EXTENDED ABSTRACT

Title:

The Survival of Spanish Video Game Firms: Negative location externalities after all?

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Abstract: *(minimum1500 words)*

This paper analyses firm survival of the Video Game industry in Spain between 1980 and 2018, i.e., from the naissance of the industry till its maturity. This allows us to observe the survival process of firms through different life cycle stages and through very different industry structures.

From a spatial point of view, the Video Game industry has shown a clear concentration at bigger metropolitan areas in Spain. This is a continuous trend since the first firms were created in the early 80s, and the concentration occurs mainly in in Barcelona and Madrid where in addition to the existence of the most important firms, there is as an important ecosystem of other smaller companies providing specialised services and training workforce with the required skills.

The literature about firm survival has focused on different dimensions in order to analyse what explains the capacity of firms to continue operating in the market. Roughly, we may classify these determinants into internal and external ones, being the internal those related with firms' characteristics (such as size, age and industry, for instance) and the externals those related with the geographical areas where firms are located. According to this framework, this paper benefits from two important advantages that allow us to contribute to understand survival determinants. The first one refers to the dataset we use. Concretely, we use a dataset kindly provided by DeVuego, an organisation where most of the firms in the industry belongs to. This dataset, that contains the entire video game industry in Spain, from its appearance at the beginning of the 80s until nowadays, is not only about firms' characteristics, as it also includes detailed information about products developed by these firms, such the games, their developers, and the platforms being used, among other characteristics. All this information allows us to precisely identify the way in which firms' strategies (i.e., in terms of product differentiation) affect their survival rates. The second, about the scope, this paper it goes a step further in what refers to the traditional models of business survival, not only dealing with determinants of survival related to the environment and the economic performance of the firm, but also taking into account aspects of the Video game industry, such as the success of the video games that go on the market (i.e. thus analysing the reception by the demand for the video games through the scores), the technological evolution of the video consoles and the adaptability of the companies to this technological change, as well as the strategic aspects of this type of company, choosing on a multiplatform or single platform strategy when creating video games, and finally, the third one refers to the firms' location, as most of previous empirical literature has neglected this dimension. Concretely, by taking this into account we are able to analyse the role played by localisation economies (i.e., the effects of the concentration of firms belonging to the same industry in the same area). This is a relevant issue as there are some contradictory results in previous empirical literature. In

this sense, De Vaan et al. (2012: 4-5) argue "that negative externalities stemming from co-location increase roughly linearly with the number of fellow competitors (…), but that positive localization externalities increases more than proportionally with the number of co-located firms in the case of project-based industries". Also, using data from firms that developed or published one or more computer games during the period 1972 to 2007 they "find that the net effect of clustering becomes positive after a cluster reaches a critical size". However, their preferred measure of localization externalities, regional firm population, is constructed at a rather aggregate level (TL3 regions in the OECD nomenclature). In this paper we go deeper and we compute the same measure at the provincial level in order to find evidence regarding the hypothesis that positive locational externalities exist in project-based industries.

Although we deal with a very specific industry, there are new research directions that arise from our results. In this sense, our findings may be extended to other activities and products, in order to obtain more precise estimators about the role played by firms' characteristics, firms' strategies and firms' location over their survival rates.

Survival in the Video Game industry

The Video Game industry is commonly known as the interactive entertainment sector, which is the economic sector that develops, designs, publishes, distributes and sells Video Games. The main product of this industry, that are Video games, despite being popularly known as a hobby for children or adolescents, sometimes non educational and addictive (Irles and Gomis, 2016; Lin et al., 2021), it has become in one of the most representative elements of the Computer Revolution and has changed the way producing an oportunity in which both, culture and markets, can perform together (Lampel et al., 2005; Molesworth and Denegri-knott, 2013).

Among all ICT's industries, in terms of entrepreneurship, Video Game firms can be considered innovative, managing a recent kind of product and has been suffered a clear underestimation from some economic sectors, that nowadays is still present. As other type of industries from the same field, due to its inner innovativeness, small Video Game firms had to cope the risk of fail during its first launching years (Eyles, 2016; Méndez-Ortega and Teruel, 2020).

During the first years of the industry, this industry was tested by the market to prove if it would become a solid industry or just an industry with a few seasons fashion and then disappeared (Eyles, 2016; Cabras et al., 2017). In fact, during the 90's, this industry has suffered some stationary crisis related to some failures linked to piracy influence or huge projects that failed miserably (e.g., Comodore Amiga, in the 80's). During these periods, some companies that produced really important videogames, received important recognition among their fields and realized also important economic results during some years, but their business, after a positive feedback from market wasn't able to be enduring and these Video Game firms didn't success to face financial difficulties during most difficult times, getting on bankrupt, acquired or funded with stronger brands and then being dissolved, creating an important grief for many followers and in some cases, producing some jobs lost.

The Video Game industry is, like other traditional business models, influenced by the usual mechanism, for example, by a distinction between small studios and big corporations (i.e., SMEs and multinational companies), with the contrast between the new 'traditional' software houses and the most ingenious, stable and long-established brands. The last decades, sometimes based on a conservative strategy that contrasts with emerging groups of game developers.

About failure and disappearance of this studies, some reasons could be even 1) not purely economic (e.g. the case of Lucas Arts, who was sold to The Wald Disney Company some years ago), others could have a 2) short successful period and then dissolved (Cabras et al., 2017) and other Video Game firms are 3) dismissed because have sometimes failed to reach their selling objective, sometimes for a wrong production, distribution, marketing strategy or a needs evaluation of their potentially buyers. There are other factors not linked to firm-performance, those are based on the gameplay, balancing difficult, fun and innovativeness or even some on graphical performance, with the appearance of 'bugs' in the game, especially when a new Video Game is launched, affecting in a very beginning to the sells performance (Varvaressos et al., 2017; Lin, Bezemer, Hassan, 2019).

It is also important to highlight the role that acquisitions plays in this industry. Differentiating itself from other industries, in this industry if a firm is bought or partially acquired by a large firm of the industry, this is not necessarily a bad sign of its

performance, but it can be positive for the project that is being carried out. Therefore, being acquired is best considered as a sign of success rather than as a business failure (De Vaan et al., 2012). This acquisition could be positive for the acquired and acquirer firms, increasing its income and productivity after this process (Méndez-Ortega and Teruel, 2020).

Lastly, 2 characteristics that could influence on Video Game firm survival are location and managerial resources. Firstly location, since the presence of good human capital and be located in some specific places with other firms, have positive effects on life expectancy of the firm, as well as, to invest in managerial resources (Cabras et al., 2017). It is a fact that Video game industry is still an unexplored industry, with many potentialities research to be taken and exploited for a better thinking of entrepreneurial organization and survival determinants

The Video Game industry in Spain: some figures

The Video Game industry belongs to the Information and Communication industries (what is commonly known as the ICT Industries). In strict terms, according to the Official statistical institutes and its equivalents (e.g., INE, Eurostat, Bureau of Labor Statistics, etc.) the ICT Industries are composed by the ICT Manufacturing Sector and other 4 service sectors: publishing, audio visual media (cinema, video, tv, music and their programming), telecommunications and data processing (programming, computer consulting and information services).

The Video Game industry in Spain has grown significantly in recent years, according to the Spanish Videogame Association (AEVI in Spanish), in 2020 the direct turnover of the industry was more than 1,747 MEUR (with an increase of the 18% compared to 2019), being from those, 790 MEUR obtained by physical Video Games sales and 957 MEUR by online Video Games sales. According to jobs, during the same year, the industry generates more than 9,000 direct jobs and more than 23,000 indirect jobs, producing and impact in the economy of 3,577 MEUR (AEVI, 2021).

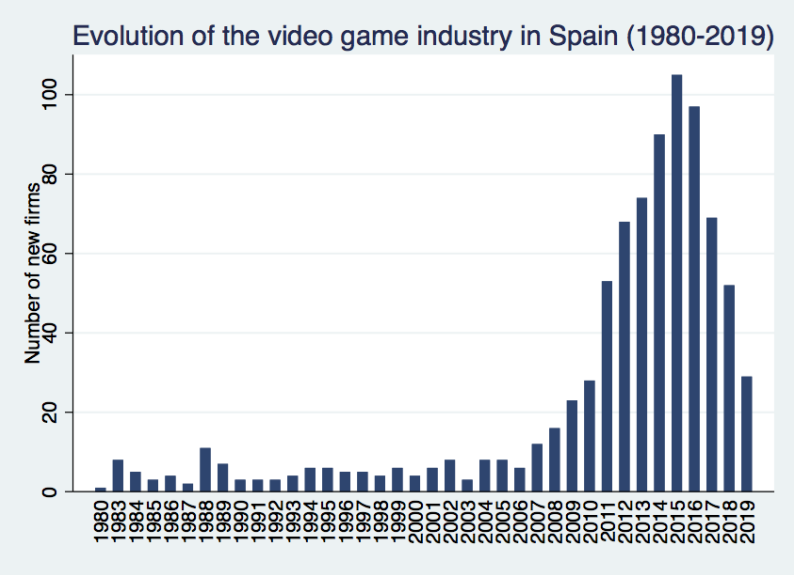
About the profile of the players, the 45.9% are females and play in average 7.5 hours per week, the lowest value if we compare with other European countries as Italy (8 hours), France (8.9h), Germany (8.8h) or United Kingdom (12.2h). Dividing the players

by age, we found that approximately the 70% of people between 11- and 24-years old play videogames, more than the 50% for the case of people between 25 and 34 and a 35% for people between 35 and 44.

Entry, exit and survival patterns

The evolution of Video Game industry in Spain shows almost a steady situation during the 80s, 90s and mid 00s, when the number of firms new grows at a tiny rate and is very similar during those 25 years period (see Figure 1). If is after mid 00s when entries boost in a rapid way till 2015, when new firms accounted for more than 100 firms for the first (and unique) time. After that, and surprisingly according to the expanding pattern of the industry, number of new firms decreased rapidly.

Figure 1. Number of new firms at the Video Game industry in Spain (1980-2019).

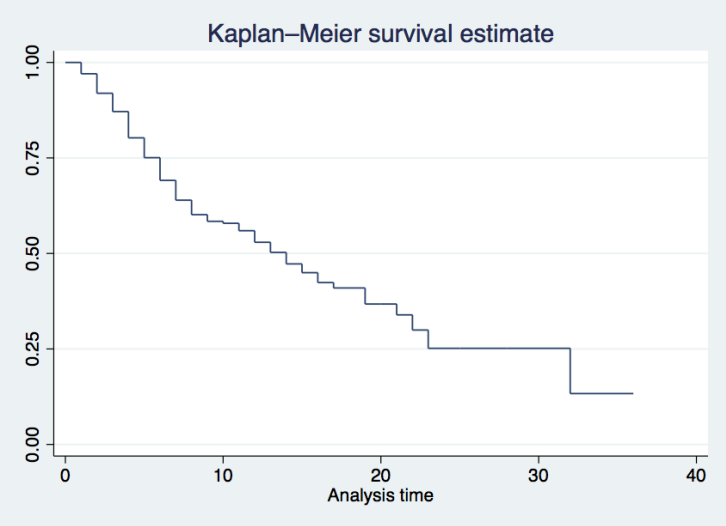


Source: own elaboration.

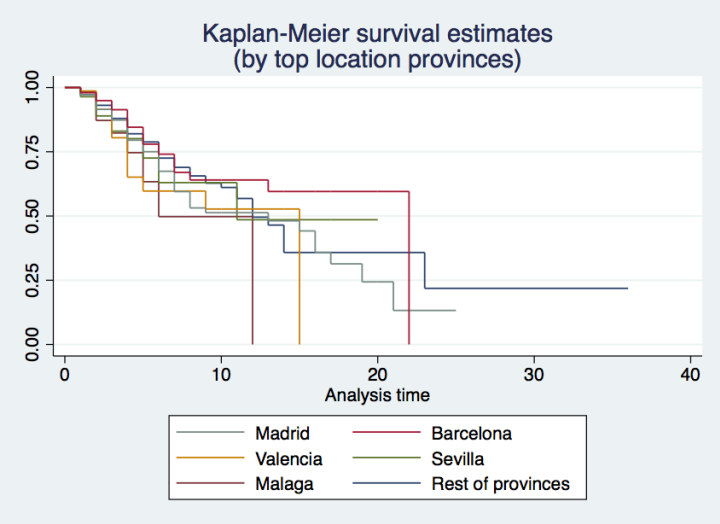
In spite of these entries, Video Games industry is characterised by a high degree of competition, being that turnover rates are so high and firms' exits are quite important, especially in the years following entry.

Figure 2. Kaplan-Meier survival estimates

Whole sample



Top 5 provinces vs. rest of provinces



Source: own elaboration.

In this sense, Figure 2 shows the Kaplan-Meier survival estimates for all provinces and for the selected 5 five, which allows to observe some specific spatial patterns that influence life span.

Keywords: *VideoGames, Survival, Externalities,*

JEL codes: D22, D40, R19

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