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DAVID MUHLBERGER

CINEMA ATTENDANCE DURING CRISES

IS THERE A RELATIONSHIP BETWEEN CINEMA ATTENDANCE AND THE STATE OF THE
ECONOMY IN FRANCE IN THE PERIOD 1992-2012?

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ABSTRACT

The present study had the objective of testing whether the state of the economy had an impact on cinema-going habits in France in the contemporary period (1992 – 2012). More specifically, the study attempted to study the relationship between cinema attendance and the state of the economy at an aggregate level, and then to study if various types of movies, segments of venues and categories of movie-goers were more or less affected by the state of the economy.

At an aggregate level, similar studies had already been performed in other countries. This study confirms their results for France: like in other developed countries, the state of the economy has little influence on cinema attendance and the sector is resilient.

This work also brings new detailed analysis on the behavior of various sub-types of movies, segments of venues and categories of consumers. It demonstrates that for most of these sub-categories, drivers of the market are rather supply and price, and that the state of the economy has low influence. Regarding venues, this study argues that large cinemas are more able to drive growth during crisis periods than other cinemas.

Keywords: Cinema, cinema attendance, economy, crisis, consumer sentiment

RESUMO

O presente estudo teve como objetivo testar se a situação econômica teve um impacto sobre os hábitos de consumo de cinema na França, no período contemporâneo (1992-2012). O estudo aborda a relação entre indicadores econômicos e consumo de cinema em um nível agregado e, em seguida, analisa se os vários tipos de filmes, tipos de cinemas e categorias de cinéfilos foram mais ou menos foram afetados pelo estado da economia.

No nível agregado, estudos semelhantes já foram realizados em outros países. Este estudo confirma os resultados para a França: como em outros países desenvolvidos, a situação da economia tem pouca influência no consumo de cinema e o setor é resiliente.

Este trabalho também traz novas análises detalhadas sobre o comportamento de vários sub-tipos de filmes, segmentos de locais e categorias de consumidores. Ele demonstra que para a maior parte dessas sub-categorias, drivers do mercado são oferta e preço, e que a situação da economia tem pouca influência. Quanto ao tipo de cinema, o estudo argumenta que, comparativamente, cinemas grandes conseguem crescer durante o período de crise.

Keywords: Cinema, consumo de cinema, economia, crise, sentimento do consumidor

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1. Introduction

During the Great Depression people in developed countries rushed to cinemas to fill their spare time and cheer up (Pautz, 2002). Popular imagery often consider that, today, people will react the same way as they did The objective of this study is to explore whether the state of the economy indeed has an influence on the consumption of cinema today. The notion of influence may be very vast. It is not only about how the sector as an aggregate evolves but also how the different elements that compose the aggregate may change. This study takes a look at both the characteristics of the supply and the demand sides, based on the statistics sent by cinemas to the CNC (Centre National du Cinéma – the French national support center for Cinema) and the results of the 20-year-old PubliXiné monthly survey of cinema-goers in France. The graph below presents the different elements that make up "cinema attendance".

Figure 1: Areas of potential impact of the economy on cinema attendance
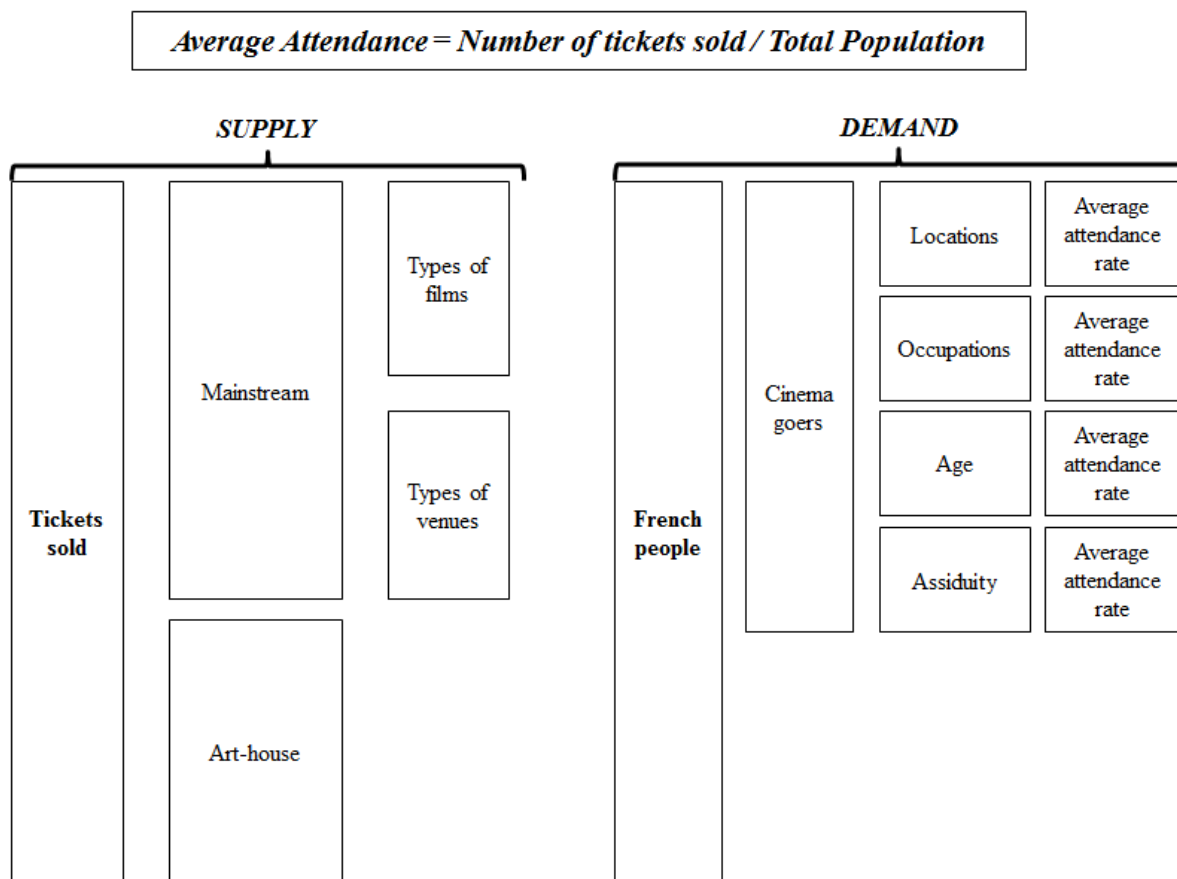
On the side of supply, Böhme & Müller (2011) showed how the art-house could function differently from the aggregate market. Then, Von Rimscha (2012) distinguished different categories of movies for which cinema-goers had different choice motivations. Regarding venues, the fact that larger venues have benefited from most of the growth of the cinema market in the 1990s and 2000s is very clear (Centre National du Cinéma, 2009). When it comes to demand, Collins & Hand (2005) where the first academics that produced a statistical study showing that cinema attendance rates were extremely variable among one population and depended on several factors among which location, occupation and age. The objective of this study is to study whether the economy has an impact on those elements.

Several studies have already been performed abroad, either specifically on the topic of the impact of the economic environment on cinema (Von Rimscha, 2012), or more generally on the drivers of cinema demand (Dewenter & Westerman, 2005, Cameron, 1990, Kim, 2009). Such study has never been performed for France, though numerous and detailed statistics are available, thanks to the Centre National du Cinéma. This paper proposes a single country study focused on France. There are two main reasons for the choice of France in this study. First, there is no existing literature on the drivers of cinema demand in France, whereas literature already exists for other countries such as Germany, the UK, Spain or the US. The second reason is that thanks to the Centre National du Cinéma very detailed data are available on cinema-goers. The CNC has been performing the monthly PubliXiné survey for 20 years, building a strong database of cinema-going habits among various groups of people (age, occupation, frequency of cinema-going, location). No study has yet been performed on the impact of the state of the economy on the behaviors of the various groups of cinema-goers.

In any industry, it is always a strategic need to know what the drivers of growth are, in order to take the right business decisions. The objective of this study is to check whether the state of the economy is a driver of cinema attendance, and whether other variables (supply, price) have a more explanatory power for explaining the evolution of revenues in this industry. The study will also focus on sub-segments of the industry in order to analyze more precisely where the growth is and where drivers are more active.

In terms of industry, this study will be useful to the movie industry as a whole, but is more specifically focused on the cinema industry (in terms of venues) rather than on the film production industry.

This dissertation is divided in three parts. In the next two chapters, existing literature on the topics of cinema consumption in France and links between cinema attendance and the economy is presented. In the following chapter, the research design is explained. In a last chapter, results of the research are displayed and commented before concluding.

2. Cinema Consumption in France

This chapter is aimed at presenting the main trends of cinema-going, first in general and then more specifically in France. The literature presented in the first topic explores the different drivers of cinema-going, both at micro and macro levels. The second topic of this chapter is mostly based on the data from the CNC and presents cinema-going in France, at the aggregate level and at the levels of cinemas, movies and cinema-goers.

2.1. Cinema Consumption Charateristics

This part first presents the history of aggregate cinema attendance in developed countries and mainly reveals that substitution goods (TV) and supply (emergence of large cinemas) have shaped the evolution of cinema-going. It then explores various drivers that were questioned by researchers and describes the characteristics of this market: its consumers and their motivations, its objects and the way they are consumed.

2.1.1. History of Cinema Attendance

Cinema has not always been the same leisure activity as it is today. Understanding its history gives a first idea of its general drivers.

Emergence and Golden Age

Cinema was born in the late 19th century, one landmark of its history being the Lumière brothers' first public projection in 1895. The industry then developed in Europe and the USA and became a mass leisure in the 1920s. At that time cinema was cheap (under \$2 in current dollars according to Pautz (2002)). People would especially attend cinemas to get informed about world news and to see movies series that were projected every night.

In terms of attendance, the golden age of cinema in the USA and in Europe was respectively in the 1940s and 1930s. As we highlighted, prices were cheap, and cinema faced very little competition before the invention and mass distribution of TV sets. In 1936, cinema attendance in Great Britain was an average of 34 times per capita per year according to Browning and Sorrell (1954), while this number is below 3 today. In the USA, Pautz (2002) argues that cinema consumption peaked with the Great Depression and then WWII, as people needed both more news and more distractions. The industry experienced record and growing

attendances in the 1930s and 1940s, before USA became the first mass market for television. According to Pautz (2002), 65% of Americans went to the cinema weekly in 1930 (today, as a comparison, 10% of Americans go to the cinema weekly according to Pautz (2002)) and, in 1945, they would spend 23% of their leisure budget on cinema, down to 2% today.

In the 1950s, cinema attendance was still much higher than today, with an average yearly attendance per capita at 15 in Germany in 1955 (Dewenter & Westermann, 2005).

The Revolution of generalized TV Sets

All studies led on the long-run evolution of cinema attendance, be it in Spain (Fernandez-Bianco & Baños Pino, 1997), Great Britain (Cameron, 1990), Germany (Dewenter & Westermann, 2005), America (Pautz, 2002) or even South Korea (Kim, 2009), showed a very sharp decline in cinema attendance from the 1950s to the 1980s. The US was the first country where this crisis materialized and, according to Pautz (2002), 75% of US cinemas closed down in the 1950s and 1960s. Graph 3 gives an idea of the magnitude of the TV revolution.

Graph 3: **Percentage of the US population that goes to the cinema on average weekly (1930-2000)**
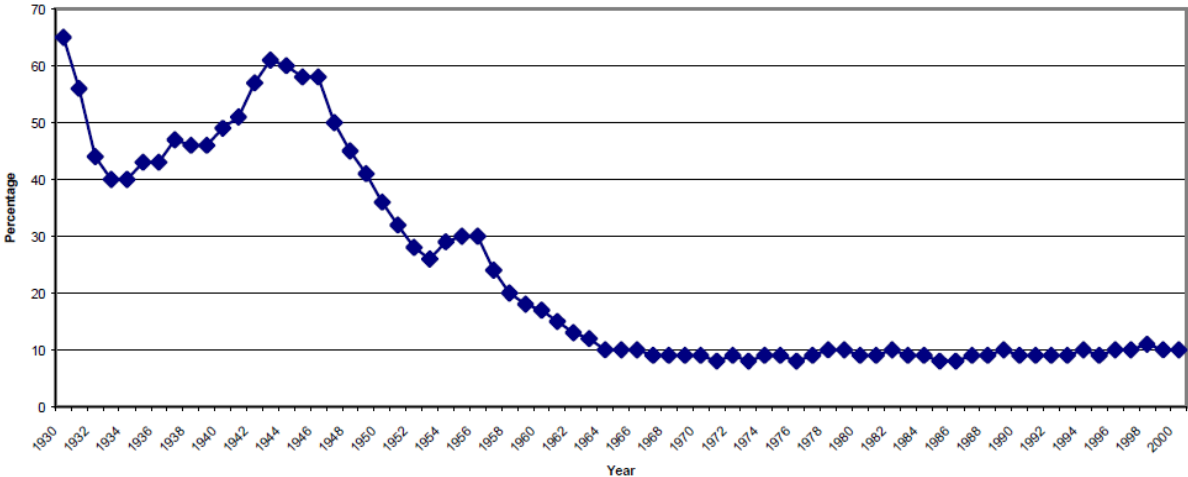
Source: Pautz, 2002

According to Pautz (2002), the major reasons that explained this sharp and quick decline were:

- Introduction of TV sets (especially for evening news);

- Anti-cartel regulations that prevented producers to own cinemas (which used to be a very common feature of the industry); and made the industry riskier;
- Suburbanization, as most cinemas remained urban;
- Increase in real ticket prices.

Overall, these elements represented a cultural revolution for cinema: cinema was no more the sole provider of news and did not appeal to suburban and busy populations. Cinema has indeed now taken a new role as people go to cinemas for entertainment purposes only and the market is supplied by movies and especially blockbusters, and no more series that were projected only once.

Another element, developed by Dewenter & Westermann (2005) is that with increasingly better living conditions and rising purchasing power, leisure budgets increased and, as a consequence, people accessed a broader range of leisure activities, outside of cinemas.

Cinema had troubles to find its role as an entertainment industry and experienced record low attendance rate in the 1980s. For instance, in 1992, cinema attendance in France hit a record low at 116 million tickets sold, down from 360 million tickets in 1952, though population had increased by 50% (CNC, 2013).

The Revival of the early 1990s

Attendance rates recovered in the 1990s in most developed countries, though they remained largely under the levels reached between the 1930s and the 1950s. In line with her argument that cinema missed the revolution of suburbanization, Pautz (2002) argues that cinema attendance in the US increased thanks to the emergence of a new category of cinemas: multiplexes. In France, the CNC (2013) also supports this argument. Multiplexes are large cinemas, generally installed in large suburban shopping malls. They offer a variety of services that make the customer experience more comprehensive, and, most importantly, they have multiple screens (up to over twenty), contrary to traditional cinemas. As a result the same film can be projected at different times in the day and customers have more opportunities to see a film in which they are interested.

2.1.2. The basic Economics of Cinema

The previous part explored what drove the aggregate demand for cinema. Behind aggregate values are very diverse and specific situations that can evolve independently from the aggregate consumption of cinema.

A very concentrated Market driven by Demand

The fact that only a very few movies are profitable characterizes the cinema industry, and this trend has tended to become stronger in the recent past. As Sedgwick & Pokorny (2005) put it, the development of cinema consumption in the 1920s has seen, for the first time in modern society, the "emergence of the long right tail of consumer preferences for mass distributed goods" (Sedgwick & Pokorny, 2005). This means that a few movies attract most of the audience. Thus the market is mainly driven by demand and there are a few explanations to this according to Sedgwick & Pokorny (2005):

- Movies can be defined as extremely vertically differentiated: they are not of equal attractiveness to audiences, but admission prices are uniform. Thus, only a small number of products appear superior to all others. This effect is reinforced when attendance levels decrease as consumers tend to go to cinemas only to see the movies with the highest perceived quality (blockbusters).
- Indeed, consumers do take a risk when they go to cinema. They risk a divergence between the pleasure that they expected and the pleasure they experienced. Hence a strong potential for market concentration for those films that appeal to the audiences.
- The cinema industry (not the movie industry) is only marginally driven by supply, as movies can be easily and quickly reproduced with today's technologies. Supply can indeed adapt very quickly in case demand is very high for one movie.

Going to Cinema or going to see this very Movie?

Another element that explains very well the concentration of the movie market is that people go to cinema as a destination, not by opportunism or by accident. As a result, they tend to

choose the movie they want to see before going to the cinema rather than being attracted into a cinema because they walked by it and then chose a movie that was available.

Communication ex ante thus plays a key role and works for blockbusters. Fernandez-Blanco & Baños-Pino (1997) define cinema as a performing art: when consumers purchase their tickets, they are rendered a cultural service that, once inside the theatre, is a non-rival consumption.

Regarding France, statistics of PubliXiné do support this point (Graph 4).

Graph 4: **Monthly poll (PubliXiné). "When did you make your choice of movie?"**
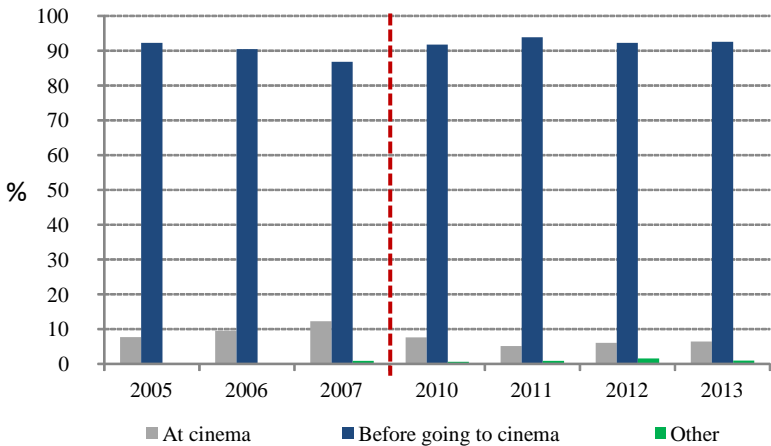
Source: CNC, 2013, "Pratiques cinématographiques", from PubliXiné

Who goes to the Movies?

Behind average annual attendance rates of 2 to 3, there are huge differences. There are indeed not so many people who go to the cinema twice or three times a year, there rather are groups of people who go often or very often to cinemas, and a large group of people who never go to the movies. Collins & Hand (2005) were the first to produce a statistical study of social factors influencing cinema attendance: their demographic analysis of cinema-going based on a survey in the UK evidenced age and neighborhood (an approximate for lifestyle) as influential, and gender ("to the extent that it is also a an approximate for availability of leisure time") as slightly influential. Young urban affluent people tend to go very often to the cinema, on the contrary people over 50 (though affluent) and people living in lower-middle class neighborhoods have little cinema consumption.

Analyses of cinema attendance by socio-economic groups in France will be presented later. But the elements above show that aggregate demand is not always the most relevant level for analysis. This is why this study also explores sub-groups to understand whether the economic environment has an impact on cinema attendance. An example of the sub-groups of products that will be considered is art-house movies, whose consumers tend to be regular movie-goers.

One Sub-Market: Art-House Movies and Cinemas

Böhme & Müller (2011) led a statistical study on cinema admission prices and attendance in Germany and showed that mainstream cinema and art-house cinema markets should be distinguished in future studies, as "there is no significant price effect between the two categories and there is an effect within each category". Considering mainstream cinema and art-house cinema together is, according to the authors, like "pooling apples and oranges".

Seasonality of Demand

Cinema-going is seasonal, especially in France (see Graph 5). In some developed countries where cinema attendance has already been studied by researchers, frequentation is especially high at the end of the year around Christmas, and during holiday weekends, and relatively low in summer months. (Spain, Germany and the UK in Von Rimscha, 2012)

*Graph 5***: Cinema entries per month in France (average of percentages 1992-2010)**
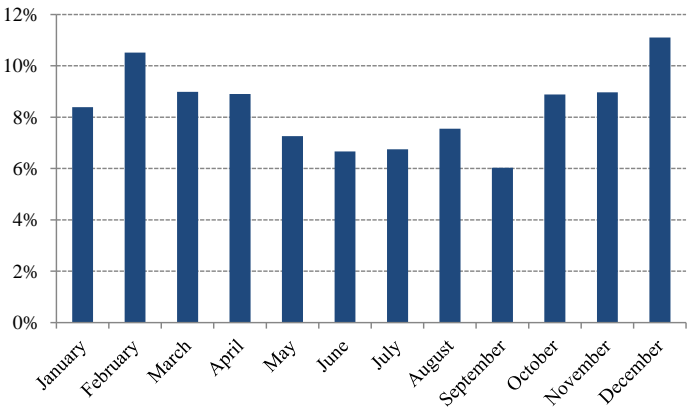
Source: Data from CNC, 2013, author's analysis

Seasonality of demand is an obvious feature, like for all leisure activities. Though, it is also reinforced as the result of thick tail patterns. Hand & Judge (2011) suggest that in the US as well as in the UK, the seasonal component in box office revenue may be partly endogenously determined. Films that are expected to do well tend to be released at times of peak demand. Hence, the seasonal pattern may reflect both the underlying seasonal pattern and the market expansion effect of the films; evidence from the US suggests the former dominates the latter.

Due to this seasonal pattern that is partly irregular because of the bias of blockbusters released at peak times, this study will mainly focus on yearly attendance data in.

2.1.3. Price and Substitution Goods

As was previously explained, in the 1930s, cinema was extremely cheap and there were much less leisure available. The situation has changed now, but to which extent?

Is Cinema a Luxury Good?

As cinema is not a basic need, one hypothesis is that it is cyclical. As a result, it might also depend on a price factor: is cinema-going a price elastic activity or not? Research is actually contradictory on that point. Cameron (1990) presents an estimate of the income elasticity derived from pooled cross-section time series data for the UK of 1.04, thus showing that it is a normal good. However, in Germany, Dewenter & Westermann (2005) found, surprisingly, that price and income elasticity of demand for cinema were extremely high, namely −2.25 and 4.48 respectively. In Spain, Fernandez-Blanco & Baños Pino (1997) find a price elasticity of 1.25. They also point out that cinema is a popular cultural good which, by opposition to Opera or higher performing arts, has a less discriminating nature of demand and can thus easily be substituted by other activities such as circus, museums or cable TV. As a result, cinema would be price elastic.

For this reason, as explained in the research design, the evolution of the average real price of a cinema ticket in France will be included in our testing model.

Cinema faces a wide Array of Substitution Products

TV is the obvious substitute for cinema. As Cuevas (1976) rightly stated: "people do not frequent cinemas as before to fill their spare time; it's what they have chosen among many other ways of spending that free time". However, it seems logical to see watching TV as less preferable than cinema because of its "inferior audio-visual conditions and a lack of atmosphere" (Cameron, 1988). On the other hand, it may also seem reasonable to consider watching TV as superior to cinema as it may offer more comfort, convenience, and privacy (Fernandez-Blanco & Baños Pino, 1997).

Is theater a substitute? Research on the performing arts in the United Kingdom (Gapinski, 1986) shows that the best substitute for a theatre play is not a film, but a different theatre play. Moreover, Fernandez-Blanco & Baños Pino (1997) argue that in Spain (but the argument sounds valid in other places too) cinemas are available all over the country whereas theaters are only available in Madrid and Barcelona. Consequently, it would be difficult to maintain that theatre adequately plays the role of a substitute. The same conclusion can be drawn for operas and concerts.

Going to cinema is a time-intensive activity (transport, waiting time, movie itself), like most leisure activities. As there has not been any disruptive move in the leisure market in France comparable to the introduction of TV sets, and also for simplicity (as substitutes are very numerous), this study does not use approximates for substitutes.

2.1.4. Quality as a Driver of Cinema Demand

As cinema tickets are generally priced independently from the movie seen, quality could appear as a major driver of attendance for one particular movie. Ginsburgh & Weyers (1999) indeed stressed that if quality is an important characteristic in determining the demand for a commodity, this is especially true for works of art, since aesthetic quality is often the main, in many cases the only, reason for "consuming" them. Products are strongly differentiated in the cinema industry.

There is, however, a debate among researchers on whether movies are horizontally or vertically differentiated products.

For some authors, movies are horizontally differentiated, or as Caves (2000) puts it, there is an "infinite variety". It all depends on the tastes of consumers. In such a situation consumers might even become indifferent which movie to choose among a selection of similar options.

Other authors, and among them Ginsburgh & Weyers (1999) rather think of movies as vertically differentiated: films can be ranked, classified and quality may explain their success.

Indeed, in France, feedback as well as trailers (which give an idea of the quality of the film) are the main drivers of demand. Graph 6 shows for each element the percentage of people who quoted them as a driver for them choosing the film they saw before answering the monthly PubliXiné survey. Respondents were asked to mention their 3 main sources of information on the film they had just seen.

Graph 6: **Drivers of choice of movie, 2013**
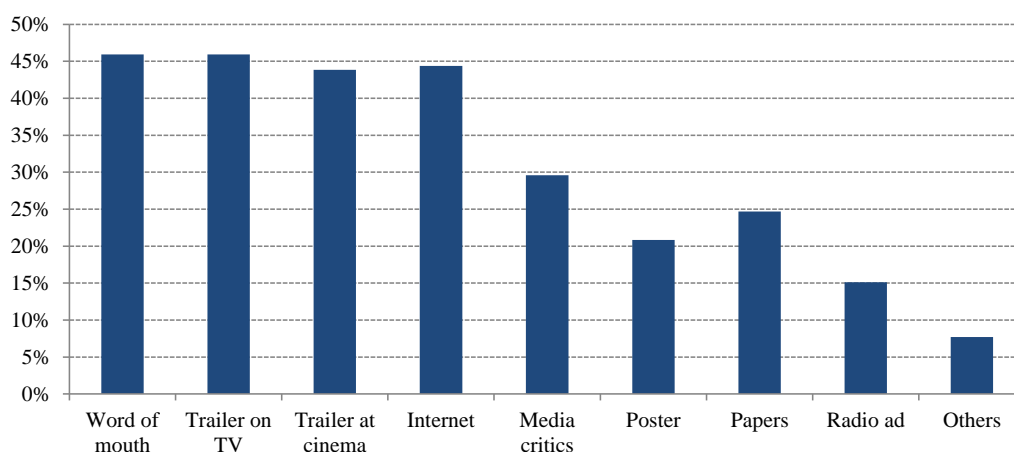
Source: PubliXiné survey, 2013

Some authors attempted to use "objective" and quantifiable data to approximate quality in their studies: Kim (2009) used the domestic movie production and foreign movie imports to approximate movie variety. Dewenter & Westermann (2005) used the number of German movies produced per year to evaluate variations in quality. Other authors went further and used film ratings and awards (Nelson et al., 2001), the presence of stars (De Vany & Walls, 1999), critics' grading (Ravid et al., 2006) or even popularity of directors (Bagella & Bachetti, 1999) as criteria.

Ginsburgh & Weyers (1999) wonder whether one should focus on intrinsic quality of films or perceived quality by the audience: "Philosophers put the burden of the proof of quality on

specialists, economists think that the choice should be left to consumers; philosophers stress the importance of time, and this is not raised by economists in this context."

The question is whether, in the case of cinema, specialists perceive the same level of quality as consumers. Debenedetti & Larceneux (2011) recall that this is an old debate: back in the 1930s-1960s, several philosophers (Adorno, Marcuse) accused companies of encouraging "bad taste" among the population in order to create a mass-market with uniform tastes that would be easy to fulfill and would consequently be more profitable. And the authors actually demonstrate that the taste of consumers in France is totally independent from the opinions of specialists (Cannes Festival for instance).

Beyond independence, Hirschman & Pieros (1985) found out that critical reviews and awards produce consistent choices, but that both are negatively correlated with audience receipts. Eliashberg & Shugan (1997) concentrate on the role of critics on box office revenue and show that positive reviews have no impact on box office performance in the short run. They believe that if movie-goers were influenced by critics, reviews should be correlated with early box office revenue.

In this study, quality was thus approximated by collecting audiences' average grading of films on the website Allociné.fr, the largest French online cinema directory.

2.2. Cinema in France

This part uses the concepts introduced earlier to present relevant data on cinema-going in France. The trends observed are generally similar to what has been demonstrated by researchers abroad.

2.2.1. Trends of Cinema Consumption in France

In line with the research questions raised, this part will briefly describe the aggregate evolution of demand and supply of movies in France, the cinemas, the audience and the movies seen.

The Evolution of Cinema Attendance in France is in Line with Patterns observed Abroad

Graph 7 displays similar patterns as those presented earlier for the evolution of cinema attendance in other countries such as the US.

After WWII, attendance recovered before decreasing steadily from the late 1950s, mainly due to the introduction of TV sets, video recorders and cable TV, to reach a historical low in 1992. Attendance then increased by an average of 2% per year from 1993 until the 2000s, apparently mainly due to the development of multiplexes.

Graph 7: **Cinema tickets sold and tickets sold per capita in France**
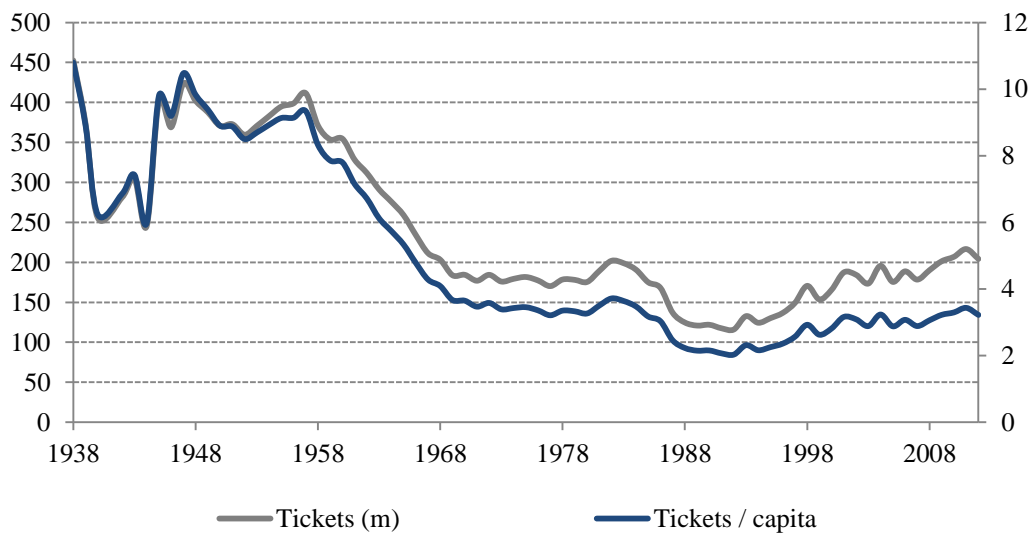
Source: CNC, 2013

Evolution of Supply in France

Supply is a key feature of the market that is used as a control variable in the models that follow. Supply in cinema is generally considered by authors as the number of screens. The number of screens in France has been increasing in the past 20 years. However, the features of supply have changed significantly: in the past, the market was less concentrated, with more cinemas, more seats and less screens. Today, there are fewer cinemas (around 2000, down from over 3000 in 1970), but cinemas are bigger (almost 3 screens per cinema on average), with less seats but offer more projections. Rooms are smaller but utilization has increased: physical supply has adapted to demand.

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Graph 7: **Number of cinemas, screens and seats in France (1975-2012)**
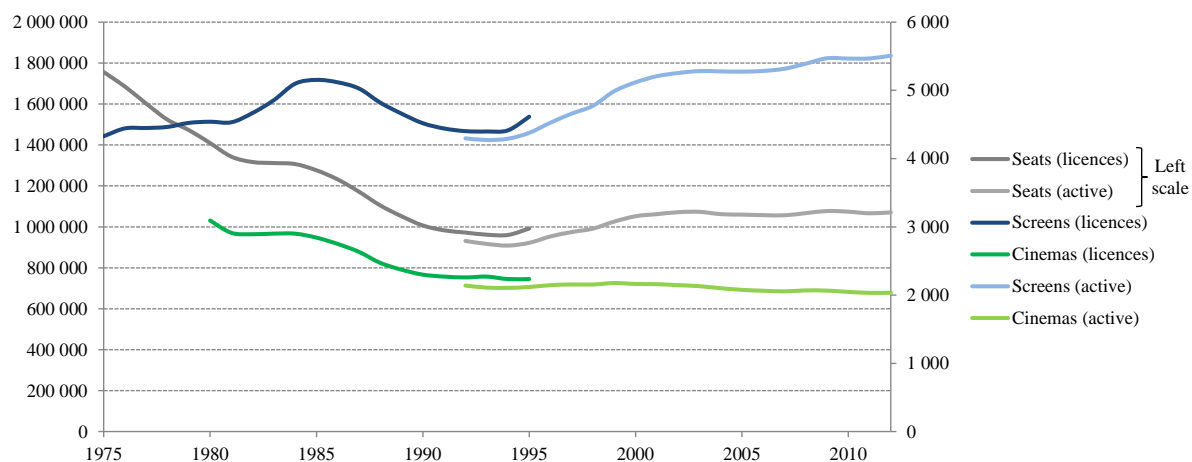
Source: CNC, 2013, author's analysis

Graph 9: **Number of projections in France (million) (1980-2008)**
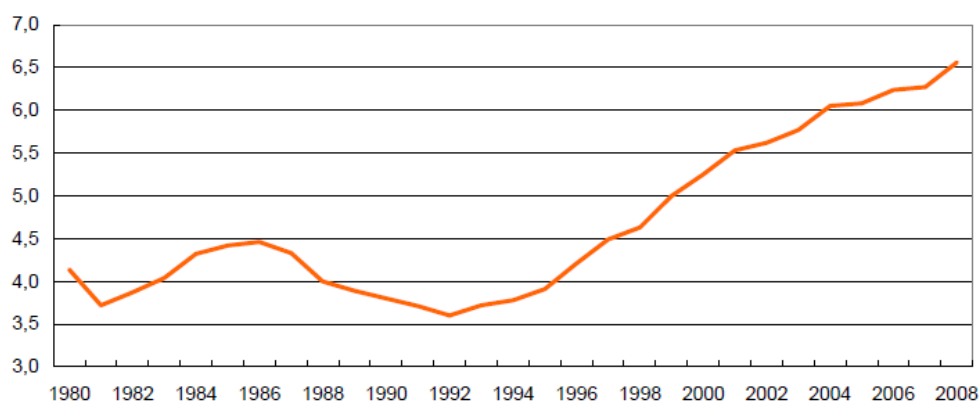
Source: CNC, 2009

Consumption is indeed more and more concentrated, especially in large cinemas and multiplexes. Table 1 shows the number of cinemas per size (with size expressed as the number of tickets sold every year). It appears clearly that small and medium-sized cinemas (those selling less than 500 000 tickets a year, which is already big) have declined in number. Within the 50 000 – 500 000 category, the number of cinemas with over 200 000 tickets a year has actually increased. Larger cinemas are more and more numerous. Graph 10 also shows that larger cinemas have benefited from all the growth in cinema attendance since the 1990s, while sales of tickets in small and medium-sized cinemas have stagnated (CNC, 2009 and CNC, 2013)

Table 1: **Number of cinemas per category (size as number of tickets sold / year)**

	Under 50 000 tickets / y	50 000 - 500 000 tickets / y	500 000 - 1m tickets / y	Over 1m tickets / y
1996	1 570	533	35	8
1997	1 570	531	42	13
1998	1 515	575	48	18
1999	1 581	539	42	15
2000	1 573	519	53	18
2001	1 520	552	68	20
2002	1 529	525	71	21
2003	1 552	494	65	20
2004	1 487	515	74	25
2005	1 508	481	66	22
2006	1 474	497	68	25
2007	1 480	487	68	20
2008	1 481	490	75	23
2009	1 471	485	85	25
2010	1 445	483	89	30
2011	1 405	507	88	33
2012	1 435	489	84	27

Source: CNC, 2013, Exploitation, Données nationales, author's analysis

Graph 10: **Tickets sold per size of cinemas (size as number of tickets sold / year)**
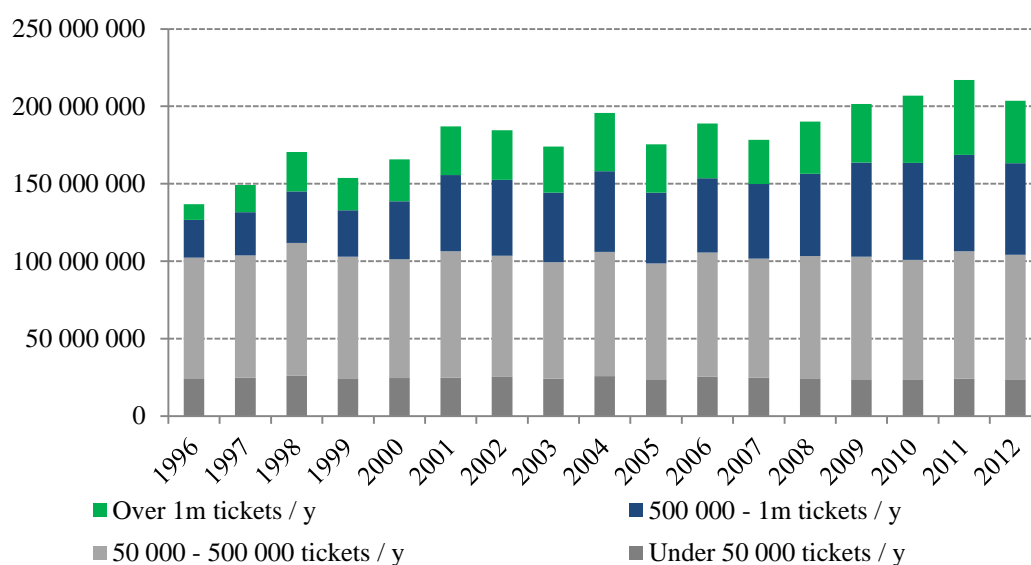
Source: CNC, 2013, Exploitation, Données nationales, author's analysis

Most of the new large cinemas are multiplexes, which, as was previously recalled, played the main role in the rebirth of the movie industry in developed markets since the 1990s. Graph 11 shows the evolution of the share of multiplexes in the overall volume of tickets sales in France.

*Graph 11***: Tickets sold per type of cinema (multiplexes and others)**

Chart data — Tickets sold per type of cinema:

Year	Multiplexes
1999	28%
2000	35%
2001	39%
2002	42%
2003	45%
2004	48%
2005	51%
2006	52%
2007	53%
2008	55%

Legend: Other cinemas, Multiplexes
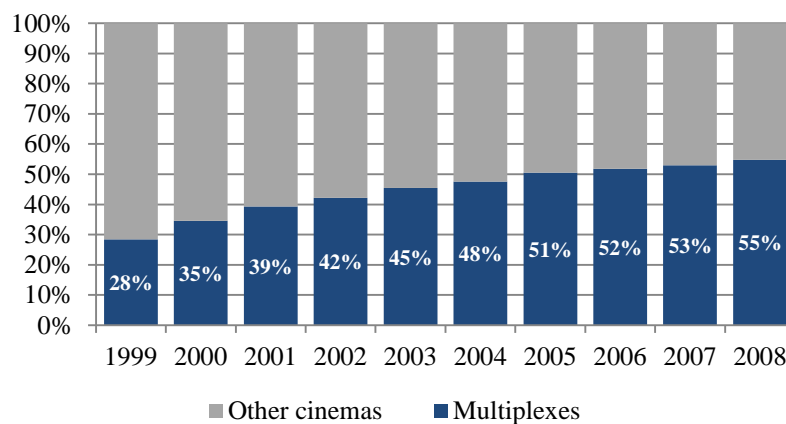
Source: CNC, 2009

Large cinemas were actually the only ones that created value in the sector in the past 20 years. There are different ways to leverage revenues of cinema tickets, they were almost only activated by large cinemas, as exemplified in graphs 12 and 13. Graphs 12 and 13 show where new ticket revenues of cinemas came from between 1996 and 2012. Large cinemas could overcome the decline in real prices and in occupation rates by building new cinemas, increasing the size of cinemas in terms of screens and increasing the number of projections per screen. On the contrary, smaller cinemas could only activate the lever of projections per screen: they intensified the utilization rate of their existing capacities but this was not enough to create value.

Graph 12: **Aggregate revenues of cinemas with 1,500 seats and more (in real 1996 €m)**
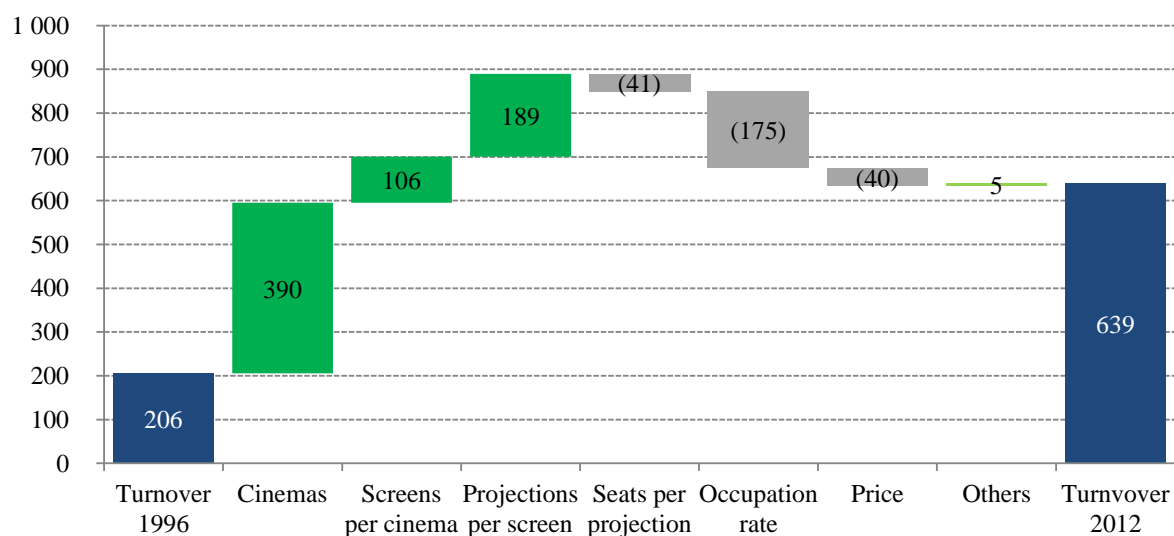
Graph 13: **Revenues of cinemas with less than 1,500 seats (in real 1996 €m)**

2.2.2. Movie-Goers in France

As was previously reported, research has shown that cinema attendance is generally not homogeneous among the various categories of people. Age and socio-economic context are consistent variables, regarding France one should also consider location as urban people and, more specifically, people living in the Paris area, tend to attend cinemas more frequently than others.

The first distinction that is generally made is between people who did not go to the cinema within the last 12 months and people who did: the ratio is called the penetration rate of cinema. In 2012, the penetration rate of cinema in France was 65.1%, corresponding to 38 million people (CNC, 2013, Profil du public des salles de cinéma). Penetration rate has tended to increase in the past 20 years (from 51.8% in 1993). This is almost only the result of a higher penetration rate within older categories of people (penetration rate of people over 60 years old increased from 27.7% to 50.8% and from 37.2% to 58.1% for people aged 50 to 60) and in rural areas.

Average attendance within this population which goes at least once a year to cinema is slightly over 5 times a year. Though, there are differences within that 38 million people group. The CNC discriminates three groups of movie-goers: assiduous movie-goers go to cinema at least once a week, regular movie-goers less than once a week but at least once a month, and occasional movie-goers less than once a month but at least once a year. Graph 14 displays how the audience of cinemas is shared between those three categories and how much they represent in the total number of tickets sold in 2012. So, only 3.3% of movie-goers belong to the assiduous group but they account for 26.3% of tickets sold.

Graph 14: **Tickets sold per type of cinema (multiplexes and others)**
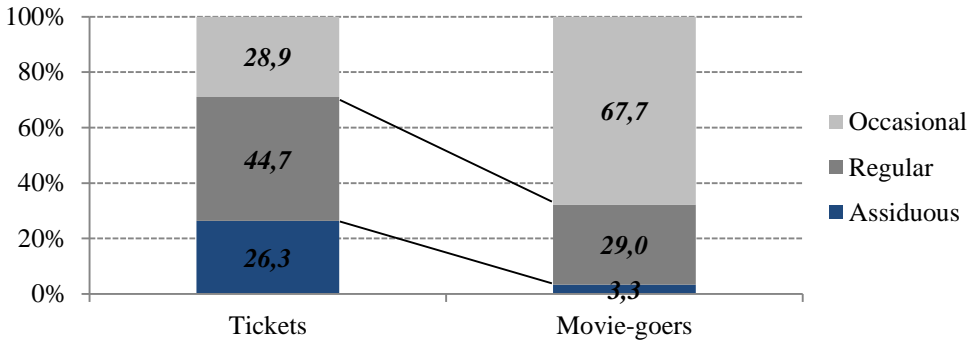
Source: CNC, 2013, Profil du public des salles de cinéma

In line with the results of Collins & Hand (2005), CNC (2013) statistics show that there are different consumption habits depending on age, profession and, also, location (location depending also on profession and social status). Graph 15 shows the proportion of cinema-goers and the proportion of tickets depending on occupation. People with higher standards of living (Professionals +) as well as students are over-represented among cinema-goers and

tickets sold relatively to their weight in the French society. Penetration rate is lowest among unemployed people, which is one reason why this study later considers unemployment as a variable in our model. Among cinema-goers, students, people with higher professional occupations and also retired people tend to go more often to the cinema than other categories.

Another very interesting feature, though, is that consumption of cinema is now almost homogeneously spread between all social categories, which is very different from what Collins & Hand (2005) observed and from what the situation was in France in the early 1990s.

These features give hints regarding the age of movie-goers. Students go more to cinemas than other categories of the population. Indeed, penetration rate is around 90% among teenagers in France and cinema-goers aged 15 to 24 go on average 7 times a year to cinemas, against a national average of 5.4 times (average 2008-2012).

Graph 15: **French population, cinema-goers and tickets sold by occupation (%), average 2008-2012**
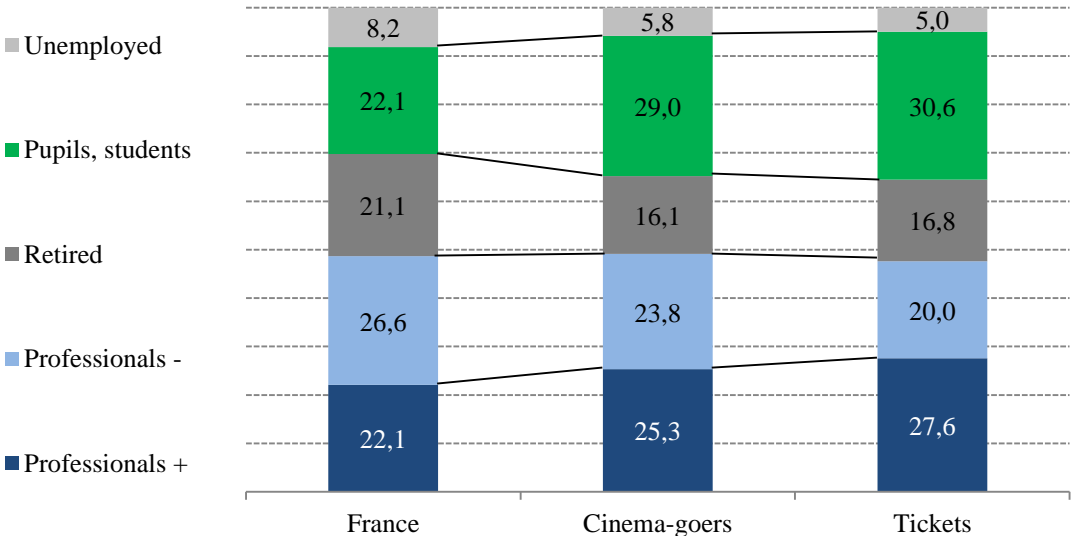
Source: CNC, 2013, Profil du public des salles de cinéma

Notes : Population over 6 years old

Professionals +: INSEE categories of executives, intellectual occupations, shops and companies owners, middle management

Professionals -: INSEE categories of farmers, office workers and factory workers

Regarding location, results presented in Graph 16 could be summed up by "the denser the area you are in the more you go to cinema".

Graph 16: **French population, cinema-goers and tickets sold by location (%), average 2008-2012**
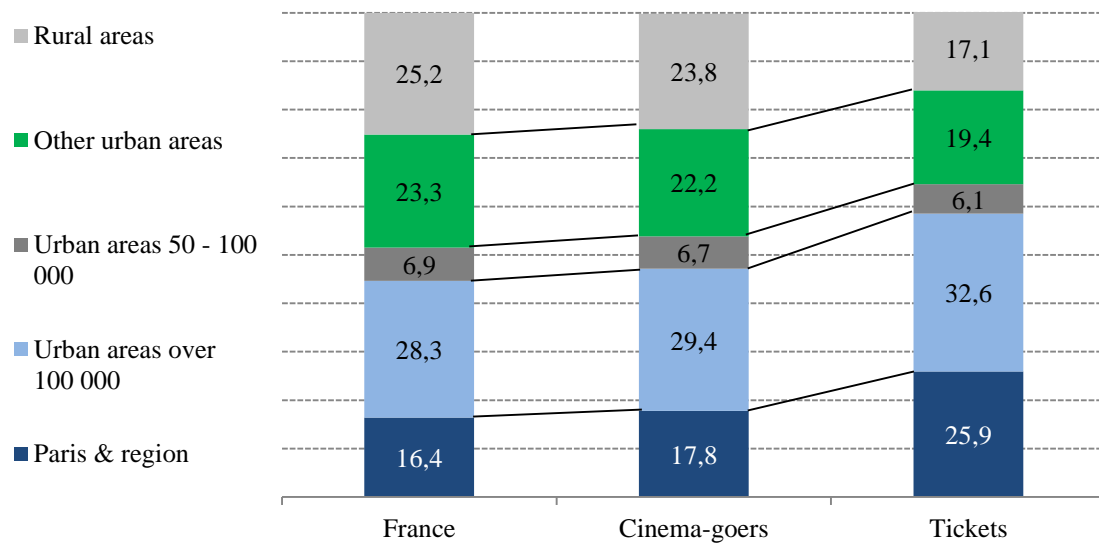
Source: CNC, 2013, *Profil du public des salles de cinéma*

The fact that urban people attend movies at cinemas more often is consistent with the reduction in the number of cinemas by 33% during the 20 past years (as most of closures concerned small rural cinemas) and the concentration of attendance in large cinemas (as multiplexes are only available in large urban areas where the basin of potential consumers is large enough to justify the investment) (CNC, 2009).

2.2.3. Films seen in France

At an aggregate level, the main trend of films available in cinemas in France is that variety has increased but the market remains as concentrated as it used to be 20 years ago (Graph 17 and Table 2).

Graph 17: **Number of films available at French cinemas**
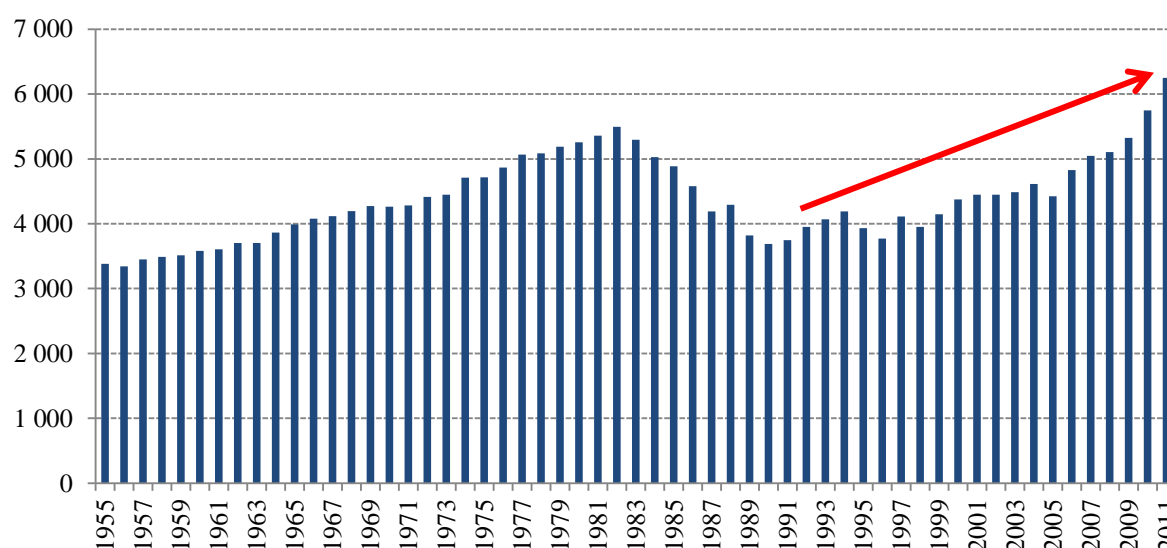
Source: CNC, 2013, Films projetés en salle

Table 2: **Top box-office movies as share of total ticket sales in France (%, 1992-2011)**

Tickets (%)	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Top 10 films	27,1	34,0	29,8	24,3	27,6	28,9	39,7	30,8	30,0	27,5	31,8	26,8	26,1	24,0	26,8	27,9	29,2	24,3	21,7	26,8
Top 20 films	39,9	44,2	45,3	37,5	40,8	43,0	52,9	42,7	43,5	42,0	45,4	39,6	38,5	36,7	39,0	38,6	39,8	37,2	36,1	38,4
Top 30 films	48,7	52,0	54,7	46,9	50,6	53,0	60,4	50,8	52,9	52,3	53,3	47,8	47,0	45,6	47,0	46,5	47,3	46,2	45,7	46,4
Top 100 films	73,0	73,3	76,3	71,6	76,0	78,9	82,8	78,8	78,0	78,4	77,9	76,7	77,0	76,0	75,0	71,7	75,2	76,7	73,7	75,6

Source: CNC, 2013, Films projetés en salle

Like Korea and India (Kim, 2009), France has a strong consumption of domestic films. In 2012, French films represented 40.3% of tickets sold in French cinemas, increasing from 35% in 1992 (CNC, 2013). Sisto & Zanola (2010) have studied the addiction factor in cinema attendance in Europe. In their study, the coefficient associated with national movies shows a positive impact on cinema demand, suggesting that the existence of a national movie industry and the development of a domestic star system could increase cinema consumption.

American movies are also extremely popular in France, with performances similar to the national industry. Ginsburgh and Weyers (1999) report the argument of D. Moïsi in an article in the Financial Times to explain the success of American movies in France: "The success of Hollywood, beyond pure economic factors, can be attributed to two main things: On the one hand, the nature of the message, and on the other, its ubiquity and familiarity. From the masterpieces of Frank Capra to Steven Spielberg, the message is the same – individuals can make a difference. If you want to do it, you can. This triumph of the individual is universal."

3. The Impact of the economic Environment on cinema Attendance

This part presents what has already been discovered by research on the links between the state of the economy and cinema attendance. As most of the literature on this topic has found weak relationships in the countries studied, this chapter also questions how the state of the "state of the economy" should be modeled as a variable.

3.1. Economic Indicators and Cinema Attendance: a weak Relationship

It is generally admitted in the papers that people tend to go more to cinemas during periods of crisis (von Rimscha, 2012). The true historical example that supports this statement is the surge in cinema attendance that was observed in the US during the Great Depression and then WWII. People wanted to see (i) more news from the economy and the world and (ii) more entertaining shows to escape from harsh living conditions (Sedgwick & Pokorny, 2005).

Many researchers have studied the drivers of cinema attendance in various countries but very few have focused on the economy as a driver. Indeed, most studies on cinema attendance focused on other parameters than the socio-economic environment and were made on a very long time-frame. However, they did use economic parameters (GDP growth rate generally) as control variables. Studies made in Korea (Kim, 2009), Germany (Dewenter & Westermann, 2005), Great-Britain (Cameron, 1986, 1988, 1990), America (Pautz, 2002) and Spain (Fernandez-Blanco & Baños Pino, 1997) did not find any significant relationship between GDP growth and cinema attendance.

According to these studies, forces such as substitutes (TV, recorders) were generally the only ones that were linked to the evolution of cinema attendance in the long-run.

In the context of the current economic depression in Western Europe, one recent study written by von Rimscha (2012) specifically analyzed the relationship between socio-economic indicators and cinema attendance in three countries, Germany, Spain and Great-Britain. The author studies both supply and demand and poses three questions:

(i) How does economic growth influence the overall demand for cinema entertainment?

(ii) How does it shift the respective market shares of different genres?

(iii) Do other external factors besides the state of the economy have more explanatory power concerning supply and demand?

Von Rimscha (2012) concludes that there is no compelling relationship between the socio-economic environment and cinema attendance in the three countries considered in his study: "Our analysis of possible interactions between economic indicators and the genres sought by the audience provides support neither for the environmental security hypothesis nor for the competing distraction hypothesis. The demand for cinema entertainment as a whole is unrelated to economic indicators such as GDP, consumer confidence, and consumer prices".

3.2. Consumer Sentiment: beyond GDP

The symptoms of a period of crisis (loss of confidence in the future, worries) are perhaps not best caught by an indicator such as GDP growth which is, generally, very resilient. In order to evaluate the change in mindset in the society during the crisis, the models presented in this dissertation use another approximate than GDP growth, the household confidence index, which is an approximate for consumer sentiment (as defined by Throop, 1992).

Consumer sentiment is based on surveys. Normally, consumer sentiment moves with current economic conditions and bears a stable relationship with some economic variables. During major economic or political event like the Gulf War, however, consumer sentiment can move independently from current economic conditions. At such times it provides useful information about future consumer expenditures that is not otherwise available.

Throop (1992) argued that the attitudes that enter into consumer sentiment are more than simply a reflection of the current state of the economy. Therefore, they are not necessarily related to current economic variables in any stable way. Attitudes (sentiment of decline, pessimism…) may be influenced by political and economic events which cannot be reliably represented by an economic quantity such as GDP.

4. Research Problem and Methodology

This part first provides details and precisions on the objectives of this dissertation and the variables that are studied. Indeed, cinema is a wide industry and the economy an even broader topic. This is why the research problem is divided into precise sub-problems. In a second time, the methodologies used are explained.

4.1. Research Problem

This study will test whether there is or not a relationship between cinema attendance in France and the economic environment. It will look both at aggregate cinema attendance and the various factors that make up aggregate attendance.

4.2. Questions

The notion of "influence" or "impact" can be very vast. For this reason this study looks not only at aggregate cinema attendance (question (i)), but also at the main elements that contribute to it, in order to catch effects of the economy on the supply or on the demand of cinema that may not be visible at the aggregate level. Main areas for potential effects are the types of films seen and the types of venues affected or not affected by the state of the economy. Knowing how these different elements evolve with the economy is significant for managers who need to know how one type of movie or one type of venue will likely be affected by a change in the economic environment. Hence questions (ii) and (iii). This study will also research whether the behavior of various categories of movie-goers are affected by the economy, this might be useful to managers to identify which locations might be more vulnerable than others in times of crisis. Hence question (iv).

The research question of this paper are thus:

(i)   Is there a clear relationship between the level of aggregate cinema attendance in France and the economic environment?

(ii)   Is there a shift in the categories of movies most seen during crisis periods? Are there types of movies that are more resilient than others or even counter cyclical, and some that are more cyclical?

(iii)   Do large and smaller venues perform the same in times of crisis?

(iv)   Does the audience change during times of crisis?

4.3. Methodology

Analysis is based both on linear regression and ANOVA tests when the sample of years was large enough, and on more qualitative analysis based on statistics and surveys when only a few years were considered.

4.3.1.   Procedures and Analysis for Question (i) Is there a clear Relationship between the Level of aggregate Cinema Attendance in France and the economic Environment?

This first analysis at aggregate level is aimed at finding the main drivers of cinema-going in the period 1992-2012 and to see whether the economic environment is one significant driver. To that end, regressions were computed between aggregate cinema attendance and economic variables as well as other variables identified as relevant in the existing knowledge on the topic.

Data Collection

This dissertation only uses annual data in order to neutralize the seasonal nature of cinema demand.

The variable that is tested in this study is cinema attendance. Cinema attendance is defined as the total number of cinema tickets sold in one country within a year, divided by the population of the country. Division by population is necessary as changes in the population number obviously affect the number of tickets sold. Data for annual tickets is publicly available from the CNC. Data for population is publicly available on the website of the INSEE, the French national institute of statistics.

The three economic variables used in this dissertation were retrieved from the website of the INSEE:

-   *GDP growth year-on-year*. This is an objective indicator of the economic landscape in the country.
-   *Unemployment rate*.
-   *Household Confidence Index.* This is an indicator of the mindset of the people, it is based on a survey by the INSEE.

Graph 1 shows how they behaved over the considered timeframe.

Graph 1: **Evolution of GDP growth and unemployment rates (left scale) and household consumer Index (right scale) in France (1992-2012)**
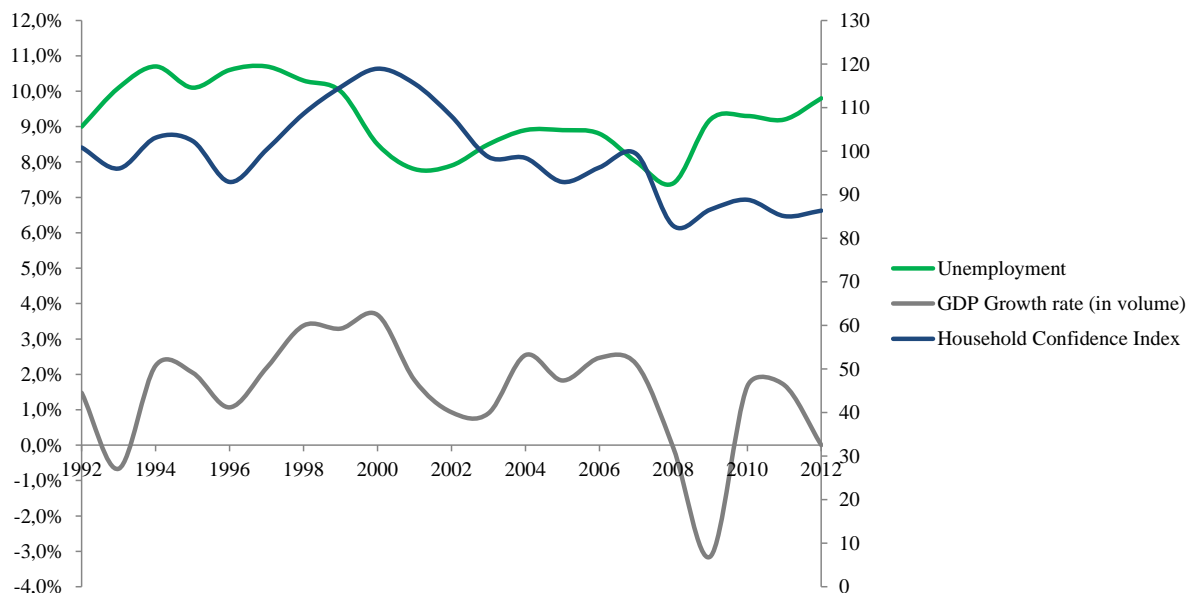
Source: INSEE, retrieved on September 15th 2013

From previous studies published on the topic of cinema attendance in other countries, it´s known that there are variables that have a greater influence on cinema attendance than the socio-economic environment. In order to have a fair image of the impact of crisis on the demand for cinema the model also considered such variables:

-   *Supply in capacity*. It is approximated by the number of screens, retrieved from the database of the CNC.
-   *Supply in variety*. It is the number of movies available, retrieved from the database of the CNC.

- *Average Ticket price*. Publicly available at the CNC. In the model price is deflated at Consumer Price Index (available on the website of INSEE).

  Taking into account Consumer Price Index, real price of cinema tickets has actually decreased, as displayed in Graph 2.

Graph 2: **Evolution of nominal and real prices of one cinema ticket in France**
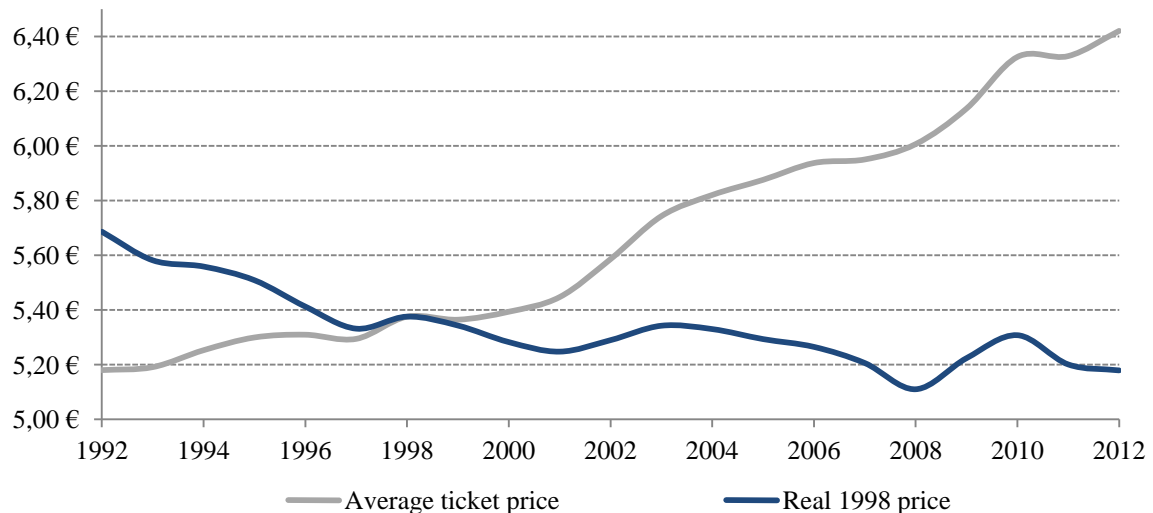
Source: CNC, INSEE (retrieved on November 2nd 2013)

- *Quality of films available.* This variable is hard to quantify, as any source is subjective, but existing knowledge would consider it necessary as it has an impact on the behavior of cinema-goers. Some researchers have approximated quality with film budgets (Kim, 2009). This might not be relevant in the French market where high-budget American films are often less popular than national low-budget comedies (the top 4 of French box-offices since 1945 comprises 3 French comedies (*La Grande Vadrouille*, *Bienvenue chez les Chtis* and *Intouchables*, and one American movie, *Titanic*). Thus, audience ratings available at Allociné.fr, the reference French website for cinema-goers, were retrieved each year for the 50 most successful films (representing 60% of annual tickets sales on average). The annual average grade is used as proxy for quality.

Data Analysis

Regressions between aggregate cinema attendance and the various economic and control variables considered were computed for the sample of years 1992-2012. Regressions of variable Y (here cinema attendance) by supposed explaining variables give an indication on how much variable Y can be predicted and explained by variable X. The study will especially look at the signs of the regression coefficients to see in which sense an explaining variable impacts aggregate cinema attendance, at the R^2 coefficients that give an indication of how much of the variance of the observed variable (cinema attendance) can be explained by the control variables, and controlled by P-values that must be below 0,05 for the regression to be significant.

As it was highlighted in the literature review, consumer sentiment might play a large role, which may not be captured by a regression between the absolute values the Household confidence index. Another way to test whether there is an influence of "crisis" is to test the means and variance of crisis and non-crisis years, by means of ANOVA test. The INSEE defines the mood as pessimistic whenever HCI is below 100, and optimistic whenever it is at least 100. By this measure there were 12 years of "crisis" between 1992 and 2012 and 9 years non-crisis. To have 2 sets of nine years, the three last years (2010, 2011 and 2012) that were pessimistic were taken out of the sample. ANOVA tests between years of crisis and non-crisis were thus always run with these 18 years, 9 non-crisis and 9 crisis. ANOVA allows to test the hypothesis that the two sets have the same average and same variance, so in this case to see whether a given variable behaves differently in times of crisis than in times of non-crisis.

4.3.2. Procedures and Analysis for Question (ii) Is there a Shift in the Categories of Movies most seen during Crisis Periods? Are there Types of Movies that are more resilient than Others or even counter cyclical, and some that are more cyclical?

This question led to two analyses. First movies were discriminated into the 3 main categories defined by Von Rimscha (2012) (feel-good, serious and kinetic) and then regressions between the weight of each category in cinema attendance and the same economic and control variables used for question (i) were computed. In a second time, the evolution of the art-house sub-market is submitted to regression analysis.

Data Collection

Data on box-offices from the database CBO Box-Office, which provides all French box-offices since 1945, were collected. Films were then grouped within 3 categories: feel good (comedies), serious (dramas, documentaries) and kinetic (3D movies, action movies).

These categories were defined by von Rimscha (2012) and from his definition they are appropriated for a study on the effects of consumer confidence and socio-economic variables on cinema attendance:

> *Serious*: "A combination of the drama, documentary, history and biography, and thriller genres. The audience presumably watches this umbrella genre for reflection and intellectual stimulation (cognitive reception mode)."
>
> *Feel-good*: "A combination of the animation, comedies, romances, and musicals genres. The audience presumably watches this umbrella genre for distraction and for cheering up (affective/emotional reception mode)."
>
> *Kinetic*: "A combination of genres that focus on kinetic action and visual attractiveness such as action, adventure, sci-fi, horror, and fantasy. The audience presumably watches this umbrella genre also for distraction, however in a more physical and exciting way (conative reception mode)."

In this study, for each year, the percentage of attendance for one genre is calculated as the number of tickets sold for movies of this genre in the top 50 of most seen films divided by the total number of tickets for films in the top 50. Within our sample of years, top 50 films generally account for roughly 60% of all tickets sold.

Then, according to Böhme & Müller (2011), the art-house segment is very specific and should be distinguished from mainstream cinema attendance. This is why data for this segment were isolated.

Cinema attendance for art-house movies was also available in the database of the CNC. Then, in order to analyze more specifically why the art-house movie segment had evolved differently from the aggregate market, data on the characteristics of the audience of art-house movies were retrieved. These data (age, profession, assiduity of cinema-going) were obtained

from the PubliXiné monthly survey, a survey that is performed twice every month since the 1990s on a representative sample of 800-1000 cinema-goers.

Data Analysis

Linear regressions between the weight of the 3 categories of movies and the economic and control variables presented above were computed.

The same was made for art-house movies attendance. Then, regressions between the weight of art-house in total cinema attendance and the evolution of various characteristics of the cinema audience were computed in order to find what explained the divergent evolution of art-house attendance from aggregate cinema attendance, and to see if this had some relation to the economic environment.

4.3.3. Procedures and Analysis for Question (iii) Do large and smaller Venues perform the same in Times of Crisis?

Cinemas are segmented into larger venues (multiplexes and cinemas with over 10 screens or over 1500 seats) and other venues. As larger cinemas have driven most of the growth in cinema attendance in the 1990s, the objective is to see if they perform better than other cinemas in times of crisis.

The objective is thus to explain how the sales of the two categories evolved during one crisis. The example considered here is the 2008-2012 period corresponding to the subprime crisis and then the sovereign debt crisis. Figure 2 displays the different components of sales growth analyzed in this dissertation.

Figure 2: Components of cinemas sales growth
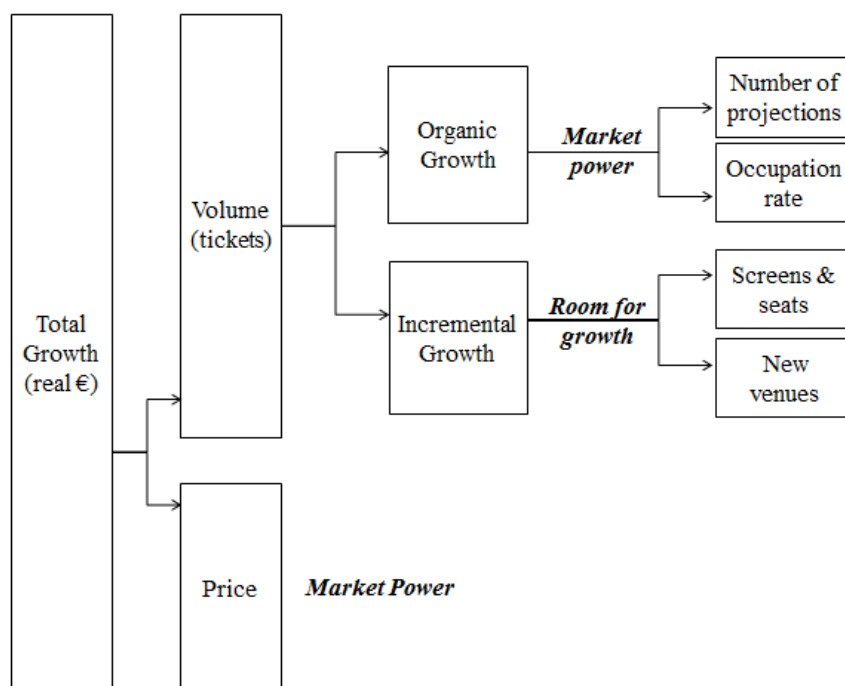
The objective of the analysis here is, from the data of the CNC, to reconstitute how the revenues of larger cinemas and other cinemas evolved in 2008-2012. The analysis will then conclude on the resilience of each sector to the crisis.

4.3.4. Procedures and Analysis for Question (iv) Does the Audience change in Times of Crisis?

The objective here is to test the impact of the economic environment on cinema-going among the different groups of cinema-goers.

Data Collection

Cinema-going can be defined as the product of average attendance rate for cinema-goers by penetration rate. For each category of cinema-goers (defined by age, occupation, location and frequency of cinema-going) the evolution of those metrics was retrieved from the results of the PubliXiné survey.

Data Analysis

 Linear regressions between those metrics and the economic and control variables were then computed.

5. Results

This part provides answers to the four questions raised by this dissertation, based on the tests that are described in the methodology.

5.1. Aggregate Cinema Attendance

This first part answers the first question of this dissertation:

(i) Is there a clear relationship between the level of aggregate cinema attendance in France and the economic environment?

Linear regressions between the sample variable (yearly aggregate cinema attendance) and test and control variables yielded the results displayed in Table 3.

Table 3: **Linear regressions of variables with cinema attendance at aggregate level**

	Cinema attendance			
	X1 coefficient	R^2	R^2 adjusted	P-value
Unemployment	-21,044	0,2619	0,2231	0,018
GDP growth	-3,795	0,0203	-0,0312	0,538
Household Confidence Index	-0,012	0,0867	0,0386	0,195
Quality	0,701	0,1225	0,0764	0,120
Real ticket price	-2,440	0,7291	0,7149	8,50E-07
Number of screens	8,72E-04	0,8769	0,8704	4,37E-10
Number of movies	4,23E-04	0,5714	0,5488	7,39E-05

These results are rather consistent with the studies already performed abroad that were presented in the literature review: there is a good relation with a very significant P-value between supply in terms of number of screens and attendance, and a significant relation for the number of movies and real ticket price as well.

So supply in terms of equipment seems to have played a major role in the rebirth of cinema attendance in France, which is consistent with the argument of the CNC that the emergence of multiplexes changed consumption habits in the industry.

Regarding economic data, results are not very compelling except for a little influence of unemployment on cinema attendance (with a negative factor). However, it is interesting to observe that for the three economic variables the signs of the regression indicate that there could be a negative relationship between symptoms of crisis and cinema attendance.

Table 4 displays the results of ANOVA test for cinema attendance between the two sets of 9 years (9 non-crisis years and 9 crisis- years). Though the Fischer test is significant, P-value is too high above the acceptable limit of 5% and the null hypothesis that average attendance in times of crisis and in times of non-crisis differ.

Table 4: **ANOVA test: cinema attendance in crisis and non-crisis years**

Groups	Sample	Sum	Mean	Variance
Cinema attendance years HCI<100	9	25,92007975	2,880008861	0,11324318
Cinema attendance years HCI>100	9	23,63684176	2,626315751	0,16755026
	F	P-Value	F Critical	
	2,06287493	0,170189643	4,493998478	

Cinema thus seems to have no relation to the economic cycles. This is also the conclusion of the PubliXiné monthly survey. In this survey, respondents (all of them are cinema-goers) are asked since 2007 what there other cultural activities are: for each activity, respondents answer "yes" if they practiced it at least once in the past year and "no" otherwise. The results are displayed in Graph 18: all activities are declining, although in the same period cinema attendance increased from 2.89 to 3.22 tickets per person and per year.

Cinema is a resilient industry in periods of crisis.

Graph 18: **Other cultural activities of cinema goers (practiced at least once in the previous year)**
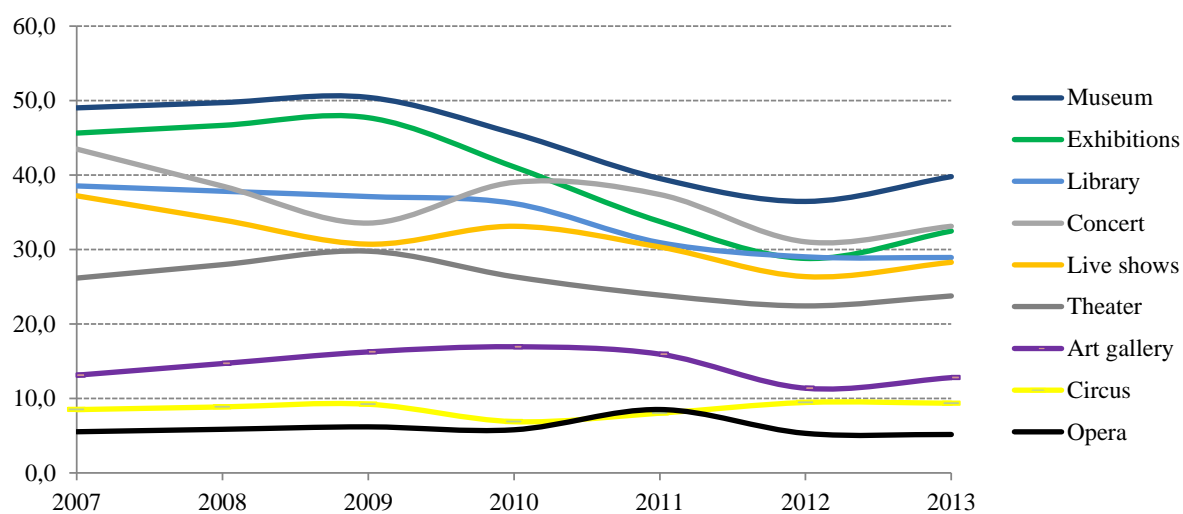
5.2. Results per Categories of Movies seen

This part of the analysis answers the second question of this dissertation:

(ii) Is there a shift in the categories of movies most seen during crisis periods? Are there types of movies that are more resilient than others or even counter cyclical, and some that are more cyclical?

It first looks at the evolution of the three main categories of movies and then at the art-house segment.

Aggregate Market

As shown in Graph 19, the split between movie categories has intensified within the past 20 years. Kinetic movies now account for over 60% of tickets sold. The change especially took place in the 1990s.

***Graph 19*: Tickets sold per film genres, 1992-2012 (top 50 films)**

Legend:
- ■ %Kinetic movies seen
- ■ %Feel-good seen
- ■ %Serious movies seen
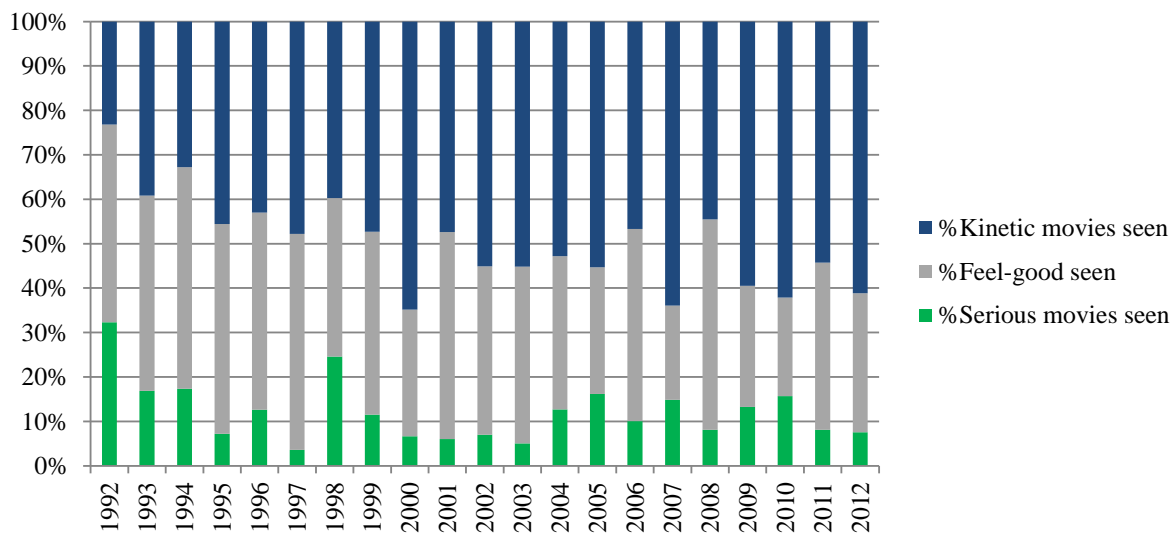
Source: CBO Box-Office, author's analysis

Regressions between the weight of each category in the total number of tickets sold and economic variables (Table 5) are not significant. It rather seems that there is a relation between the increase in cinema attendance and the surge in attendance for kinetic movies: kinetic movies are the ones that benefited from the increase in cinema attendance.

The evolution of supply by categories could not be analyzed due to lack of data but von Rimscha (2012) found out that kinetic movies generally attracted much more viewers than other categories. As a result, the film industry might have shifted its production to produce more kinetic movies which seem to be less risky.

Table 5: **Linear regressions of variables with weight of movie categories**

	% serious movies seen			
	X1 coefficient	R^2	R^2 adjusted	P-value
Cinema attendance	-0,067	0,1589	0,1147	0,073
Unemployment	1,486	0,0465	-0,0036	0,348
GDP growth	0,208	0,0022	-0,0503	0,841
Household Confidence Index	-8,80E-05	0,0002	-0,0525	0,955

	% feel-good movies seen			
	X1 coefficient	R^2	R^2 adjusted	P-value
Cinema attendance	-0,115	0,2902	0,2529	0,012
Unemployment	2,393	0,0739	0,0252	0,233
GDP growth	0,323	0,0032	-0,0492	0,807
Household Confidence Index	1,44E-03	0,0278	-0,0233	0,470

	% kinetic movies seen			
	X1 coefficient	R^2	R^2 adjusted	P-value
Cinema attendance	0,182	0,4991	0,4727	3,44E-04
Unemployment	-3,879	0,1340	0,0884	0,103
GDP growth	-0,531	0,0060	-0,0463	0,739
Household Confidence Index	-1,35E-03	0,0169	-0,0348	0,574

Art-House Movies Segment

There is no relation between art-house attendance and economic variables (Table 6). Low R^2 with total aggregate attendance however confirms the argument of Böhme & Müller (2011) that both should be studied separately.

Table 6: **Linear regressions of economic variables with Art-house movies attendance**

	Art-house attendance			
	X1 coefficient	R^2	R^2 adjusted	P-value
Aggregate Attendance	0,111	0,1973	0,1550	0,044
Number of films	5,88E-05	0,1160	0,0695	0,131
Unemployment	-1,564	0,0230	-0,0284	0,512
GDP growth	-1,311	0,0386	-0,0120	0,394
Household Confidence Index	-1,13E-03	0,0125	-0,0395	0,630

Over the period, it can be observed that art-house attendance actually increased, from roughly 0.6 to 0.8 tickets per person per year. However, this increase was not as strong as the increase for the whole industry. Indeed, tickets for art-house movies as a percentage of the total number of tickets sold decreased, as evidenced in Graph 20. The analysis will attempt to investigate why the art-house segment lost ground to the mainstream segment.

Graph 20: **Art-house attendance and art-house tickets sold as percentage of total number of tickets sold (1992-2012)**
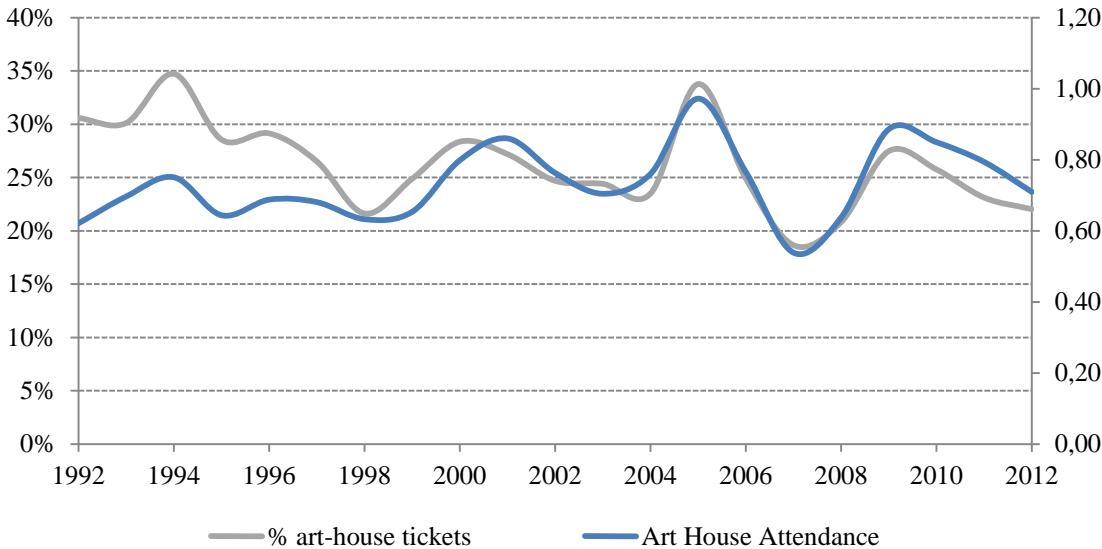
Source: CNC, 2013, author's analysis

As the economic environment does not explain the change, audience and supply could be explaining variables. Regarding supply, there is only data on the number of art-house films, which actually increased more quickly than the total number of films (CNC, 2013), it would be interesting to test for quality too, for which there is not enough data. Regarding audience, some results of the PubliXiné monthly survey of cinema-goers displayed in Table 7 show that the audience of art-house movies and that of mainstream movies are different in several regards. Older people, more affluent and educated people, Parisians and assiduous cinema-goers are over-represented in the audience of art-house movies.

Table 7: **Characteristics of art-house movies audience**

2012, % of audience		Art-house	Mainstream
Gender	Males	47	50
	Females	53	50
Age	3-14	7	13
	15-24	19	33
	25-49	38	37
	Over 50	36	17
Profession	+	33	24
	-	21	27
	Inactives	46	49
Location	Paris area	34	26
	Others	66	74
Cinema habits	Assiduous	37	23
	Regular	47	50
	Occasional	16	27

Source: Author's analysis, PubliXiné monthly survey

Regressions between the proportion of art-house tickets and the proportion of each of these sociological groups within the total French population were thus computed. Results in Table 8 are not compelling, especially as signs are sometimes not coherent with what could be expected (age, upper classes), except for location. It seems that the decreasing proportion of art-house tickets sold can be partly explained by the fact that most of the growth in cinema attendance has come from regions outside Paris. Indeed, the share of tickets sold in Paris has decreased by 10% in 1992-2012 while the share of art-house in the industry decreased by 20% over the same period.

Table 8: **Linear regressions of audience variables with Art-house movies attendance**

	Art-house as % of total tickets sold			
	X1 coefficient	R^2	R^2 adjusted	P-value
% of assiduous movie-goers	1,462	0,0360	-0,0176	0,423
% of tickets sold in Paris area	1,703	0,4675	0,4379	8,87E-04
% of tickets sold in large cinemas	-0,138	0,0528	-0,0104	0,375
% upper classes in French population	-0,012	0,2077	0,1637	0,043
% over 50 years old in French population	-0,855	0,3056	0,2670	0,011

Source: PubliXiné survey, CNC, 2013, author's analysis

Art-house attendance is thus not linked to the economy, and it is not a high-growth segment in the movie industry in France.

5.3. Cinemas and Equipment

This part of the analysis provides an answer to the third question:

(iii) Do large and smaller venues perform the same in times of crisis?

As explained in the literature review, most of the growth in cinema attendance in the 1990s was the result of openings of new large venues, especially multiplexes. It was also shown that during these past 20 years, large cinemas were the only ones that created value in the sector.

Size is the most differentiating factor for analyzing the performance of cinemas in France.

Graphs 21 and 22 show how revenues of both categories of cinemas (large cinemas with 1,500 seats and above and smaller cinemas) evolved during the period 2008-2012 and clearly show that larger cinemas are resilient and even counter-cyclical, while the decline of smaller cinemas pursued during the crisis.

Graph 21: **Revenues of large cinemas (1,500 seats and above) in real 2008 €m**
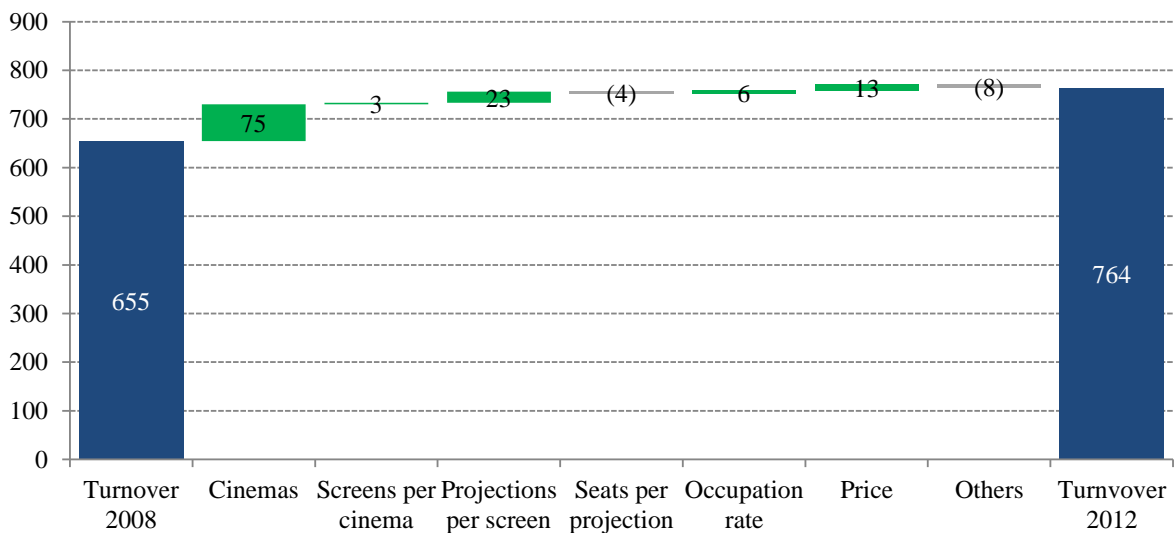
Source: Author's analysis from CNC database, 2013

Graph 22: **Revenues of other cinemas (less than 1,500 seats) in real 2008 €m**
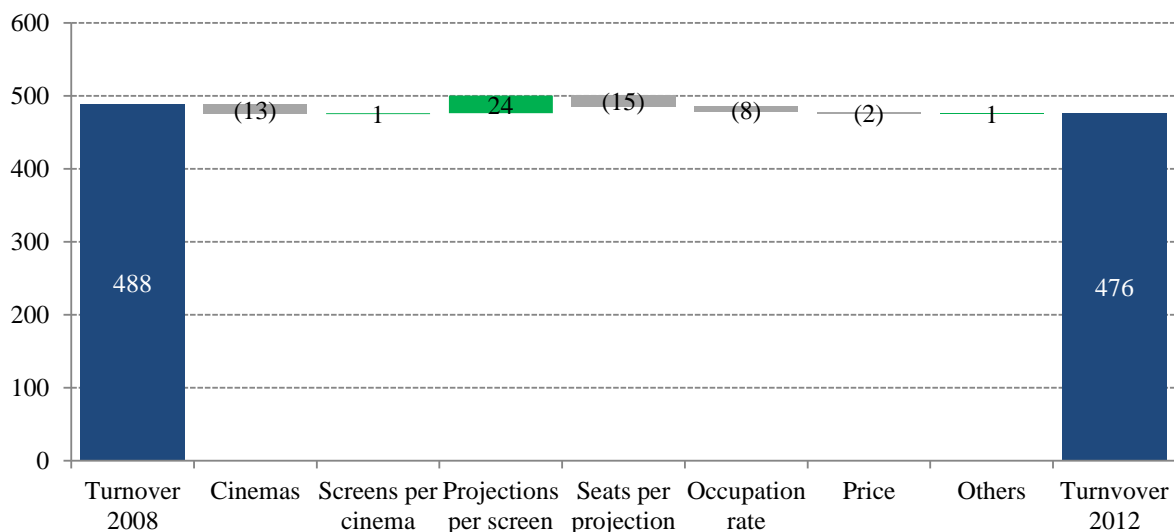
Source: Author's analysis from CNC database, 2013

Excluding closures of cinemas, revenues of cinemas with less than 1,500 seats were exactly the same in 2008 and in 2012, in line with French GDP. Smaller cinemas did not make more money during the crisis but some of them had to close.

Larger cinemas, on the contrary, increased their revenues per cinema, thanks to increase in supply (more projections on a like-for-like basis of cinemas and screens) and managed to increase their prices, which smaller cinemas could not do. Also, the sector was attractive enough for new cinemas to open and generate additional revenues.

Larger cinemas behave well in times of crisis: they manage to absorb new demand. It was shown previously that cinema demand especially reacts to higher supply (in terms of capacity) and lower real prices. Large cinemas have managed to generate all the increase in supply in the industry and thus benefit from the corresponding increase in demand, while increasing real prices at the same time.

However, when comparing Graph 21 with Graph 10 presented in the literature review, it is striking to see that most of the growth in the period 1996-2012 seems to have taken place before 2008. It looks like growth is slowing down and revenues of the segment are reaching a plateau. Previous analyses showed that this was not linked to the crisis as economic variables

do not explain cinema attendance. It rather looks like large cinemas are reaching a plateau. In 2012, there were already 165 of these jumbo cinemas in France. They are now spread all over the territory, and there may not be many spots left for cinemas which have on average 11 screens. They had also activated different means of increasing revenues: the number of projections per screen in large cinemas reached 5 per day on average in 2012 (up from 4 in 1996), against 2.7 in smaller cinemas on average, which seems very high. As the result of these increasing capacities, the occupation rate of seats had decreased from 20% to 16% in cinemas with 1,500 seats and above. This could be a field for further research.

Large cinemas are the more resilient and successful cinemas in France but the future growth of the segment seems to be limited as all the levers of supply seems to be activated by cinemas with 1,500 seats and above.

5.4. Movie-Goers

This part of the analysis provides an answer to the last question of this study:

(iv) Does the audience change in times of crisis?

There are two dimensions to identify how the behavior of the various audiences of cinemas have changed: the penetration rate of cinema (the proportion of people who have been to the cinema at least once within the previous year) and the attendance rate (the average number of times one person who has been to the cinema at least once in the previous year goes to the cinema within one year) within each segment of cinema-goers.

This part of the analysis studies whether the economic environment has an influence on those metrics for several categories of cinema-goers

Penetration Rate of Cinemas

Table 9: **Regressions of penetration rates with test and control variables**

	Unemployment			GDP growth			Household Confidence			Number of screens			Real ticket price		
	X1	R^2	P	X1	R^2	P	X1	R^2	P	X1	R^2	P	X1	R^2	P
% of assiduous movie-goers	0,09	0,03	0,48	0,12	0,12	0,14	1,94E-04	0,15	0,10	-1,77E-06	0,02	0,56	0,01	0,06	0,30
Penetration rate Professional +	-1,66	0,18	0,06	-0,42	0,03	0,48	-8,83E-04	0,05	0,32	7,22E-05	0,65	9,71E-06	-0,22	0,65	1,16E-05
Penetration rate Professional -	-1,17	0,05	0,34	-0,20	0,00	0,80	-1,77E-03	0,12	0,13	9,66E-05	0,64	1,36E-05	-0,31	0,68	4,50E-06
Penetration rate students	-0,30	0,06	0,29	-0,04	0,00	0,84	1,14E-04	0,01	0,69	6,19E-07	0,00	0,92	0,02	0,07	0,24
Penetration rate Paris area	0,71	0,07	0,26	0,59	0,11	0,15	9,02E-04	0,11	0,14	1,24E-05	0,04	0,39	-0,05	0,07	0,25
Penetration rate large cities (>100 000)	-1,55	0,11	0,13	-0,25	0,01	0,72	-1,14E-03	0,06	0,27	8,15E-05	0,61	2,65E-05	-0,26	0,67	5,70E-06
Penetration rate other locations	-1,77	0,06	0,28	-0,78	0,03	0,46	-3,02E-03	0,19	0,05	1,26E-04	0,61	2,58E-05	-0,40	0,66	7,02E-06

Source: PubliXiné, CNC, 2013, author's analysis

Unsurprisingly, economic variables have little influence on the penetration rate of different categories. There are some strong effects of supply (as number of screens) and ticket prices, in line with previous results: the more screens and the cheaper the tickets the more people become cinema-goers.

Attendance Levels

Results are similar for attendance levels. It was already found that at an aggregate level there was a weak relation between the state of the economy and cinema attendance. It is now clear that even when we consider sub-groups of cinema-goers, the state of the economy has little impact on how often they go to cinema.

Table 10: **Regressions of attendance levels with test and control variables**

	Unemployment			GDP growth			Household Confidence			Number of screens			Real ticket price		
	X1	R^2	P	X1	R^2	P	X1	R^2	P	X1	R^2	P	X1	R^2	P
Attendance Professional +	-27,98	0,17	0,07	7,13	0,03	0,49	1,39E-02	0,045	0,371	7,54E-04	0,211	0,042	-2,21	0,156	0,08507
Attendance Professional -	-28,43	0,19	0,06	-9,76	0,05	0,33	-2,39E-02	0,139	0,105	1,22E-03	0,583	8,93E-05	-3,75	0,471	8,34E-04
Attendance rate students	-40,15	0,46	######	-2,48	0,00	0,79	5,15E-03	0,008	0,709	1,00E-03	0,479	7,19E-04	-2,9	0,344	6,54E-03
Attendance Paris area	-51,62	0,44	######	-15,53	0,10	0,18	-2,52E-02	0,111	0,152	1,62E-03	0,729	1,69E-06	-4,68	0,523	3,13E-04
Attendance large cities (>100 000)	-37,00	0,30	######	5,46	0,02	0,60	3,44E-03	0,003	0,828	1,27E-03	0,587	8,20E-05	-3,73	0,434	1,57E-03
Attendance other locations	-30,55	0,41	######	-7,45	0,06	0,31	-6,89E-03	0,022	0,537	8,98E-04	0,588	7,95E-05	-2,74	0,467	8,99E-04

Source: PubliXiné, CNC, 2013, author's analysis

6. Conclusions

The objective of this dissertation was to test whether the state of the economy had an impact on various aspects of cinema attendance, based on the example of France between 1992 and 2012. Demonstrations were based on regressions, ANOVA and more qualitative statistics from the CNC. To evaluate the impact of the economy on cinema attendance, the different themes that were analyzed were aggregate attendance, types of movies, types of venues and types of consumers. The four questions that were raised on these four themes were answered:

(i) Is there a clear relationship between the level of aggregate cinema attendance in France and the economic environment?

In line with the various studies already performed in other developed countries, this dissertation finds no compelling influence of the economy on the consumption of cinema in France in the past 20 years. Cinema attendance is rather influenced by supply (in terms of venues' capacities) and prices. There is no evidence that cinema attendance evolves differently in times of crisis than in times on non-crisis

(ii) Is there a shift in the categories of movies most seen during crisis periods? Are there types of movies that are more resilient than others or even counter cyclical, and some that are more cyclical?

Regressions were not more significant when it comes to the types of movies seen, which does not allow us to conclude that cinema-goers change their habits of consumption in times of crisis. The art-house market seems to be very resilient and uncorrelated to the state of the economy, but slightly correlated to supply in the Paris area.

(iii) Do large and smaller venues perform the same in times of crisis?

Regarding venues, it can be concluded that large cinemas have continued to grow during the depression that began in 2008 while other cinemas have either closed or experienced stagnating revenues.

(iv) Does the audience change during times of crisis?

The state of the economy does not have any influence on the consumption habits of various sociological groups. More or less affluent people, urban or rural people, active or inactive French do not change their habits of consumption of cinema when the economic environment changes, their behavior rather depends on the evolution of supply and prices.

This work has demonstrated that cinema is not a cyclical industry in France, it is even more resilient than other cultural activities. Managers working in the cinema industry in France cannot thus consider the economy as a driver of their business. However, within the industry taken as a whole, large cinemas are performing much better and benefit from higher pricing power. This work has also shown that the economy did not have significant impact on the behavior of different groups of cinema-goers in France.

But as this study was built on secondary data at aggregate level, more qualitative and precise research based on survey would be helpful to explain why cinema attendance is so resilient among groups such as lower classes or students in times of crisis. The success of large venues even in times of crisis could also be further researched, especially to check whether there are still opportunities for new large cinemas to open in France or whether most of the growth potential based on the increase in supply has already been used up. Regarding the topic of cinema in France, which is not very much studied in the existing literature, there is room for further research on the reasons explaining why consumption of domestic films is especially high in France.

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