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Essays on French motion picture industry under global and digital conjunctures

Essais sur le cinéma français à l'heure de la mondialisation et de la numérisation de l'économie

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CHAPTER I

Introduction

In the past two decades, there have been enormous changes in the organization, content and consumption of media due to accelerated globalization merged with digitization. The impact of these changes in global movie industry and specific to our case how they will affect the future of the French film industry are still unknown. The researches on the determinants of export success of French films, as well as the impact of subscription on video-on-demand platforms are sorely limited to some simple description of the phenomena and lacks further research. This thesis addresses important questions in the field of French film economics, including the determinants of exportation success, consequences of the arrival of Netflix, the distortionary impact of subsidy system as well as the determinants of domestic box office success.

Each of the following three chapters share a common methodology; they are built with an original database collected from various sources. Each of them is based on econometric methodology fitting best to the nature of data i.e. quantile regression, marginal propensity score method, fixed effect models. Their results fulfil two functions 1) to have a better scientific knowledge of the demand and 2) to help in the formulation of proposals. The analyses reveal a number counter intuitive results that pave the way for a more ambitious thinking for the future of French film industry at the age of accelerated digitization and globalization where consumers have a greater diversification of access modes to video contents, where old cultural policies are outdated to maintain the domestic demand for French films endangered by the heated competition. We shed a light on certain little-known aspects of the exercise of this profession in the French film industry i.e. financing strategy, co-production strategy, star strategy and very importantly exportation strategy to strengthen the domestic and foreign demand of French films.

The motion picture industry has an unneglectable economic, cultural and political importance. Movies are one of the most popular cultural expressions worldwide, attracting millions of spectators to the theatres and melting all social classes with a spectacular popularity since 1895. Every year 8.5 billion tickets sold worldwide (Statista, 2018). The motion picture industry in the US has been one of the largest contributor industries to GDP and employment. It is also one of the major contributors to exports (Siwek, 2013). In France, the cinema and audiovisual sector's economic importance is equal to the automobile industry, its added value to GDP is even higher than the one of pharmacy and textile sector. A cinema ticket sold with an average value of €6.42, generates 5 times more than the amount initially spent and contributes the economy €30 together with the added value, also creating 1.3% of employment (CNC, 2013).

Next to its economic importance, movies allow to express different cultures and opinions globally, hence it is one of the most important components of the *soft power* execution among countries (Aydemir, 2017; Hayden, 2012; Nye, 1990). Soft power is a way of strengthening the position of a country, the bonds with other country citizens by cultural studies allowing to win hearts and reach outstanding results in international relations. Hollywood is an example which globally helps to put an American image into the minds of people by telling the culture of Americans, justifying their democratic values in the world and showing their life style. The soft power mission of cinema is very important that China's president Xi Jinping recently encouraged media and film making with the statement "*tell China's story well, spread China's voice well, let the world know a three-dimensional, colorful China*" (The conversation, 2018). Bollywood helps India to create an image of yoga, food, tolerance, dance, music, multiculturalism, fashion, information technology and these reflections returns to the country in form of tourism and benefits through international affairs. Distinctive auteur French movies help to create the image of "French touch" and radiate France in many other forms i.e. tourism, fashion, luxury. Briefly, the consumption of produced films both in the domestic and foreign market is strategically important for culture transmission and international relations next to its economic importance.

Each country contributes to the global film market in the limits of their economy, the importance they attribute to their cultural industries, the population of the country and the public-private investment availability. Statistics published annually by the European Audiovisual Observatory supply a database for comparing film industries of different countries contributing to global film market. National movie industries are mostly compared by the number of films produced annually and also by national market share of local films (European Audiovisual Observatory, 2016). India is the leader movie producer company with above 1900 movie production per year. The list is followed by the US and China each with 700 annual movie production. Japan is the 4th in ranking with 600 movies and France is in the 5th position with 300 movies. India, China, Japan and France are also among one of the rare countries where the domestic market share of local films is in a strong position next to American movie domination. On the other hand, despite the satisfactory domestic performance of local films, these movies perform poorly once exposed to foreign audiences. In the frame of exportation success, American films hold the hegemony by reaching up to 70% in most of the foreign markets. In Europe, where the domestic movie industries are protected through quotas applied on foreign language movies, and subsidies, the market share of US origin films reached to 65% of the European entries in 2015, while European films reached to 26% of it (EAO, 2016). French film industry with 300 movie production per year is attaining 37% of the domestic entry numbers which is the highest market share of local movies in Europe (124 American movies attain 49% of it)(Table 1). Once focused on exportation success, French movies which are domestically well performing, rarely exceeds 2% of foreign markets (Unifrance, 2016). On the other hand, it is important to underline that French language movies are the second most demanded foreign language movies in abroad following the ones in English language. The rest of the countries perform even more poorly in international markets. India, the largest movie producer country in the world with annual movie production above 1900, exports less movies in abroad and perform even poorer.

There are several reasons why most of the country's movie products except the ones from the US, suffer from an extremely low market share in foreign markets.

“Cultural discount” phenomenon is one of the most important factors. An exported product rooted in one culture, and is attractive in that environment, is expected to have diminished appeal elsewhere, as viewers find it difficult to identify with the style, values, beliefs, institutions and behavioural patterns of the material. This phenomenon is called “cultural discount” (Lee 2006; Waterman 2005; McFadyen et al. 1997; Hoskins and Mirus 1988; Wildman and Siwek 1988). Next to cultural discount there are also marketing problems. The advertising spending is equal to 50% of the budget of a film in the United States which is only 10% for French films, which is the second highest exporter of foreign language films (George, 2002). Lastly there are “economic” problems. Economies of scales, limited home market size causes lower investments in filmmaking. Such that the larger the home market, the more specific steps in the production process can be achieved as well as more expensive blockbuster productions can be carried with the lower sunk cost per head which increase the visual quality (Lee and Waterman 2007; Wildman and Siwek 1988). As an addition, American firms have lobbied for media and distribution of movies, promoting English language movies with free trade arrangements in local countries, they analyzed the needs of consumers and produce entertainment movies since decades for responding these needs (Schiller 1976). Globalization and free trade agreements after WWII helped American movies to penetrate further to local markets, allowed to conquer the hearts of foreign citizens and hegemonize the foreign demand by defeating even the demand for local movies. Such trade agreements, as well as the degree of global integration, impacted countries and their strategic industries i.e. movie industry, differently.

Globalization is often defined as a process beyond that of internationalization “stretching of social, political and economic activities across political frontiers driven by the extension and expansion of world wide systems such as transportation and telecommunications, and resulting in an increasing interconnectedness between nations” (Walkley, 2016, p.27; Lorenzen, 2007; Cowen, 2002). While many researchers take the origins of globalization in the modern era, 19th century, era of industrialization (O’Rourke and Williamson, 2000), some stretch the beginning of it far. According to Friedman, three-time Pulitzer prize winner, the history of globalization has three periods and goes back to the end of 15th century:

globalization 1.0 (1491-1800), Globalization 2.0 (1800-2000) and globalization 3.0 (2000-present) (Friedman, 2006). Briefly, the concept of globalization, the historical origins of globalization and the different phases of globalization are the subject of an ongoing debate.

On the other hand, globalization has always been, in different forms, a factor happening to the film industry. A movie made in China was possible to be screened at Peru, or filmed, co-produced since the invention of the cinema in 1895. Organization wise since a century, the early movie makers saw the potential of the industry and started to invest in foreign markets. The French were the first in action, by 1903 the pioneer filmmaker Georges Méliès initiated to open a branch office in New York, and by 1905 Charles Pathé had an American office (Copeland *et al.*, 2000). Even if globalization has always been happening to the film industry, the concept is evolving and its impacts on motion picture has been different throughout the history. Since 2000, digitization as a transformative power is a strong driver of globalization which didn't existed before. As Stigler stated "Globalization in 2020 is different from globalization in 2000" (Stigler, 2017). What we intend to say is that the consumption, distribution and production of motion picture in the global market has been impacted by accelerated globalization transformed with digitization and the technological inventions since 2000.

Cinema since its invention has always been connected to technology, as it is connected to globalization since 1895. It is the first art to have been born at the time of the industrial boom and the industrial imperatives allowed the commercialization of the technical process developed, on the contrary of music, as the book, which have become real industries with the integration of new techniques but have not always been. While in the 19th and early 20th century, small theatres and concert houses offering artisanal shows for the local public, bringing producers and consumers together, the cinema allowed to industrialize the spectacles.

Over the course of the time, the technological progress which allowed the invention of cinema introduced other technological inventions reshaped the industry. The golden age of cinema was first interrupted with the invention of TV in 1950s and its spreading in each house as an alternative media platform for watching similar entertainment contents. In the following years, the interval between each technological invention got shortened: the invention of DVD, internet file sharing, the invention of Vodi, and lately Svod² services. Only twenty years ago, the internet was primarily used for email and very limited information search. Downloading a song took hours, while downloading a movie took days with a costly telephone bill. Two decades ago, printed media (newspapers, books, magazines) were performing well. Amazon was a startup presenting itself as the largest physical bookstore. Two decades after, we are surrounded by mobile technologies, smartphones, iPads, laptops which are offering all the platforms at once: movie, music, television, publishing. Audiences are increasingly using a wide range of media giving instant gratification to watch movies (i.e. smartphone, tablet, Vod, Svod). Thousands of quality movies are available any time on any device, and not only, there are also other forms of entertaining video contents i.e. YouTube, Instagram, Facebook videos, heating the competition game. All these alternatives might substitute movie going activity. People have limited time to spend between work, sleep and leisure activities. Not to forget the number of TV series of cinema quality, giving extended satisfaction over weeks, consumed in binge, can mutate the previous consumption habits as well. An overloaded change is going on at an incredible speed. The young generation are the most frequent cinema goers and they are also addicted to technology and instant gratification.

Briefly, a mutation, in the production, distribution and consumption of movies due to a greater diversification of its access modes, increasing variety of possible substitutes, are being observed since 2000s. The speed of the change is so fast that the researches done a decade ago on the impact of a new technology or a digital platform in one of the music, book, movie industries became already out dated in 2020s.

¹ Video on Demand.

² Subscription Video on Demand.

The movie industry since its invention has been associated to *the happy few, star system, winner takes all* phenomenon (Grefe, 2010; Anderson, 2006; Sagot-Duvaurox and Moureau, 2006; Benhamou, 2004; Caves, 2002; Rosen, 1981). *Winner takes all, star system, the happy few* markets are “concentrated” markets in which the best few performers are able to capture a very large share of the rewards, and the remaining competitors are left with the left over. This concentration appears both in within and between countries. Within countries, few numbers of distribution, movie production firms account for large percentage of the total box office revenue. Between countries American movies attains up to 70% of the export market, and movies of other countries despite a high number of annual movie supply share the left over. The movie products of countries outside of the US are perceived as niche movies: screened at festivals, art house movie theatres, and mostly consumed by niche audiences.

The ongoing global, digital and technological changes impact the global movie admissions. How are countries outside of the US are impacted by the accelerated globalization merged with digitization? Can small film producing countries i.e. France increase the foreign and domestic theatrical demand in this competitive environment by creating a habit thanks to alternative platforms? Digitization greatly reduced the cost of bringing new products to the market allowing simultaneous worldwide releases in alternative platforms by removing the distribution bottleneck, facilitates the marketing, and threatening traditional revenue sources of movie industries (Waldfoegel, 2017; Bellon, 2016; Bourreau *et al.*, 2012; Dejean *et al.*, 2010). With the digitization, researchers like Chris Anderson believe that the happy few market systems is changing to *selling less of more*. In other words, a shift from a relatively small number of hits (mainstream products at the head of the demand curve) toward a massive number of “niches” lying in the tail is occurring (Moreau and Peltier, 2012; Anderson, 2006). On the other hand, According to Tan *et al.* (2016) and Elberse (2008), the increased product variety and the easy accessibility in the market thanks to digital platforms concentrate the demand: boosts the demand for hits and lowers the demand for niche products which contradicts the long tail effect of Anderson.

The IUS statistics supply data on the global movie statistics from 2005 and on. The statistics shows that the increase in global box office revenues is a trend ongoing since two decades. China's domestic box office revenue went from 157M entries in 2005 to 1620M entries in 2017. The admission numbers in Brazil went up from 83M to 181M, in Russia from 84M to 213M, in Mexico from 154M to 338M, in Korea from 145M to 220M, in Turkey from 27M to 71M, in Colombia from 16M to 63M, and in France from 175M to 205M. As to the global box office of American movies, they raised from 23.1M\$ in 2005 to 40.5M\$ in 2017 of which 28.5M\$ is international box office revenue.

Once looked closely not all national movie industries benefitted from the ongoing changes as it seems (see table 1). The domestic admissions in France increased from 175M in 2005 to 205M in 2017, yet this increase mostly benefited hit profile American productions rather than French or other European productions. The market share of American movies increased from 45.8% in 2005 to 49.2% in 2017 even if the number of American movies released in France decreased from 149 in 2005 to 124 movies in 2017 which means 54% of growth rate in admissions per American film. As to the domestic market share of French films, an increase is observed from 36.6% to 37.4% so does in annual French movie supply from 240 movies in 2005 to 300 in 2017. In other words, this means a lower admission number per French film. Another observation in the performance evolution of French movies is that the theatrical demand for European films also regressed from 15.7% to 10.6% (Table 1). The ongoing changes seem to deteriorate the consumption of local and niche movies (French and European films) lying at the long tail, despite an increase in the overall theatrical attendance in France, yet favoring more the hit profile American movies. Once focused from domestic performance of French movies to their international performance, the situation shows a similar pattern. The foreign admission per French film regressed 47% from 230000 to 120000. Both domestic and foreign performance of French movies in terms of average admission are lower than what it was in 2005 despite the increase in global theatrical attendances.

Table 1: French movie supply and demand in the domestic and export markets

	2005	2017	Growth
Domestic market			
Number of total admissions (million)	175M	209M	19%
Number of agreed French films	240	300	25%
Market share of French films (%)	36.6	37.4	0.08%
Admissions per French film (million)	267000	260000	-3.00%
Number of American films released	149	124	-17%
Market share of American films (%)	45.8	49.2	3.40%
Admissions per American film (million)	538000	830000	54%
Market share of European films (%)	15.7	10.6	-5.10%
Export markets			
Number of exported French films	322	691	114%
Number of foreign admissions (million)	73.6M	82.6M	12%
Admission per French film (million)	230000	120000	-47%
Production cost			
Average budget cost of a French film	4.78M€	5.2M€	

(Source: CNC bilan 2005, CNC bilan 2017; UIS statistics)

The demand for the mature French movie industry has been sluggish compared to China, India, Turkey, Korea and Japan. The market share of local movies in Japan increased from 43.1% in 2005 to 54.9% in 2017, in Turkey from 38% to 56.7% and in Korea from 42.1% to 52.8%.

This picture becomes even more worrisome once focused on the efforts in the supply side. France since the beginning of 2000s doubled the amount of subsidies from 678M€ in 2000 to 1164M€ in 2016, increased the annual movie supply from 200 to 300. The number of exported French films were increased from 360 in early 2000s to 607 in 2016 (CNC, 2016), so does the average budget of producing a French movie. France is one of the countries where the diversity in the motion picture industry is highest. It is the leader country in terms of co-productions (the majority of co-produced movies are European, mostly co-produced with Belgium, Luxembourg, Germany, Italy and Canada (Quebec)). Yet, despite these heavy supply sided policies the demand is sluggish. According to the research of

Messerlin “The current French audiovisual policy seems to be unable to promote French culture since the dawn of the 21st century, and increasing taxes in order to provide more subsidies does not seem to raise the attractiveness of French movies” (Messerlin, 2014, p.4). Commercial (box-office) attractiveness put aside, the artistic merit of French films too seems to surrender their once owned glory. The descriptive study of Hartman and Lalevee shows that in the international film festivals (Berlin – Cannes – Venice) while the percentage of French films returning with a price was 17,2 % between 1981-1986, it decreased to 13,6% between 1999-2004 and to 8,1% in 1994-2004 periods (Hartmann and Lalevee, 2006).

This thesis is addressed to better understand the demand dynamics of French films and to proposing gateways for strengthening their position in the global movie industry. For this purpose, in the next chapters, we conduct three empirical researches. Before detailing each of them, we believe that it is important to recall the background of the French cultural policy which is claimed to be one of the reasons of the sluggish demand both in the domestic and foreign markets.

The position of France on cultural industries has always been a cultural approach rather than commercial (Creton, 2014). *Exception Culturelle* (cultural exception) was a term first introduced by France during the GATT⁴ negotiations in Uruguay round in 1993. The idea is that culture should be treated differently from other commercial products and should be left out of international agreements. The purpose of *Exception Culturelle* is to protect and promote domestic artists and domestic culture, which can be translated as adapting protectionist measure limiting the diffusion of foreign art works via quotas or subsidies to cultural sector, specifically from the domination of English language products. This approach,

³ For each festival, only the main prizes are retained, excluding interpretation prizes (Data source: Author’s own calculation).

⁴ Twenty-three countries engaging in the Geneva negotiations sign the agreement of the GATT (the general agreement on tariffs and trade) in 1947 were Australia, Belgium, Brazil, Burma (Myanmar), Canada, Ceylon (Sri Lanka), Chile, China, Cuba, Czechoslovakia (Czech Republic and Slovakia), France, India, Lebanon, Luxembourg, Netherlands, New Zealand, Norway, Pakistan, South Africa, Southern Rhodesia (Zimbabwe), Syria, United Kingdom, and United States. GATT is signed to ensure the postwar stability and to avoid repeat of high tariff retaliation mistakes exercised in 1930s and 1940s contributed to deteriorate the economic climate. GATT created new rules and exceptions to regulate the international trade between the member countries (Shukla, 2000). Accordingly, the average tariff levels 40% in 1931s dropped to 20% in 1952 and 5.7% in 2007 in France (WTO, 2008c).

besides raising debates between France and the US, has been successfully exercised by France and European countries (Buchbaum, 2006; Meunier and Gordon, 2001; Meunier, 2000). As the word “exception” considered as restrictive throughout the passing years, it is subsequently transformed into the term “*diversity*” (Moreau and Peltier, 2004). France, has a legal obligation to the European Union to protect the diversity in linguistic and cultural expression by the *Unesco conventions (2005)*.

The term diversity is the core argument of cultural exception and the touch stone of cultural policies in France. Yet, its measurement, as well as the efficiency of cultural policies around it, has been difficult to track because of its plural dimensions: supplied diversity, consumed diversity and the diversity in geographical origin of products (Benhamou and Peltier, 2011; Farchy, 2008; Farchy and Ranaivason, 2008; Benhamou and Peltier, 2007; Farchy and Ranaivason, 2004; Moreau and Peltier, 2004; Stirling, 1999; Anderson, 1992; Cohendet *et al.*, 1992; Steiner, 1952; Waterman, 1990).

French movie industry with the diversity motivation has a complicated financing system. This system is internally financed by the taxes on movie tickets, DVDs, Vod, Svod services and taxes on TV channel revenues (Creton, 2012). The distribution of the collected taxes is managed under *compte de soutien* by CNC⁶. TV channels, apart from participating to *compte de soutien* with a tax on their revenue, are obliged to invest in cinema a specific amount of their turn up in the form of buying the diffusion right of a movie (pre-purchasing) or co-production. Pre-

⁵ Moreau and Peltier (2004) analyzed the diversity in the supply and demand of films produced in a group of countries on three dimensions: variety, balance and disparity. In their research they show that (a) cultural diversity is higher in countries where the movie industry receives strong support (France, EU, South Korea) (b) supplied diversity and consumed diversity are positively correlated. On the other hand, the research of Benhamou and Peltier (2007), by using the same three dimensions of diversity (variety, balance, disparity) on publishing industry (1990-2003), shows that diversity varies depending on the dimension considered. If the number of books solely is taken into consideration (variety) it raises the diversity. On the other hand, while public support for the translation of books increase the offered diversity, it is not sure that this will increase the consumed diversity, neither the book genre. That shows that another kind of policy would be necessary to stimulate both diversities consumed and diversity supplied. According to the same research “such result weakens the legitimacy of public support for arts that relies on an argument for diversity on a single dimension” (Benhamou and Peltier, 2007, p.104) and makes it difficult to defend.

⁶ Centre National du Cinema et de l’image Animée (CNC) (National Centre for Cinema and the Moving Image) created in 1946. The CNC is an incorporated organization with legal and financial autonomy under the authority of the French Culture Ministry. It is responsible for ensuring the unified conception and implementation of state policy in the film sector and other industries relating to the moving image, notably the television, video, and multimedia sectors, including video games.

purchasing is an activity where the diffusion rights of a film are purchased while the movie is still in the project phase. This allows producers to shoot a movie while allowing TV channels to have the diffusion rights without having competition from other diffusers. While 29.7% of the production cost of an average movie is found by the producer, 3.9% found from Sofica⁷, 8.9% from CNC and 34,6% is found from TV channels (Benhamou, 2017). Briefly, TV channels are the most important source of movie financing in France.

Financed by the reserves of *compte de soutien*, CNC's main support program, is divided into two parts *soutien automatique* and *aid selective*. *Soutien automatique*, operates as a form of saving scheme for film producers, calculated with a co-efficiency on the commercial success of a previous film (revenues from box office, TV sales, DVD etc), and used to finance the next film of the same producer. This credit saved on the producers account have to be used within 5 years. The *soutien automatique* cannot exceed 50% of the production budget of the new project. Basically, *soutien automatique* is created to maintain the film production of the established players of the industry (having already a film history). In this concept, commercially successful movies generate more funding as they receive a coefficient of the revenue generated. In other words, mostly the big producers, commercial film makers benefit the most from the *soutien automatifs*. Aid Selective, such as *avance sur recettes*, on the other hand is distributed discretionarily by a selection committee, mostly destined to producers of art house productions, directors with no film history, or films with artistic or

7 Les Sociétés pour le Financement de l'Industrie Cinématographique et Audiovisuelle (Sofica). Investment companies dedicated to the collection of private funds, devoted exclusively to the financing of film and audiovisual production. Investing in Sofica helps support cinema while reducing taxes.

⁸ In 2005, 10 producer companies (TF1 Films Production, France 2 Cinéma, France 3 Cinéma, M6 Films, Studio Canal, EuropaCorp¹³, Gaumont, UGC, Pathé) received 61% of the *soutien automatique* for the production, whereas 115 other production company shared 10% of the *soutien automatique* reserves (Hartmann and Lalevee, 2006). The *soutien automatique* in this sense draws some discussions as it is condensely distributed to the few biggest production houses, and the small creators get the rest of it. Some of the critics are, the *soutien automatique* is mostly beneficial for commercial films, produced in accordance with the market standards, the codes of TV channels, for movies can generate a higher reserve in the count for the next film. Consequently, it is claimed to not to necessarily promote nationally or culturally important films but rather commercial films in the norms of TV culture (Cluzel, 2003).

⁹ Advanced pay prior to production to finance the movie with cultural or artistic merit but difficult to finance in the market system. The advance is repayable if only the movie achieves a certain level of commercial return.

cultural merit yet difficult to distribute in the market conditions or to find a finance (CNC bilan 2018; Walkley, 2016).

The unintended consequences of France's cultural policies and the complicated film subsidy system which is difficult to track have been debatable issues. Some of the arguments are directed to *soutien automatique* rewarding the previous commercial success of producers or directors. The core of the problem is that these accumulated credits on producer's account, waiting to be used for the next project, need to be used within five years. This five-year constraint is claimed to negatively impact the quality of produced movies, hence the demand, as "Producers and filmmakers are compelled by the system to continuously produce films within five years regardless of having or not a good exciting project in hand" (Walkley, 2016, p.112-113). One other debate on *soutien automatique* is that it encourages creative accounting, as the money accumulated in the account from the last film could sum more than the 50% of the budget of the new film. That means padding the budget proposed to CNC in order to withdraw all the money accumulated in the account even if the movie could be done with less investment. Briefly, the subsidy system is accused to inflate movie budgets and turning the movie industry into a business in which known artists, names get the real benefit. Since, they create the most revenue under *soutien automatique* account, and emerging talents get only the left over (Bonnell, 2013; Maraval, 2012; Hartmann and Lalevee, 2006; Cocq and Messerlin, 2003).

Alongside the unintended impacts of the *compte de soutien*, managed by CNC, the study of Bonnell found that 17,5% of films are "over-funded" because television companies have investment commitments on their turn ups and need to require a certain number of films to fill their schedule, hence, may overpay on some films to meet funding targets which actually cost less (Bonnell, 2013). This practice of creative budgeting both at the side of producers (financed-group) and television channels (financer-group) is highly criticized. Accordingly, French producers are too dependent on state funding, they would do anything to secure the largest grant possible, and TV channels would do whatever necessary so that they fulfill their liabilities.

Can it be possible that the attractiveness of French films, the quality, the taste of cinema audience, stayed behind the shade of the business of film making encouraged by generous financing system and strict regulations? The digital changes make French government tasks of defending the French culture even more difficult. People continue forming habits on alternative digital platforms not just for French movies but also foreign movies, despite the existing quotas on traditional platforms. As previously mentioned, the number of American movies screened in French theatres is regressed, while the admission numbers per movie increased. “Just because a third percent of films on a French traditional service are of French origin does not mean that a third of the content consumed is French” (Walkley, 2016, p.18).

Alongside with the distribution of CNC’s compte de soutien sources implicated as being distortive on the attractiveness of French films, the media chronology, the key component of France’s public financing system, has also been criticized. Media chronology, developed in 1983, sets the rules how soon a film on other platforms can be screened after its cinematic release. Each version of screening is provided exclusively for a limited period, maximizing the profit of the release window, depending on their weight in the movie financing. The chronology of media is criticized as obliging all type of movie profiles to pass on cinemas before any other platforms. Accordingly, this sequence puts low profile, small budget, art house movies, with a limited number of audiences, in a difficult position face to successful Hollywood blockbusters offered at the same ticket price. In motion picture industry, despite differentiated movie products with different price elasticities, a uniform price policy is applied. People pay the same amount of money at movie theatres to blockbuster movies with lower price elasticity and to small budget independent movies with a higher price elasticity. A further problem is that the number of movie supply screened at theatres increases every year, only the French film supply increased from 240 in 2005 to 300 in 2017. On the other hand, the number of movie theatres is limited. Low profile, small budget, art house movies, with little advertising due to lack of funds, only run for one or two weeks and attracts very few viewers. These movies are coming to the screen despite a demand concentration on blockbuster movies as there is no choice. For the next screening

option in form of DVD / Vod they have to wait several months just as blockbuster movies. Briefly, producers do not have the decision over what works best for each type of film and to create an individual distribution strategy maximizing the audience and revenue of each film.

The optimal sequence and length of release window in the frame of media chronology require a balancing exercise. Consumers have more options of consuming a film in an illegal way instead of waiting for consuming it in legal way in their preferred window. “Movies are often characterized as being hardly excludable that creators face a hard time excluding other persons, especially non-payers, from consuming these products” (Belleflamme and Peitz, 2014, p.2). With the internet and big data sharing, piracy today creates a loss equal to 1.3M€, a sum equal to total revenue gathered from movie theatres per year in France (FNCF congress, 2017).

The old set of rules of French media chronology are readapted in the late 2018, with the legal service suppliers defending their current position regarding that movies become too old to appeal after years, and that movies probably will be consumed in pirate sites beforehand. The modernization of the chronology of media in the ensemble of the system by shortening the time limits was an action mainly to resist to the piracy following a theatrical release as a consequence of digitization. According to new rules set in 2018, a movie can be distributed in form of DVD or Vod after the 4th month following its theatrical release, on paid TV (canal +) after 8th month, from 17th month up to 36th month on Svod services (depending on the agreement and financial engagement of Svod services on film production), on free TV channels after 20th month, and lastly on YouTube following 42th month.

Countries have different set of media chronology rules, market dynamics and financing policy on motion picture industry, also each country has different demand dynamics shaped by the local culture and the global trends. On the other hand, the majority of the studies in the movie literature focus on the American industry (Xiang and Hanson, 2008; Ravid, 1999; Litman and Ahn, 1998; Wildman,

1995; Prag and Casavant, 1994; Sochay, 1994; Litman and Kohl, 1989; Hoskins and Mirus, 1988). Where does the domestic and foreign French film demand stand lately pressured by the accelerated globalization merged with digitization and the arrival of new platforms i.e. Netflix?

Before bringing up our three empirical analyses on the French movie demand, we would like to summarize the main theories of the motion picture industry to have a better understanding of its dynamics. It is important to know that in motion picture industry the appeal to domestic consumers is highly uncertain, carrying a high financial risk whether to consider box-office revenue or profits, and the demand in export markets are even more unpredictable than domestic market due to language, stylistic and cultural differences. The industry is described with *nobody knows anything* phenomenon (Caves, 2000; De Vany and Walls, 1996; Goldman, 1983). In addition to this demand uncertainty, the production costs of films are fixed costs, independent of the number of its viewers. While the production has its fixed costs to emerge a film, distributors too pay fixed costs among the competing productions (poster campaign, edition of copies, the scale of promotion), so as exploiters in form of renovating a room. In this risky environment every party has an interest to see the rooms full and not to lose their investment (Perrot *et al.*, 2008). Yet, few numbers of firms account for large percentage of the total revenue, known as the phenomenon of *market concentration*, the rest of the firms share the rest over. Hollywood studio system is the best example to this domination of sales. The six biggest production companies reach up to 80% of the movie market share in the US market (Warner Bros (16,5%), Universal (15%) Paramount (15%), Sony Pictures (13%), Walt Disney (12%), 20th Century Fox (12%)) (Unifrance bilan, 2012-2016). In France, in an audiovisual sector highly regulated, the concentration is less strong than other countries, even if the level of concentration is still high. In 2006, the top 10 distributors made 78.3% of the entries and the top 5 distributors made 52.9% of it (Gaumont Columbia, 20th Century Fox, Warner Bros France, Mars Distribution/Studio Canal, Buena Vista International France). This strong concentration among the few dominants is visible in the exploitation too (UGC, Gaumont, Mk2) (Perrot *et al.*, 2008).

In such an industry, where the profits are highly concentrated and there is a high risk, there is low private investment. Subsidies, hence, become important for the survival of the industry and its diversity. Next to demand uncertainty and market concentration, it is also known that a minimum market size is necessary for making profits out of costly productions (scale economies) for that the US, China, Brazil, India are among the lucky countries (Vogel, 2003; Caves, 2000).

Following this brief theory recall on the motion picture industry and that the demand for French movies in traditional platforms is exposed to more competition than ever, once efficient quota - subsidy system seems insufficient to keep up with the new dynamics to maintain the demand for local productions, in the next chapters we will search answers to these four following questions: 1) *Does a distortionary impact of French subsidy system exist behind the inflating production budgets?* 2) *What are the determinants of French box office revenue?* 3) *Through which instruments French movies can smooth out the cultural discount in a foreign target market?* 4) *What is the impact of Netflix on overall theatrical demand: cannibalization or stimulation? Can Netflix, as a global TV, increase the reception of French films in the global market through habit formation¹⁰, or on the contrary worsen it?*

1.1 The distortionary impact of French film subsidy system and the determinants of box office success

This very first empirical work is motivated by the ongoing arguments on the movie financing system claimed to favor big-budget films with expensive stars causing an inflation in the average production budgets, and by the low success of French films at the box office (Bonnell, 2013; Maraval, 2012). Our aim is to extend the literature on the determinants of domestic box office success of French films, with a special focus on the Tv financings and government subsidies. In this frame our research

¹⁰ Habit formation in this research refers to the accumulation of the necessary experience. How much we value the consumption of some goods may depends on our prior consumption of that good. This is the case of most of addictive goods i.e. cigarettes, drugs, but also cultural goods (Stigler and Becker, 1977; Masood, 2015) The more we consume, the more we develop a taste for it.

questions are 1) what are the determinants of domestic box-office success? and 2) is a higher funding in the form of subsidies, TV pre-purchases a strategy for increasing French movie admissions?

For this, in the first part, we analyze the distribution of TV pre-purchases and government subsidies among movies of different budget profiles (small, average, large and extra-large budget). Since highly discussed issue, the inflation in budgets, can stem from the heated competition or the increase in costs, in a country like France, where the production of movies is highly dependent on subsidies and TV pre-purchases, it can also stem from a distorted and biased financing system encouraging big productions, as Wild Bunch's producer Vincent Maraval stated in 2012. According to Maraval, big productions with expensive stars are easily financed by French TV channels, causing an inflation in production budgets, while low budget movies cannot find sufficient finance and are condemned to vanish from the market (Maraval, 2012). Small budget art house productions help to win awards for industry recognition and are the signature of French cinema, transmitting novelty and avant-garde form. If the state of Maraval is confirmed, the extinction of small budget movies while heavily financing big budget ones would create a distortion in the supplied diversity and inflate the average production budgets.

The second part of this chapter is specialized on the determinants of domestic box office success. While the number of annual movie supply as well as the production budgets increase, the domestic demand for French films stayed sluggish. As Bonnell stated, the industry is regularly in deficit (Bonnell, 2013). Increasing the appeal of French movies by bridging the gap between supplied contents and the public's taste is necessary. For this, we analyze what determinants make a French movie successful at the domestic box office. Together with the regular box office determinants i.e. star presence, domestic competition, foreign competition, first-week copy number, genre, critics rate, viewers rate, nomination to Cannes/ Cesar, we analyze the performance of TV and state-financed movies to see if a higher financial help stimulates the admission numbers.

We assess these points through a database of 400 French-initiated films released in cinemas between 2010 and 2014 in France. The specific data for each film is collected from Cinefinances, a private site that offers a database for each French film released in theatres (i.e. the amount of pre-purchases from television, subsidies, salaries of the main actors, co-production information). After consulting Cinefinances site, we completed our database with the help of IMDB and Allocine sites. The reason for choosing the period 2010-2014 is the availability of data as Cinefinances started building its databases in 2010. As the methodology, we chose the non-parametric Quantile Regression estimates, allowing to study the impact of covariates at different percentiles (Colin and Pravin, 2009), appropriate for abnormally distributed error terms and data with extreme outliers as in the case of motion picture industry.

1.1.1. Literature Review and Contribution

The contribution of this research to the literature is threefold. First, we show that one of the reasons behind the growing budget in the French movie industry is unequivocally the encouragement of the financing scheme. The probability of receiving a TV finance and the weight of finance received increase with the budget which encourages the inflation in production budgets. The report of Bonnell (2013) states similar outcomes that TV channels contribute to the inflation of production budgets. The study of Benhamou (2005) conducted on 172 movies agreed by CNC in 2011 studied how French television channels fulfill their obligation to invest in the French movie industry. This econometric study finds that while selective public support (*avance sur recette*) invests in low budget films, TV channels indeed invest more in high profile movies, the two works as a complementary.

In the second part, following the confirmation of the distortionary impact of financing system encouraging inflating budgets, we focus on the box office performance of TV pre-purchased and state subsidized movies, to find out if behind over subsidized or TV pre-purchased movies there might be an economic explanation i.e. such movies bring a higher box office revenue. The regression

analysis shows that the financial distortion does not lead to a commercial success. Where does the distortionary tendency stem from and how to correct it? TV channels by liabilities have to invest in a quasi-fixed number of movies¹¹, and almost all movies receive a financial help in France. Would the case be different in a more competitive and selective approach? That is an important question that needs to be considered by regulators for future amendments of the movie financing system in France. We find evidence that increasing CNC subsidies or TV financing is not the right strategy for increasing the attractiveness of French films at the box office.

The third contribution of this study is that besides the box office performance of subsidized and TV-pre-purchased movies we analyzed the determinant of French box office revenue with a comprehensive set of variables to have a deeper understanding of the theatrical movie consumption dynamics. We found that the determinants cannot be unified to French movies of different profiles. That is to say determinants of box office success vary between high, average and low-profile movies. While star presence has no impact on hit movies, it saves a low-profile movie from an absolute flop. As to the competition, it also has heterogeneous impacts on different movie profiles. While French blockbusters are found to be resistant to foreign (American blockbuster) competition, an average profile French movie performs badly if it is released within the two-week proxy of an American blockbuster. Low-profile movies, on the other hand, need to avoid domestic competition (a high domestic movie supply period) and chose a release period at low season. Finally, we found that first-week copy number, award nomination, critic's and viewer's rate are important for all movie profiles from hits to flops and level up the competitiveness of French films at the box office.

While Bonnell (2013), Chamaret and Bomsel (2008), Benhamou (2005) questioned the financing distribution among movies, and Jamet (2005) evaluated the determinants of the length of theatrical screening, our research differentiates from these studies with respect to their research questions and the methodology used. This research is an original contribution to the literature analyzing the determinants

¹¹ Canal +, for instance has to invest in 130 French movies per year (Bonnell, 2013).

of French box office revenue with a comprehensive set of variables, and analyzing the economic efficiency of highly financed movies to observe if it is an efficient strategy to increase the admission numbers.

1.2. The interplay of culture homogenization and differentiation. Case Study: French movie reception in the US

As a consequence of globalization, an inevitable transformation is happening in the contents of the motion picture industry from national to transnational, from national to global, culture-heterogeneous to culture-homogenous for a post national market expansion either for extrinsic or intrinsic motivations. National industries try to produce in global value chain through co-production, artistic exchanges, filming in multiple languages and countries to smooth out the *cultural discount*. “The phenomenon cultural discount suggests that foreign media have limited appeal because audiences lack the background knowledge, linguistic competence, and other forms of cultural capital accumulation to appreciate them” (Lee, 2008, p.119).

Our aim in this chapter is analyzing the US box office reception of French films with respect to their cultural openness (imitation-homogenization strategy) and cultural embeddedness (differentiation-heterogeneity strategy). The complex interaction between global and national forces, also their empirical outcomes beyond intuitions, begs further examining for post-national expansion strategy development. The reasons of choosing the US as a target market is because (1) the US is the country where the French film demand is the highest following France and (2) the US production characteristics are also the global appeal characteristics, allowing us to assess the reception of global appeal French products. For this, with the Propensity score method, we compare the performance of 273 French films released in the US between the period of 2011 and 2015 (treatment group), and 208 American films released over the same period (control group) with a matrix of

common variables (box office receipts, copy number, film of art et essai¹², distributor, coproduction, Oscar nomination, IMDB ranking). We show that a French film having the same characteristics with an American one has lower entry numbers in the US due to "cultural discount" phenomenon. Once the cultural discount factor is detected, at the next step the performance of French films imitated American production characteristics on four cultural strategic points, "engaged in American star", "co-produced with the US", "filmed in the US", "filmed in English language", are tested to observe whether these factors increase the theatrical distribution by reducing the cultural discount.

1.2.1 Literature review and contribution

Cultural discount is widely studied in the literature by Waterman (2005), Lee (2006), McFadyen *et al.* (1997), Wildman and Siwek (1988), Hoskins and Mirus (1988). The majority of these works are focused on the US movies, specifically Hollywood productions, explaining how Hollywood movies despite the cultural discount factor succeeds in other countries thanks to the English language, lobbying, advertising and economies of scales. Next to these researches elaborating cultural discount on the US movie industry, there are abundant number of macro researches on the trade and movie flow among countries explaining the volume and quantity of exchange through cultural differences with Hofstede index¹³, the geographical distance between countries - the size of the country, the past colonial links, common religion or language (Fu and Sim, 2010; Disdier *et al.*, 2009; Xiang and Hanson, 2008; Hofstede, 2001; Marvasti, 1994; Tinbergen, 1962). Nevertheless, detailed in chapter III, the interest and the methodology of these studies are far from our research questions.

¹² Art et essai : Art house film. A movie with undeniable quality, with a character of research, discovery or novelty in the field of cinematography, reflecting the life of countries, having an artistic or historical interest, or can be considered as "classics of the screen", is officially classified as an art house movie by law since 22 April 2002 in France by AFCAE (For more detailed information on AFCAE see: <http://www.art-et-essai.org/>).

¹³ Hofstede's six dimensions of culture to differentiate one culture from another. 1) Power distance index (high versus low), 2) individualism versus collectivism, 3) masculinity versus femininity, 4) uncertainty avoidance index (high versus low), 5) pragmatic versus normative, 6) indulgence versus restraint (See Hofstede, 2001).

In addition to these macro scale researches, there are some important micro studies analyzing the movie export performance of niche countries¹⁴ (Moon *et al.*, 2015; Lee *et al.*, 2009). Lee *et al.* (2009) conducted an empirical study on 408 Korean films, produced between 1996 and 2002, and analyzed the exportability of a Korean movie depending on variables: ratings, genre, number of award winner actors, number of screens and critical review. They found that the number of screens, movie genre of “action”, good reviews and year dummies of 2000 and 2001 are the significant determinants for the exportability of a Korean film. On the other hand, while this is one of the rare movie exportation studies in the literature conducted on a country outside of the US, the research disregarded the cultural discount factor.

The study of Moon *et al.* (2015) conducted a survey-based analysis on 140 movies released between 2007 and 2009. They analyzed the foreign and domestic movie reception in Korea in terms of critics rating, running time and genre. It is found that local movies have higher viewers number and longer screening than imported films. In other words, foreign movies are found to have a higher cultural discount than local Korean movies in Korea. As a difference to the study of Moon *et al.* (2015), we push our empirical research further and ask “if there is a cultural discount, what makes the cultural discount factor smooth out in a foreign market”? We show that out of four culture imitation – differentiation strategies, only “language” and “star” are found as the right going out strategy for a post-national expansion. Collaborations on these two factors seems to help to increase the foreign reception by reducing the cultural discount, and much to our surprise engaging in co-production or the location of shooting seems to have no impact on reducing the cultural discount factor in a foreign market.

This research is a unique and fruitful contribution to the literature on the exportation of French films from the stand point of cultural discount.

¹⁴ The term “niche country” in this research refers to all the countries with a single digit export market share, in other words all the countries outside of the US. The term, hence, is not referring to the country size, population, or annual movie production of countries, but the annual export market share in terms of entry numbers.

Understanding the right “going out” strategy for a post-national expansion is decisive for ambitious productions, co-productions and artistic crew exchanges.

1.3 Competition Between Netflix and Movie Theatres: Stimulation or Depression?

The last chapter of this thesis focuses on the impacts of Netflix on theatrical demand. Combined with the improved technological devices, Netflix offers cinema quality contents at zero marginal cost anytime, anywhere on any device. Vertical and horizontal competitors fear that Netflix with the exclusive rights of sheer number of produced - distributed contents can become too powerful, change the movie consumption habits and perfectly substitute the demand for movie theatres. Cultural guardians, furthermore, fear that Netflix as a US based company will facilitate the distribution of American productions even further and enlarge the massive market share of the US. On the other hand, some perceive Netflix as the salvation of motion picture industry through habit forming, new discoveries, and the gateway of going global for niche countries movie products. In 2016 Netflix had the right to stream 14,450 movies and 2,200 television shows in 190 countries (Statista, 2019). The overall world subscribers of Netflix have already reached from 57 million in 2014 to 118 million in 2018 (Statista, 2018). On the other hand, its impact on theatrical demand is still unknown.

In this chapter we take the initiative to respond two following questions: (1) What is the impact of Netflix on theatrical demand: cannibalization or stimulation? (2) How do French movies mostly perceived as art house films perform in foreign theatres since Netflix’s launch? In this frame, first, we analyze the impact of Netflix on theatrical demand in 22 countries for 2012-2017 period. Furthermore, in the second part, we analyze the impact of Netflix on theatrical reception of French films in 16 countries.

1.3.1 Literature review and contribution

Digital advancements, the music streaming services i.e. Spotify, have already reshaped the music industry (Naveed *et al.*, 2017; Datta *et al.*, 2016; Wlömert and Papies, 2016; Aguiar and Waldfogel, 2015; Nguyen *et al.* 2013; Waldfogel 2012). The streaming services have sidelined physical recorded music sales while improving the overall revenue of the industry through subscription revenues, live music event participation and discovery of new artists. The impact of Netflix on theatrical demand, as the top video streaming service, has a high media value as a subject. On the other hand, the recent publication of European Audiovisual Observatory (2017), a descriptive study on the trends in the EU SVOD market executed in collaboration with the Ampere Analysis, the research of Waldfogel and Aguiar (2017) and Parlow and Wagner (2018) are the only study that we crossed paths in the literature.

The study of Waldfogel and Aguiar (2017), questioned whether Netflix is a cultural hegemony distributing American productions only, or a facilitator of free trade making the products of small countries available globally. For this, they developed a global repertoire in Netflix libraries and calculated the weighted geographical reach. They found shreds of evidence that while theatrical distribution strongly favors US origin fare, Netflix distributes many countries productions, and allows them to be seen globally. In this chapter, different than the study of Waldfogel and Aguiar (2017), Parlow and Wagner (2018), in part I, we examine the relationship between Netflix and movie theatrical demand in 22 countries in terms of (1) volume (the number of Netflix subscribers) and (2) content: both movie and TV series repertoire of Netflix.

Apart from Netflix's movie library, which can be a perfect substitute for movie theatres, the Netflix library also contains TV shows and series. It is important to underline that 75% of Netflix subscribers are binge watchers, watching 2 - 6 TV shows in one sit (Sung *et al.*, 2015; Spangler, 2013). The heavy percentage of subscribers, who are binge watchers, wait for vacation time to binge watch since they don't have time during working periods, and as they know that they wouldn't

be able to stop watching once they start watching (Steiner and Xu, 2018). Through reallocation of free time with binge addiction, and shifting the demand from movies to series for a more prolonged satisfaction lasting over weeks, the TV series repertoire of Netflix might be a bigger potential danger for the theatrical demand than movie repertoire of Netflix.

Our research's contribution to the literature is three folds. First, we show that Netflix stimulates the overall theatrical demand in 22 countries. Second, we find evidence that having access to a wide variety of content, both movies and also TV series, on Netflix streaming platform, at zero marginal cost, entice consumers to consume, and helps to create the habit formation for new genres, directors, actors. The higher the number of movies and series contents on Netflix, the higher the theatrical movie demand is.

Following these two results, in the second part of this chapter, we question whether this positive impact of Netflix on theatrical demand is homogeneous. Netflix like Amazon has been largely attributed to a “long tail” phenomenon. Although their majority of inventory is not highly demanded, supplying both hit products as well as supplying niche products (foreign products, art house movies) at the tail increase the attractiveness of the platform. On the other hand, the existence of foreign contents and niche products on Netflix does not mean that the diversity in supply will meet with the diversity in demand and that these movies will be watched and stimulate the theatrical demand. According to Tan *et al.* (2016) and Elberse (2008) the increased product variety and the easy accessibility concentrate the demand: boosts the demand for hits and lowers the demand for niche products.

For detecting this possible heterogeneity, we focus on the French film case. The foreign theatrical performance of French films in 16 countries since the launching of Netflix is analyzed with respect to (1) the number of country's Netflix subscribers and (2) Netflix's French film repertoire¹⁵. Understanding the impact of Netflix on the ensemble of theatrical performance, also on a niche country's

¹⁵ The film repertoire of Netflix varies in each country depending on the country regulations, quotas (Statista, 2018).

performance (French case)¹⁶ is vital to our understanding on the future of the movie industry, its traditional theatrical distribution, and the future of French movies in foreign markets.

Our results show that the foreign theatrical admissions of French film are negatively affected since the launching of Netflix and by Netflix's French movie repertoire. In other words, while Netflix is found to boost the overall demand for physical theatrical participation, French film demand is cannibalized.

¹⁶ Considering the single digit export market share of countries, with respect to 70% world market share of US films in export markets, "foreign film products" of any other "foreign country" outside of the US, is accepted as "niche products" and countries are accepted as "niche countries" in this research. Once again, the term niche, hence, is not referring to the country size, the population density, or the annual movie production number of countries, but the annual export market share in terms of foreign entry numbers.

CHAPTER II

The distortionary impact of French film subsidy system and the determinants of box office success

1. Introduction

The French movie industry is facing difficulties linked to the escalated production budgets (Bonnell, 2013; Benhamou, 2011; George, 2002) which triggered some heated debates in France. According to the debates, the inflation in budgets predominantly stems from the movie financing system in France, in which big productions with expensive stars are easily financed by TV channels, while low budget movies cannot find sufficient finance and are condemned to vanish from the market (Maraval, 2012).

TV channels, in France, are obliged by law to invest in movie production through pre-purchasing or co-production. Pre-purchasing is an activity where the diffusion rights of a film are purchased while the movie is still in the project phase. This allows producers to shoot a movie while allowing TV channels to have the diffusion rights without having competition from other diffusers. While 29.7% of the production cost of an average movie is found by the producer, 3.9% found

from Sofica¹⁷, 8.9% from CNC and 34,6% is found from TV channels (Benhamou, 2017). Evidently, TV channels are the most important source of movie financing in France. The 80-85% of TV financing is distributed in form of pre-purchasing while 15-20% is distributed in form of co-productions¹⁸ (CNC, 2014).

The decision of TV channels to finance a movie is influenced by two main factors (1) regulations, (2) the revenue source of the channel. Considering the first, each TV channel has different regulation for movie financing. Canal+, for instance, is a private French TV channel, whose contribution to movie financing is by far the highest among other private-public TV channels¹⁹. The investment from Canal+ is half of the investments received from the totality of TV channels, which was 315 M€ in 2016 (CSA, 2016)²⁰. The concentration of film investments of Canal+ is highly regulated. That is to say, 80% of its annual contribution has to be used for French initiated productions of which 17% has to be used for films whose production budget is less than or equal to 4M €. The channels also have liabilities on financing the first or second films of new coming directors. Under these regulations in 2011, Canal + pre-purchased 112 French-language films (40 movies out of 112 were with a production cost below 4M €, 33 movies were the first film of a director, 19 were the second and 12 were the third) (Apprendre le Cinema, 2015)²¹.

The second factor influencing the movie selection of a channel is its revenue source. While subscribers are the main revenue source of Canal+, commercial

17 Les Sociétés pour le Financement de l'Industrie Cinématographique et Audiovisuelle (SOFICA). Investment companies dedicated to the collection of private funds, devoted exclusively to the financing of film and audiovisual production. Investing in Sofica helps support cinema while reducing taxes.

18 Co-producing allows TV channels to benefit from future revenue of the movie. Yet co-production method from TV channels is usually used for big budget movies and the amount is much larger than the pre-purchases (Apprendre le Cinema, 2015).

19 Canal+, under obligations, have to invest at least 20% of its annual turn up for financing and distributing French and European movie productions. This investment was equal to 165 M€ in 2011 and 151M€ in 2016 (CNC, 2016).

20 Retrieved from <https://www.csa.fr/Arbitrer/Espace-juridique/Les-textes-reglementaires-du-CSA/Avis-du-CSA-a-l-autorite-de-la-concurrence/Avis-n-2016-06-du-13-avril-2016-a-l-Autorite-de-la-concurrence-sur-la-demande-de-revision-anticipee-des-injonctions-TPS-Canal>. The Conseil supérieur de l'audiovisuel (CSA) (French media regulatory authority) was instituted under the law of 17 January 1989 with the charge of guaranteeing broadcasting communication freedom in France.

21 Retrieved from <http://apprendre-le-cinema.fr/le-financement-de-laudiovisuel-et-du-cinema-par-la-television>.

revenues are the main revenue source of M6 and TF1, for Arte it is public revenues, and for France 2 - France 3 it is 60-70% public revenue with 30-40% of commercial revenue (Benhamou *et al.*, 2009). It is highly expected that TV channels, whose major revenue source depend on subscription numbers, prioritize the preferences of a median TV viewer while financing movies. As to the channels depending on commercial revenue, it wouldn't be a surprise that they prioritize the blockbuster type of movies bringing more commercial revenue thanks to the high number of TV audiences watching these films.

Following this technical information on TV financing system in France, our purpose in this research is analyzing (1) the distribution of the financial sources among French films (2) the box office performance of the highly financed films and (3) analyzing the determinants of French box office revenue. While Bonnell (2013), Chamaret and Bomsel (2008) questioned the financing distribution in their research in a descriptive study, and Jamet (2005) evaluated the determinants of the length of theatrical screening, our research differentiates from these studies with respect to their research questions and the methodology used. This research is an original contribution to the literature analyzing the determinants of French box office revenue with a comprehensive set of variables, and analyzing the economic efficiency of highly financed movies to observe whether or not the so-called distortion stems from an economic interest.

The plan of the rest of the paper is as follows. In section 2, a literature review on the determinants of box office performance is supplied. Data, variables, descriptive studies are supplied in section 3. In section 4, methodology and econometric results are provided. Section 5 presents a discussion and lastly section 6 provides a conclusion.

2. Literature review: the determinants of box office performance

The motion picture industry is characterized by a very high degree of uncertainty. On average 7 out of 10 films end up with a loss, only 2 of them catch the breakeven point and 1 out of 10 movies make a profit. (Pratt 2008; De Vany and Walls, 2004). The measure of *economic success* varies in the literature. Due to the limited availability of the private information of the revenue coming from TV channels, exportation and DVD sales, most of the empirical studies focus on the relationship between determinants and total domestic box office revenue (Litman and Ahn, 1998; Litman and Kohl, 1989; Prag and Casavant, 1994; Sochay, 1994; Ravid, 1999). RoI, return on investment, is definitely the crucial question for a financier's perspective, yet it is rarely applied in the literature because of the absence of data and once intended (budget/box office revenue) the model gives a poor model fit (Ravid, 1999; De Vany and Walls, 2002). In this study we will work with the cumulative box office revenue as a commercial success indicator as box office revenue of a film is strongly and positively correlated with other revenue streams that it is a great indicator of total economic performance (Litman and Ann, 1998). The determinants of the cumulative box office revenue can be grouped into three categories. (1) The characteristics of the film - genre, starring a star, the production budget (2) the commercialization of the film - advertising spending, first-week screening numbers, release date (3) the interaction of the film with the audience - critics rate, viewers rate, word of mouth (WoM), nominations.

The impact of stars on the economic performance of a movie, also the definition of a star is heavily studied in the literature. The superstar phenomenon describes a situation wherein few stars dominate the activity in which they are engaged in and earn a significant amount of money (Fort, 2000; Rosen, 1981). According to Elberse the impact of a star on a film's box office revenue positively depend on (a) the star's economic reputation reflected by his or her historical box office performance, (b) the star's artistic reputation reflected by his awards or award nominations (Elberse, 2007). Awards and nominations in terms of artistic

reputation is a sign of quality for audiences, executives and media (Wallace *et al.*, 1993). However, the phenomenon “star” can exist even if the talent does not exist (Adler, 1985). In the empirical studies the methodology of treating some certain names as stars vary. Sharda and Delen (2006) select stars by averaging actors past history of movie making prices, whereas some use Google search records to calculate the popularity of stars or Imdb.

There are different hypotheses behind why movies engage in stars. Ravid (1999) investigates the reason for engaging in a star in relation to the signaling effect: the existence of a star signals that the movie is a high appeal movie with quality. Ravid also adds to the literature the rent capturing hypothesis that stars value addition to a movie in financial terms is indeed equal to their salary which means budget and return increase proportionally which proves that the decision of studio executors to engage in large budget and stars is not to maximize movie returns but to avoid flops (Ravid *et al.*, 2003). In support to that, In Walls (2005), where a quantile regression model is used, movie revenues are segmented under categories showed that while budget and star variables do not increase the revenue in the upper quantiles, these two elements increase the revenue of movies at lower quantiles. Briefly, budget and star variables increase the survival chance of a movie, helps to avoid flops. (Basuroy *et al.*, 2003; Elberse and Eliasberg, 2003; Sochay, 1994) are some of the studies found a positive impact of star presence on the box office revenue. Basuroy *et al.* (2003) used “star power” and “budget” as key moderators to critical reviews and found that popular stars and big budgets increase the box office revenue for movies which have more negative critical reviews than good critical reviews and do little for films that receive more positive than negative critical reviews. In other words, star power and big budgets blunt the impact of negative reviews.

Some certain genres are assumed to attract more audiences to movie theatres. Blockbuster movies are usually in action, adventure categories with lots of special effects which gives a greater satisfaction to the audience to watch in a dark environment with a good sound system. Elberse and Eliasberg (2003) found in their study that the science fiction genre increases box office revenue in the US.

Sochay, on the other hand, found that comedy genre increases the performance of a movie significantly (Sochay, 1994). Various studies depending on their sample or the target country found different genres to be significant to increase the box office revenue, therefore it is difficult to have a consensus on the impact of genres. We observed that the same movies were listed under different genre categories at different sources i.e IMDB, allocine, cinefinances. Additionally, the same movie can belong to two or three genres at the same time. While in allocine site more than 30 genres were detected, only 15 genres were present on IMDB. With the verification of each movie at IMDB, allocine and cinefinances sites, movies in our sample are categorized and tested under 6 main genre categories.

A film, like any other good, competes in the marketplace for a specific and finite pool of consumer dollars (Ghiassi *et al.*, 2015). A movie's box office performance at a certain week does not only depend on the consumer's leisure time but also on the supply of movies available during the week of release (Eliasberg *et al.*, 2008). During holiday times the demand for leisure activities increases. The best movies are scheduled for the most favorable seasons and studios declare the release date of a movie beforehand to avoid direct competition from the strongest films of other studios (Kridler and Weinberg, 1998). Thus, releasing a movie at a high demand period has both positive and negative sides. High appeal movies competing for a finite and specific pool of consumer at peak periods devise the revenue. This competition may exist even if movies are not released the same week. Movies gather 60% of their box office revenue within 2 weeks (MPAA, 2013). Under the limited screening availability in theatres and the increasing supply of movies, the life cycles of films are shortened. Exhibitors have a weekly program and have to decide which movies to discontinue depending on the first-week performance and the presence of other alternatives (Eliasberg *et al.*, 2008).

Besides the domestic competition, there is also the competition faced from foreign movies, most specifically American ones. American blockbusters known to dominate the 70% of foreign market's box office revenue, the foreign competition seems to be more problematic than the domestic one. In order to capture the competition effect of American movies on French films, we used the list of

“Movies released in France with more than 1 million of entry number” obtained from CNC. Each year only 40-50 movies pass the 1M entry threshold in France (CNC, 2011; CNC, 2012; CNC, 2013; CNC 2014). This number includes French movies, Hollywood movies, and few UK productions²².

Apart from the strategic timing of a movie release, budget, advertising spending, and first-week screening numbers are expected to have an impact on the box office revenue. The audience perceives expensive movies as quality movies with expensive special effects, good cast, and technical crew. A high investment gives a movie worth to see image and attract potential audiences (Litman and Kohl, 1989). There is a direct link between budget, advertising spending and the number of copies (the first-week screening numbers) (CNC, 2012). According to CNC, in France, while movies with a budget inferior to 300.000€ released with less than 100 copies; movies with a budget between 300.000€ and 500.000€ are released with 100-200 copies; movies with a budget 500.000-1M€ with 200-300 copies, 1-2M € budget movies with 300 to 500 copies, and movies with a budget of 2-4M€ are released with more than 500 copies (CNC, 2008). Since a movie with a higher copy number means availability at more theatres, higher copy number is expected to increase the box office performance of a film. While we don't have the data on advertising spending of each film, we have the copy numbers as a proxy.

While movie characteristics and commercialization of a movie are mostly decided prior to the screening, the interaction with the audience happens after the screening. Ravid (1999) found that the more review receives a movie on a movie or social site, positive or negative, the higher the box office revenue is. It seems that there is no such thing as bad publicity. Professional critics are found to manipulate the box office revenue based on their reviews (Eliashberg and Shugan, 1997). Last but not least, award nomination and award winning too significantly and positively affect the box office revenue (McKenzie, 2012). In Litman's study,

²² In our study, 400 French films depending on their exact release date are enumerated with a dummy variable. If a French movie is released within the two-weeks distance of a high appeal Anglo-Saxon movie with >1M entry number, French movie receives the value 1 and zero otherwise. In other words, we assess the release date from two angles (1) the impact of release in a high domestic period “high domestic supply (and demand)”, (2) releasing a domestic movie within the 2 weeks' proximity of an American blockbuster, so as to evaluate the impact of Hollywood competition on French films.

it is showed that a nomination (Oscar) increases the revenue of a movie by 7.34M\$ (Litman, 1983).

Following the literature review on the determinants of box office performance, in the next sections we evaluate the economic impact of these determinants on French motion picture industry in terms of box office revenue as well as the performance of subsidized-TV financed movies in France with the help of the Quantile regression.

3. Data, variables and descriptive statistics

3.1 Data

The data used in this research is gathered from cinefinances database²³ which is constructed with movie contracts obtained from CNC archives. Each year 250-270 French films minority and majority French produced are agreed by CNC²⁴, of which around 150-160 are fiction-fif movies (fiction - predominantly French produced). That is said, out of 750 fif (fiction) films agreed by CNC between 2010-2014 in total (150 films per year), we only had 525²⁵ of them due to the missing contracts at cinefinances database.

To avoid a selection bias and to have a representative balanced sample between small and big-budget movies, CNC (2012) report is used as a consensus for counterbalancing our sample with 525 observations (Table A1). It is realized that while movies with a budget <1M€ are poorly represented, movies at higher budget category are highly represented in our sample. A possible explanation brought by Serge Siritzky, the founder of cinefinances, is that “while small production

²³ A private database company www.cinefinances.info.

²⁴ The annual movie supply of France, including major and minor co-productions, remains above 250 which makes it one of the six top movie producer countries in the world (UIS, 2015).

²⁵ Majoritarily French produced fiction movies excluding animation and documentaries. On another note, CNC reports are predominantly based on FIF (film d’initiative français – French initiated) movies.

companies are less rigid handing in their contracts to CNC, big size production companies are stricter with their contracts and relationship with CNC”²⁶. To have a representative counterbalanced sample, 13 movies with a budget below <1M € are omitted from our sample since we didn’t have enough observation in this category. Next, for higher budget categories (>1M€) after matching the results with CNC 2012 reports, the threshold representativeness ratio 0.55 is taken as a base to reduce the budget categories which are over-represented (see Table A1: column 3). Following the necessary reductions²⁷, a counterbalanced sample with 400 observations is constructed (Table A1: column 4). Henceforth, both descriptive statistic and regression results will be conducted with 400 observations.

Table A1: Counter-balanced Sample

Budget category (€)	1. Sample Cinefinances (5yrs)/(per year)	2.Consensus CNC 2012 (per year)	3. Representativeness (column 1/column 2)	4. Adjusted (0.55) cumule 5 yrs
1. ≤ 1M	13 / (3)	19	0.16	omitted
2. 1M - 4M	170 / (34)	62	0.55	169 (0.55)
3. 4M - 7M	131 / (26)	41	0.63	116 (0.55)
4. 7M - 15M	158 / (32)	35	0.91	93 (0.55)
5. ≥ 15M	53 / (11)	8	1.37	21 (0.55)
Total film (fif)	525 (105)	165	-	400

3.2 Variables

Variables used in the regression analysis (see Table A10)

Variable	Description	Data source
Box Office Revenue ²⁸	Dependent variable Cumulative Box-office revenue	Cinefinances.info
Copy number	Independent Variable The first week screen number	Cinefinances.info
Star Power	Independent Variable Dummy Star Presence=1, 0 otherwise	IMDB – Star meter

²⁶ Interview was done in 2017 with Serge Siritzky. Cinefinances site: Cinefinances.info.

²⁷ First, 13 movies from the budget category “budget ≤ 1000000” are omitted. Next Table A1: Column 2, movie numbers are adjusted with 0.55 representativeness. Accordingly, 15 movies from 4000000 ≥ budget ≤ 7000000, 65 movies from 7000000 ≥ budget ≤ 15000000 and 32 movies from budget ≥ 15000000 category are systematically omitted. As a result, from 525 initial observations, only 400 observations left.

²⁸ Box office revenue = Cumulative entry numbers * €6.44 (average ticket price, source: CNC, 2016).

Critics Rate	Independent Variable Rating: 1-5 (5: max)	Allocine.fr ²⁹
Viewers Rate	Independent Variable Ratings: 1-5 (5: max)	Allcone.fr
Genre	Independent variables Dummy for: Comedy, comedy drama, drama, Romantic comedy, action, fantastic	Allocine.fr IMDB Cinefinances.info
Government Subsidies	Independent variable The amount of subsidy received (CNC, Sofica, regional authorities)	Cinefinances.info
TV Pre-purchase	Independent variable Pre-purchases from TV channels (Canal+, France 1, 2, 3, Orange etc.)	Cinefinances.info
Domestic Competition	Independent variable Dummy If a movie is released at high supply -demand period (March, November, April, August) =1, 0 =otherwise	Cinefinance.info
Foreign Competition	Independent variable Dummy (If a high appeal American movie with >1M entry number is released within the first 2 weeks ³⁰ of a French film release, the French movie takes the value 1, and 0 otherwise)	* Allocine.fr (exact release date) *CNC (the annual list of films with >1M entry nbr)
Nomination to Cannes and/or Cesar	Independent variable Dummy If a movie is nominated to Cannes and/or Cesar = 1, 0 = otherwise ³¹	Allocine.fr

Variables Used in the Descriptive Statistics (see table A2, A3, A4, A5, A6, A7, A8)³²

Independent Variable

Cinefinances.info

²⁹ Allocine base, with the critics from Le monde, Telerama, Leparisien, Lepoint, Metro, Excessif.

³⁰ Once again, most movies gather the biggest part of their box office revenue within the first 2 weeks. A release of a successful American movie within the first two weeks of a French film is expected to have a negative impact on its box office revenue.

³¹ Cesar awards are only for French movies and mostly for commercial movies. Whereas Cannes is an international competition for art house films. The study takes both Cannes and Cesar nomination into consideration and main nominations only (best screenplay, director, best movie, best actor/actress), as these two are the most notorious and prestigious cinema awards in France and they specialize in different movie profiles.

³² These variables for two reasons are not used in the regression analysis: (1) due to the high correlation among each other (see table A5 - table A6), (2) they are not in the direct interest of our research. Hence, we preferred to present them to profound our knowledge of the French film industry.

Budget ³³		
Principal Actors pay	Independent variable Total pay of principal actors (€) (principal actors can be more than 1)	Cinefinances.info
Director-Previous directing experience	Independent variable	Allocine.fr
Director's Previous award nominations (Cannes-Cesar)	Independent variable	Allocine.fr

The selection of French stars is realized through IMDB star meter. IMDB offers a list of the most popular 100 French actors and 100 French actresses of all time. The list is weekly renewed depending on the search engine records realized by 27 million people and their average consulting to IMDB each month. 14 top French actresses and 14 top French actors chosen from the list.³⁴

Actresses	Actors
Marion Cotillard	Vincent Cassel
Léa Seydoux	Jean Reno
Isabelle Huppert	Jean Dujardin
Melanie Laurent	G�rard Depardieu
Charlotte Gainsbourg	Louis Garrel
Juliette Binoche	Mathieu Amalric
Audrey Tautou	Lambert Wilson
Cecile de France	Romain Duris
Ludivine Sagnier	Fran�ois Cluzet
Catherine Deneuve	Christian Clavier
Isabelle Adjani	Daniel Auteuil
Emmanuele Beart	Niels Arestrup
Berenice Bejo	Vincent Lindon
Carole Bouquet	G�rard Lanvin

³³ Budget = Cost of production (excluding advertising and marketing spending). Once again, 'budget' variable is found insignificant during the regression analysis, and it is highly correlated with our interest variables 'government subsidy' and specifically 'TV pre-purchase' (see table A5 - table A6). For this reason, even if it is an important variable, it is excluded from the regression analysis. Instead, we use 1st-week copy number as a proxy of the budget.

³⁴ Out of 100 French actors and 100 French actresses listed on IMDB star meter, the 20 top ranked actors and 20 top ranked actresses on top of the lists are chosen (Number 20 is chosen quasi-arbitrarily, 40 stars (20 actors and 20 actresses) is 10% of our sample, N: 400) after omitting actors who were not active during the time period 2010-2014, 14 actresses and 14 actors are left. (IMDB star meter is subject to be updated each month (our last consultancy: November 2017)).

3.3 Descriptive Statistics

Descriptive statistics (Appendix: Table A11) show that 79 out of 400 French films had a star in it. 192 French films out of 400 are released at the same period with an American hit movie. 106 films are in the comedy genre, 148 in dram, 5 in fantastic, 11 action, 20 romantic comedy, 64 comedy drama³⁵. Unquestionably, in France, a heavy percentage of movies are in comedy and drama genres. The average critic's rate extracted from Allocine is 3.0 out of 5, whereas the average viewer's rate is 2.9. 103 films out of 400 are nominated to Cannes and/or Cesar. The average first week copy numbers is 197 and the average budget is 6.294.543 €. As for the releasing time, March is the month where the quantity of movie release is the highest. In March 12% of movies, in November 10%, in April and August, 9% are released. These are the four months when the release of the domestic movie is at the highest, also with high demand (CNC, 2010; CNC, 2011; CNC, 2012; CNC, 2013; CNC, 2014)³⁶. That is said, in our sample 159 movies are released at a "high" period. The average star pay of a French movie is 450.423 € with a maximum amount of 9.042.861€.

Table A2 and A3 show the subsidy and TV pre-purchase distribution of 400 films according to 4 budget categories.

Table A2: Number of Subsidized Movies in 4 Budget Categories (N:400)

Budget Category (€)	Nbr of movies in N: 400	Nbr of Subsidized Films	Average Government Subsidy (€)	Max Gov Subsidy (€)
>15M	21	11	991.637	3.300.000
7M - 15M	93	77	866.735	3.210.000
4M - 7M	116	100	678.206	1.900.000
1M- 4M	169	161	598.152	1.720.000

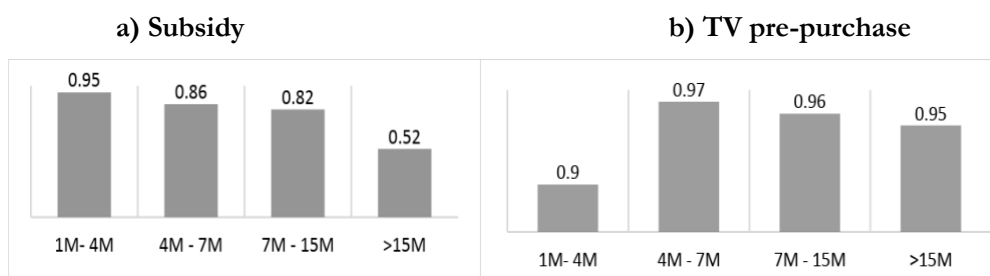
³⁵ 22 movies belong to other niche genres.

³⁶ The average of 5 years.

Table A3: Number of Pre-Purchased Movies in 4 Budget Categories (N:400)

Budget Category (€)	Nbr of movies in N: 400	Number of TV Pre-purchased movies	Average TV pre-purchase amount (€)	Max TV pre-purchase (€)
>15M	21	20	6.095.640	9.850.000
7M - 15M	93	90	3.156.006	12.800.000
4M - 7M	116	112	1.741.438	4.650.000
1M - 4M	169	153	783.264	2.273.000

Table A4: The chance of a movie being pre-purchased - subsidized (conditional to its budget category)



In France regardless of the budget almost all movies receive a subsidy. While the average amount of subsidy naturally increases with high budget categories (Table A2), the rate of increase is *digressive* (Table A8). Additionally, the chance of receiving subsidy decreases at higher budget categories (Table A4.a). Seemingly, CNC tries to control the number of high budget movies while favoring the supply of small budget ones. On another matter, while the total supply of films in the French market with a budget <1M€ was 35 in 2007, this number increased to 46 in 2011 and 59 in 2014. As to the movies with a budget 1M€ - 4M€, while its supply was 72 in 2007, the number increased to 83 in 2014 (CNC, 2007; CNC, 2014). Debates on “small budget movies are vanishing from the market” seems to be statistically falsified.

On the other hand, the debates were two folds. One of the main issues, next to “vanishing of small budget films from the market”, was the inflation in average

production budgets, as “financing system encourages expensive productions³⁷”. To shed a light on this issue we supply the correlation table of the amount of subsidy received, budget and star presence in Table A5. The evidence is found that there is a significant positive correlation between the amount of subsidy received, the budget (0.19) and star power (0.09) (Table A5). However, as a matter of fact, this correlation is weak to make a commotion about it.

Table A5: Pairwise Correlation coefficient matrix - Government Subsidy

N: 322	Government. Subsidy	Budget	Director -award nom.	Director experience	Principal actors pay	Star power
Gov Subsidy	1.0000					
Budget	0.1918*	1.0000				
Direct-award nom	0.1869*	0.1014*	1.0000			
Director-experience	-	0.1081*	0.6465*	1.0000		
Principal-actors pay	-	0.7282*	-	-	1.0000	
Star power	0.0917*	0.1173*	0.1182*	0.1346*	0.1292*	1.0000

*(*p-value* < 0.10)

Following a closer look at the subsidy distribution, the case seems slightly different at the TV pre-purchasing side. First of all, the higher budget categories seem to have a slightly higher chance to be pre-purchased than the lower budget categories (Table A4.b) contradictory to the results on (Table A4.a). Next, in table A6, a significant and very strong correlation is detected between the amount of TV pre-purchase and the budget (0.73). Additionally, the case shows a similarity with the principal actors pay (0.58). Yet, this result is not surprising as the 10% of a high budget film is higher than the 10% of a small budget film, so does the pre-purchase amount it receives. Therefore, to check the robustness of our findings, we analyze the average proportion of “*TV pre-purchase amount / movie budget*” for 4 budget categories whether or not a digressive relationship exists, as in the case of subsidy distribution. Table A7 shows that the amount of TV pre-purchase with respect to

37 In 2005, 10 producer company (TF1 Films Production, France 2 Cinéma, France 3 Cinéma, M6 Films, Studio Canal, EuropaCorp13, Gaumont, UGC, Pathé) received 61% of the soutien automatic for the production, whereas 115 other production company shared 10% of the soutien automatic reserves from CNC (Hartmann and Lalevee, 2006). The case follows a similar pattern in TV financing distribution.

budget is not digressive but progressive. In other words, higher budget categories indeed receive more generous financing from TV channels in terms of % of the budget next to having a higher chance of being pre-purchased (Table A4b)³⁸.

Table A6: Pairwise correlation coefficient matrix – TV pre-purchase

N: 349	TV pre-purchase	Budget	Director-award nomination	Dir-experience	Principal actors pay	Star power
Tv Pre-purchase	1.0000					
Budget	0.7271*	1.0000				
Director-award nom.	-	0.1014*	1.0000			
Dir-experience	-	0.1081*	0.6465*	1.0000		
Principal Actors Pay	0.5778*	0.7282*	-	-	1.0000	
Star power	0.1500*	0.1173*	0.1182*	0.1346*	0.1292*	1.0000

*(*p-value* < 0.10)

Table A7: Average proportion of “TV pre-purchase amount/budget” for each budget segments (%)

Budget Category (€)	Nbr of movies in N: 400	Average weight of TV presales with respect to budget (€)	Min	Max
>15M	20	.297	.002	.542
7M - 15M	91	.319	.002	.857
4M - 7M	113	.310	.041	.737
1M - 4M	153	.264	.015	.891

Table A8: Average proportion of “received Subsidy / budget” for each budget category (%)³⁹

Budget Category (€)	Nbr of movies in N: 400	Average weight of subsidy / budget	Min	Max
>15M	11	.052	.006	.147

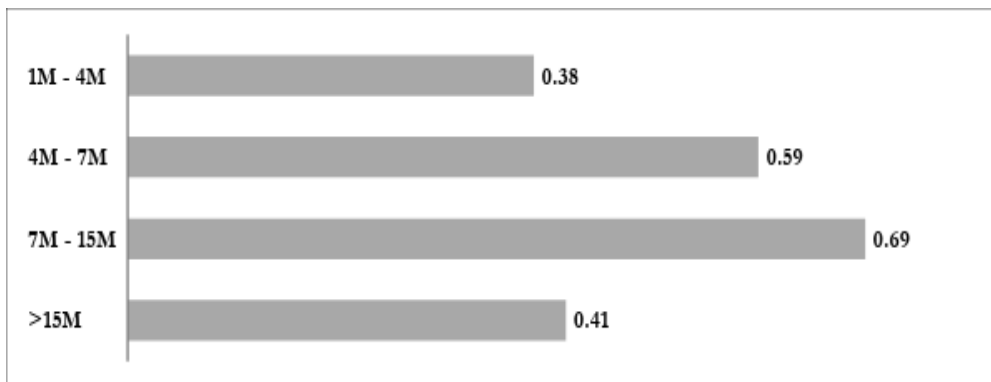
38 In 2016, 1,208,79M€ is invested in fif films, while only 2,4% of this amount is used for movies with a budget <1M€, 14,2% is used for movies with a budget 1-4M€, 20% for 4-7M€ and 63,1% is used for movies with a budget >7M€ (CNC, 2016). 315,04M€ out of 1,208,79M€ was TV channels contribution that year (CNC, 2016).

39 For each movie the ratio of subsidy/budget is found, then the average of these proportions for each budget category is calculated.

7M - 15M	77	.098	.002	.401
4M - 7M	100	.123	.001	.396
1M - 4M	161	.242	.004	.377

For market insiders and for TV channels “Movies are merchandise in art and art in merchandise” (De Vany, 2006) and the movie industry is risky and expensive endeavor (Ghiassi *et al.*, 2015). In such industry “star presence” and “big budget” are seen as recipes to avoid flops at the box office and increase the performance. Since the success at movie theatre, which is the first release platform, is strongly and positively correlated with the success in the following platforms within the chronology of media (Litman and Ann,1998), certain TV channels seems to prefer financing this kind of films at the box office by thinking their future gain once the movie is released at their channels. Table A9 indeed confirms that the higher the budget, the higher the box office revenue, and the higher the return on investment is.

Table A9: Rate of Return (budget (€) / box office (€)) for 4 budget categories



However, in table A9, we also see that there is a threshold for return on investment, once the movie budget becomes too high (>15M€) the return on investment decreases. In the next section, for supporting the descriptive results, we evaluate the economic efficiency of subsidized and pre-purchased movies together with other determinants of French box office revenue.

4. Methodology and Regression results

4.1 Methodology

The common approach in the literature is using parametric models while analyzing the box office performance of movies i.e. working with a log-log model where the log box office revenue is a function of log budget, star presence, critics rate and etc. The standard linear regression is a handy tool for summarizing the average relationship between the dependent variable and independent variables based on the conditional mean function $E(y/x)$. Yet, the OLS regression mean is highly sensitive to outliers and there is only one mean value offered even for samples highly dispersed and un-normally distributed. In cases like this the non-parametric Quantile regression estimates offer interesting results, QR allows studying the impact of covariates at different percentiles (Colin and Pravin, *Microeconometrics Using Stata*, 2009). In this study, both OLS and Quantile regression results at 25-50-75-90 percentiles will be presented to show the differences of covariance under different model selections⁴⁰.

40 Walls by using the same data over a decade published numerous articles to compare the results of different models, log-linear, Pareto, levy stable, Skew Normal, Skew t model to analyze the relationship between box office revenue and its factors. Walls, finds that all these models even though some considers the skewness, heavy tails, and infinite variance, assume a functional form for the model which creates a model specification problem (Walls, 2010). Antipov and Poksryhevskaya (2010) worked with “Finite mixture model”, extracted 2 latent classes, conditional on movie characteristics and run a regression on the first-week box office revenue. The study compares the results of OLS regression with heteroskedasticity robust standard errors with, single quantile (median) regression. It shows that the coefficients of determinants and their significance vary among different groups. They found that the classification of movies under Latent group gives better results than a single equation method. Moon *et al.* (2015) used Dynamic artificial neural network (DAN2) model for forecasting movie revenue during the pre-production period and found that DAN2 model increases the box office revenue estimation before its production by 32.8%. In the literature apart from Quantile Regression as a nonparametric regression, Kernel regression is found as a powerful statistical technique suited to analyze the box office revenue (Walls, 2010). No consensus has been reached concerning the model selection fitting best to motion picture industry which is why the results of the determinants vary a lot among studies.

The analytical model used is as follows:

$$\begin{aligned}
 & \text{Ln Box office revenue} \\
 & = \beta_0 + \beta_1 \text{Ln copy no} + \beta_2 \text{domestic competition} \\
 & + \beta_3 \text{American movie competition} + \beta_5 \text{star power} \\
 & + \beta_6 \text{Nomination cannes/cesar} + \beta_6 \text{coproduction} \\
 & + \beta_7 \text{Ln govsubsidy} + \beta_8 \text{Ln TV prepurchase} + \beta_9 \text{criticsrate} \\
 & + \beta_{10} \text{viewersrate} + \beta_{11} \text{comedy} + \beta_{12} \text{dram} + \beta_{13} \text{fantastic} \\
 & + \beta_{14} \text{action} + \beta_{15} \text{comedy dram} + \beta_{16} \text{romantic comedy} + \varepsilon
 \end{aligned}$$

The main estimates are presented in section 4.2 where we show the determinants of French box office revenue, the economic performance of state subsidized and TV pre-purchased movies.

4.2 Regression results

The results of quantile regression show that significance of the determinants varies depending on movie profiles (table A10). While the *1st-week copy number*, *award nomination*, *critic's* and *viewer's rate* are found to significantly increase the box office revenue at all quantiles 0.25 0.50 0.75 0.90, star presence is found to have a significant impact only on low profile movies. This finding approves the literature that star presence saves low profile movies from an absolute flop yet has no impact on higher profile movies (Walls, 2005). According to Rosen, the effect of talent in sectors such as art, sports, and literature have positive nonlinear effects on revenue (Rosen, 1981).

Table A10: Parameter estimates of cumulative box office revenue

	OLS	Q25	Q50	Q75	Q90
Ln copynumber	1.172*** (0.056)	1.236*** (0.083)	1.282*** (0.095)	1.266*** (0.118)	1.163*** (0.110)
Domestic competition (high period)	-0.087 (0.081)	-0.201* (0.105)	-0.121 (0.114)	-0.043 (0.118)	-0.079 (0.221)

Foreign competition	-0.164** (0.079)	-0.125 (0.131)	-0.175** (0.076)	-0.192** (0.087)	-0.142 (0.202)
Star power	0.066 (0.104)	0.173* (0.093)	0.022 (0.110)	-0.077 (0.101)	-0.183 (0.161)
Nomination Cannes/Cesar	0.501*** (0.099)	0.444*** (0.135)	0.392*** (0.097)	0.334*** (0.120)	0.282*** (0.210)
Co-production	-0.109 (0.081)	-0.075 (0.111)	-0.161 (0.105)	-0.116 (0.085)	-0.108 (0.128)
Ln Gov subsidy	-0.016 (0.048)	0.014 (0.053)	0.017 (0.052)	-0.091 (0.061)	-0.102 (0.080)
Ln TV-prepurchase	0.079 (0.055)	0.025 (0.077)	0.027 (0.063)	-0.013 (0.084)	0.006 (0.107)
Critics rate	0.302*** (0.067)	0.385*** (0.078)	0.374*** (0.060)	0.320*** (0.098)	0.249** (0.119)
Viewers rate	0.203*** (0.070)	0.181* (0.101)	0.216*** (0.081)	0.181* (0.097)	0.279** (0.124)
Comedy	0.238 (0.147)	0.291 (0.251)	0.113 (0.216)	0.077 (0.169)	0.380** (0.182)
Drame	-0.147 (0.136)	-0.095 (0.185)	-0.259 (0.217)	-0.254 (0.175)	-0.226 (0.180)
Comedy dram	-0.071 (0.152)	-0.059 (0.210)	-0.219 (0.223)	-0.123 (0.199)	-0.332 (0.201)
Fantastic	-0.138 (0.368)	-0.086 (0.249)	-0.451 (0.551)	-0.973 (1.192)	1.199 (1.161)
Action	0.066 (0.306)	-0.237 (0.775)	0.426 (0.638)	0.060 (0.287)	-0.011 (0.345)
Romantic comedy	0.368* (0.214)	0.590*** (0.202)	0.236 (0.235)	0.150 (0.190)	0.196 (0.266)
_cons	5.663*** (0.896)	5.056*** (1.017)	5.311*** (0.942)	8.026*** (1.059)	8.682*** (1.261)
	R2=0.83	R2=0.67	R2=0.61	R2=0.54	R2=0.50

Note: standard errors in brackets. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Ols « mean » results and Quantile (0.50) « median » regression results are different and Shapiro wilk normality test (see Appendix) confirms that the residuals are un-normally distributed. For this reason, we will continue with the non-parametric Quantile model which is a better fit for our data. Accordingly releasing a low-profile movie at a high demand - supply period (period: April, March, August, and November) puts a low-profile movie (Q0.25) out of the competition. On the other hand, if an average profile movie (Q0.50) is released within the two-weeks proximity of a high-profile American movie with >1M entry number, the demand is significantly and negatively affected. As to the domestic blockbusters at Q90, these movie profiles create their own demand without being affected by any sort of competition.

Lastly, comedy genre is found to increase the box office success of blockbusters only whereas romantic comedy genre as in the case of star presence saves low-profile movies from a flop. Much to our surprise, no significant relationship is detected between the box office performance of movies at high quartiles Q75-Q90 and the TV pre-purchase. In other words, there is no significant - positive relationship between movies receiving higher financing in form of TV pre-purchase and movies with high box office success i.e. Q75 - Q90. We fail to confirm that neither subsidized nor TV pre-purchased movies are economically efficient at any quantiles.

5. Discussion

Our research shows affirmative results that Tv channels has a tendency of favoring big budget movies in two forms: a higher change of receiving finance and a more generous fraction of finance distributed. Movie producers to secure a financing tend to propose big budget movies favored by Tv channels, eventually causing an inflation in the production budgets. On the other hand, a higher finance distribution does not make a French movie better performing at the box office. This can be explained by several causes. One of them is, in descriptive statistics,

big budget movies are found to bring a higher rate of investment (ROI) (table A9). Nevertheless, it is also found that ROI decreases once the budget is too high (>15M€). A more selective approach while financing movies above this threshold can improve the theatrical performance of the high financed movies. High financed movies not securing a successful performance at the box office might also be explained by the inescapable uncertainty attached to motion picture industry to “no one knows anything” phenomenon. Lastly, it can also be explained by the financing system. Tv channels are the most important component of the French film financing system and movie producers are too dependent on them. The audience profile of Tv channels, the success recipe (working with certain star-director, big budget) might be different than the one of cinema audience. These generously financed, big budget, star starring movies, even if not returning with a box office success, can be successful on Tv channels. Is it possible that French producers tailor movies for Tv channels to secure financing and disregard the demand dynamics of box office? This is an interesting open question to ponder on.

6. Conclusion

We analyzed the performance of 400 French films released in 2010 – 2014 period with the help of quantile regression. Our research provides several results. First, the volume of subsidies (slightly), as well as the volume of TV pre-purchases (heavily) are found to favor big productions. This tendency of TV channels, the main financial source of film making, confirms the debates that TV financing encourages an unintentional inflation in movie budgets (the more expensive a production, the higher the chance of being pre-purchased, the higher the volume of finance is).

Next, we show that the determinants of box office success are nonlinear for movies of different quantiles. While star presence has no impact on high profile French movies, it saves a low-profile movie from an absolute flop which confirms the

findings of Ravid *et al.* (2003), Basuroy *et al.* (2003) conducted for the US movies. In other words, there is no significant impact that French starred movies attract more audiences to cinemas, apart from very low-profile movies. In latter case star starring blunts the negative aspects of film.

Next, the competition factor, as in star variable, has heterogeneous impacts on the box-office performance. It is found that French blockbusters are resistant to any type of competition (foreign or domestic). On the other hand, an average profile French movie performs worse, if it is released at the same time with an American blockbuster. As for the low-profile French movies, they perform less at a high domestic movie supply period. Briefly, when to release a movie by considering its box office potential is a strategic decision.

Another result that we found surprising was that the co-produced films do not stimulate the demand in the domestic market. In this sense our results confirm the findings of Hoskins *et al.* (1997), which shows that co-produced films between Canada and Europe with integrated cultural values, lack cultural distinctiveness, resulting in artistic and commercial failure. Lastly, the 1st week copy number, award nomination in Cannes/Cesar, critics and viewers rate are important elements for all movie profile and levels up the box office reception for all. Our results confirm the research findings of Mckenzie (2012) and Litman (1983) where award nomination (Oscar) is proved to increase the box office revenue of a US movie by 7.34M\$. This empirical research, by analyzing the intuitively used Hollywood box office determinants, found surprising results for the French film market to ponder on.

7. Appendix

Table A11: Summary statistics

Variable	Obs	Freq.	Mean	Min	Max
Budget	399	.	6.294.543	1.049.679	49.000.000
Star power (dummy)	399	79	0.20	0	1
Co-production	399	146	0.37	0	1
Gov Subsidy	349	.	692.758	7000	3.300.000
Tv prepurchase	375	.	1.922.223	30000	12.800.000
Domestic competition (dummy)	397	159	0.40	0	1
Foreign Competition (dummy)	391	192	0.49	0	1
Press rating	396	.	3.00	0	5
Viewers rating	395	.	2.91	0	4.5
1st week copy number	398	.	197	1	1051
Box Office Revenue	399	.	3.147.303	3046	125.000.000
Comedy (dummy)	399	106	0.27	0	1
Dram (dummy)	399	148	0.37	0	1
Fantastic (dummy)	399	5	0.01	0	1
Action (dummy)	399	11	0.03	0	1
Comedy drama (dummy)	399	64	0.16	0	1
Romantic comedy (dummy)	399	20	0.05	0	1
Dir Previous movie experience	393	.	7.32	0	95
Director's previous award nomination (Cannes and Cesar)	394	.	3.68	0	44
Principal actors pay	373	.	450.423	10028	9.042.861

Regression Normality Test

Shapiro-Wilk W test for normal data					
Variable	Obs	W	V	z	Prob>z
r	310	0.96404	7.887	4.855	0.00000

VIF test

Variable	VIF	1/VIF
dram	2.95	0.339270
comedy	2.82	0.354175
Ln copy no	2.31	0.432023
comedy_dram	2.20	0.454767
Ln TV prepurchase	2.06	0.486354
Critics rating	1.65	0.605868
viewers rating	1.48	0.677142
romantic_comedy	1.43	0.700613
awards nomination	1.37	0.731037
starpower	1.21	0.827112
action	1.21	0.829846
fantastic	1.17	0.853123
Ln gov subsidy	1.17	0.853967
domestic competition	1.06	0.940602
foreign_competiton	1.06	0.946921
coproduction	1.04	0.959968
Mean VIF	1.64	

CHAPTER III

The interplay of culture homogenization and differentiation. Case Study: The French movie reception in the US market

1. Introduction

The competition in the motion picture industry is heated due to the rapid increase in the world's movie-video supply which consequently increased the importance attributed to the economics of attention⁴¹. The average cost of producing a French initiated film is multiplied by 3.5 from 1980 to 2000s, within this competitive environment (advertising spendings not included) it reached up to 5,5M € (George, 2002; CNC, 2016). Nevertheless, while the cost of filmmaking is increasing,

41 "Attention is scarce and too much information creates a poverty of attention" (Simon, 1971, p.4, Evans, 2017). To be distinguished from the mass, being innovative, the word of mouth, marketing, the economics of attention is even more important than before.

countries stay limited by their size⁴². This increases the economic importance of export markets even further.

While the ensemble of 54 French films released in Germany in 2011 obtained 4,9 % of the German box office revenue, American films obtained 61,2% and German movies obtained 21,8% of it. A similar pattern is observed in Brazil as in the majority of the rest of the countries (US films 76,1%, Brazilian films 12,6% and French films 1,9%) (UniFrance, 2011). French language films are the second most preferred foreign language films in abroad following the US movies in English language. On the other hand, the market share of French films in export markets is limited⁴³ and this limited success is mainly burdened by few French films⁴⁴. The ex-general director of Unifrance Hatchondo explicitly stated the problem in 2011 as the screen numbers around the world is increasing⁴⁵ and these new screens do not program French films that are most often considered as art house films⁴⁶ abroad, even if these movies considered as "commercial" movies in Europe (Hatchondo, 2011). The low foreign demand phenomenon, on the other hand, is not solely specific to France, the majority of countries outside the US struggle with the same problematic.

42 This is why in European countries, even if producers try to keep the budget down, the production needs state subsidies to survive (De Turegano, 2006).

43 "In 2013, the market share of US films in the European Union reached 69.1%. At the same time, the market share of non-US films in the USA and Canada was only 5.4% of which 1.2% was French" (European Audiovisual Observatory, 2014).

44 The number of French movies exported to the world in 2012 was between 567 and these films are shown 2066 times in total, which means less than 4 exploitation for each movie. The exportation reached to 144M entries all around the world and 93M of it was collected by 4 films (Taken 2, Intouchables, The artist and Asterix et Obelix au service de sa majestie) (Unifrance, 2012).

45 China increased its movie screens from 9300 in 2011 to 45 129 screens in 2017. The Chinese market with a very large domestic audience is considered as not yet saturated together with India (source: Ifta. Retrieved from http://www.ifta-online.org/sites/default/files/China%20Attachments_0.pdf)

46 Art house movies are usually screened at specialty theatres and film festivals, usually have lower budgets than mainstream movies which does not allow expensive special effect, costly celebrity stars, huge advertising campaign that commonly seen in mainstream blockbuster movies. Film makers to make up these ingredients, naturally focuses on developing ideas or exploring new film making techniques. Low budgets, in other words less risk, encourages film makers for making "avant-garde" or "experimental" movies. Yet novelty, being different or even "quality" does not equally mean that these films will meet the demand. It is, indeed, possible that consumers may evaluate product quality highly yet still dislike it. Taste and aesthetic value do not coincide; as it happens in the case of wine (Charters and Pettigrew, 2005).

There are three reasons why movies of niche countries⁴⁷ fail abroad. On the one hand, there are cultural problems i.e. “the cultural discount”, “the difference in storytelling”, and on the other hand, there are “marketing”⁴⁸ and “economic”⁴⁹ problems. In this research, we will focus on the “cultural discount” factor to enlighten the market insiders and policymakers aiming post-market expansion.

An exported product rooted in one culture, and is attractive in that environment, is expected to have diminished appeal elsewhere, as viewers find it difficult to identify with the style, values, beliefs, institutions and behavioural patterns of the material. This phenomenon is called “cultural discount” (Lee, 2006; Waterman, 2005; McFadyen *et al.*, 1997; Hoskins and Mirus, 1988; Wildman and Siwek, 1988). For a consumer in country k , a movie from country u reduces utility by δ_{uk} as compared with a domestic movie ($\delta_{uk} > 0$) (Hanson and Xiang, 2008). Accordingly, a film’s value is lost in translation in another country⁵⁰ (Lee, 2006). The negative impact of cultural difference is sometimes moderated with the comparative advantage or strategies of the exporting country as in the case of Hollywood industry (Hanson and Xiang, 2008; Canterbury and Marvasti, 2005; Wildman, 1995; Mirus and Hoskins, 1988). This can occur due to economies of scales: the larger the home market the more specific steps in the production process can be achieved as well as more expensive blockbuster productions can be carried with the lower sunk cost per head which increase the visual quality (Lee and Waterman, 2007; Wildman and Siwek, 1988) or lobbying. American firms have lobbied for media and distribution of movies, promoting English language and their movies with trade arrangements and regulations in local countries (Schiller,

47 The term “niche country” in this research refers to all the countries with a single digit export market share, in other words all the countries outside of the US. The term, hence, is not referring to the country size, population, or annual movie production of countries, but the annual export market share in terms of entry numbers.

48 The advertising spending is equal to 50% of the budget of a film in the United States which is only 10% for French films (George, 2002).

49 Economies of scales, limited home market size causes lower investments in filmmaking.

50 While cultural differences can diminish the value and appreciation of a foreign cultural good “the cultural discount”, the same differences can also augment its value with the appreciation of its “otherness”, “authenticity” as in the case of gastronomy, clothing.

1976) and analyzed the needs of consumers and produce entertainment movies since decades for responding these needs.

The increased importance of international consumers, growing production budgets and the limited domestic capacity impact the casting selections, co-productions and even the language of the movie (Chu-shore, 2010). As a result, a slow transition is happening in the contents of cultural goods in search of post-market expansion. How to integrate the domestic culture into the logic of international film market to create diversity and commercial profits without losing what is local is crucial to consider at this stage (Jin, 2006).

In this study, our aim is to analyze the reception of French films in the US market with respect to their homogenization and differentiation with that culture. Although the approach of this paper involves an analysis of the pattern of trade in cultural industries, the “cultural discount”, which we take as a starting point for an investigation into the possible cultural discount reducing factors on industrial development, it is less a trade study than an inquiry about exported film characteristics, their reception depending on these characteristics, and the development of international strategies. For this, we examine the relationship between the success achieved in the US⁵¹ by a set of 272 French films, came out in 2011- 2015, and their level of cultural openness. Since the US market is our chosen field, a movie homogenized with the US movie production characteristics i.e. *staring a US star, shot in the US borders, produced in English language or co-produced with the US* will be accepted as US culturally open films (section 3: imitation strategy).

The plan of the rest of the paper is as follows. In section 2, we review the literature related to the imitation - differentiation strategies in cultural industries, together with the determinants of movie exportation. In section 3, hypotheses for imitation-differentiation strategies are presented. Variables are supplied in section 4 and the

51 In 2011, the entry numbers of 54 French films exported in the US was only 1.6 % of the US market. Yet even a 1,6 % small market share made the US the number one consumer of French films in abroad, it is the second important country consuming French films after France with a box office revenue of 119.672.795€ (Unifrance, 2011).

methodology in section 5. In section 6 results are presented. Section 7 gives a discussion and section 8 a conclusion.

2. Literature review

As a consequence of digitization and globalization, the local environment is constantly transforming and growing which brings greater opportunities i.e. larger markets, new suppliers; and challenges in the form of greater competition, shorter product life cycle, the preservation of national values. Every year approximately 280 French films are produced in France, very few of them reach to the breakeven point, and roughly 60 of them, mostly artistically or commercially acclaimed ones, are exported in abroad⁵² (CNC, 2010-2016; Unifrance, 2010-2015). Among the sixty exported French movies only a few of them receive a satisfactory reception at the foreign theatres every year. Digitization and globalization, needless to say, have an echo on the motion picture industry as in other industries. Ambitious productions tend to consider the cultural discount factor in foreign markets back in the project stage, as the ingredients of a movie are determined in advance to increase the competitiveness of a movie. This echo resonates in ambitious movies in forms of content decisions. An internationally screened movie is not always by mere chance filmed in multiple languages, co-produced, starring a world known foreign star or filmed in multiple countries. Then, the question is, are these internationalized movies better receptioned in a foreign market than the culturally embedded ones?

In this section, we present the selected researches from the literature on the culture imitation – differentiation strategies for foreign market expansion. Additionally, macro and micro studies on the determinants of movie exportation and foreign box office revenue will also be presented.

While differentiation - imitation strategies can be applied to products, organizations, prices, origins, it can also be applied to cultural goods as a foreign

⁵² This number increases up to 400-600 together with the old movies.

market penetration strategy. Differentiation strategy is the strategy that aims to distinguish a product or service from other similar products offered by the competitors in the market. It requires a product or service that is unique for the customers, in terms of design, features, brand image, quality or customer service (Pride and Ferrell, 1985; Rothenberg, 1962; Steiner, 1952), it comes in two categories: vertical differentiation (a measurable quality competition) and horizontal differentiation (no measurable quality competition, yet product differs in color, taste, location, culture etc) (Janssen and Teteryanikova, 2012). Here we refer to the differentiation strategy in cultural terms. A foreign movie exported to another foreign market is considered differentiated, if its production characteristics and artistic aspects stayed local and national, in other words, if it is not homogenized with the exported countries motion picture production characteristics. According to the research of Kolb (2016), differentiation or focus strategy is the most relevant strategy for cultural industries. With this strategy the organization focuses on a smaller segment of clients, by doing so they know the needs of their target market better. In Porter's term, for a sustainable industrial development a unique competitive position needs to be created (Porter, 1996). Bakker (2004) presented in his research the success of a French production company's differentiation strategy from Hollywood productions. Accordingly, Albatros company, one-eightieth size of a Hollywood studio, remained two decades in business from 1918 to 1938, while many of its peers went bankrupt face to the US dominance. The company exported its films throughout the world and made profits. Before sound era, Albatros⁵³ participated in international co-productions which increased its films foreign appeal and guaranteed foreign distribution access. After sound, Albatros shifted to French co-productions and used a strategy of maximum differentiation from Hollywood production. The company created its movies catered for the French audience taste, while its larger

53 The paper focuses on Albatros's international business strategy of production and marketing in an international film market dominated by five large and three small Hollywood studios. The paper analyses the different strategic positioning of Albatros during its long historical presence and how the economic conditions of the international market shaped its strategy. But most importantly the paper evaluates how adequate was Albatros's strategy against the Hollywood studios, French and European producers. Albatros was not an inward-looking company protected by protectionist legislation but an enterprise aggressively exported its films between two world wars and it has received considerable attention from film historians because of its prominent place in French movie production. (Bakker, 2004)

European rivals were obsessed with operational effectiveness⁵⁴ against Hollywood. Albatros adopted a distinct strategic position and made differentiated movies for needs unserved by Hollywood. Despite its small size compared to Hollywood producers, it realized higher gross returns on its films than the major Hollywood studios that dominated international markets and exported its films throughout the world (Bakker, 2004).

Wei (2014) in his research traced that in motion picture industry big-budget movies benefit more from imitation as a way to reduce risks, while small-budget movies favor novelty as risk is of less concern. Depending on the size of the risk (investment) and the artistic sensibility, a movie maker-producer chooses between novelty and imitation. Examples of such industries include motion pictures, book publishing, video games, TV shows, software development, cell phone manufacturing (Wei, 2014). In the movie market, the risk is bigger and more fluctuating for big production movies targeting mainstream markets, because the uncertainty grows with investment and market size (scale economies), whereas the market and investment for niche films are small and demand varies on a relatively predictable scale (Lorenzen, 2008). Given this tension between the need to imitate and the need to avoid imitation or to find a strategic balance between the two, it is not immediately obvious what a company should do.

While we observed a literature shortage on the economic impacts of the cultural discount factor on countries movie exportation other than the US, culture imitation and culture differentiation, we encountered sheer number of *macro* studies analyzing the movie exchange relationship between countries, depending on their past colonial links, religion, language, size, geographical distances⁵⁵ and cultural distances⁵⁶ (See table B1: Fu and Sim, 2010; Disdier *et al.*, 2009; Xiang and Hanson, 2008; Marvasti, 2000). We also found few *micro* studies analyzing the movie

54 Operational effectiveness means performing similar activities better than rivals, it is the opposite of strategic positioning which is performing similar activities in different ways (Porter, 1996)

55 Gravity Theory (See Tinbergen, 1962)

56 Through Hofstede's six dimensions of culture to differentiate one culture from another. 1) Power distance index (high versus low), 2) individualism versus collectivism, 3) masculinity versus femininity, 4) uncertainty avoidance index (high versus low), 5) pragmatic versus normative, 6) indulgence versus restraint (See Hofstede, 2001)

exportation of countries (Moon *et al.*, 2015; Lee *et al.*, 2009), yet, either the cultural discount factor is neglected in these studies or the researchers analyzed the performance of American productions in a foreign country. We also found interesting studies on the content transformation of cultural goods from national to global and on the evolution of cultural policies with the new technological advancements (Crane, 2013; Barthel- Bouchier, 2012; De Masi, 2012; Jin, 2012; Danan, 1996). Below, some of these studies, found to be the most related to our research, analyzing the determinants of movies exportation at a micro or macro scale, are presented to accentuate the contribution of our paper to the literature.

Table B1: Literature summary: Movie exportation and its' determinants

Author /Year / Journal	Main results	Details (Variables/Period/Applied country)
Lee, S., Kim, E., & Sung, H. (2009) Review of development economics	*The number of screens, action genre, reviews and year dummies of 2000 and 2001 are significant determinants of exportability of a Korean film.	V57: Macro data for years, rating, genre, number of award winner actors, number of screens, critical review P:1996-2002 408 movies
Moon, S., Bayus, B. L., Yi, Y., & Kim, J. (2015) Journal of Cultural Economics	*Foreign movies have higher cultural discount than local Korean movies in Korea. Local movies have higher viewers number and longer screening than imported films.	Korea 2007-2009 foreign and domestic movie reception in Korea. V: Weekly box office, critics rating, running time, genre. 140 movies/ based on survey.
Lee, F. (2008) Asian Journal of Communication	*US Comedy movies have a lower performance predictability and a higher level of cultural discount compare to other genres. *Adventure genre is found to be “universal” genre with a lower level of cultural discount and a higher level of performance predictability in East Asian countries.	Box office performance of Hollywood films C: 7 Asian countries and the world market at large P:2002-2006 489 movies
Xiang C., & Hanson, G. H. (2008) National Bureau of	*Market size and language are two main determinants of US motion picture exports. *Trade costs (culture, trade policy, language) affect the ability of US studios to penetrate to foreign markets.	V: Box office of US films/box office of domestic films, GDP, distance between US and other country, language distance. P: 1995-2006

57 V: variables, P: data period, C: country

Economic Research	C: 46 countries	
Disdier, A.C., Tai, S.H.T., Fontagne, L., & Mayer, T. (2009) Review of world economics	*Common language, past colonial links, cultural and historical links foster bilateral trade of motion picture. increases if both countries share a common language.	V: Distance, common border, common language, the share of imported movies, cinema entries P: 1989-2005 / C: US, France, Japan, India, Germany, Russia the UK, Italy.
Fu, W.W., & Sim, C. (2010) Journal of communication	*The effect of cultural distance is moderated with exporter market's size. * Number of film trade increases if both countries share a common language.	V: Film flow, cinema attendance, GDP, cultural distance (Hofstede cultural index: power distance, individualism, masculinity, uncertainty avoidance), language distance P: 1970-1999 / C: France, Germany, Hong Kong, India, Italy, Japan, Russia, the United Kingdom and the United States.
Marvasti, A. (1994) Journal of Cultural Economics	*Religion has no impact on the net exportation of any cultural goods whereas language has.	V: GNP, number of feature films, population, number of people in labor force, the value of net exports of films, Cultural distance, trade barriers, religion, language; P: 1985
Hoskins, C., & Mirus, R. (1988) Journal of Media Culture and Society	*US enjoys a unique combination of large population with a common language and high per capita income. *Small countries have difficulties to amortize costly productions, blockbusters, expensive stars and do not perform good in foreign countries with big populations. Cultural discount and the market size are disadvantages of small countries.	No empirical study conducted
Wildman, S. S. (1995) Canadian Journal of Communication	*Hollywood films, with a high amount of investment in production, overcome the cultural discount. *Virtually global films and English language sustains one-way flow of US films to other countries.	No empirical study conducted

This research differentiates from the previous studies as it analyzes the reception of movie productions of a niche country, France⁵⁸, in an export market depending

58 Even if it is simplistic to call exported France as a niche country and French movies as niche products, despite its important contribution to cinematic history and rich content and some exceptional mainstream outliers, most of French exported movies are considered as small art house productions in abroad. In this

on the cultural openness-cultural embeddedness of its movies. While an abundant number of empirical studies are conducted at a macro scale or specialized in American movie productions, very few researchers got interested in niche countries performance in international markets, yet these studies ignored the cultural discount factor. At the time of globalization and digitization where traditional production systems and products are subject to an inevitable transformation, the complex interaction between international and national forces begs further examining for industrial development.

In the following section, we develop the four US culture imitation (differentiation) strategies of French films: “*US-Franco co-production*”, “*English as a production language*”, “*shooting location in the US*”, “*starring a US star*”.

3. Hypotheses Development

3.1. Imitation - Differentiation Strategies

3.1.1 Language

English apart from being the language of our selected target market, is the leading international language in economic and political spheres and the language of the youth, the internet and even the culture. The effect of English language on cultural products becoming highly visible, especially in audiovisual industries. “In Japan, while most of the movie genres are produced in the Japanese, only 1% of animations are produced in Japanese language, the original language is 99% in English. Japanese animations always have the global appeal in their mind” (Koichi, 1998, p.168) which make them distinctively Japanese in style with a universal appeal (Lam, 2007). Specific to the US market, the study of Mirus and Hoskins (1988)

frame, in comparison to the US global hegemony dominating 70% of foreign market box office revenue (Unifrance, 2016), solely from the point of foreign demand, we refer French movies as niche movies.

shows that the US viewers appear unusually intolerant to foreign language programming and subtitles. Dubbing, on the other hand, appears to do violence to the original by removing the otherness, hence distributors prefer to keep the original language as it is widely rejected by critics, hence not a common option (McDonald, 2009). For these reasons, French movies filmed in the English language are expected to reduce the cultural discount in the US and augment the local reception.

H1: French movies in English language improve the box office reception in the US market.

3.1.2 Co-production

Co-productions are produced for global media markets, often stimulating Hollywood type of productions which have been adopted and generalized in a global model for commercial media (Straubhaar, 1997). They reinforce production, consumption, market penetration in the global value chain while also enabling cultural diversity by exchanging artistic and technical human resources, facilitating the circulation of movies in more than one country. Especially for European countries, co-productions help make big-budget movies, which upgrade the competitiveness of films compared to Hollywood movies (Kanzler, 2008). Since co-productions embed the value of plural cultures simultaneously, it is expected to reduce the cultural discount in the co-production countries. The study of European Audiovisual Observatory (2008) conducted on 5414 European produced films released between 2001-2007, shows that the admission numbers of co-produced European movies are on average 2.7 times higher than 100% national movies. On the other hand, the research of Hoskins *et al.* (1997) analyzed the benefits and drawbacks of international co-production between Canada and Europe found that co-produced movies with embedded cultural values lack cultural distinctiveness, result in artistic and commercial failure.

We expect in this research that US-Franco co-productions reduce the cultural discount through an exchange of cultures, production methods, storytelling and increase their reception through facilitating the distribution of French films in the US market.

H2: Franco-US co-produced movies improve the box office reception in the US market.

3.1.3 Engaging in local stars

Stars, actors are a part of the cultural identity and have an impact on cultural identification as well as a cultural discount (Moon *et al.*, 2015). While many Asians are associated with Jackie Chan, French are associated with Jean Dujardin. Even if a movie star is international, his appeal may vary across countries because movie fans are likely to relate themselves to their national stars more than other countries stars. “The Hollywood movie G.I. Joe: The Rise of the Cobra released in 2009 cast a famous Korean actor, Byun-Hun Lee, as one of the protagonists. Even though Japan has a higher movie-going population than Korea, the movie collected more revenue in Korea than in Japan” (Moon *et al.*, 2015, p.100). It is expected that starring a star of the foreign target market reduces the negative impact of the cultural discount.

H3: French movies starring an American star (previously nominated to Oscars⁵⁹) improve the box office success in the US market.

3.1.4 Shooting location

Familiarity can explain why people prefer cultural goods from their home countries (Park, 2015). Filming location, as in the case of starring a local

⁵⁹ The Oscar nomination is used as a method to differentiate “American stars” from the rest of American actors in this study.

star, is expected to create a similarity and sympathy on the local audience. Additionally, filming a movie entirely or partially in the US allows hiring local crew and talents. This is expected to increase the hype of the movie along with its news value in the local media.

H4: French movies partially or entirely shot in the US improve the box office success in the US market.

Depending on the four hypotheses given above, in the empirical part we will examine the performance of culturally open/embedded French films in the US market.

4. Data and Variables

The data for *French films* exported to the US in the 2011-2015 period is obtained from Unifrance and *American films* released in the same period are obtained from Boxoffice Mojo site. The reason behind the selection of the time period is the availability of data.

While we obtained all the French movies exported to the US between the 2011-2015 period (N: 272), we used systematic sampling to construct a subsample from the population of American movies released in the US in the 2011-2015 period (N: 208). Boxoffice Mojo ranks 600-700 movies that came out in the US according to their box office revenues every year. Six to seven ranked subgroups each with 100 movies allowed us to make a systematic selection where all kind of movies from box office hits (1st group) to absolute flops (7th group) with different characteristics are represented without personal selection bias.

The details of each movie (language, award nomination, location, art house label, distribution) are extracted from IMDB, Allocine, Cinefinances, Boxoffice Mojo, AFCEI, and Unifrance. Since movies in some genres were too few and few matches is found during PSM (propensity score) calculations, “genre “variable is

not included in the model. Our outcome variable is *box office revenue* or *entry numbers* depending on the regression. Our treatment variables are (1) “English” (2) “US co-production” (3) “US cast previously nominated to Oscar” (4) “US location” to evaluate the impact of culture. “Copy number”, “IMDB rate”, “Oscar award nomination of the movie”, “art house label” and “distributor” variables will be examined as covariates. The details of the variables are represented in below table (Table B2).

Table B2: Variables

<i>Variables</i>	<i>Description</i>	<i>Data source</i>
Entry Numbers (FR)	Dependent variable	Unifrance.org
Box office revenue (US)	Dependent variable	Boxofficemojo.com
<i>Treatment Variables</i>		
English	Independent Variable Dummy If the language of the movie is in English: 1, 0 otherwise	1.Cinefinances.info 2.Allocine.fr 3. IMDB
USA Co-production	Independent variable Dummy If a movie is coproduced with the US=1, 0 otherwise	1.Cinefinances.info 2.Allocine.fr
Usa cast previously nominated to Oscar	Independent Variable Dummy Movies with a US cast previously nominated to Oscar=1, 0 otherwise	IMDB
USA location	Independent Variable, Dummy If a movie (partially or entirely) filmed in the USA	IMDB
<i>Covariates</i>		
Top USA distributor	Independent Variable Dummy, if a movie is distributed by one of the top 6 USA distributors=1, 0 otherwise ⁶⁰	Unifrance.org
Imdb rate	Independent Variable Movie ratings: 1-10 (10 maximum)	IMDB

⁶⁰ Warner Bros (16,5%), Universal (15%) Paramount (15%), Sony Pictures (13%), Walt Disney (12%), 20th Century Fox (12%), the six biggest production companies reach up to 80% of the movie market share in the US (Unifrance bilan 2012-2016).

Oscar nomination of the movie	Independent Variable Dummy Oscar nomination=1, 0 otherwise	IMDB
USA Copy	Independent variable Number of Prints (1st-week)	Unifrance.org
Art house	Independent Variable, Dummy (if a movie is recommended to AFCEI = 1, 0 otherwise)	AFCEI

5. Methodology and Descriptive Statistics

5.1 Methodology

Marginal Propensity score method (PSM) is useful when selection bias due to the non-random treatment assignment is likely (Garrido *et al.*, 2014; Titus, 2007). Movies produced in English language, starring a world known US star and co-produced with the US are most probably produced with the idea of being exported, which creates a selection bias in the exported films. Marginal Propensity score corrects this sample selection problem. Propensity score matching addresses the counterfactual question of how the box office revenues generated by a movie that has been selected to be produced in English would have differed if the same movie had not been produced in English language (Bohnenkamp *et al.*, 2014) and compressing the relevant factors into a single score. Movies with similar propensity scores are then compared across treatment and comparison groups.

PSM analytical form:

$$(ATE)^{61} = \mathbf{E} [Y_i(\mathbf{1}) - Y_i(\mathbf{0})]$$

Y_i = outcome variable of movie i (box office revenue or entry number)

T = treatment

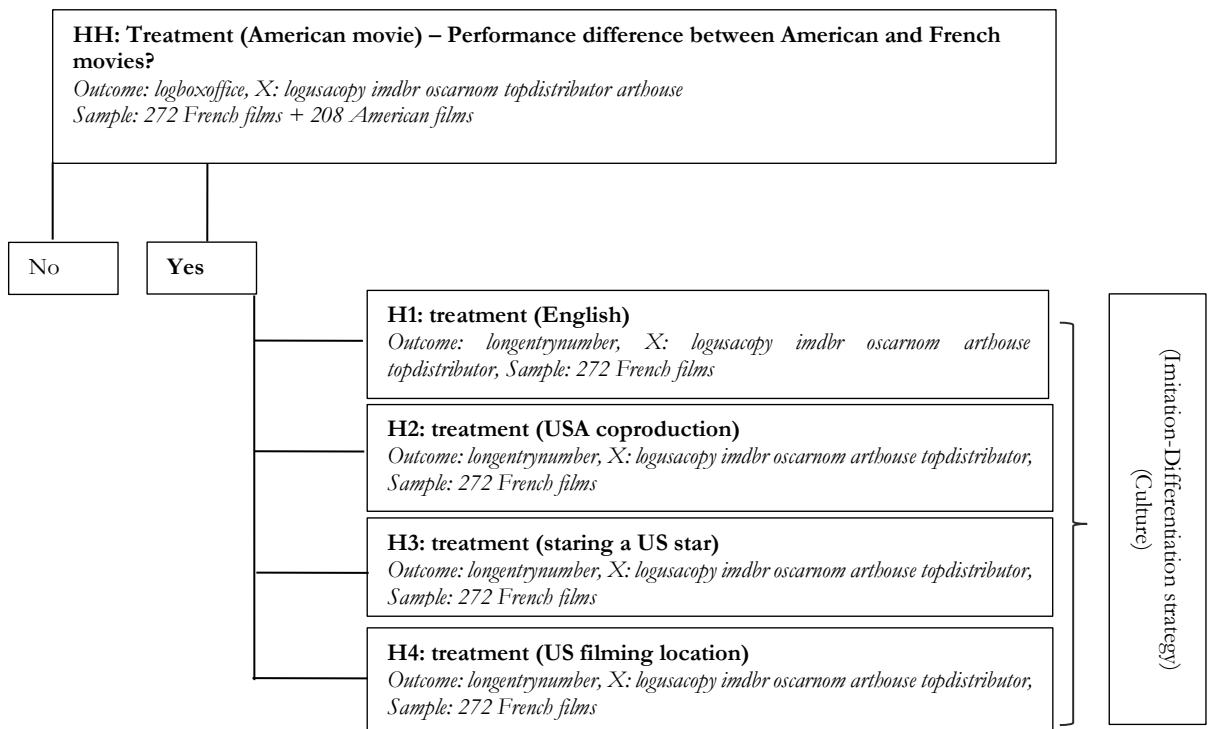
⁶¹ Average treatment effect.

The outcome, if a movie gets treatment: $Y(T = 1) = Y(1)$

The outcome, if a movie doesn't get treatment: $Y(T = 0) = Y(0)$

We conduct the regression in 2 steps. Step (1) will allow us to find out whether French movies are culturally discounted compare to their American matches (See Table B3: HH). If the answer is affirmative, in step (2) we focus on French movies only, to observe the impact of “culture” treatment variables (See Table B3: H1, H2, H3, H4).

Table B3: Treatments (Hypotheses)



5.2 Descriptive statistics

Descriptive statistics on culture treatment variables shows that French films holding one of the four “culture” imitation treatments (=1) are better receptioned in the US in terms of entry numbers. For more robust results, we proceed with the analytical tests in the following section.

Table B4: Culture Treatment Variables, *N*: 272 French films

Treatment variables	Obs	Mean Entry number	Min	Max
Movies in English = 1	55	1.552.651	2914	17.400.000
Movies not in English = 0	217	70.709	82	2.238.175
Movies USAcoproduced = 1	10	1.541.196	1887	8.061.562
Movies non-USAcoproduced = 0	262	325.678	82	17.400.000
Movies Filmed in the USA = 1	42	1.195.579	1014	17.400.000
Movies not Filmed in the USA = 0	220	228.042	82	15.500.000
Usa cast with oscar = 1	29	1.931.017	2914	17.400.000
No Usa cast = 0	241	185.582	82	10.600.000
Covariates				
Distr by top USA distributors = 1	29	1.840.731	6296	17.400.000
Distr by non top USAdistributors = 0	243	194.890	82	10.600.000
Art house film =1	212	210.342	82	15.500.000
No Art house film =0	60	935.785	110	17.400.000

6. Results

6.1. Results - HH

After the propensity scores are estimated, movies are split into two groups, those who receive treatment and those who don't and ranked according to their propensity scores. The final number of blocks is six. This number of blocks ensures

that the mean propensity score is not different for treated and controls in each block and the balance is satisfied (Appendix: Figure 1). At the next step, the movies are matched with similar movies from the other group. For matching, there are different techniques used in the literature i.e. Caliper, Kernel and the Nearest Neighborhood matching (with-without replacement), each with its own trade-off. After trials of three methods for the matching of HH (Table B5), the mean standardized difference in covariates is found close to each other in all. On the other hand, since the variance is the smallest for the nearest neighborhood matching, it is the chosen model for the next step, the “ttest”.

Table B5: Sample size, mean and median standardized differences across all covariates in original and matched samples.

<i>Sample type</i>	<i>Total sample size</i>	<i>Number of treated observation</i>	<i>Number of comparison observations</i>	<i>Mean standardized difference in covariates (%)</i>	<i>Median standardized difference in covariates (%)</i>
Neighborhood Matching	480	208	272	56.9	33.3
Kernel matching	480	208	272	53.8	34.5
Caliper matching	480	208	272	57.8	26.2

**The mean standardized differences are very close to each other. On the other hand, the variance is found smaller for nn matching (matched: 0.78 unmatched: 0.62). Hence, we chose nn matching (with replacement) model for the following test among three methods. Rubin’s R for the three methods are between critical level (0.5-2). Whereas, Rubin’s B is found to be beyond the critical level %25. We accept it as our sample number is not large enough and that a high Rubin’s B was expected, also the more important part (variance) Rubin’s R is between critical level.*

Non-parametric estimates of treatment effect with nearest matching is presented in table B6. The result shows that “HH” is confirmed that American movies have a higher box office in the US compare to similar French ones (0.5620199).

Table B6: Average treatment effect (ATE) of “American movie” on the US box office.

*Dependent variable: US box office revenue
Estimator: nearest-neighbor matching
Distance metric: Mahalanobis*

Matches: requested = 1

ATE	Coefficient	P-value
American mo	.5620199 *** (.21612049)	0.009

*N: 480 (American + French movie sample 2011-2015) ***p (0.01) **p (0.05) *p (0.1)*

As we found evidence that French movies are subject to a “cultural discount” in comparison to American films with the covariates of “copy number, IMDB rate, Oscar nomination, distribution by major distributors, art house label”, in the next step we focus on French movies only to test the impact of *imitation – differentiation (culture) strategies* on French movies, whether or not they lower the negative impact of cultural discount in the US market.

6.2. Results for H1, H2, H3, H4

Each of the hypotheses (H1, H2, H3, H4) are tested in 4 stages as proceeded in section 6.1. After the selection of covariates (*logusacopy*, *IMDBr*, *Oscarnom*, *topdistributor*, *arthouse*), a treated and untreated sample (control) is constructed for each hypothesis, the balance of pscore is found satisfactory for each of them (Appendix: Figure 2-5). As a next step, the lowest mean standardized difference in covariates (%) obtained with three different propensity matching types for each hypotheses (Table B7).

Table B7: Sample size, mean and median standardized differences across all covariates in original and matched samples

Treatment variable	Sample type	Total sample size	Number of treated observation	Number of comparison observation	Mean standardized difference in covariates (%)	Median standardized difference in covariates (%)
English	Neighborhood	272	55	217	25.8	22.2
	Kernel	272	55	217	34	29.8
	Caliper	272	55	217	35.4	29.4
USAcoproduct.	Neighborhood	272	10	262	13.5	39.9
	Kernel	272	10	262	21.2	35.3
	Caliper	272	10	262	21.8	35.7
USA star	Neighborhood	270	29	241	46.3	41.6

	Kernel	270	29	241	46.3	41.6
	Caliper	270	29	241	31.5	24.5
USA location	Neighborhood	262	42	220	18.5	20.4
	Kernel	262	42	220	24.2	23.4
	Caliper	262	42	220	22.1	23.7

Table B8: Average treatment effect (ATE) of H1, H2, H3, H4 on the US entry numbers.

Dependent variable: US entry numbers
Estimator: nearest-neighbor matching
Distance metric: Mahalanobis

Matches: requested = 1

ATE	Coefficient	P-value
H1: English	0.6357936 ** (0.2570652)	0.013
H2: USA coproduction	0.8315471 (0.5371647)	0.122
H3: USA star	0.5893172* (0.32144532)	0.067
H4: USA location	0.0032529 (0.2463646)	0.989

*N: 272 (all French film released in the US between 2011-2015) ***p(0.01) **p(0.05) *p(0.1)*

Table B8 shows that French movies in English language increase the reception in the US by 0.6357 compare to the French movies in French language. The case is similar for French movies starring a local, American star. It is found that 2 out of 4 homogenization strategies have a positive impact on the reception of French movies in the US market by reducing the cultural discount. On the other hand, no evidence is detected that French movies filmed in the US borders or French movies co-produced together with the US, reduce the cultural discount.

7. Discussion

French films despite being the second most preferred foreign language films in the world following the US films have a very low market share as the rest of the countries. In 2016, the market shares of US films in the European Union reached

to 67.4%. At the same time, the market share of non-US films in the USA and Canada was only 1.3% of which 0.4% was French (European Audiovisual Observatory, 2016; Unifrance, 2016). In this research we focus on the low exportation volume of French films in the US market from the standpoint of the cultural discount. We conducted this study on the US market because of its market importance for French films, which is the second largest French film consuming country following France.

Our research shows that French movies matching with similar American movies are subject to a “cultural discount” in the US market. This result is not surprising as people tend to consume cultural goods giving a familiarity sensation of which they can identify themselves with. Next, we study how to reduce the negative impact of the cultural discount in this target market. For this, we analyzed the impacts of four imitation-differentiation strategies on a set of French films released in the US. We found evidence that out of four culture imitation – differentiation strategies, only “language” and “star” are found as the right going out strategy for a post-national expansion. In other words, collaborating on these two factors helps to increase the foreign reception of French films, whereas engaging in co-production or the shooting location seems to have no impact.

This research differentiates from previous studies as it analyzes the reception of movie productions of a niche country, France, in an export market depending on the cultural openness-cultural embeddedness of its movies. At the time of heated competition as a result of accelerated globalization and digitization, where traditional production systems and products are subject to an inevitable transformation, the complex interaction between international and national forces begs further examining for industrial development. Hence, understanding the right “going out” strategy for a post-national expansion is decisive for ambitious productions as well as for cultural policymakers.

8. Conclusion

In this research, we analyzed the reception of exported French films in the US market between 2011 and 2015, depending on their cultural openness – cultural embeddedness with the help of Marginal Propensity Score method. After examining the five-year period, it is found that “star” and “language” determinants significantly impact the exportation demand of a movie. Much to our surprise, engaging in co-production or the location of shooting seems to have no impact on reducing the cultural discount in a foreign market. The findings on co-production confirms the results of Hoskins *et al.* (1997), where they analyzed the benefits and drawbacks of international co-production between Canada and Europe found that co-produced movies with embedded cultural values lack cultural distinctiveness, result in artistic and commercial failure.

The findings of this research, we believe, can be useful for ambitious market insiders aiming foreign market penetration. The increased importance of international consumers, growing production budgets and the limited domestic capacity impact the casting selections, co-productions and even the language of the movie. As a result, a slow transition is happening in the contents of cultural goods in search of post-market expansion. How to integrate the domestic culture into the logic of international film market – to create diversity and commercial profits without losing what is local is crucial to consider at this stage.

While our research is a unique and fruitful contribution to the literature, its scope is limited to US market only. Thus, the generalizability of the results is limited as the cultural sensibility of each country might be different. On the other hand, the study encourages an extended application of a similar methodology in different target markets, specifically the ones with unsaturated large demand as China, India, and Brazil for the comparability of the results. It is highly possible that a Chinese-Franco co-production, filmed in French and Mandarin, starring Chinese stars along with French stars might give different reception results than the ones of the US.

9. Appendix

Marginal Propensity Score balance checks between the sample of treatments and controls

Figure 1 (Treatment: American film)

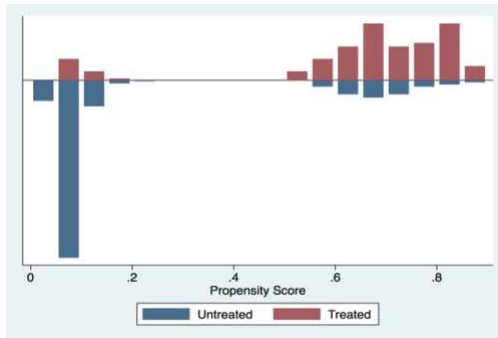


Figure 2 (Treatment: English)

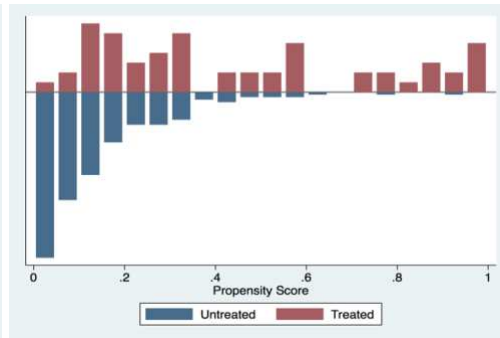


Figure 3 (Treatment: starring US actor US)

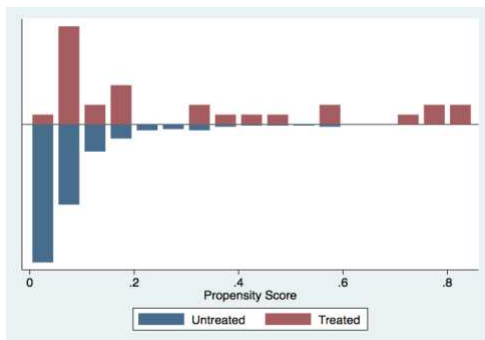


Figure 4 (Treatment: Coproduced with the US)

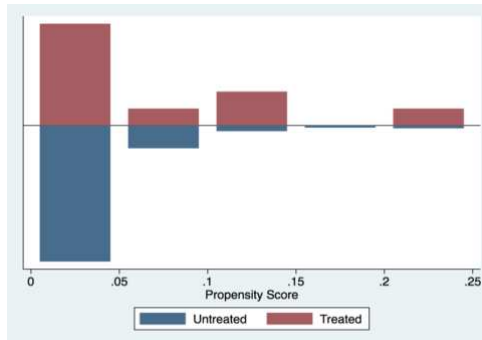
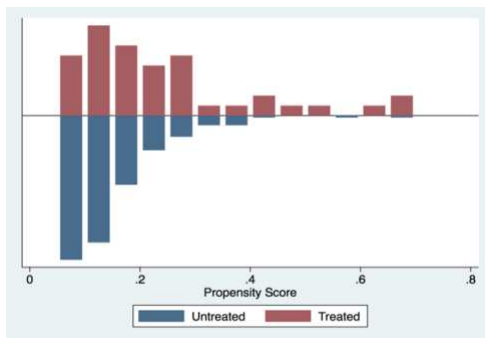


Figure 5 (Treatment: US shooting place)



CHAPTER IV

Competition Between Netflix and Movie Theatres: Stimulation or Depression?

1. Introduction

The situation of the traditional players of the movie industry is under a change as a result of the digitization and media convergence accompanied with the broader access to internet whatever device used (TV set, smartphone, tablet), this complicates the audience conceptions of the screen and the consumption behavior of the audience (Adoni and Nossek, 2001; Steiner and Xu, 2018). The home viewing has been the traditional linear television viewing for decades, and the many usages of viewing were unintentional, for relaxation, socializing with the family, companionship, escapism, forgetting and habit watching (Katz *et al.*, 1973, Greenberg, 1974). This unintentional « habit watching », mostly watching whatever comes next, started to be transformed with the digital and technological advancements, accelerated with the arrival of the so called “game changer” Netflix. SVOD service allows the audience to watch the desired content anywhere, anytime, on any device, representing a shift from delayed gratification (linear TV programming) to instant gratification (McDonald and Rowsey, 2016).

Started as a DVD-by-mail subscription service in 1999 in the US, Netflix launched its streaming service in 2007 (Daidj *et al.*, 2018), as of today it became the leader

SVOD service supplier in the world, holding 48% of the SVOD market in the US⁶² and 47% of 27 European countries (EAO, 2017)⁶³ with 118 million of world subscribers in 2018, streaming 14,450 movies and 2,200 television shows in 190 countries. This wide expansion made the platform a matter of public interest for both media experts and public at large. The vertical and horizontal competitors fear that Netflix online streaming service with the exclusive rights of sheer number of produced-distributed contents will complicate the conceptions of home viewing, change the movie consumption habits, and perfectly substitute the demand for movie theatres⁶⁴. The digital advancements have already reshaped the music industry and redistributed the rewards: Spotify and the other music streaming services sidelined physical recorded music sales, yet improved the overall revenue of the industry through subscription revenues, live music event participation and discovery of new artists. A lot of researches got inspired by the impact of streaming services on the music industry (Naveed *et al.*, 2017; Datta *et al.*, 2016; Wlömert and Papies, 2016; Aguiar and Waldfogel, 2015; Nguyen *et al.*, 2013; Waldfogel, 2012). On the other hand, despite the high media value of the subject *the impact of Netflix on theatrical demand* is poorly studied in the literature. Whether Netflix stimulates or depresses the demand for movie theatres is vital to our understanding of its impact on the fortunes of the movie industry, its traditional theatrical distribution, and also the future of French film demand in foreign theatres positioned mostly in the long tail, perceived as art house products⁶⁵.

62 The market shares of other SVOD services in the US: Amazon prime 22%, Hulu 11%, HBO now 6%, YouTube red 3% (Statista, 2018).

63 The market shares of other SVOD services in the EU: Amazon prime 20%, it is the second largest SVOD supplier in Europe after Netflix (EAO, 2017).

64 The most frequent cinema-goers are the young generation, 64% of cinema-goers in the UK and 48% in France has less than 34 years old (Statista, 2018; CNC 2017). Not surprisingly this young generation has a shorter span of attention, consumes more online video services, and addicted to instant gratification (Rideout *et al.*, 2010).

65 Even if it is simplistic to call exported French movies as niche products, despite its important contribution to cinematic history and rich content and some exceptional mainstream outliers, most of French exported movies are considered as small art house movies. In this frame, in comparison to the US global hegemony dominating 70% of foreign market's box office revenue (Unifrance, 2016), from the point of foreign demand, we refer French movies as art house movies lying at the long tail, mostly perceived as niche art house products.

In this perspective the outline of the research is as follows. In section 2, we supply a literature review. Section 3 is dedicated to data and descriptive statistics. In section 4 methodology and empirical results are presented. A discussion and conclusion are supplied in section 5.

2. Literature review

There are several factors that could influence cross and within country variation in admission numbers as ticket prices, country specific environment of the movie industry (quality, piracy, cultural preferences and tastes), the income and economic environments, substitution with other media and other forms of entertainments i.e. Netflix. To have a comprehensive understanding of Netflix's impact on movie theatres, first it is crucial to understand Netflix's business model effecting its content supply, consumer's drive for movie watching at theatres and the drive for home watching next to consuming in binge.

Netflix functions as a two-sided market as Amazon, Uber, Airbnb, Alibaba platforms. In order to succeed, the platform must attract two different groups of users: suppliers and buyers. Customers subscribe to Netflix if they know they can find numerous movies on the platform and studios will only put their films if they find enough customers there (Tirole and Rochet, 2013; Belleflamme and Peitz, 2010; Belleflamme and Toulemonde, 2009). Next to the two-sided market dynamism, Netflix has been largely attributed to a "long tail" phenomenon (Anderson, 2006). Even if its majority of inventory is not highly demanded, supplying both hit products as well as supplying niche products at the tail increase the attractiveness of the platform, the number of its subscribers, which increase further the motivation of studios to sell the diffusion right of movies to Netflix. In this business model, the platform buys-distributes, produces-distributes foreign and niche products too that perhaps wouldn't make sense for movie theatres or broadcast TV^{s66}. This allows foreign and niche products to be globally watched in

⁶⁶ While the United States has 7804 US origin films in the global Netflix library, UK has 1290, France has 851, Japan 535, Mexico 221, Spain 187, South Korea 114, India 229, Germany 356 and Canada has 559 movies (Waldfogel and Aguiar, 2017 - data source: unogs.com).

ways that earlier distribution channels did not allow (Aguiar and Waldfogel, 2017)⁶⁷. In addition to this supply dynamics, the company invests a large sum for the website with a cine-match algorithm to predict with consistent accuracy what movies someone would prefer given their previous watching history, so that the user don't get lost in the abundance in this long tail distribution, and finds something corresponds to his taste. Accordingly, each time a subscriber uses Netflix, the time of the day, the day of the week, the device, the intensity of watching, and the theme of the content is registered, and used for similar recommendations for the future. Further, the recommendation system of Netflix based on personalization, is mixed with a healthy dose of non-personalized choices, allowing a user to discover new products out of his formatted habit and to form new ones (Gomez *et al.*, 2015).

On the demand side, the motivations of people for going to movie theatres and watching a similar content at home differ. Within the frame of “uses and gratification” theory (focusing on the needs and motives behind using different media contents), people make goal-oriented choices while interacting with the media. In the research of Katz *et al.* (1973), for different media consumptions 35 psychological needs are detected with the gratification method. These needs are classified under five main categories. Accordingly, these five classification of needs are (1) needs related to strengthening information and knowledge (cognitive needs); (2) needs related to strengthening aesthetic, pleasurable and emotional experience (affective needs); (3) needs related to strengthening credibility, confidence, stability, and status (combination of both cognitive and affective elements, labeled with integrative needs); (4) needs related to strengthening contact with family, friends, and the world; (5) needs related to escape or tension-release (weakening of contact with self and one's social roles). According to the research, affective needs i.e. feeling connected with friends, being entertained, raising morale, releasing tension, learning how to behave among others, improving

⁶⁷ “In 2012, 550 films were distributed through US theaters: about 200 of these were MPAA major-studio movies, while the other 350 were small-scale releases of mostly independent movies. In many cases, these films were released briefly in just a few theaters to get some reviews, then, later, distributed through other channels. As of 2013, the number of 2010 releases available on streaming on Netflix in the US was 1,058 roughly twice the number of 2010 movies that had been available in theaters. This proves that the barriers to entry into creation have fallen and the distribution bottleneck has been relaxed, making it possible for a large number of new movies to make their way to consumers” (Waldfogel, 2017, p.200).

discussion with friends, are best fulfilled by watching movies at the cinema which cannot be fulfilled by home viewing. Palmgreen *et al.* (1988) found similar results in their study that movie theatre attendance in comparison to home viewing stands out for its ability to social and affective gratifications. Cinema-going activity seems to help individuals to escape, to be entertained and to connect with their social groups while home viewing serves for other psychological needs. Additionally, very recent research of Tefertiller (2017), by using the uses and gratifications framework, by coupling reasoned action and planned behavior, studied the reasons of going to theatre vs waiting and watching the same movie from home viewing technologies. The study is conducted on 331 students on 5 movies didn't come out at cinemas yet. The results of the research show that audiences are highly selective about the types of movies that they will see at theatres. Accordingly, exciting, and visually enticing films are preferred for watching movies at theatres. Additionally, people prefer high sound quality, visual, Hollywood type of films to meet these needs to arty films. In other words, if an audience chooses a physical experience over a speedy digital one, the experience must be flawless and memorable, or it must be worth the effort.

Even if Netflix has some similarities to the experience in a movie theater, in the frame of “needs and gratification” theory, as a different media source serving to different needs, the platform seems to not to endanger the demand in movie theatres. On the other hand, the platform can stimulate the movie going activity through product discovery, as demand for art raises with previous exposure and taste developing for such products (Ginsburg *et al.*, 2017). According to the research of Dogruel (2017), Netflix combined with the improved technological devices offering sheer number of diverse cinema-quality contents at zero marginal cost can increase the chance of discovery possibilities for movies, as the choice of movies at the cinema is associated with a considerable financial investment i.e. ticket price, drinks, time, and higher social risks⁶⁸, leaving less space for discovery (Dogruel, 2017). The zero-marginal cost of Netflix as indicated by Dogruel might indeed encourage product discovery, not only for Hollywood mainstream movies

⁶⁸ Cinema going is mostly practiced as a group activity, 82% of audiences go to the movies with a partner, friends or family (CNC, 2017). Hence making a good choice considering the tastes of the partner is important which allows less discovery and risk taking.

but also for less explored niche and foreign products, turn this genre of movies which are less seen at theatres into a surplus through new habit forming. Following a necessary taste developing on Netflix for a certain director or actor, the audience would be more likely to consider to watch the upcoming movie of the same director-actor during its theatrical release since less risk will be associated to this already explored artist and the person would plan it ahead as a social activity. Otherwise, the same audience for instance has to wait up to 36 months in France to watch that much-expected movie on Netflix due to the chronology of media⁶⁹. The research of Nguyen *et al.* (2013) conducted on the music industry for instance shows that the digital streaming encourages product discovery and participation to live concerts (Nguyen *et al.*, 2013).

Nevertheless, by recalling the fact that the majority of the contents on Netflix are American produced-mostly mainstream productions, could this potential positive impact of Netflix on movie theatres be homogenous among other countries movie products-mostly considered as tail products? According to Moreau and Peltier (2012), Anderson (2006), thanks to the digitization and new digital platforms niche products can enter to the market and meet with the audiences easier than before, which shifts the demand from a relatively small number of hits (mainstream products and markets at the head of the demand curve) towards a massive number of niches in the tail. On the other hand, According to Tan *et al.* (2016) the increased product variety and the easy accessibility concentrate the demand: boosts the demand for hits and lowers the demand for niche products which contradicts the long tail effect of Anderson. Elberse (2008), likewise shows in his study that while niche products have more chance to be seen in digital area as no-shelf, store, platform constraint exists, the demand is still massively focalized on hits rather than niches (Elberse, 2008). The study of Zhong and Michahelles (2013) implied on google play also gives similar evidences that the platform is more of a superstar market dominated by popular hits than a long tail market. Briefly, there exists controversies on the supplied diversity in long tail markets and consumed diversity. In other words, the existence of foreign contents and niche products on Netflix

⁶⁹ Chronology of media in France, created in 1983, sets the rules how soon a film can be shown on television and other platforms after its cinematic release.

does not mean that the diversity in supply will meet with the diversity in demand and stimulate the theatrical demand of such products. While the research of Moreau and Peltier (2004), analyzing the diversity in the supply and demand of films on three dimensions: variety, balance and disparity, finds evidence that supplied diversity and consumed diversity are positively correlated, the research of Benhamou and Peltier (2007), by using the same three dimensions of diversity (variety, balance, disparity) on publishing industry (1990-2003), shows that the consumed diversity varies depending on the dimension considered. While public support for the translation of foreign books evidently increase the offered diversity, it is not sure that this will increase the consumed diversity, neither the book genre. Although the definition of diversity is far from the scope of this paper (for more Benhamou and Peltier, 2011; Benhamou and Peltier, 2007; Moreau and Peltier, 2004; Stirling, 1999; Anderson, 1992; Cohendet *et al.*, 1992; Steiner, 1952; Waterman, 1990), *the variety* in supplied diversity (the total number of movies in Netflix library) and its impact of on theatrical movie consumption; *the disparity* in supplied diversity (the country of origin of movie products - in our case the French film repertoire of Netflix) and its impact on French theatrical movie demand, are important elements to our research, in order to differentiate whether the overall impact of Netflix (positive or negative) on movie theatrical demand is homogenous among products of different countries which are mostly perceived as tail products.

Heretofore, we mainly developed the possible impacts of Netflix's *movie* repertoire on movie theatres and whether it cannibalizes or stimulates the theatrical demand. Nonetheless, movies are not the only content offered on Netflix library. There are also TV shows consumed in binge. With the accessibility of series and television programs provided by Netflix, consumers now can watch two to six episodes in just one sitting. Even though watching several episodes already existed with DVDs, it had never been that popular and easy (Perks, 2015; Pena, 2015). This viewing habit is called binge watching and it is associated with Netflix as 75% of Netflix subscribers are binge watchers (Sung *et al.*, 2015; Spangler, 2013).

Pittman and Eanes (2015) in their research analyzed 272 binge-watchers and identified the factors influence the binge-watching. Accordingly, in the frame of

« uses and gratification method » people binge watch because of hedonism, relaxation and engaging feelings and for those who plan ahead the binge watching the quality of the program (aesthetic) and communal aspect (social) come into play. The research of Davis shows that watching and sharing programs with other people, or co-viewing also influence binge behavior (Davis, 2016). Under the “uses and gratification” method, the motivations behind binge watching seem to place itself between the ones of theatrical viewing and television. In the frame of the theory of allocation of time, working people have limited time to share between leisure activities, sleeping and eating (Becker, 1965). Steiner and Xu found in their survey-based research that most of the binge-watching takes place at home during weekday evenings and weekends for those who work from Monday to Friday. Additionally, people wait for vacation time to binge watch since they don’t have time during working periods and as they know that they wouldn’t be able to stop watching once they start watching (Steiner and Xu, 2018).

Through reallocation of free time with binge addiction, and shifting the demand from movies to series for a more prolonged satisfaction lasting over weeks, the TV series repertoire of Netflix might be a bigger potential danger for the theatrical demand than movie repertoire of Netflix. Nevertheless, to stimulate the critical thinking, in the research of Godinho de Matos *et al.* (2017) binge watching is detected as a temporary addiction and a short-term danger. Accordingly, they observed that a treatment group receiving a SVOD abonnement for a limited time deplete the content of interest in binge very fast and less willing to pay for SVOD in long-term. In other words, the consumer is only interested in a relatively small subset of the large SVOD catalogs and once finish watching these programs, easily lose the contentment and willingness to subscribe.

The impact of Netflix on theatrical demand has a high media value as a subject. Yet, the recent publication of European Audiovisual Observatory (EAO) (2017), a descriptive study on “trends in the EU SVOD market” published in collaboration with Ampere Analysis, the research of Waldfogel and Aguiar (2017) and Parlow and Wagner (2018) are the only studies found in the literature. While the study of EAO is structured in order to give a general descriptive overview of the EU on

demand audiovisual market in SVOD, in the latter Waldfogel and Aguiar questions whether Netflix is a cultural hegemony distributing American productions only or a facilitator of free trade, making the products of other countries available globally. For this they developed a global repertoire from the Netflix libraries of each country and calculated the weighted geographical reach. They found evidence that while theatrical distribution strongly favors US origin fare, Netflix is more diverse and distributes the production of many countries. While in the study of Parlow and Wagner, the cinema demand is measured with respect to Netflix's entry (year dummy variable) in 19 European countries.

This research contributes to the literature uniquely as it examines the relationship between Netflix and theatrical demand in 22 countries in terms of (1) volume (subscribers) and (2) the content (the number of movies and the number of TV series on Netflix). Furthermore, as a second contribution, it assesses the foreign theatrical reception of French films linked to the French movie repertoire of Netflix in 16 countries. Analyzing the impact of Netflix on movie theatre demand (general), and on the foreign theatrical demand of French films are vital to our understanding for the future of the theatrical distribution and also for understanding whether or not Netflix can be a gateway of going global for foreign countries movie products face to the US dominance.

3. Data and Descriptive statistics

3.1. Data

We employ quantitative methods in seeking to a better understanding of the demand in movie theatres with respect to Netflix's evolution from 2012 to 2017. The expansion of Netflix to all the continents started in 2012, it became available in Europe first in UK, in some northern countries and Ireland. Later in 2013 Netflix expanded to the Netherlands, Austria, Belgium, France, Germany, Luxembourg and Switzerland. For this reason, it didn't seem relevant to look at

the prior data. Accordingly, we use the data from 2012 to 2017 from 22 countries⁷⁰ in Part I. Part II is addressed to the foreign theatrical performance of French films with respect to Netflix's French movie repertoire in 16 countries between 2012 and 2016⁷¹.

While Netflix subscription numbers are supplied from *Ampere analysis* through the European Audiovisual Observatory, the country-specific movie and series repertoire of Netflix are supplied from the site *Justwatch.com*. Box Office data is extracted from *UIS statistics* and *Statista*. As to the GDP (current \$) of each country, the information is supplied from the *World Bank*, which captures the economic situation in each country. The information on the average time spent in front of the broadcast TV is gathered from *Statista*, whereas the data on Netflix's French movie repertoire is obtained from *Unogs.com*⁷². Finally, the number of French movies released in foreign countries as well as the admission numbers in these countries are obtained from Unifrance.

3.2. Descriptive Statistics

The summary statistics in below table C1 show that in the ensemble of 22 countries in 6-year time span, the average Netflix subscribers' number has almost tripled from 1,28 M to 3,47 M together with the number of movies and series reserve of Netflix. On the other hand, we observe that the general theatrical admission (entry numbers), daily TV watching activity, as well as the economic situation (GDP) fluctuated.

Table C1: General impact (22 countries)

70 France, Ireland, UK, Germany, Sweden, Denmark, Italy, Spain, Netherlands, Norway, Belgium, Finland, Russia, Switzerland, USA, Austria, Romania, Czech Republic, Poland, Greece, Portugal, Hungary. We worked with 22 countries because of the availability of the data. On the other hand, these countries are among the countries with highest Netflix market penetration.

71 The data for French case was available for 16 countries out of 22 for the period of 2012-2016. We didn't have access to 2017's data.

72 Unogs is an online searchable database of the videos available in the 244 regions where Netflix is currently available. The site is updated daily. Netflix does not release their full catalog offerings — the company closed it several years ago.

Variable	Year	Mean	SD	Min	Max
Total movie repertoire Netflix	2012	266	81	110	484
	2013	372	106	254	683
	2014	565	166	426	1,046
	2015	823	223	660	1,526
	2016	903	224	716	1,557
	2017	671	146	527	973
	Total TV series repertoire Netflix	2012	99	36	63
2013		130	47	81	296
2014		215	119	121	621
2015		281	99	193	619
2016		326	80	250	572
2017		320	47	269	448
Netflix subscribers		2012	1,288,981	5,779,881	0,00
	2013	1,678,007	7,102,279	0,00	33,424,200
	2014	2,111,184	8,301,208	0,00	39,114,200
	2015	2,625,911	9,469,657	0,00	44,744,200
	2016	3,072,025	10,040,000	54,640	49,434,200
	2017	3,471,194	11,100,000	72,134	52,576,700
	Gdp (\$)	2012	40,646	22,999	8,558
2013		42,072	23,513	9,585	103,059
2014		42,541	23,170	10,020	97,200
2015		37,588	20,767	8,978	82,016
2016		37,703	20,415	8,748	79,866
2017		39,606	20,941	10,743	80,190
Avarage TV watching per day (h)		2012	3.67	0.97	2.09
	2013	3.67	0.90	2.08	5.67
	2014	3.67	0.90	2.07	5.67
	2015	3.70	0.94	2.03	5.67
	2016	3.68	0.94	2.03	5.67
	2017	3.64	0.91	2.00	5.67
	General Theatrical Admissions	2012	111,463,542	284,971,849	8,300,000
2013		109,724,673	282,061,715	7,722,936	1,343,032,195
2014		104,002,113	255,580,089	7,313,722	1,215,000,000
2015		108,249,997	252,008,094	8,900,000	1,197,000,000
2016		115,674,252	287,563,995	8,600,000	1,369,923,543
2017		108,313,636	260,576,736	8,800,000	1,240,000,000

In table C2 we present the descriptive statistics of French movies in foreign markets. The statistics show that the foreign theatrical admission of French films saw a sharp decline in 2013 with 1.9M average entry numbers in 16 selected countries. Even if it boosted in the following years, the performance stayed behind the one of 2012. We see that Netflix’s French repertoire in 16 countries is absurdly low on average, that is because of the late entry of Netflix to certain countries and their zero-film number. By 2015 and 2016, nearly all countries in our data list had Netflix service. While the maximum number of French movies on Netflix in a single market in 2012 was five, that number went up to 27 movies in 2015 (in the US market). The table also shows that on average 60 French movies are released in selected countries in a year. As to the overall theatrical admissions at the last row, we see an increase from 2014 and on, 2016 had been the luckiest year in terms of general theatrical admissions.

Table C2: The French case

Variable	Year	Mean	SD	Min	Max
French film Admission (theatre)	2012	5,339,879	7,804,771	401,655	30,625,223
	2013	1,897,618	1,944,859	148,618	7,587,281
	2014	3,978,150	5,096,183	589	20,159,046
	2015	3,010,040	3,413,215	463,690	14,275,434
	2016	3,142,656	6,196,151	144,477	25,577,693
Nbr of French repertoire Netflix	2012	1	1.6	0.00	5.00
	2013	1	1.81	0.00	5.00
	2014	2	3.95	0.00	16.00
	2015	6	6.74	0.00	27.00
	2016	10	2.99	6.00	19.00
Nbr of French films theatre released ⁷³	2012	57	22	22	109
	2013	55	28	14	122
	2014	60	29	16	131
	2015	62	23	36	112
	2016	65	25	25	123
Nbr of Netflix Subscribers	2012	1,757,688	6,775,708	4,200	27,154,200
	2013	2,246,265	8,327,467	4,200	33,422,200
	2014	2,785,776	9,730,075	4,200	39,114,200
	2015	3,417,179	11,093,701	4,200	44,744,200

⁷³ Data Unifrance (2012, 2013, 2014, 2015, 2016).

	2016	4,001,359	12,205,981	54,640	49,434,200
Overall	2012	136,576,200	330,548,721	8,300,000	1,357,594,457
Theatrical	2013	135,049,640	327,264,365	9,000,000	1,343,032,195
Admissions	2014	126,459,562	295,612,073	8,973,000	1,215,000,000
	2015	131,768,746	290,856,949	10,100,000	1,197,000,000
	2016	141,608,346	333,043,034	10,000,000	1,369,923,543

Descriptive statistics needs to be tested empirically to exclude other possible explanations for these findings. Therefore, we will be run a regression test to see the impacts of Netflix on theatrical admission in the following sections.

4. Methodology and regression results

4.1. Methodology

We utilized panel data to analyze the relationship between theatrical demand and Netflix components since OLS pooled regression doesn't consider country-specific heterogeneity which is covered in the error term creating biased and inconsistent results. Owing to panel data, fixed effects (FE) and random effects (RE) model have to be taken into consideration to control country-specific time-invariant effects. The random effect's assumption is that the unobserved country specific effects (tastes, culture, movie quality) which are impacting the theatrical admissions are uncorrelated with the independent variables, while the fixed effect's assumption is that the individual country specific effects are correlated with the independent variables (Meloni *et al.*, 2015). Accordingly, random effect model supposes that omitting these country specific fixed effects would not cause a bias in the regression results on the contrary to fixed effect model controlling them. In order to empirically discriminate between the two approaches, to choose the most appropriate model to our data, we will use Xtoverid test (a variation of Hausmann test for robust standard errors).

4.1.1 PART I (General Theatrical Admissions in 22 countries)

We detected that there is a high positive correlation among 1) Netflix subscribers' number, 2) Netflix's movie repertoire and 3) Netflix's series repertoire number (Appendix - Table C3). After regressing all variables individually, we detected that the presence of correlation among these three variables destabilizes the regression results. Therefore, these three variables are used in alternance in the regression analysis (Table C4: M1-M2-M3) considering also the small sample size (N:132) and the degrees of freedom.

Below we estimate models showing the relationship between the evolution of box office admissions in 22 countries and M1) the evolution of Netflix subscribers in these countries M2) the evolution of Netflix's movie repertoire M3) the evolution of Netflix's series repertoire.

These three empirical models are specified as follows:

(M1)

$$\begin{aligned} \text{LnAdmission (general)}_{it} \\ = \beta_0 + \beta_1 \text{Ln Netflix Subscrib}_{it} + \beta_2 \text{Ln GDP}_{it} + \beta_3 \text{Average TV}_{it} + \varepsilon_{it} \end{aligned}$$

(M2)

$$\begin{aligned} \text{LnAdmission (general)}_{it} \\ = \beta_0 + \beta_1 \text{Movies Netflix}_{it} + \beta_2 \text{Ln GDP}_{it} + \beta_3 \text{Average TV}_{it} \\ + \varepsilon_{it} \end{aligned}$$

(M3)

$$\begin{aligned} \text{LnAdmission (general)}_{it} \\ = \beta_0 + \beta_1 \text{TV series Netflix}_{it} + \beta_2 \text{Ln GDP}_{it} + \beta_3 \text{Average TV}_{it} + \varepsilon_{it} \end{aligned}$$

$\varepsilon_{it} = u_{it} + v_{it}$ is the residual term consisting two components: the unobservable country specific effects (i.e. culture, education level), u_{it} , and the remaining

disturbance, v_{it} . While country fixed effects are controlled with this method, time fixed effects are not included into our model due to the matter of degrees of freedom. The error term is un normally distributed (Table C8) and there is heterogeneity problem (Table C9). Thus, in table C4, we run FE and RE models, with robust standard errors, and select the one best fitting to our data with Xtoverid test (Hausmann test with robustness).

4.1.2. Results

Our dependent variable is *Ln Theatrical Admission*. The regression results in Table C4 show that the significance and the sign of the coefficients do not vary much between FE and RE models. On the other hand, the calculated value of the Chi-square with p-value < 0.05 with Xtoverid test implies that FE model is empirically a better specification that represents a higher level of efficiency for M1 model (Table C13). For M2 and M3 models, the calculated value of chi-square with p-value >0.05 with Xtoverid test implies that RE is empirically a better fit (Table C14 - C15). In other words, country specific effects can be omitted without causing a bias from M2 and M3 models. Followingly, we interpret the results FE1, RE2 and RE3.

Table C4: Regression results Part I

	(M1)		(M2)		(M3)	
	FE1	RE1	FE2	RE2	FE3	RE3
Ln Nflix Subscrib.	0.009* (0.005)	0.010** (0.005)	-	-	-	-
Movies on NFlix	-	-	0.000*** (0.000)	0.000*** (0.000)	-	-
Series on NFlix	-	-	-	-	0.000** (0.000)	0.000** (0.000)
Average TV	0.184 (0.113)	0.189* (0.101)	0.186* (0.096)	0.190** (0.090)	0.178* (0.092)	0.182** (0.085)
LnGDP	-0.290*** (0.078)	-0.254*** (0.077)	-0.175** (0.075)	-0.157** (0.075)	-0.207** (0.083)	-0.190** (0.084)
Constant	19.582***	19.178***	18.381***	18.179***	18.760***	18.563***

	(0.870)	(1.000)	(0.903)	(1.085)	(0.947)	(1.070)
R-square	0.213	0.212	0.327	0.326	0.317	0.317
N	132	132	132	132	132	132
vce	cluster ⁷⁴	robust	cluster	robust	cluster	robust

, ** and * denotes significance at $p < 0.10$, $p < 0.05$ and $p < 0.01$ respectively, standard errors are in parenthesis. The independent variable is “Ln Admission(general)”. M1 M2 M3 follow robust Fixed-effect and Random effect regressions for comparison. Xtoverid test p value is >0.05 for M2 and M3 (Table C14- C15). Hence, we successfully reject the null hypothesis. RE is a better fit than FE for our model M2 and M3. On the other hand, for M1 model, Xtoverid test p-value is <0.05 which means we cannot reject the null hypothesis: FE is a better fit than RE for M1 (Table C13).*

The regression results of FE1 of M1 approves that Netflix subscriber’s number (*Ln Nflx Subscrib*) has a positive impact on the theatrical admission. This proves that Netflix stimulates the movie going activity through habit formation⁷⁵. On the other hand, we detected that as GDP goes up theatrical admissions decreases. This proves that movie going activity is a cheap form of entertainment. Once the income increases people tend to switch the consumption to more superior entertainment forms, i.e. theatre, opera, ballet, live concerts. This finding confirms the work of Throsby and Withers (1979) that cinema is an inferior good. Regarding the average consumption of broadcast TV per day (*Average TV*), if the time invariant country specific factors are controlled in FE1, we see that the relationship between TV watching and admission number is interrupted. On the other hand, if the country specific variants are not controlled as in random effect models R1, R2, R3, we see that the higher the average consumption of broadcast TV per day (*Average TV*), the higher the theatrical admission is. The results show that he varying motivations and needs behind the consumption of different media under “the uses and gratification theory” (broadcast TV - Netflix - Cinema) face to the digital changes is still valid. They do not cannibalize each other’s demand but rather stimulate it.

74 Fixed effect with robust standard errors gives the same results with clustered standard errors. Here by default, Stata gives clustered results once robust option used. Since we have a sample with small T and larger N, serial correlation is a minor issue and clustering standard errors deal with this occurring problem.

75 Since Netflix is introduced in various European markets between 2012 and 2014, which means for certain years some countries have Netflix while some doesn’t, we introduced a binary variable for the entry of Netflix for each year and country, and run M1 model with “*Netflix entry*” replaced with Netflix subscription numbers. It is observed that the results of M1 remained unchanged. The entry of Netflix significantly increases the admissions following its entry in a certain country, just as Netflix’s subscription numbers.

4.2 PART II (French Case): The foreign theatrical performance of French films since Netflix's launch in selected countries

In this second part, we analyze both the impact of Netflix subscribers and Netflix French film repertoire on French foreign admissions in 16 countries within the period of 2012 - 2016.

Spearman correlation results shows that there is a strong positive relationship between “*Ln Netflix Subscription*” (Number of Netflix subscribers) and “*FR repertoire Netflix*” (Number of French films on Netflix). To control for the correlation, we regress the aforementioned variables in two different models (Table C6: M4 - M5). Residuals are un-normally distributed (Table C11) and found homogenous (Table C12). On the other hand, even if residuals are homogenous to control for a possible autocorrelation we run fixed and random effect models with robust option⁷⁶. Xtoverid test shows that the Random effect model is a better fit to our model than the fixed effect ($p > 0.05$).

Accordingly, the empirical models used are:

(M4)

$$\begin{aligned} \text{LnAdmission (French)}_{it} &= \beta_0 + \beta_1 \text{LnNflix Subscribers}_{it} \\ &+ \beta_2 \text{Nbr_FR release (theatre)}_{it} + \beta_3 \text{LnAdmission(general)}_{it} \\ &+ \beta_4 \text{LnGDP}_{it} + \varepsilon_{it} \end{aligned}$$

(M5)

$$\begin{aligned} \text{LnAdmission (French)}_{it} &= \beta_0 + \beta_1 \text{weight of FR repertoire Nflix}_{it} \\ &+ \beta_2 \text{Nbr_FR release(theatre)}_{it} + \beta_3 \text{LnAdmission(general)}_{it} \\ &+ \beta_4 \text{LnGDP}_{it} + \varepsilon_{it} \end{aligned}$$

⁷⁶ We observed that the significance and the sign of the coefficients do not change between Fixed-Random effect models with, or without robustness. Further, both Hausman (homogenous error terms) and Xtoverid tests (heterogenous error terms) find Random effect more suitable for our model.

4.2.1. Results

Our dependent variable is French theatrical admission (*LnAdmission (French)*). The regression results in Table C6 show significant differences between FE and RE models. As Xtoverid test reveals that Random effects (RE) is a better fit for our model (Appendix Table C16 – C17), we interpret the results of RE4 and RE5. The regression results of RE4 of M4 approves that Netflix subscriber’s number (*Ln Nflix Subscrib*) has a negative impact on the theatrical admissions of French films in 16 countries. This result is contrary to the results of part I where we have detected a positive impact of Netflix subscribers on theatrical admission (general). While Netflix increases the theatrical admission through habit formation, it seems to have heterogeneous impact on different movie profiles. The impact on French films is negative and it cannibalizes the French film demand in theatres. Further, we found evidence in RE5 of M5 that the higher the number of French films in the Netflix repertoire of these countries (*weight77*), the lower the French theatrical demand is. The results also reveal that French film admissions are higher if higher number of French movies is released at movie theatres at a certain year and if the overall admissions are high.

Table C6: Regression results Part II (French case)

	(M4)		(M5)	
	FE4	RE4	FE5	RE5
Ln Netflix Subscribers	-0.103*	-0.112***	-	-
	(0.050)	(0.039)		
FR repertoire Nflix (weight)	-	-	-1.863*	-2.782***
			(0.958)	(0.777)
Nbr_French release (Theatres)	0.011	0.017***	0.007	0.018***
	(0.011)	(0.004)	(0.012)	(0.004)
LnAdmission (General)	0.567	0.826***	0.899	0.773***
	(0.992)	(0.088)	(0.975)	(0.069)
LnGDP (\$)	-0.984	0.278	-0.459	0.122
	(1.245)	(0.180)	(1.082)	(0.150)
Constant	14.849	-2.913	2.876	-1.402

77 Number of French movies on Netflix / Total number of movies on Netflix

	(18.252)	(2.671)	(19.101)	(2.288)
R-squared within	0.038	0.027	0.031	0.024
between	0.181	0.866	0.661	0.869
N	80	80	80	80
vce	cluster	cluster	cluster	robust

, ** and * denotes significance at $p < 0.10$, $p < 0.05$ and $p < 0.01$ respectively, standard errors are in parenthesis. The independent variable is “LnAdmission (French)”, M4 and M5 follow robust Fixed-effect and Random effect models. As $X_{toverid} p\text{-value} > 0.05$, we successfully reject the null hypothesis (see table 16- table 17). Hence, RE is a better fit for our model.*

5. Discussion and Conclusion

We constructed a panel data of 22 countries for the period of 2012-2017 to assess the general impact of Netflix on theatrical demand (Part I). We show that there is a positive significant relationship between Netflix subscription numbers and the demand for movie theatres (physical activity). In other words, Netflix, by enticing subscribers to consume and forming habits for new genres, directors, actors, stimulates the participation to movie going activity. Our findings confirm the research of Nguyen *et al.* (2013) that music streaming services indeed increase product discovery and participation to live concerts. In addition to these results, we also found that neither “movies”, nor much feared “Tv series” contents consumed in binge which are expected to shift the preference of consumers from movies to Tv series, do not cannibalize the theatrical demand. A higher supply in these two contents stimulates the theatrical demand.

In the second part of our empirical research, we studied the foreign theatrical performance of French movies in 16 countries for the period of 2012-2016 with respect to Netflix ‘s French movie repertoire. Our results show that the foreign theatrical admissions of French film are negatively affected by Netflix subscribers, as well as by the number of French movies repertoire on Netflix.

We believe this outcome might stem from two reasons: “substitution effect” or “repertoire selection of Netflix”. It is possible that Netflix stimulate the diversity in consumption also for niche profile foreign movies and help to develop a taste

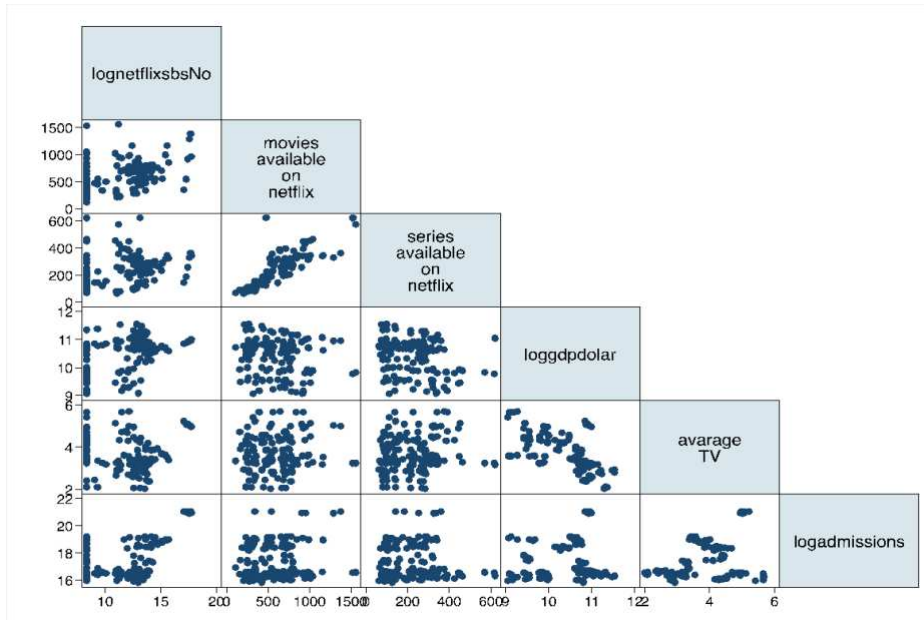
for French films. However, if the profile of French movies playing recently at theatres are found less interesting than to the ones offered by Netflix, people might prefer consuming such movies on Netflix. The cannibalization effect might also stem from a mediocre selection of French film repertoire of Netflix. Netflix adapts its movie catalogue for each country, if the French repertoire is found unappealing to local audiences, a negative idea on French movies would be constructed eventually creating a decrease in theatrical demand. In order to thoroughly detect the reasons of the cannibalization, the profile of French movies available on Netflix is need to be analyzed. On the other hand, due to the limits of this thesis, we are leaving this stimulating subject to our future research.

While our findings have implications for regulators, movie makers and researchers, this study has also its own limitations. Netflix is a new form of video distribution channel launched from 2012 onwards in most of the countries. Hence it is quite new for habit formation. Observing such changes in a longer time span might give different outcomes. The increase in the number of foreign movies and series on Netflix is an ongoing strategy and the number of foreign works is increasing each year. The maximum number of French film repertoire on Netflix is found 27 within the period of 2012 - 2016. This number is still low to form a new habit.

Netflix declared in 2017 to program 40% of French content in Netflix France with the addition of investing in 14 French work. While Netflix's content is highly negotiated in France, its foreign repertoire is less of a concern. Negotiating the French foreign repertoire of Netflix outside of France might be equally important for the foreign reception of French films in theatres and for the necessary habit formation.

6. Appendix

Graph 1: Correlation Matrix - General impact



Graph 2: Correlation matrix – French case

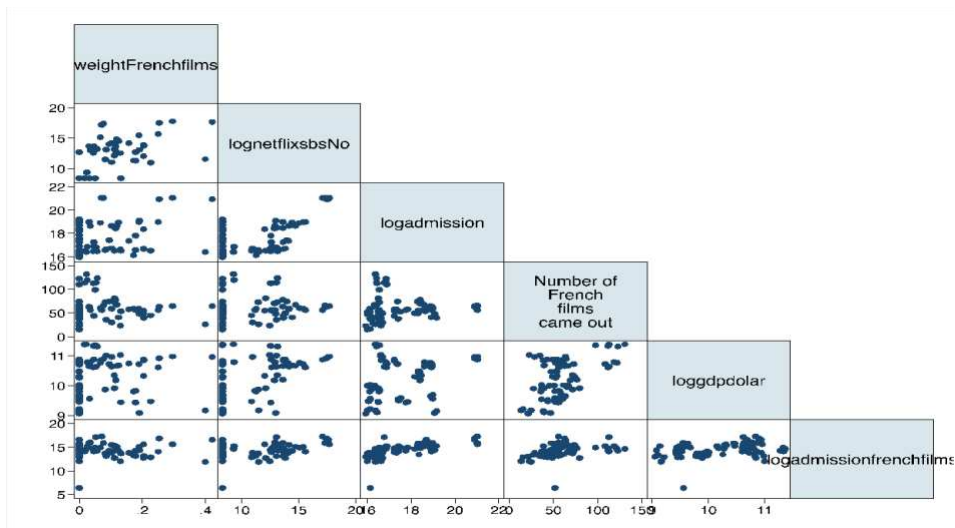


Table C3: Spearman Correlation Coefficients (General case)

	1	2	3	4	5
1. Ln Netflix Subscribers	1.0000				

2. Movie Repertoire					
Netflix	0.4600*	1.0000			
3. Series Repertoire					
Netflix	0.3837*	0.8663*	1.0000		
4. Ln GDP (\$)	0.4381*	0.0938	-0.2440*	1.0000	
5. Average TV	0.1508	0.0726	0.1745	-0.6815*	1.0000

*Significant at $p < 0.01$

Table C5: Spearman Correlation Coefficients (French case)

	1	2	3	4	5
1. FR repertoire Netflix ⁷⁸	1				
2. Nbr_FR film release (Theatre)	0.1707	1			
3. Ln Netflix Subscribers	0.8263*	0.2619	1		
4. Ln Admission (General)	0.3230*	0.2789	0.4799*	1	
5. Ln GDP (\$)	0.3101*	0.4241*	0.5150*	0.2761	1

Table C7: Vif test

Variable	VIF	1/VIF
Series Repertoire Netflix	3.68	0.271723
Movie repertoire Netflix	3.58	0.279392
Ln GDP (\$)	3.27	0.305551
Average TV	2.13	0.470390
Ln Netflix Subscriber	2.09	0.478133
Mean VIF	2.95	

Table C8: Shapiro Wilk normality test⁷⁹

Variable	Obs.	W	V	z	Prob>z
r	132	0.96998	3.131	2.570	0.00508

78 French repertoire Netflix = French films/all movies on Netflix.

79 Swilk normality test if $p < 0.05$ reject the null, residuals are un-normally distributed.

White Heteroscedasticity test (for un-normally distributed residuals): if $p < 0.05$ reject the null, residuals are heteroscedastic.

Table C9: White heteroscedasticity test

White's test for Ho: homoskedasticity
against Ha: unrestricted heteroskedasticity

chi2(20) = 38.97
Prob > chi2 = 0.0067

Table C10: Vif test

Variable	VIF	1/VIF
Ln Netflix Subscribers	3.65	0.273971
Weight of French films Netflix	2.27	0.440096
Ln GDP (\$)	1.98	0.505405
Ln Admission	1.52	0.657058
Number of French Release	1.44	0.696256
Mean VIF	2.17	

Table C11: Shapiro Wilk normality test

Variable	Obs	W	V	z	Prob>z
r	80	0.61449	26.461	7.177	0.00000

Table C12: White heteroscedasticity test

White's test for Ho: homoskedasticity
against Ha: unrestricted heteroskedasticity
chi2(20) = 7.68
Prob > chi2 = 0.9938

Table C13: M1 (Xtoverid, Robust)

Test of overidentifying restrictions: fixed vs random effects
Cross-section time-series model: xtreg re robust cluster(country)
Sargan-Hansen statistic 49.211 Chi-sq(3) P-value = 0.0000

Table C14: M2 (Xtoverid, Robust)

Test of overidentifying restrictions: fixed vs random effects
Cross-section time-series model: xtreg re robust cluster(country)
Sargan-Hansen statistic 1.723 Chi-sq(3) P-value = 0.6319

Table C15: M3 (Xtoverid, Robust)

Test of overidentifying restrictions: fixed vs random effects
Cross-section time-series model: xtreg re robust cluster(country)
Sargan-Hansen statistic 7.618 Chi-sq(3) P-value = 0.0564

Table C16: M4 (Xtoverid, Robust)

Test of overidentifying restrictions: fixed vs random effects
Cross-section time-series model: xtreg re robust cluster(country)
Sargan-Hansen statistic 9.296 Chi-sq(4) P-value = 0.0541

Table C17: M5 (Xtoverid, Robust)

Test of overidentifying restrictions: fixed vs random effects
Cross-section time-series model: xtreg re robust cluster(country)
Sargan-Hansen statistic 6.156 Chi-sq(4) P-value = 0.1878

CHAPTER V

Conclusion

Industries are turned upside down with the accelerated globalization merged with digitization and technological advancements. The once owned glorious success of the French films with such influential contents seems to escape from its hands for various reasons. French cinema not to be drowned in the surplus of movie production and similar video contents stimulated by digitization, needs to transform itself into operational, and for this needs to update the usual frameworks and once efficient policies. While the policy adaptations are beyond the scope of this thesis, our work is a humble contribution to the literature for better understanding the foreign and domestic demand of French films for opening gateways to future strategy development.

Each of our previous chapters shared a common methodology: built with an original database collected from various sources and based on econometric analyses. Their results aimed to fulfill two functions 1) to have a better scientific knowledge of the demand and 2) to help in the formulation of proposals. The analyses reveal a number counter intuitive results that pave the way for a more ambitious thinking for the future of French film industry.

For this purpose, we first question *whether a distortionary impact of French film subsidy system exists behind the inflating production budgets*. In chapter two, we found evidence that one of the reasons behind the growing budgets in the French movie industry is unequivocally the encouragement of the financing scheme: the distribution of

the reserves of *compte de soutien* (lightly) and *TV pre-purchases* (heavily) favoring expensive productions. The probability of receiving TV finance, but also the weight of financing received from TV channels increment with the budget, which encourages an inflation in production budgets to be more appealing to financial forces. We then focus on “the box office performance of TV pre-purchased and subsidized movies” to find out if behind the over subsidized or TV pre-purchased movies there might be an economic interest such that these movies promise a higher commercial success. We show that overly invested movies do not lead to a success at the box office. Hence, our main conclusion is that increasing investment is not the right strategy to increase the attractiveness of French films at the box office.

We then, shift our focus to *the determinants of French box office success*. Since decades Hollywood box-office formulas (i.e. big budget, stardom movies) are used in France, while each country has different demand dynamics. No prior research, to our knowledge, empirically tested the determinants of French box office success. The results of chapter II, show that different French profile movies have different determinants at the box office. For instance, while spending lavishly on stars does not level up the success of a hit profile movie, it saves a low-profile movie from an absolute flop by blunting its negative aspects. The releasing time too has a nonlinear impact on demand. In this perspective, a low-profile movie needs to be released at a time where domestic competition is low. As to the average success profile French movies, they should avoid a simultaneous release with an American blockbuster. Another surprising result that we find evidence is that co-produced French films are not performing better at theatres. It was expected that co-productions help make big-budget movies, which upgrade the competitiveness of films especially for European countries, compared to Hollywood movies (Kanzler, 2008). Our results confirm the findings of the research of Hoskins *et al.* (1997) that co-produced films between Canada and Europe with integrated cultural values, lack cultural distinctiveness, resulting in artistic and commercial failure.

Our third research question is *through which instruments French movies can smooth out cultural discount in a foreign market (the US) and lift up the exportation admissions?* In

chapter three we show that out of four homogenization-differentiation strategies, a French film, culturally open on “star” and “language” elements, help to smooth out the cultural discount factor in the US. Much to our surprise, co-producing a French movie with the US does not help to increase the admissions in this country by lowering the cultural discount. Neither in the domestic nor in a foreign market (the US), coproduction helps to increase the theatrical admissions.

The very last research question of this thesis: *what is the impact of Netflix on overall theatrical demand: cannibalization or stimulation? Can Netflix be a gateway to increase the French film admissions in export markets?* The results of chapter IV show that Netflix entice consumers to consume and helps to create a habit for new genres, directors, actors, hence increase the demand for movie theatres. In addition to these results, we also found that neither “movies”, nor much feared “Tv series” contents consumed in binge which are expected to shift the preference of consumers from movies to Tv series, do not cannibalize the theatrical demand. A higher supply in these two contents stimulates further the global movie going activity.

In the second part of the this chapter, we analyzed the foreign theatrical performance of French movies in 16 countries with respect to Netflix’s French movie repertoire. Our results show that the foreign theatrical admissions of French film are negatively affected by Netflix subscribers, as well as by the French movies repertoire of Netflix. The impact of Netflix on French theatrical demand in export markets found to be surprising. We believe this outcome might stem from two reasons: “substitution effect” or “repertoire selection of Netflix”. It is possible that Netflix stimulate the diversity in consumption, also for niche profile foreign movies, and help to develop a taste for French films. However, if the profile of French movies playing recently at theatres are found less interesting than to the ones offered by Netflix, people might prefer consuming such movies on Netflix. Next, the cannibalization effect might also stem from a mediocre selection of French film repertoire of Netflix. Netflix adapts its movie catalogue for each country. If the French repertoire is found unappealing to local audiences, a negative idea on French movies would be constructed, eventually creating a decrease in the theatrical demand. While Netflix’s content is highly negotiated in

France, its foreign repertoire is less of a concern. Negotiating the French foreign repertoire of Netflix outside of France might be equally important for the foreign reception of French films in theatres and for the necessary habit formation.

The researches on the determinants of export success of French films and the impact of subscription on video-on-demand platforms on theatres are sorely limited to some simple description of the phenomena and lack further research. This thesis aimed to address important questions in the field of French film economics, including the determinants of exportation success, consequences of the arrival of Netflix, the distortionary impact of subsidy system and the determinants of domestic box office success. We hope that our analyses with counter intuitive results pave the way for a more ambitious thinking for the future of French film industry and help to propose strategies to strengthen the position of the industry in the global movie market.

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Résumé

Avec l'accélération du phénomène de digitalisation et de mondialisation, la demande de films français émise par les plateformes traditionnelles est exposée à une forte concurrence. Les consommateurs ont pour alternative la possibilité de regarder n'importe quel contenu, à n'importe quel moment. Dans le cadre de cette recherche, nous nous intéressons à la demande étrangère et domestique des films français afin de mieux comprendre sa dynamique, dans un contexte de concurrence accrue liée à la digitalisation, à la mondialisation et à l'essor de nouvelles plateformes comme *Netflix*. Dans le premier chapitre, nous nous concentrons sur l'effet de distorsion du système des subventions du cinéma français et sur les déterminants des revenus du *box-office* domestique. Dans le deuxième chapitre, nous nous interrogeons la dynamique de la demande étrangère des films français dans un contexte de « *cultural discount* ». Enfin, dans le troisième chapitre, nous rendons compte de la relation entre Netflix et la demande théâtrale : cannibalisation ou stimulation. Cette thèse contribue ainsi à la compréhension de la demande cinématographique française et est force de propositions pour les décideurs politiques et les acteurs du marché, afin d'augmenter la vitalité d'un secteur mis au défi par les mutations en cours.

Mots-clés : Demande de films français, Netflix, cultural discount, subventions & quotas, exportation du cinéma.

Summary

With the accelerated digitization and globalization, the demand for French movies in traditional platforms is exposed to more competition than ever. Consumers have alternative platforms to watch any content whenever and where ever they want. In this research we strike into the foreign and domestic demand of French films to have a better understanding of its dynamics in the context of the heated competition due to digitization, globalization and the arrival of new platforms i.e. Netflix. For this purpose, in the first chapter we focus on the distortionary effect of French film subsidy system and the determinants of domestic box office revenue. In the second chapter we focus on the foreign demand dynamics of French films in the vicinity of the cultural discount. In the third chapter we assess the relationship between Netflix and theatrical demand: cannibalization or stimulation. This thesis thereby contributes to the understanding of French film demand, proposes strategies for policy makers and market insiders for the vitality of the industry challenged by the ongoing changes.

Keywords: French movie demand, Netflix, cultural discount, subsidies "as, movie exportation.