategic barriers are important and that the effectiveness of strategic barriers depends on the structural characteristics of the market.

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1. Introduction

The entering of a new firm in a market may be a synonym of great economic development through innovations that promote technological progress, bringing new production processes and products, new sources of supply, and promoting the exploration of new markets (Audretsch & Thurik, 2001; Szirmai, Naudé, & Goedhuys, 2011). It is a source of change that tends to fuel productivity gains and economic competitiveness (Sanyang & Huang, 2010). New firms create jobs and foster industry dynamics as small firms, and particularly the new ones, are more successful in job creation (Audretsch & Thurik, 2001). In addition, new firms contribute to the promotion of allocative efficiency and market dynamics (Audretsch & Thurik, 2001).

One should not forget that there are several mechanisms that may hamper or even deter entry, preventing gains on efficiency and market dynamics (Blees, Kemp, Maas, & Mosselman, 2003; Dijkstra, Kemp, & Lutz, 2006; Kemp & Lutz, 2006; Lutz, Kemp, &

Dijkstra, 2010). For this reason, assessing the types and the impact of barriers to entry in a market is a topical issue on any competition policy. Several studies (e.g. Acs & Armington, 2003; Audretsch, 2007; Holcombe, 1998; Smith, 2010) have showed that there is a positive relationship between the entry of new firms and the economic growth. Therefore, understanding the relevance and which barriers effectively influence the process of entering in a market deserves further research.

Based on the vast literature on entry barriers, Blees et al. (2003) identify 37 barriers, both structural and strategic. Nonetheless, the empirical studies on this topic are scarcer than the theoretical ones. Smiley (1988), Singh, Utton, and Waterson (1998), Kemp and Lutz (2006), Karakaya and Kerin (2007), Lutz et al. (2010), and Niu, Dong, and Chen (2012) are some examples of empirical studies, which point out the importance of developing additional studies on the subject.

Despite the difficulty to carry out such kind of study (Bunch & Smiley, 1992; Smiley, 1988) and to investigate a firm's strategic behaviour, this paper attempts to contribute for this purpose by analysing Portuguese firms' perceptions regarding to specific entry barriers. Those perceptions are crucial to understand which barriers really block the entering of potential entrants in an industry (Lutz et al., 2010). Some studies (e.g. Bunch & Smiley, 1992) highlight the relevance of strategic barriers, while others (e.g. Bain,

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1956) emphasize the importance of structural ones. As such, our study analyses both structural and strategic barriers (see, for example, [Blees et al., 2003](#); [Bunch & Smiley, 1992](#); [Demsetz, 1982](#); [Dixit, 1980](#); [Han, Kim, & Kim, 2001](#); [Klemperer, 1987](#); [Lutz et al., 2010](#); [Singh et al., 1998](#)) and evaluates their perceived relevance for Portuguese firms.

Therefore, this paper aims to contribute for the debate on entry barriers by attempting to empirically evaluate the ones that play an important role and which of them affect significantly an entry decision. To the best of our knowledge, there is no such empirical study applied to the Portuguese context, which means that we are the first attempting to do so.

In order to carry out this study, a questionnaire based on those used by [Singh et al. \(1998\)](#) and [Lutz et al. \(2010\)](#) was designed and sent to firms operating in Portugal. The results confirm that there are several barriers that may affect entry decisions, and that way reducing the number of new firms and competition. Because Portuguese firms perceive entry barriers related to financial issues as the most important ones, policy makers should pay special attention to the functioning of financial markets.

The remainder of the paper is organized as follows. Section 2 starts with an overview on entry barriers. Section 3 discusses the sample and how we measured them, while Section 4 discusses Portuguese firms' perceptions regarding entry barriers and identifies their underlying factors. Section 5 concludes the paper.

2. Barriers to entry: type and relevance

Over the past decades, there has been a lot of debate on entry barriers. [Bain \(1956\)](#) has triggered this discussion and many others have followed him (see, for example, [Gilbert, 1989, chap. 8](#); [Porter, 1980](#); [Stigler, 1968](#); [Von Weizsacker, 1980](#)) thus, resulting in many different definitions of the concept "barrier to entry". More recently, [Carlton \(2008\)](#) offers an interesting discussion on the subject, its failure in incorporating dynamics, and its possible inadequacy to understand many industries. Looking at the vast literature, it is possible to distinguish two perspectives: the one of the industrial organization (see, for example, [Bain, 1956](#); [McAfee, Mialon, & Williams, 2004](#); [Stigler, 1968](#); [Von Weizsacker, 1980](#)) and the other of strategic management (see, for example, [Porter, 1980](#); [Robinson & McDougall, 2001](#); [Singh et al., 1998](#)).

The industrial organization perspective focuses on industry as the unit of analysis, studying mainly their structural characteristics and firms' reactions to them ([Bain, 1956](#)). In turn, the strategic management perspective focuses mainly on the firm itself and what it can do to maintain or increase its profitability. The behavioural issues are the key topics for the industry analysis. The type of incumbents' strategic behaviour determines the ability of new firms to enter in a market ([Blees et al., 2003](#)) and, hence, incumbents' competitive advantage.

However, our goal is not to discuss which of these perspectives is the most correct, but to identify barriers that may play an important role in an entry decision based on the firms' perceptions ([Chang & Tang, 2001](#); [Lutz et al., 2010](#); [Singh et al., 1998](#); [Smiley, 1988](#)). Both perspectives have their importance and should be combined when investigating empirically barriers to entry. Structural barriers are related to the structural characteristics – such as demand and costs – of the industry in which firms operate. Their existence may be due to certain market conditions, like the existence of economies of scale or government regulation ([Bain, 1956](#)). In contrast, strategic barriers purposely influence potential entrants' behaviour in order to deter their entry ([Gilbert, 1989, chap. 8](#)).

As we have already stated there are several theoretical models on the topic "barriers to entry", but empirical studies are scarcer. The earliest empirical study was made by [Harrigan \(1981\)](#). Over

nine years the behaviour of six firms from five industries (meat packing, liquor, cigarettes, hydraulic cement and manufacture of aircrafts) was thoroughly analyzed. The barriers to entry, aimed to support capacity, identified as quite relevant in his study were the excess capacity and prices strategies. Moreover, by investing in R&D, incumbents may increase technological economies of scale within industries or even contribute to its technological evolution in order to make entry attempts more ineffective ([Harrigan, 1981](#)). In a similar vein, [Harrigan \(1983\)](#) showed that, in the US manufacturing industry, incumbents might try to block new entries in the market by keeping a certain level of capacity and by building their facilities, before entrants, in the most available and appropriate locations. So, the level of investment required to entering in a market increases, affecting post-entry profits and making the entry unattractive. On the contrary, [Mathis and Koscianski \(1996\)](#) do not find evidence that incumbents invest deliberately in excess capacity, as a barrier to entry. In addition, they cannot also prove that incumbents will deviate from their profit maximization goal to invest in excess capacity.

According to [Lieberman \(1987\)](#), excess capacity can be a strategic and a non-strategic barrier. Excess capacity as a non-strategic barrier relates to the structural aspects of markets and competition. Firms may often have excess capacity in anticipation of future demand growth. A temporary oscillation in demand may leave firms with excess capacity with no strategic implications. In this case, non-strategic excess capacity is most often related to demand fluctuation ([Blees et al., 2003](#)) and it shouldn't influence entrants' expectations regarding post-entry competition.

On the other hand, investments in excess capacity can be used to try to block new entries in the market by threatening to use competitive retaliation ([Lieberman, 1987](#)). By holding excess capacity, incumbents can credibly threaten to lower the price if entry occurs and, consequently might change entrants' expectations regarding post-entry competition. If incumbents cannot drop out from the investment in excess capacity that can work as a credible strategic barrier to entry.

Although there is no consensus on whether incumbents strategically use excess capacity as a barrier to entry, several issues regarding the sustainability of this strategic barrier have been raised. While [Shepherd \(1997\)](#) argues that post-entry incumbents' retaliation based on excess capacity is a credible threat, [Dixit \(1980\)](#) discusses that this threat is not credible because incumbents, whose goal is profit-maximization, will never have their facilities under-use, unless entry is certain. [Spence \(1977\)](#), on the other hand, points out that entrants believe that profit-maximizing incumbents will not expand output and low price after entry. Therefore, if used efficiently by incumbents, the strategic investments in excess capacity may generate a serious cost disadvantage for entrants and then act as barrier to entry ([Blees et al., 2003](#)). Nevertheless, it is also safe to argue that incumbents sometimes have idle capacity, but for essentially non-strategic reasons, making hard to assess empirically the motivations beyond excess capacity.

Looking also at US firms, [Smiley \(1988\)](#) reports that deterring entry strategies proved to be a very relevant issue for them. For new products, incumbents restrict entry through patenting and by creating product loyalty using heavy advertising, while, for the existing products, incumbents try to limit entry by completing all existing product niches, hiding the data of their product profitability and, again, by creating loyalty to the product by heavy advertising ([Smiley, 1988](#)). Similarly, [Bunch and Smiley \(1992\)](#) found out that the most used barriers for the existing products and new products are the same as those highlighted by [Smiley \(1988\)](#). But for the newly developed products, strategic deterrence is regularly used in concentrated markets, constituted by large firms and intensive in R&D. For the existing products, strategic deterrence is also used in concentrated and R&D intensive markets, but firms' sizes do not

have any influence. In turn, [Chang and Tang \(2001\)](#) have shown that barriers to entry are not relatively low or non-existent in Singapore, a small open economy. In fact, deterring entry seems to be a fairly common practice. The most common barriers are advertising, completing all product niches and control of the distribution channels ([Chang & Tang, 2001](#)).

[Karakaya and Stahl \(1989\)](#) analyze entry barriers in two markets – consumer and industrial market goods – and assess whether the importance of barriers to entry differ between these two markets. In order to do so, 137 executives of the 49 major US firms were inquired about entry into 32 market opportunities. The results indicate that executives had considered various barriers when deciding to enter in a market and that the most important one was cost disadvantages. In addition, the importance of different barriers varies between consumer and industrial market goods ([Karakaya & Stahl, 1989](#)).

By analysing the food, chemical and electrical engineering industries, [Singh et al. \(1998\)](#) showed that for these three industries there is evidence that incumbents have strategic actions, although in a lesser extent than those detected by [Smiley \(1988\)](#). The most used barriers are advertising, R&D (but not patenting) and some vertical restraints. In turn, [Thomas \(1999\)](#) points out that one of the most important ways to stop new entries is incumbents' anticipated actions, using price, advertising or creating new products. By studying the industry of ready to eat cereals, [Thomas \(1999\)](#) concluded that incumbents use advertising to try to set a limit on the number of firms entering the market. In addition, there is a considerable probability that entrants find an aggressive response and that incumbents retaliate when the number of entrants is higher.

In a different empirical assessment, [Karakaya \(2002\)](#) found out that there are four major underlying dimensions of barriers to entry: specific advantages of incumbents – for example, cost disadvantages resulting from economies of scale, product differentiation, capital requirements or market entry costs and the expected profit by the new entrants. The latest dimension does not necessarily relate to a barrier to entry, but to a set of market attractiveness indicators. Government regulation and advertising were the barriers identified as less important in the [Karakaya \(2002\)](#) study.

More recently, [Lutz et al. \(2010\)](#) developed a study in the Netherlands about the perceptions that firms have on structural and strategic barriers to entry in a market, concluding that firms give extremely importance to this issue. Both types of entry barriers are relevant and the effectiveness of strategic barriers depends on the market structure characteristics. Further, [Niu et al. \(2012\)](#) concluded that the three most important barriers in China are advertising – which could hardly increase sales volume, access to distribution channels – since the number of distributors is limited, hampering firms' market growth, and market concentration – that is to say, the larger the market share held by large firms in the industry, the greater is the competitive pressure imposed on entrants. The three entry barriers identified as the least important were government policies, as incumbents seem to easily meet standards imposed by the government; advertising, since firms can easily raise funds for more advertising campaigns and capital needs as generally, in this country, the difference between the levels of capital required and available for incumbents is not significant ([Niu et al., 2012](#)).

The existing studies focus mainly on incumbents' strategic behaviour to defend market positions and to prevent entry, as well as on market structural aspects that can also deter entry (see, for example, [Blees et al., 2003](#); [Dijkstra et al., 2006](#); [Kemp & Lutz, 2006](#); [Lutz et al., 2010](#); [Niu et al., 2012](#)). In fact, the identification of the mechanisms that can deter entry in a market is important, because entry barriers can significantly influence industry profitability levels and competition. In industries where entry barriers are higher, the degree of competition tends to be smaller, leading to a decrease

on economic and social welfare and on the rate of innovation (see, for example, [Blees et al., 2003](#); [Lutz et al., 2010](#)).

On the other hand, the relevance of barriers to entry can vary across industries (see, e.g., [Bunch & Smiley, 1992](#); [Fuentelsaz, Gomez, & Polo, 2002](#); [Niu et al., 2012](#); [Singh et al., 1998](#); [Smiley, 1988](#)) and product life span (see, e.g., [Hibbets, Albright, & Funk, 2003](#); [Jenkins, Forbes, Durrani, & Banerjee, 1997](#); [Karakaya & Kerin, 2007](#); [Menon, Chowdhur, & Lukas, 2002](#); [Redmond, 2004](#)). Industry features have the power to explain the entry and the timing decisions of entrants, while incumbents' reactions to market entry is likely to be stronger in the introduction or growth stages rather than in other stages of the product life cycle. In the first stages incumbents attempt to build barriers to entry or increase the weight of the existing ones (e.g. switching costs, access to distribution channels or advertising) in order to protect expected profits. According to [Klemperer \(1995\)](#), switching costs are transaction costs related to the change of suppliers, with costs of learning how to use new products/services and the uncertainty about the quality of those products/services that have not been tested yet. High switching costs would increase consumer loyalty to incumbents' products and would impose high costs on consumers to change from incumbents to entrants' products, affecting significantly on post-entry expected profits.

In the last stages of product life cycle, incumbents may deter entry by increasing capacity in anticipation of high demand ([Harrigan, 1981](#)). In case of declining demand, barriers to entry tend to lose relevance as entrants usually give up on entry or decide only to introduce new or improved products into the market where they already are ([Karakaya & Kerin, 2007](#)). Nonetheless, the speed of technological change is an important factor in explaining differences on the relevance of entry barriers across industries and product life cycle.

Although several studies discuss the variety of possible entry barriers (see, for example, [Blees et al., 2003](#); [Porter, 1980](#); [Shepherd, 1997](#); [Stigler, 1968](#)), some crucial questions remain. The importance of each barrier and which of them affects more the decision to enter the market are issues that deserve further research. Empirical studies on this topic, like [Smiley \(1988\)](#), [Singh et al. \(1998\)](#) and [Lutz et al. \(2010\)](#), highlight the importance of empirical works on the issue in several countries, in order to determine to what extent one can generalize the results obtained in previous studies and understand which barriers truly influence the process of entering the market.

3. Data and sample

There are several difficulties in carrying out an empirical study on entry barriers (see, for example, [Bunch & Smiley, 1992](#); [Chang & Tang, 2001](#); [Smiley, 1988](#)). [Smiley \(1988\)](#) states that almost all firms are multi-product and their strategies are at product level, making the existing databases about the level activity of the firms useless. Even if the business strategies are transversal to all products or the information available is at product level, it is difficult to explain the observed patterns ([Smiley, 1988](#)).

[Chang and Tang \(2001\)](#) argue that using information about firms' profits can't determine the cause, the effect and intentions at product level. Therefore, as the objective of this paper is to find out, in the perception of Portuguese firms, which are the entry barriers that play an important role in affecting an entry decision and, taking into account the difficulties mentioned, the data collection instrument was a questionnaire (see Appendix A in Supplementary Materials), based on [Singh et al. \(1998\)](#) and [Lutz et al. \(2010\)](#).

Apart from questions related to firm-specific characteristics (e.g. size, location, economic activity), the questionnaire encompasses 25 closed questions related to entry barriers, a merge of ques-

Table 1
Distribution of firms by size and industry.

		Firms' sizes (number of employees)				Total
		Micro (<10)	Small (10–49)	Medium (50–249)	Large (≥250)	
Industries	Manufacturing	3	17	39	15	74 (44.0%)
	Construction	0	2	6	3	11 (6.6%)
	Wholesale and retail	3	33	28	2	66 (39.3%)
	Others	0	6	4	7	17 (10.1%)
	Total	6 (3.6%)	58 (34.5%)	77 (45.8%)	27 (16.1%)	168 (100%)

Note: The residual type of industries includes, among others, firms operating in financial and insurance activities.

tions from Singh et al. (1998) and Lutz et al. (2010). All those 25 questions are based on a 5-point Likert-type scale. A pre-test was performed in order to evaluate whether there was any error, poorly constructed questions and/or difficulty to interpret.

The target population includes firms belonging to the manufacturing industry (apart from the tobacco industry), construction, wholesale and retail, and financial and insurance activities. This choice was based on the argument that in these sectors entry barriers do exist and are most evident (see, for example, Karakaya & Stahl, 1989; Karakaya, 2002; Lutz et al., 2010; Smiley, 1988).

Firms' contact details were collected through the *Amadeus* and *Informa D&B Portugal* databases. As this task demanded a great deal of time, the sample size was chosen considering “the path of least effort” – we tried to gather the maximum possible email addresses until finishing the questionnaire – and the “rules of thumb”. We collected 7700 email addresses. Some of the emails sent were invalid (a total of 173) and 3 firms were not Portuguese and, therefore, did not fit in the study. The final sample size comprises 7524 firms.

Following Krejcie and Morgan (1970) criteria, the sample size is quite good. The questionnaire was sent out on December 2013 and valid answers were received until January 2014. Only 168 valid responses were obtained, which corresponds to a relatively low response rate. Nonetheless, considering the minimum value of sample size proposed by Krejcie and Morgan (1970), which would be 384 firms, the rate response would rise to 43.75%. Moreover, as we discussed below, the sample representativeness seems not be strongly at risk.

4. Results

4.1. Portuguese firms and their perceptions on entry barriers

In order to assess Portuguese firms' perceptions on entry barriers, Table 1 presents some characteristics of the observed ones. Most of them are small and medium firms – SMEs – indicating that the sample may well represent the Portuguese economy. On the other hand, industries are represented relatively evenly. The wholesale and retail and the construction sectors only have two and three large firms (250 or more employees) observed.

Despite the high share of SMEs, around 45% of firms see themselves as large incumbents and 48% of them as not very large firms but already well established. This may suggest that Portuguese firms may overestimate their competitive power. Therefore, firms' perceptions on entry barriers could be biased as, being established firms, they may not give much importance to certain barriers – such as capital requirements and capital costs – as a small entrant would.

Looking at the relevance of entry barriers, Table 2 reports differences on firms' perceptions. The least relevant barriers are strategic agreements and access to R&D investments, suggesting that Portuguese firms may operate in markets mostly characterized by low innovation. As a consequence, entry may not require large R&D investments or the engagement in R&D races with incumbents, leading to a perception that access to R&D is no effective barrier

Table 2
The four most and least important entry barriers according to Portuguese firms.

Barriers to entry	Mean	
	Structural	Strategic
Sunk costs	2.26	–
Capital requirements	2.30	–
capital costs	2.49	–
cost disadvantages	2.57	–
securing input/control over strategic resources	–	3.48
switching costs	3.50	–
Access to R&D	–	3.51
Strategic AGREEMENTS	–	3.88
Mean of all the barriers		3.00

Note: The reply options were: 1=To a very large extent, 2=To a large extent, 3=Somewhat, 4=Nearly not, 5=Not at all.

to entry. Interestingly, these findings are similar to those of Lutz et al. (2010) for Dutch firms.

Overall, entry barriers seem not to pose great restrictions to entry, since that, on average, they are just seen as “somewhat” important. Lutz et al. (2010) also found out that entry barriers are “somewhat” or “rarely” faced by Dutch firms. However, certain barriers appear to play a relatively important role. The presence of sunk costs – costs that firms have to face if they decide to leave the market – makes entry riskier (Schmalensee, 2004) and jointly with capital requirements seems to be the most relevant barriers for Portuguese firms.

On the other hand, Portuguese firms do not perceive product differentiation strategically used by incumbents as a relevant entry barrier. One possible explanation could be found on firm size, with a great predominance of SMEs in the Portuguese economy. In fact, Blees et al. (2003) argue that firm size is an important factor in markets dominated by product differentiation. In these markets' entrants may have to introduce a complete line of products to be successful (Blees et al., 2003). The ability of large firms to do that is higher as they have financial resources and can easily afford extra costs – such as production and advertising costs – related to a product differentiation strategy (Blees et al., 2003). In markets with low product differentiation, the most important barrier appears to be the economies of scale. Again, large firms seem to be better prepared to achieve economies of scale or to adopt technologies in order to overcome potential competitive constraints (Blees et al., 2003). Additionally, most of new firms are foreign firms – around 39%. If the new foreign firms are the large ones, this may explain the low relevance of product differentiation as an entry barrier in Portugal.

Another interesting finding is that Portuguese firms identify market structural aspects as the most important entry barriers (see Table 2). One possible explanation is that, in the context of the European Union (EU), Portugal is a small, open, and peripheral economy. The degree of openness of the Portuguese economy may reduce the scope for strategic behaviour towards entry by Portuguese firms. In this sense, structural barriers to entry may be more recognized by Portuguese firms than the strategic ones. Interestingly, Lutz et al.

Table 3

Barriers to entry perceived as the most and the least important by Portuguese firms in different sectors.

Industries		Manufacturing (except tobacco industry) (74 firms)	Construction (11 firms)	Wholesale and retail (66 firms)	Others (17 firms)
Barriers to entry					
Structural barriers	Capital Requirements	2.35+	2.27+	2.26+	2.29+
	cost Disadvantages	2.61	2.64	2.59	2.29+
	switching costs	3.41	3.91–	3.59–	3.29
	Access to R&D	2.81	3.27	3.64–	3.06
	Capital costs	2.46+	2.55	2.53+	2.47
	Sunk costs	2.32+	1.91+	2.23+	2.29+
Strategic barriers	Excess capacity	2.54	2.09+	2.67	2.71
	Advertising	3.51–	3.55	3.03	4.12–
	access to R&D	3.34	3.73–	3.59–	3.82–
	Securing Input/control over strategic resources	3.47–	3.36	3.42	3.82–
	Strategic agreements	3.86–	4.18–	3.86–	3.82–
	Total mean	2.95	2.99	2.96	3.04

Note: The reply options were: 1 = To a very large extent, 2 = To a large extent, 3 = Somewhat, 4 = Nearly not, 5 = Not at all.

Legend: +: Most important barriers; -: Least important barriers.

(2010) found a similar result for the Netherlands, which also reports a high degree of openness.

Table 3 shows the relative importance that firms give to an entry barrier among industries. Overall, the order of importance of each entry barrier is consistent among industries. Sunk costs, capital requirements and capital costs are relevant. So the sentence should be: Sunk costs, capital requirements and capital costs are relevant. However, one should enhance that the last one does not apply to the construction sector.

Given the Portuguese economic context, it appears to be increasingly risky for firms to enter a market without being able to recover the initial investment in case of market exit. Firms' perceptions on market attractiveness are relatively low for all industries, suggesting that firms could overvalue the risk of failure. In addition, firms may face increasing difficulties in fulfilling capital requirements, as it has been harder to banks to grant loans or extend loans at comparatively low rates. On the other hand, despite the relevance of excess capacity as an entry barrier, the structural aspects of the construction sector, which is quite dependent on public investment and suffers from significant demand fluctuations, suggests a non-strategic motivation for this potential barrier.

Regarding less important barriers, there are no significant differences among industries. Strategic agreements between incumbents are the least important barriers to all industries. It is sometimes hard for incumbents to achieve these agreements without generating doubts on competitive behaviour, as, for instance, collusion or abuse of dominant position can be seen as anti-competitive practices. As these practices are legally ruled out, it can explain the infrequent use and weak perception about this entry barrier.

Access to R&D as a strategic barrier also comes as less important to most sectors, except for the manufacturing industry. One possible explanation is that it requires funds to invest effectively in R&D in order to increase technological economies of scale and to change post-entry competition that makes entry even more ineffective (Karakaya & Stahl, 1989). Since it could be a short-lived barrier, incumbents may find it as a not worth investment. However, in the case of the manufacturing industry, the relevance of R&D access as a strategic barrier could be explained by the influence of product life cycle on incumbents' reactions to entry. Manufacturing firms are more likely to be heterogeneous in terms of product life cycle stages and R&D investments may be a way to avoid some stages by introducing new or improved products and sustaining their competitive position. By doing so, incumbents may affect significantly post-entry profits and potential entrants' decisions.

Although firms' perception on entry barriers does not differ much among industries, some differences can be found. The

Kruskall–Wallis test (significance level 5%) confirmed that there are differences among industries. As far as “advertising” as a structural and strategic barrier and “access to R&D” as a structural barrier are concerned. In turn, the Mann–Whitney test with Bonferroni correction shows that the differences are significant only between the manufacturing industry and the wholesale and retail sectors.

Looking at entry barriers perceptions within firms, Table 4 shows the most and the least important entry barriers by firms' sizes. The order of importance of entry barriers does not differ much among different firms' sizes. Nonetheless, the Kruskal–Wallis test (significance level 5%) confirmed that there are differences between firms sizes among the barriers “economies of scale” and “advertising” as structural barriers and “product differentiation” as a strategic barrier.

The most interesting finding is related to micro-firms, which have a lower perception regarding barriers to entry than SMEs, a result similar to Lutz et al. (2010) and Kemp and Lutz (2006). The fragile market experience and knowledge may negatively affect Portuguese micro-firms' perceptions on entry barriers, even though Blees et al. (2003) have argued that micro-firms have more awareness of entry barriers. Moreover, all firms recognize sunk costs as a barrier with the greatest relevance. The importance of capital requirements should also be pointed out. However, large firms give less relevance to this barrier comparing to firms of other sizes. Large firms trying to enter in a market are generally firms engaging in business diversification and they may end up having more experience and knowledge regarding organizational and technological levels and established relationships with suppliers, customers and distribution channels. Consequently, they may obtain funding easier than micro and SMEs, as the investment risk is not so high (Blees et al., 2003).

Interestingly, excess capacity appears as an extremely important barrier to SMEs. Blees et al. (2003) report that excess capacity will be deployed only when market price (unusually high) decreases due to entry of new firms, in order to incumbents maximize profit. Small entrants are usually unable to force a reduction on market prices. Thus, sizeable firms suffer more from this barrier than small firms (Blees et al., 2003) due to considerable extra capacity that the first ones bring to the market.

Although cost disadvantages are one of the most important barriers to micro and large firms, it is still a relevant barrier faced by firms of other sizes. Incumbents' cost advantages may actually result from several factors. Examples are the control over superior production techniques, the lower prices of the production factors resulting from market imperfections, or the employees with superior qualifications/skills. Micro firms, and even large

Table 4
Perceptive barriers to entry and firms' sizes.

		Firms' sizes			
Barriers to entry		Micro	Small	Medium	Large
Structural barriers	Capital requirements	1.83+	2.36+	2.21+	2.56+
	Access to knowledge	3.83–	3.22	3.39	3.30
	Cost disadvantages	2.17+	2.72	2.56	2.37+
	Switching costs	3.50	3.53–	3.49–	3.44
	Advertising	3.83–	2.86	3.17	3.48
	Capital costs	1.67+	2.47+	2.57	2.52+
	Sunk costs	1.83+	2.26+	2.26+	2.33+
	Strategic barriers	Excess capacity	3.50	2.53+	2.51+
Advertising		4.17–	3.40–	3.25	3.59–
Product Differentiation		3.00	3.10	2.51+	2.70
Access to R&D		4.00–	3.47–	3.51–	3.52–
Securing input/control over strategic resources		2.67	3.40–	3.57–	3.59–
Access to distribution channels		3.83–	2.98	3.08	3.44
Strategic agreements		3.50	3.66–	3.96–	4.22–
Total mean by firms' sizes		3.12	2.98	2.98	3.06
Number of firms		6	58	77	27

Note: The reply options were: 1 = To a very large extent, 2 = To a large extent, 3 = Somewhat, 4 = Nearly not, 5 = Not at all.

Legend: +: Most important barriers; -: Least important barriers.

entrants, may have difficulty in matching these incumbents' cost advantages, in particular when it comes to employees' superior qualifications/skills.

Looking at product differentiation, Portuguese medium firms seem to percept product differentiation as a relevant barrier. The Mann–Whitney test with Bonferroni correction provides empirical evidence that there are significant differences between small and medium firms regarding product differentiation as a strategic barrier. One possible explanation is that if small firms are able to specialize in market niches, the consequences of this barrier would be less intense and, hence, they would be “less punished” with such strategic option (Kemp & Lutz, 2006). Conversely, medium or large entrants may have to produce a whole range of products or services to be able to serve a market (Kemp & Lutz, 2006). Moreover, firms with different sizes are likely to be at different stages of product life cycle, which affects incumbents' reactions towards entry and, consequently, the relevance of entry barriers.

Similarly, to access to R&D as a strategic barrier, strategic agreements appears to be trivial to Portuguese firms, aside from micro firms. The explanation for this finding can be rooted on the incumbents' difficulty to achieve agreements without leading to anti-competitive practices. Securing input or control over strategic resources is also a trivial entry barrier for medium and large firms. According to Blees et al. (2003), large firms are more likely to hold control on key production resources, giving greater financial capacity, more skilled workers or better machinery, or high bargaining power over suppliers comparatively to small firms. Moreover, it could be hard for small firms to protect their knowledge base.

Interestingly, contrarily to Blees et al. (2003), micro firms do not consider advertising – both as a structural and strategic barrier – as a relevant entry barrier. One possible explanation could be that most of these firms are well known and their turnover comes mostly from business to business relationships, rendering advertising as a negligible strategy. Similarly, these features may well explain why access to distribution channels, as a strategic barrier, is a trivial entry barrier for small firms.

In short, the importance of entry barriers does not differ much between industries or firms. Sunk costs, capital requirements and capital costs are the entry barriers perceived as relevant, while strategic agreements between incumbents, access to R&D as a strategic barrier or switching costs appear to be trivial to Portuguese firms. Moreover, contrary to what would be expected according to previous works (see, for instance, Blees et al., 2003),

micro firms have a lower perception about entry barriers than SMEs or large firms.

4.2. The underlying dimensions of entry barriers

In order to reduce the number of entry barriers perceived by firms and to summarize them in a small set of “factors” or “components”, an analysis of principal components was performed. Using the Kaiser criteria, the model with 6 factors was selected, which leads to unambiguous interpretation of the results. Table 5 identifies the six factors that set up the underlying system and drive firms' perceptions regarding entry barriers. The six factors combined explain 50% of the variance in the data and provide a meaningful and interpretable factor structure. In addition, using the Cronbach's alpha procedure, the reliability (or consistency) coefficients are all above 0.7, suggesting that the items have relatively high internal consistency.

The first factor is mainly characterized by “access to R&D” and “access to knowledge” both as a structural and strategic barrier and “switching costs”. All these barriers are related to know-how and R&D. According to Blees et al. (2003), switching costs are related to the speed and radicalness of technological changes that only occur if firms invest persistently in knowledge and R&D, forcing technological changes in the market. Radical or drastic technological changes may alter the own nature of products and processes, and consequently, alter market nature. Since switching costs are related to consumer loyalty to certain products or product line, a new technology that supplies new and different products, can be a way to circumvent the barrier “switching costs” (Blees et al., 2003). Thus, the first factor is referred to as “R&D”.

Firms can adopt strategies to deter, discourage or even block entry. Retaliation, limit pricing and incumbents' strategic use of information are three examples of these strategies. Therefore, factor two is termed “strategic behaviour”. On the other hand, factor three encompasses capital costs and sunk costs and is entitled “investment risk”. Capital and sunk costs will be higher the greater the risk of investment is and therefore the capital cost too (Blees et al., 2003).

Advertising as a structural and strategic barrier forms factor four, so it is called “advertising”. Access to distribution channels as a structural barrier, capital requirements and economies of scale are part of factor five. All these barriers are related to entrants' cost disadvantages. Blees et al. (2003) argued that blocking the access of

Table 5
Factors describing the underlying dimensions of barriers to entry.

		Factor loadings with Varimax rotation with Kaiser normalization					
		Factor 1 I&D	Factor 2 Strategic behaviour	Factor 3 Investment risk	Factor 4 Advertising	Factor 5 Cost disadvantages	Factor 6 Capacity
Structural barriers	Access to distribution channels	−0.01	−0.04	−0.13	−0.04	0.60	0.13
	Capital requirements	−0.12	0.05	0.31	0.11	0.68	−0.22
	Economies of scale	0.16	0.00	−0.10	−0.07	0.63	0.31
	Government regulation	0.29	0.06	0.18	−0.03	0.59	−0.15
	Access to knowledge	0.70	0.10	−0.18	0.01	0.03	0.20
	Cost disadvantages	0.17	0.27	0.36	0.03	−0.02	0.33
	Product differentiation	0.51	−0.28	0.26	0.11	0.02	0.17
	Switching costs	0.63	0.05	0.09	0.05	−0.01	0.23
	Access to R&D	0.81	−0.01	0.01	0.00	0.16	−0.13
	Advertising	0.23	0.03	0.14	0.85	−0.09	0.00
	Capital costs	0.08	0.20	0.84	0.02	−0.02	0.04
	Sunk costs	−0.04	0.12	0.82	0.10	0.12	0.19
	Strategic barriers	Excess capacity	−0.11	0.24	0.16	0.02	0.10
Advertising		0.12	0.03	0.01	0.87	0.01	0.13
Product differentiation		0.45	−0.22	0.11	0.16	0.05	0.62
Access to R&D		0.76	0.18	−0.02	0.23	0.08	−0.02
Retaliation		0.05	0.64	−0.01	0.50	0.09	0.13
Limit pricing		−0.06	0.72	0.08	−0.02	0.12	0.20
Information asymmetry/Incomplete information		0.00	0.74	0.13	−0.04	0.12	−0.03
Access to knowledge		0.65	0.28	0.19	0.25	−0.04	−0.06
Securing input/Control over strategic resources		0.28	0.57	0.36	0.07	−0.10	0.11
Access to distribution channels		0.21	0.34	0.10	0.12	−0.04	0.44
Strategic agreements	0.14	0.59	0.08	0.03	−0.25	0.04	
% of variance explained	14.8	11.8	8.9	8.4	7.6	6.9	
Cronbach's alpha	0.877	0.836	0.831	0.875	0.859	0.860	

Notes: Extraction method: Principal component analysis. Number of retained factors: 6 factors. Rotation method: Varimax with Kaiser normalization. Values in bold indicate the loadings data barriers to entry included the factors (≥ 0.60).

distribution channels forces entrants to develop new – and usually more expensive – ones. As the new distribution channels are a more expensive alternative, eventually incumbents have cost advantages comparatively to entrants (Blees et al., 2003). Incumbents that have high cost advantages – for example, due to technological developments – may require less external capital (Blees et al., 2003). Entrants that are not operating at minimum efficient scale will incur in a cost disadvantage compared with incumbents. The cost advantage to operate at minimum efficient scale accentuates the effect of economies of scale (Blees et al., 2003).

The last factor encompasses excess capacity and product differentiation as a strategic barrier. According to Sørsgard (1997), an entrant should limit their capacity, even if the production costs per unit are smaller in order to avoid the “trap” of high initial investment in capacity. An entrant may seek a niche market in an attempt to signal that it does not feel threatened by incumbents' market share. A high degree of product differentiation may help achieve this. An entrant may be able to increase demand up to certain levels that incumbents' capacity surplus is insufficient to serve the whole market, thus leaving room to entry (Sørsgard, 1997). Therefore, factor six is called “capacity”.

Although Lutz et al. (2010) have identified seven principal components rather than six, there are some similarities with our findings. Both studies have identified R&D, strategic behaviour and advertising as key entry barriers. There are also resemblances with the findings of Karakaya and Stahl (1989) and Karakaya (2002) works. In short, more than half of the entry barriers are strongly represented in these 6 factors. The factors “investment risk” and “cost disadvantages” can be considered as structural barriers, whereas the factors “R&D” and “advertising” include structural and strategic barriers.

Although the literature highlights that there are differences between structural and strategic barriers, these two aspects show that strategic barriers are dependent on structural characteristics

of markets. Market structural characteristics do not drive strategic barriers, but they are a necessarily condition for a strategic barrier to be effective (Lutz et al., 2010). That is, the effective and strategic use of a barrier by a firm seems to be dependent on the market's structural characteristics. It is noteworthy that the so-called factor “strategic behaviour”, encompassing retaliation and limit pricing strategies, is only an effective entry barrier if the number of competitors in the market is limited which, again, means that the effectiveness of strategic barriers is dependent on the attributes of market structure (Lutz et al., 2010).

5. Conclusions and implications

There is scarce empirical evidence on the effective role played by some entry barriers. This paper contributes to fill in this gap by providing empirical evidence on Portuguese firms' perception about the importance of structural and strategic barriers. Even though sunk cost, capital requirements, capital cost and cost disadvantages are considered relevant entry barriers for Portuguese firms, most of them appear to play a minor role (or most of them are undervalued).

Regarding the least important entry barriers, firms' perceptions indicate strategic agreements among incumbents, access to R&D, consumer switching costs and controlling input or strategic resources. Although there are dissimilarities between industries and firms, in general, there is no order of importance in terms of entry barriers. Therefore, the main explanations for differences on barriers perceived by firms should not be linked on differences among industries or firms' specific characteristics.

Interestingly, micro firms have a lower perception regarding to entry barriers than SMEs and large firms. The lack of experience and market knowledge appears to affect perceptions on entry barriers and may cause a defective recognition of competitive environment.

Another surprising result is that some entry barriers seem to be attached to structural market characteristics, which encourage firms to respond strategically. The importance of knowledge, patents and switching costs can be examples. Advertising and product differentiation provide similar examples where structural barriers induce strategic actions. As such, the effectiveness of entry barriers appears to depend on market structure attributes.

Despite these results, the paper has some limitations. One limitation is the sample size, implying that conclusions should be read with caution. Nonetheless, our findings may serve as a guide for future work and could be helpful to understand competitive environment. Another limitation is that the sample only comprises active firms, either new or incumbent firms. This may cause some bias as respondents have already overcome existing barriers and, therefore, their perceptions could differ from potential entrants' perceptions (Lutz et al., 2010). Nevertheless, it is difficult to identify and trace potential entrants with practicable business plans. On the other hand, active firms can operate in a market and therefore they may have better perceptions on barriers having impact on entry decisions.

The limitations of the paper offer some clues to possible future work in order to deepen our understanding on the relevance of entry barriers. In particular, the sample enlargement, either in terms of size, firms, industries, and countries, could provide further understanding on the role of entry barriers in shaping the decision of entering in a market. Other promising approach of research could be to assess whether firms' perceptions regarding entry barriers evolve as firms survive in a market and whether there are significant differences between young and old firms. Another fruitful path research could be to examine whether digital transformation modify the relevance and impact of entry barriers. Digital transformation poses important strategic challenges to firms as it could imply drastic changes on competition. Understanding how firms could use entry barriers to deal with the opportunities and threats of the digital era is a topical issue that deserves attention.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.iedeen.2020.02.002](https://doi.org/10.1016/j.iedeen.2020.02.002).

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