United Nations
Educational, Scientific and
Cultural Organization

UNESCO
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STATISTICS

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# MEASURING THE DIVERSITY OF CULTURAL EXPRESSIONS:
## Applying the Stirling Model of Diversity in Culture

# MEASURING THE DIVERSITY OF CULTURAL EXPRESSIONS: APPLYING THE STIRLING MODEL OF DIVERSITY IN CULTURE

## Two case studies

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# Foreword

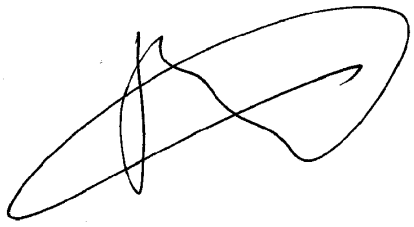
The adoption of the 2005 UNESCO Convention on the Promotion and the Protection of the Diversity of Cultural Expressions has further raised the need for relevant statistics in order for countries to be able to measure its impact. In particular, Article 9 – *Information sharing and transparency* and Article 19 – *Exchange, analysis and dissemination of information* are the most relevant parts of the convention from a statistical perspective.

In 2007 as part of its work in measuring cultural diversity, the UNESCO Institute for Statistics (UIS), in collaboration with the UNESCO Culture Sector, established the Expert Group on the Statistical Measurement of the Diversity of Cultural Expressions whose role was to begin exploratory work in this area. In 2008, it was decided to evaluate the feasibility of applying the Stirling Model of Diversity to cultural studies. Thus, two studies were commissioned in 2009, the results of which form the content of this report.

The first study uses data from the 2007 UIS Survey on Feature Film Statistics. The second study examines the content of private and public television channels in several countries. Both studies acknowledge the utility of the Stirling model of diversity to cultural studies and the measurement of the diversity of cultural expressions, while confirming the need for adjustments to the methodology.

It is hoped that the findings of these studies lead to further discussion and debate, in addition to advancing the science of measuring the diversity of cultural expressions.

Sincerely,



Hendrik van der Pol
Director
UNESCO Institute for Statistics

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# STUDY 1

# APPLICATION OF THE STIRLING MODEL IN ASSESSING DIVERSITY USING UNESCO INSTITUTE FOR STATISTICS (UIS) CINEMA DATA

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# Introduction

Cinema is among one of the best-documented cultural industries. The significantly lower number of new films released each year compared to the number of new books or songs released makes it possible to collect data on the level of film production in many countries. Many countries support their cinema industry and, as such, provide diverse statistics on this activity. Also, the UNESCO Institute for Statistics (UIS) database is rich and allows for a series of data analysis. This report tests and discusses the methodology presented by Andrew Stirling in a series of papers (Stirling, 2007 among others) and makes suggestions to improve on Stirling's methodology as it applies to measuring cultural diversity using cinema statistics collected by the UIS.

The cinema data used to test the Stirling model were collected for the years 2005 and 2006 using the UIS film questionnaire. The data collection covered 208 countries – but data may be lacking for certain countries or certain years. Among the criteria selected in this report, only one criterion had responses from as many as 75 countries while the response rate was even lower for the other criteria. The response rate was highest for countries in Europe and North America than for those in Africa, Latin America and the Pacific (*see Appendix, Tables A1-A3*) (UNESCO-UIS, 2009). The complete list of countries that responded to the film questionnaire is provided in this report (*see Section 5.3*).

A strong analysis requires a proper definition of diversity and a reliable methodology in order to correctly interpret the series of data provided in the database. Section 1 reviews the definition, features and stakes of cultural diversity. Section 2 presents the initial Stirling Model. Section 3 discusses the relevance of the model as it applies to the understanding and assessment of cultural diversity, and then introduces new elements to improve the ability of the model to correctly estimate the different dimensions of cultural diversity. Section 4 presents the UIS cinema data and the empirical aspects of the methodology. Section 5 emphasizes the empirical issues on cultural diversity in the film industry by utilizing the panel data model. Section 6 discusses the results and introduces suggestions for further investigations on using the Stirling model to assess cultural diversity. Finally, concluding remarks are provided in Section 7.

# 1. Cultural Diversity

## 1.1 Is the concept of diversity poorly defined?

Diversity is at the core of cultural policies even though the concept remains rather unclear. According to many academics, diversity is poorly defined, "analytically neglected" and in need of "systematic or robust understandings" (Stirling, 2007). Thus far, official texts and academic analysis have put forth some very broad meanings, including "the ethnically-marked cultural differences associated with the international movement of peoples and, within national territories, the claims to difference associated with the protracted struggles of *in situ* minorities to maintain their identity and specificity in the face of the homogenizing force of national cultures" (Benett, 2001).

As the quotation illustrates, diversity is a polysemic notion that combines many aspects. Among other things, the concept includes languages, high and popular culture, and ways of life. It is also viewed as a means of economic development and as an element to consolidate democracy (Atkinson and Bernier, 2000). The Convention on the Protection and Promotion of the Diversity of Cultural Expressions refers to diversity as "the manifold ways in which the cultures of groups and societies find expression". It was adopted by the 33rd General Conference of UNESCO in October 2005 and took effect on 18 March 2007.

So, how can we understand diversity in the context of cinema activities? Diversity in this case relies on many different factors – for example, the ability of producers to work with film-makers and actors from different origins, the number of films released or on the level of standardization of goods and more. Cultural diversity can be captured through two complementary dimensions. The first deals with the "human" criteria (i.e. criteria that apply to individuals), such as the genre or the origin of film-makers. The second dimension refers to more "material" criteria (i.e. criteria that apply to products, such as the nationality of a film). Of course, "human" and "material" criteria may be linked. The nationality of a movie depends on the original country where the film is produced but it may also have an influence on the nationality of the film-maker. More generally speaking, while some aspects are easily quantifiable, others are definitely qualitative.

## 1.2 Defining diversity – What is at stake?

Why is it important to have a clear definition of diversity? An available definition and measure of diversity can lead to an appropriate definition of the tools needed to improve diversity. The following are two examples of the greater policy implications of having a proper definition of cultural diversity.

*i) Defining a policy for a sustainable level of culture and creation*

This is a simple example to illustrate the policy implications of having a strong definition, measure, and thus, strong determinants of diversity. It is hypothesized that the diversity of cultural products implies diversity in the industrial structures and in the governance of companies. This can be seen in the TV sector in particular (Steiner, 1952). Many studies show that oligopolies with a competitive fringe dominate in cultural industries. This structure is well-adapted to the uncertainty that characterizes the production of cultural goods and services. The firms on the fringe develop a propensity to innovate thanks to their proximity to creators while the firms in the core regularly try to attract the most creative artists and/or to purchase the most promising small labels and firms.

If we adopt this point of view, we can assert that a country that wishes to support diversity is interested in subsidizing the creation of small firms – directly or indirectly (e.g. through tax cuts, etc.).

*ii) Accounting for national and local culture*

The policies in favour of diversity may be paradoxical. On the one hand, one way to safeguard local cultures that are threatened by the effects of globalization is through protectionism (e.g. quotas on TV programs and cinema screens to support local production). Yet, two major disadvantages may emerge with this approach. First, there is a risk of a decrease in quality resulting from a lower level of competition. Second, protectionism represents a barrier to foreign products, which could work to *decrease* cultural diversity as an end result.

For example, quotas on European TV have not only limited the importance of American TV series but have probably raised a strong barrier to productions from Brazil, India, Africa and other countries outside of Europe. In France, two kinds of measures have been developed to support cinema:

- Automatic subsidies are allocated to producers who have already made a film. Current subsidies for a new film depend on the number of admissions reached by the same producer's previous film. The higher the success of the previous film, the higher the subsidies allocated to the new one. This mechanism leads to a growth in the number of new films. Its incidences on cultural diversity are ambivalent. On the one hand, it promotes diversity by increasing the number of films. On the other, there is a correlation between success and subsidies that may end up not rewarding innovation and risk. As a result, product standardization may increase and the level of diversity may in fact decrease.

- Regulators in France seek to encourage innovation in cultural industries by providing interest-free loans. The loans are to be repaid only once a film turns a profit (*avance sur recettes*) and all films selected by commissions based on their quality are eligible, regardless of rank (i.e. first film or not). Thus, subsidies encourage creativity, support innovation and discourage a standardization of films.

In this case, a reliable assessment of cultural diversity is essential in order to evaluate the efficiency of the measures that were adopted. Here, cultural diversity can be measured using two complementary points of view: the number of films produced (especially films from new film-makers), and the genre and quality of these films. Thus, it is possible to adopt qualitative and/or quantitative criteria to measure the efficiency of a cultural policy in promoting diversity. Nevertheless, the cultural policy issues that need to be addressed and how they are interpreted may vary deeply, depending on the respective criteria chosen.

# 2. The Stirling model

## 2.1 The initial inspiration

In the field of ecology, Weitzman (1992, 1993) voices the need for a theoretical framework in order to study the challenges in the preservation of biodiversity and to build serious grounds to justify policies to ensure the survival of endangered species. More generally speaking, ecology pays close attention to the question of diversity – Odum (1953) observes this tradition in early publications and bears testimony to this tendency.

Ecology is not the only domain where the concept of diversity plays a central role. Stirling (2007) remarks that that the term "arises repeatedly in the physical (Shevchenko *et al.*, 2006), life (Maynard Smith, 1989) and information sciences (Kauffman, 1993), as well as in social (Grabher and Stark, 1997), economic (Geroski, 1989) and policy (Gillett, 2003) studies. In particular, diversity is a prominent theme in science and technology policy (Nowotny *et al.,* 2001)."

## 2.2 The model: Three dimensions of diversity

Probably inspired by Rao (1982), Stirling defines diversity as a combination of three basic properties – variety, balance and disparity. These dimensions are not necessarily linked and do not evolve in the same way. Thus, it is impossible to interpret one of those dimensions without taking the other two into account.

*i) Variety*

Variety is the easiest dimension to understand and evaluate. It is "the number of categories into which system elements is apportioned" (Stirling, 2007). Stirling refers to different fields in which variety plays a central role and observes that it is highlighted by environmental economists through species-number indices. In the same way, the number of firms or products is a signal of variety in management and economics.

All else being equal, the greater the variety, the greater the diversity. When this principle is applied to the movie industry, Stirling's model leads one to consider that cultural diversity increases, for example, in direct proportion to the number of films. This criterion can be considered as a measure of variety. Variety can also reflect the number of different origins of films or the languages used in them.

*ii) Balance*

A common mistake that is still present in many studies and arguments is to associate diversity with the sheer multiplicity of types (variety), overlooking the fact that their relative frequencies are also crucial to defining balance (i.e. the amount of diversity).

Balance refers to the pattern in the distribution of the quantity of a specific element across the relevant categories. As Stirling points out, "balance is a function of the pattern of apportionment of elements across categories." Balance is perfect when each category is equally represented in the population.

Applied to the movie industry, Stirling's model maintains that balance refers to the extent to which different origins or languages are equally well represented. Balance is usually captured by the Shannon-Wiener Index[1] (1948) or the Herfindhal-Hirschmann Index (HHI)[2]. In this report, the HHI will be used for two reasons. First, the HHI is a more widely used index and second, it affords the advantage of describing the balance quite correctly without having to focus too heavily on variety, making the interpretation of the level and evolution of the index easier[3].

The HHI is traditionally used to measure industrial concentration in a market. This indicator is defined as follows:

$$HHI = \Sigma s_i^2 \text{ where } s_i \text{ is the market share of each statistical individual}$$

The higher the value of the index, the weaker the balance. Of course, the HHI not only depends on the balance but also on the number of individuals. When two firms have equal market shares in a relevant market, the HHI is higher than when three firms have equal shares in the same market. In this report, it is considered that all else being equal, the better the balance, the greater the diversity.

*iii) Disparity*

Disparity goes beyond these measurement schemes by accounting for the nature of the categorization. Disparity is defined as the degree of dissimilarity between any given pair of objects or types. It "refers to the manner and degree in which the elements may be distinguished" (Runnegar 1987 in Stirling 2007). All else being equal, the more disparate the represented elements are, the greater the diversity.

Applied to the movie industry, Stirling's model interprets disparity as the extent to which films display marked specificities that clearly distinguish them from one another.

*iv) The Stirling Index*

Stirling (1999) proposed an index that takes into account the three dimensions of diversity listed above (i.e. variety, balance, disparity). Stirling's proposal introduces a new element to the existing set of basic constituents, which considers objects to be uniquely and intrinsically distinguishable with no differences in their (relative) *proximities*.

---

1 Supposing a suitably characterized context is given, basic elements for the construction of the index are a well-defined set of objects, outcomes or types, say 1, 2, …, n, and an associated frequency (or probability) distribution $p_i$ , $1 \leq i \leq n$, $\sum_i p_i = 1$. The Shannon Index is:

$$H_{SW} = - \sum_i p_i \ln p_i ,$$

where, though in the theoretical developments, the logs are assumed to be neperian, in practical applications they often chosen base 2.

2 For a survey of the different indexes available, see Patil and Taillie (1982) as well as Stirling 2007.

3 For more details on the comparison between the Shannon-Wiener Index and the HHI, see Benhamou and Peltier (2008).

He assumes the existence of a distance function $d_{ij}$ that is well-defined for all pairs (i,j). The implicit influence of Lancaster's (1966) early ideas – pioneered by Gorman (1953, 1956 and 1961) – can be seen here to incorporate quality in consumer theory, where products (i.e. types) are defined by transformations of an original attribute's space[4]. In this way, a Euclidean distance can be naturally computed between products.

In the light of these assumptions, Stirling's proposal is:

$$H_{St} = \sum_{i,j} d_{ij}\, p_i\, p_j \quad .$$

Distances between pairs of elements represent their mutual disparity ($d_{ij}$). Variety and balance can be captured by weighting distances by the product of the proportional importance in the system of each element in the pair ($p_i\, p_j$).

[4] As previously established, purely economic approaches to diversity can differ. Rosen (2004), for instance, gives an example of another independent line albeit based on standard ideas on product differentiation and imperfect competition.

# 3. Enriching Stirling's approach

## 3.1 Limits to the analogy of environmental economics

Diversity is crucial to the environment and sustaining ecological equilibrium. In ecology, scientists maintain that an unbalanced ecosystem naturally leads to the disappearance of the less-represented species. This hypothesis is relatively weak when applied to culture. For instance, in the book industry, if poetry books are not published in as great a volume as novels or documentary books, this does not signify that poetry books have no future. Moreover, if all publishers decided to reach an almost perfect balance between all these genres of books, the market would face an overproduction of poetry books. The same outcome applies to the cinema industry as some films have a narrow viewership that would not justify a larger scale of production and presence in theatres. Although more copies of a film may give rise to a larger attendance rate, the limits of this growth would probably become apparent rapidly.

In the field of culture, the dynamics of the circulation of information and prescriptions are specific. Sir Alan Bowness (1989), a former Director of the Tate Gallery, studied the rise of success of four schools of English painting. In each of the four cases, a clear succession of different steps of recognition was seen, involving the professionals, the most serious critics, the collectors and the public at large. In the same way, Boudon (1984) describes the three markets linked to the intellectual life: professional certification of specialized audiences, semi-specialized large public and media. For films, the whole production process is not naturally adapted to a large public. It may be paradoxically less profitable and a film could risk becoming obsolete if the number of titles or copies is too large in proportion to their observed and potential public. In cinema, even though blockbusters attract the widest segment of the audience, not all films can be considered potential blockbusters. Although blockbusters leave fewer opportunities for other types of movies to gain an audience, some movies are better adapted to narrow audiences. This is always a necessary risk (i.e. smaller audiences) for innovative films that prepare more ambitious products.

## 3.2 Improvement to the initial model

*i) Taking account of demand*

The Stirling model focuses on the production side only, which is probably due to the heritage of ecological reasoning. However, in the field of culture, a high level of diversity supplied cannot be considered an objective per se – it has to correlate to a high level of diversity consumed. This means that production should be "correctly" distributed. Such an objective requires an industrial organization that creates the appropriate means for consumers to access the diversity of goods and services. This highlights the distinction between diversity produced and diversity distributed.

In addition, Van der Wurff and Van Cuilenburg (2004) make a distinction between open diversity and reflective diversity. Open diversity corresponds to the concept of supplied diversity. Reflective diversity measures the degree of response of supply to demand. The postulate underlying reflective diversity is that the diversity supplied should reflect the diversity demanded. However, in the cultural industries, it is rational to supply a greater level of diversity than the level that will ultimately be consumed. As Caves (2000) points out, faced with uncertainty about the future success of any given product (i.e. the "nobody knows" property of cultural products), it is rational to "overproduce" with the aim of maximizing the chances of success. In the same way, Cowen (2002) refers to reflective diversity using the term "operative or practical diversity".

Through this concept, he defines the ability to benefit from the diversity supplied in spite of the possible obstacles that prevent some individuals from accessing the "menu of choice".

Adopting a similar framework for the Stirling model, the distinction between the diversity produced, the diversity distributed and the diversity consumed can be introduced. One can then analyse the extent to which the diversity produced is distributed and to what extent economic agents create conditions for diversity to be consumed.

*ii) From the Stirling Index to the $H_{bfp}$ Index*

The Stirling Index considers distances between each pair of elements. It does not introduce the distance between each element and one focal element that could play the role of a referent[5]. This approach may be relevant in order to measure diversity in some specific contexts when the different types or elements are considered *equivalent*.

In contrast, many economic problems require the introduction of a referent. For example, the level of diversity resulting from the introduction of new technologies must take into account not only the distances among the new technologies, but also distances between those new technologies and the previous dominant technology. Therefore, we must introduce a new index of the class of the generalized distance, taking into account the distance between all the types or elements weighted by their importance *and* the distance of each type to the referent. With this:

$$f_{ij} ( \{d_{lk} , l, k \in \text{types}\} ) = d_{ij}\ d_{ik}\ d_{jk} \qquad \text{or all i, j, with k, fixed, as the referent,}$$

.

and the corresponding index becomes

$$H_{BFP} = \sum_{i,j} d_{ij}\ d_{ik}\ d_{jk}\ p_i\ p_j \qquad \text{with k, fixed, as the referent.}$$

Distances – in the specific case of this study – correspond to the distances between languages (*see Section 5.1*). When calculating the value of the index, the distance between the language of the referent country and the language of the national production is not taken into account[6]. In other words, for example, we consider the presence of national films in the top ten as positive and desirable.

[5] For more details, see Benhamou et al., 2009.

[6] Otherwise, the distance would have been equal to zero and the level of diversity would be considered very low.

# 4. Availability of the variables and the adaptation of the initial framework to the first form of categorization: The titles

For each criterion, we choose the corresponding variables when they are available, and proxies or indexes otherwise.

## 4.1 The availability of variables

The responses to the UIS Feature Film Survey directly provide a set of variables which are summarized in **Table 1**. Three categories can be used here: titles, languages and country of origin.

Theoretically, the assessment of cultural diversity in the movie industry should rely on:

- produced, distributed and consumed diversity;
- three dimensions (variety, balance and disparity); and
- four forms of categorization (title, language, geographical origin and genre of films).

Given the lack of statistical data on the genres of films in the UIS Database, this last form of categorization had to be discounted.

A 3×3×3 matrix of indicators of cultural diversity in the film industry can only be partially completed (*see Table 1 and* ***Table 4***). Variables can be defined for the three forms of categorization: "title", "language" and "country of origin".

**Table 1. Criteria measuring cultural diversity in the film industry, based directly on the UIS Feature Film survey**

| **Dimensions** | **Variety** | | | **Balance** | | | **Disparity** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Forms of categorization** | **Produced** | **Distributed** | **Consumed** | **Produced** | **Distributed** | **Consumed** | **Produced** | **Distributed** | **Consumed** |
| **Title** | Number of feature films produced nationally | Number of cinemas/ 1,000 inhabitants<br>Admissions per cinema<br>% of multiplexes<br>Number of film distribution companies | Admissions per capita | - | Market share of the the top 3 distribution companies | | -- | -- | |
| **Language** | Number of different languages in which films are shot | - | | | - | | - | - | |
| **Country of origin** | Number of feature films co-produced | - | - | % of feature films 100% nationally produced | % of nationally controlled distribution companies | | -- | -- | -- |

**Notes**: - Data unavailable
-- Methodology unavailable

*i) Variety: The supply side*

To assess variety, the three forms of categorization “title”, “language” and “country of origin” can be used. The variety produced by title is measured by the number of feature films produced in a given country in one year. This variable indicates the size of the national production of different films. In the “language” category, we observe the number of different languages in which the films are shot and for the “country of origin,” the number of films that are co-produced.

*ii) Variety: The distribution side*

It is essential to cross reference this “theoretical” supply with an indicator of the accessibility (i.e. variety distributed) to the films produced. Is the variety of films available for the widest possible number of consumers or reserved for only a small elite?

Thus, the measurement of the variety supplied is completed using the average number of cinemas available for 1,000 inhabitants. The higher this number is, the greater the chances, a priori, that each film will be widely available in space (i.e. geographical coverage) and time (i.e. number of days the films are shown).

It would have been preferable to analyse the number of screens as well but this data is not available. So, in order to approximate the total number of screens available, the percentage of multiplexes provided in the UIS database is used.

The number of admissions per cinema is also taken into account to estimate the size of cinemas. No information is available on the average number of copies per film. Thus, only the number of distribution companies as a proxy for this data can be used.

*iii) Variety: The consumption side*

A high level of demand is a necessary condition for an effective level of diversity. A large demand maximizes the chances that each variety supplied will be consumed. Thus, variety consumed will be evaluated based on the average number of admissions per capita.

*iv) Balance: The supply side*

For the “title” category, the notion of balance produced is irrelevant. In the “country of origin” category, the percentage of feature films that are 100% nationally produced is proof of the existence and the strength of a domestic cinema industry. This does not mean that co-productions can not co-exist with nationally produced films in a dynamic domestic industry. Therefore, this variable must be interpreted with caution.

*v) Balance: The distribution side*

An equivalent indicator for distributed diversity should take into account the number of copies per film, which will help in the measurement of the degree of inequality in the competition between different films. Unfortunately, this data is not currently available for all countries[7]. Only the information on the market share of the three main distribution companies in countries is available. A priori, the more concentrated the distribution, the more difficult it is for movies produced by unknown directors to be exhibited in numerous cinemas.

In the "country of origin" category, the percentage of nationally controlled distribution companies is studied. This informs of the ability of countries to build companies that can promote their own domestic production.

### 4.2 Enriching the initial empirical framework

At this stage, the variables alone do not help us fully understand balance and disparity. To gain a better understanding of these elements, a new step needs to be introduced to the general methodology.

*i) Balance: The consumption side*

At the "title" level, we study the distribution of admissions over the total number of released movies. This indicator of consumed diversity signals whether all consumers tend to "consume" the same films or, on the contrary, whether different films have similar audiences. It indicates the concentration of demand for a narrow segment of the market and is a strong indicator of the propensity of demand to be driven by a "star system" logic. Thus, the market share of the top ten films in the total number of admissions or $CR_{10}$[8] can be calculated.

*ii) Disparity: The consumption*

Disparity – the last dimension used to define diversity – can be determined using two forms of categorization; "title" and "languages".

To evaluate disparity for "titles" using the given data, one can only use the rate of similarity between the domestic top ten and the global top ten – the higher the rate, the lower the disparity.

The following is an example of how to calculate the rate of similarity. First, evaluate the general top ten for the 31 countries for 2005 and 2006 data. Next, each film is sorted on a scale of 1 to 10 depending on its rank. The highest position corresponds to the film with the largest audience. Table 2 summarizes the results.

---

[7] The *Centre National du Cinéma* (CNC) supplies these data for France but they are unavailable for other countries.

[8] It is impossible to calculate the HHI in this case because the complete set of data on the distribution of admissions by film is unavailable.

**Table 2. Global top ten films**

| **Global top ten for 2005** | **Origin** | **Language** |
|---|---|---|
| Harry Potter and the Goblet of Fire | GBR inc/USA | English/French |
| Madagascar | USA | English |
| Star Wars Episode 3: Revenge of the Sith | USA | English |
| War of the Worlds | USA | English |
| Mr. and Mrs. Smith | USA | English |
| Meet the Fockers | USA | English |
| Kingdom of Heaven | GBR | English |
| Charlie and the Chocolate Factory | USA | English |
| Hitch | USA | English |
| Alexander | USA | English |
| | | |
| **Global top ten for 2006** | | |
| Pirates of the Caribbean: Dead Man's Chest | USA | English |
| Ice Age 2: The Meltdown | USA | English |
| Da Vinci Code | USA | English/French |
| Casino Royale | GBR inc/USA | English |
| Cars | USA | English |
| The Chronicles of Narnia: The Lion, the Witch and the Wardrobe | NZL | English |
| Over the Hedge | USA | English |
| Mission Impossible III | USA | English |
| Borat | USA | English |
| Garfield: A Tail of Two Kitties | USA | English |

**Note**: The original language for the films Harry Potter and Da Vinci Code are English and French, however, the majority of the films were shot in English.

*Source:* UIS 2007 Feature Film Statistics Survey, 2009

# 5. Language and countries – A new methodology

## 5.1 Diversity and language

To determine diversity in terms of language, indicators can be defined that simultaneously take into account two or three of the following dimensions: variety, balance and disparity (produced and consumed).

*i) Variety and balance produced*

The variety of "languages" and of "countries of origin" can only be analysed at the supply level by the number of different languages in which films are shot and the number of feature films that are co-produced, respectively (*see Section 4*).

For the original language of films (both produced and consumed), variety and balance could be assessed using the HHI (as described in Section 2.2).

On the supply side, the HHI is calculated using the distribution of national films produced according to the language in which they are shot. This method is not completely adequate as a film can be shot in several languages. Therefore, to evaluate the variety of languages, the HHI is an imperfect tool. To overcome this problem, an analysis was conducted on the number of different languages in which films are shot. The number of foreign languages among the total number of languages was also studied. These data reveal the degree of openness of a country to other cultures and languages. Of course, some countries may be multilingual. In which case, the number of languages is not a fully satisfactory index and has to be completed using other data. In any case, one can hypothesize that the more numerous the languages, the higher the level of diversity.

*ii) Variety, balance and disparity consumed*

On the consumption side, the HHI and the synthetic indexes ($H_{st}$ and $H_{bfp}$) can only be calculated for the distribution of top ten films using admissions by language.

*iii) Disparity in languages*

To study the evolution of disparity between languages in which films are shot, a method displayed by Ginsburgh et al. (2005, 2008) can be used. Ginsburgh uses the matrix of linguistic distances among Indo-European languages proposed by Dyen et al. (1992)[9] to analyse the choices to learn foreign languages (*see **Table 3***).

[9] Dyen et al. estimate the linguistic distances for 95 Indo-European speech varieties (i.e. languages and dialects), by comparing 200 basic meanings in those different languages. For this report, only the linguistic distances for the 20 Indo-European languages included in the top ten films are taken into account (with the exception of Norwegian which is not available in the matrix). Since Estonian, Finnish, Hungarian, Japanese, Arabic and Turkish are not Indo-European languages, they are not estimated. Given the difficulty learning these languages for Indo-European populations, the linguistic distance between these languages and others is considered to be at a maximum (i.e. equal to 1). By contrast, the distances between the non Indo-European languages are not estimated – for example, the distance between Bahasa Malaysia and Mandarin or between Korean and Japanese.

Based on lexicographic methods, linguistic distance evaluations are an objective way to analyse some aspects of disparity. The distance between two languages *i* and *j* is equal to the percentage of words in the two languages that do not descend from a common word. This distance, normalized, falls between 0 and 1. If the distance is close to 1, the two languages have completely different roots (e.g. English and Japanese), and if the distance is close to 0, the language have more similarities (e.g. Slovak and Czech).

To calculate the $H_{st}$ and the $H_{bfp}$ indexes, and to account for the films that were shot in more than one language, it is hypothesized here that the number of attendants is equally allocated to each language. For example, if a film was simultaneously shot in French, Italian and English and if the film reaches 300,000 tickets sold, it is assumed that 100,000 cinema tickets were sold for each language respectively[10].

At the production level, the indexes are irrelevant for two reasons. First, the list of languages in which films were shot is incomplete for seven countries (Canada, Finland, Nigeria, Portugal, Slovenia, Switzerland and the Ukraine). Second, the distance between non Indo-European languages is unknown (e.g. between Yoruba and Hausa in Nigeria), which would be required to analyse the disparity between the languages in multi-language countries.

**Table 3. The Dyen matrix of linguistic distances**

| | Ck | D | Dk | E | F | G | Gr | I | Ice | Po | Pol | Ru | S | Slo | Sw |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ck** | 0 | 0.762 | 0.746 | 0.759 | 0.773 | 0.741 | 0.836 | 0.753 | 0.766 | 0.764 | 0.234 | 0.255 | 0.760 | 0.126 | 0.767 |
| **D** | 0.762 | 0 | 0.337 | 0.392 | 0.756 | 0.162 | 0.812 | 0.74 | 0.408 | 0.747 | 0.769 | 0.776 | 0.742 | 0.769 | 0.308 |
| **Dk** | 0.746 | 0.337 | 0 | 0.407 | 0.759 | 0.293 | 0.817 | 0.737 | 0.221 | 0.750 | 0.749 | 0.740 | 0.750 | 0.732 | 0.126 |
| **E** | 0.759 | 0.392 | 0.407 | 0 | 0.764 | 0.422 | 0.838 | 0.753 | 0.454 | 0.760 | 0.761 | 0.758 | 0.760 | 0.750 | 0.411 |
| **F** | 0.773 | 0.756 | 0.759 | 0.764 | 0 | 0.756 | 0.843 | 0.197 | 0.772 | 0.291 | 0.781 | 0.778 | 0.291 | 0.765 | 0.756 |
| **G** | 0.741 | 0.162 | 0.293 | 0.422 | 0.756 | 0 | 0.812 | 0.735 | 0.409 | 0.753 | 0.754 | 0.755 | 0.747 | 0.742 | 0.305 |
| **Gr** | 0.836 | 0.812 | 0.817 | 0.838 | 0.843 | 0.812 | 0 | 0.822 | 0.802 | 0.833 | 0.837 | 0.832 | 0.833 | 0.832 | 0.816 |
| **I** | 0.753 | 0.740 | 0.737 | 0.753 | 0.197 | 0.735 | 0.822 | 0 | 0.755 | 0.227 | 0.764 | 0.761 | 0.212 | 0.749 | 0.741 |
| **Ice** | 0.766 | 0.408 | 0.221 | 0.454 | 0.772 | 0.409 | 0.802 | 0.755 | 0 | 0.763 | 0.758 | 0.754 | 0.763 | 0.757 | 0.211 |
| **Po** | 0.764 | 0.747 | 0.750 | 0.760 | 0.291 | 0.753 | 0.833 | 0.227 | 0.763 | 0 | 0.776 | 0.773 | 0.126 | 0.760 | 0.742 |
| **Pol** | 0.234 | 0.769 | 0.749 | 0.761 | 0.781 | 0.754 | 0.837 | 0.764 | 0.758 | 0.776 | 0 | 0.266 | 0.772 | 0.222 | 0.763 |
| **Ru** | 0.255 | 0.776 | 0.740 | 0.758 | 0.778 | 0.755 | 0.832 | 0.761 | 0.754 | 0.773 | 0.266 | 0 | 0.769 | 0.259 | 0.754 |
| **S** | 0.760 | 0.742 | 0.750 | 0.760 | 0.291 | 0.747 | 0.833 | 0.212 | 0.763 | 0.126 | 0.772 | 0.769 | 0 | 0.756 | 0.747 |
| **Slo** | 0.126 | 0.769 | 0.732 | 0.750 | 0.765 | 0.742 | 0.832 | 0.749 | 0.757 | 0.760 | 0.222 | 0.259 | 0.756 | 0 | 0.758 |
| **Sw** | 0.767 | 0.308 | 0.126 | 0.411 | 0.756 | 0.305 | 0.816 | 0.741 | 0.211 | 0.742 | 0.763 | 0.754 | 0.747 | 0.758 | 0 |

**Notes**: For non Indo-European languages, Estonian, Finnish, Hungarian, Japanese, Arabic and Turkish, the linguistic distance to Indo-European languages is set at 1. Due to their linguistic remoteness, these languages are considered as far from resembling each other.

The following distances are used in this table: Bulg-E = 0,772, Bulg-F = 0,791, Rom-E = 0,773, Rom-F=0,421, Lith-E = 0,784, Lith-F = 0,779, Uk-E= 0,777, Uk-F= 0,781, Let-E = 0,803, Let-F = 0,793 and Let-Ru = 0,641. Also, these codes used to denote the following countries: Ck = Czech, Bulg = Bulgarian, D = Dutch, Dk = Danish, E = English, F = French, G = German, Gr = Greek, It = Italian, Ice = Icelandic, Let = Latvian, Lith = Lithuanian, Po = Portuguese, Pol = Polish; Rom = Romanian, Ru = Russian, S= Spanish, Slo = Slovene, Sw = Swedish, UK = Ukrainian.

[10] For the films Harry Potter and Da Vinci Code, the original languages are English and French. However, as they were shot mainly in English, only this latter language is considered in our study.

In the $H_{bfp}$ index for any given year, the average linguistic distance of titles produced is calculated as the average of the distance between a referent language (e.g. French) and each of the other languages – this distance being weighted by the market share of each language in the set of titles produced.

At the consumption level, the same methodology can be applied to the original languages of the top ten films.

## 5.2 Diversity and country of origin

*i) Variety supplied*

The number of feature films that are co-produced is an indicator of the level of variety by country of origin. Co-productions can be viewed as a means of favouring cooperation between different cultures. This form of cooperation can help countries with a less developed film industry, produce and finance innovative films. At the same time, this contributes to the circulation of films among different countries.

Co-productions provide a means for collecting the funds necessary to make a film. They help countries with few resources produce a national movie and movies from emergent countries to gain access to different markets. However, the interpretation of this criterion is ambiguous. On the one hand, co-productions increase cooperation among European countries and help Africa enhance local production. They can promote the transfer of knowledge and help some countries build a domestic film industry. On the other hand, they may also lead to a decline in diversity by watering down national or local differences as film-makers may feel inclined to present the smallest common cultural denominator among the different countries involved in the co-production in order to limit the level of commercial and industrial risk.

Thus, although this indicator is studied, caution is advised when interpreting its level and evolution.

*ii) Balance supplied, distributed and consumed*

Balance by country of origin can be estimated for production, distribution and consumption. A first approach – and probably a very restrictive one – consists of the study of the respective percentage of feature films that are 100% nationally produced and feature films that are co-produced. However, as the criterion used to distinguish national and foreign films is always financial, it does not truly assess diversity. A second approach consists of analysing the percentage of national versus foreign controlled distribution companies. This indicator is not very strong either as it may be a better determinant of cultural diversity than an indicator of the level of diversity.

As was the case for languages, the HHI is calculated based on the market share of the five main countries of origin. In this instance, as the number of individuals is always equal to five, the HHI is simply an indicator of balance.

The presence of a category called “others” in the database prevents the evaluation of this indicator for all the origins. In order to work on the largest number of countries possible, the allocation is studied using a three-element typology (national, US, and others). In addition, the rank of national films in the top five is introduced by country in the analysis.

## 5.3 A final view of the methodology

**Table 4** provides a summary of the criteria and indexes used to evaluate the dimensions that Stirling points out in his study of diversity.

### Table 4. A summary of the improvements to the methodology

| **Dimensions** | **Variety** | | | **Balance** | | | **Disparity** | | |
|---|---|---|---|---|---|---|---|---|---|
| **Forms of categorization** | **Produced** | **Distributed** | **Consumed** | **Produced** | **Distributed** | **Consumed** | **Produced** | **Distributed** | **Consumed** |
| **Title** | Number of feature films nationally produced | Number of cinemas/ 1,000 inhabitants<br><br>Admissions per cinema<br><br>% of multiplexes<br><br>Number of film distribution companies | Admissions per capita | - | Market share of the top three distribution companies | Market share of top ten films in total admissions | -- | -- | Rate of similarity between national top ten films and the global top ten |
| **Language** | Number of different languages in which films are shot<br>Number of foreign languages | - | Number of different languages of the top ten<br><br>Number of foreign languages of the top ten<br>(a) (b) | HHI calculated on the distribution of films produced by language | - | HHI calculated on the distribution of top ten films admissions by language (a) (b) | - | - | $H_{st}$ and $H_{fbp}$ based on the distribution of top ten films admissions by language (b) (c) |
| **Country of origin** | Number of feature films co-produced | - | - | % of feature films 100% nationally produced | % of nationally controlled distribution companies<br><br>% of foreign controlled distribution companies | HHI calculated on market share of the five main countries of origin<br><br>Rank of national films in the top five by country | -- | -- | -- |

**Notes**: - data unavailable
-- methodology unavailable

(a) HHI calculated on the distribution of top ten film admissions by language also taking into account the variety consumed by language.

(b) $H_{st}$ and $H_{bfp}$ based on the distribution of top ten film admissions by language also estimate the two others dimensions (i.e. variety and balance) consumed by language.

(c) Methodology available for Indo-European languages only.

**Table 5** indicates the number and the list of countries used in our analysis according to the number of criteria for which the database provides answers – it cross-references the list of countries with the list of indicators that we consider relevant (*see also Appendix Table 1*). It is rather paradoxical to observe that the countries that provided the most complete list of answers to the questionnaire are not the same ones that have developed the most sophisticated statistical apparatus. For instance, the United Kingdom and Canada did not provide as many answers as expected. Moreover, some countries that are especially interested in nurturing cultural diversity did not provide a significant set of answers (especially Canada).

**Table 5. Availability of data**

| Number of criteria | Criteria | Number of countries | Countries |
|---|---|---|---|
| 21 | N° films produced, admissions per capita, admissions per cinema, N° cinemas per capita, % of multiplexes, N° film distribution companies, MS of the 3 distribution companies, MS of the top ten films in total admissions, rate of similarity, N° different languages in which films are shot, N° foreign languages, N° different languages of the top ten, N° foreign languages in the top ten, HHI distribution of films produced by language, HHI distribution of top ten film admissions by languages, $H_{st}$ on distribution of top ten film admissions by languages, $H_{fbp}$ distribution of top ten film admissions by languages, N° films co-produced, % of 100% national feature films produced, HHI on the five mains countries of origin, MS of national, US and other countries | 8 | Switzerland, Romania, Mexico, Lithuania, Lebanon, Hungary, Chile, Australia |
| 6 | N° national films, admissions per capita, MS of the top ten films, rate of similarity, $H_{bfp}$, HHI on five main origins | 14 | Switzerland, Romania, Mexico, Lithuania, Lebanon, Hungary, Chile, Australia,<br>Austria , Estonia, Finland, France, Poland, Slovakia |
| 4 | N° national films, admissions per capita, $H_{bfp}$, HHI on five main origins | 18 | Switzerland, Romania, Mexico, Lithuania, Lebanon, Hungary, Chile, Australia<br>Austria , Estonia, Finland, France, Poland, Slovakia<br>Iceland, Netherlands, Germany, Latvia |
| 3 | N° national films, admissions per capita, HHI on five main origins | 27 | Switzerland, Romania, Mexico, Lithuania, Lebanon, Hungary, Chile, Australia<br>Austria , Estonia, Finland, France, Poland, Slovakia<br>Iceland, Netherlands, Norway, Germany, Latvia<br>USA, Spain, Republic of Moldova, Morocco, Malaysia, Croatia, Ukraine, Macao, China Special Administrative Region |

**Notes:** MS = Market share
N° = Number of
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

# 6. Some issues and their interpretation

This section presents the results of the analysis of diversity in the cinema industry using the framework outlined earlier. Table A3 in the Appendix provides basic statistics for the 21 criteria. The results show a deep heterogeneity among countries. Note that the number of observations (i.e. countries) varies from 24 to 75 depending on the criterion selected[11]. All the variables and criteria have been calculated as an average over the 2005-2006 period. If the value for one of the two years is ignored, an average value equalling the value obtained for the other year (2005 or 2006) is used.

## 6.1 Variety by titles produced, distributed and consumed

The variety produced at the film level is estimated based on the number of feature films produced nationally each year (Appendix, Table A4). Of note, film production is limited to a narrow number of countries. If a minimum of 50 films produced each year is considered to signify the existence of a national industry, it can be said that 16 out of the 66 countries analysed possess a proper cinema industry. Even among these 16 countries, the level of production is highly heterogeneous.

Overall, four groups of countries can be distinguished (*see* ***Table 6***):

a) As expected, in India, Nigeria and the in the United States, the number of new films released each year is very high (1,041, 872 and 699[12], respectively in 2005). However, in contrast with Hollywood and "Bollywood", the Nigerian film industry, commonly called "Nollywood", produces small budgets films, generally shot in digital video format in two or three weeks (for more details, see UNESCO, 2008).

b) In Japan, China and France, the average number of new films produced is lower but greater than 200 (417, 260[13] and 203, respectively in 2006)

c) In Germany, Spain, Italy, the Republic of Korea and the United Kingdom, the number of national films produced is greater than 100 (174, 150, 116, 110 and 107, respectively in 2006)

d) Lastly, in five others countries (Canada, the Russian Federation, the Philippines, Mexico and Indonesia), more than 50 (but less than 100) new films are produced each year (74, 67, 65, 64 and 60, respectively in 2006).

In contrast, 41% of the countries with data produce less than ten films and almost 23% produce less than five films per year (i.e. Azerbaijan, Belarus, Burkina Faso, Croatia, Cyprus, Kyrgyzstan, Latvia, Lithuania, China Macao Special Administrative Region, Mongolia, Mozambique, Namibia, Oman, and the Republic of Moldova).

[11] Only reliable responses were taken into account. When the comment associated to a criterion is specified as "magnitude nil or negligible", it denotes that the country was eliminated for this criterion.

[12] In 2006, the number of films produced in the United States decreased to 480.

[13] For China, the number of films produced is only available for 2005.

This ranking is certainly influenced by the size of a country (i.e. population size) and its level of development (i.e. GNP/inhabitant). Demography and economic growth are two factors that influence the vitality of cinema production. Nevertheless, there exists a historic and economic tradition – as in Nigeria – where a relatively low level of development goes hand in hand with a high level of production.

**Table 6. Number of national films produced per year** [a]

| Number of films | Countries |
|---|---|
| ≥ 600 | India, Nigeria, USA |
| 200-600 | China, Japan, France |
| 50-200 | UK, Spain, Germany, Italy, Canada, Mexico, Philippines, Indonesia, Republic of Korea, Russian Federation |
| < 10 | Armenia, Azerbaijan, Belarus, Bulgaria, Burkina Faso, Cameroon, Croatia, Cuba, Cyprus, Dominican Republic, Estonia, Iceland, Kyrgyzstan, Latvia, Lebanon, Lithuania, China Macao Special Administrative Region, Mongolia, Mozambique, Namibia, New Zealand, Oman, Republic of Moldova, Singapore, Slovakia, Slovenia, Ukraine |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

*i) Diversity supplied vs. diversity consumed for the variety of national films produced*

The variety distributed can be approximated by the number of cinemas per capita – more precisely, cinemas per 1,000 inhabitants (*see Appendix, Table A5*). Only 12[14] countries out of 75 (16% of the countries) have a relatively high density of cinema theatres (i.e. more than 50 cinemas per 1,000 inhabitants, see ***Table 7***). In 2006, Sweden ranked first as the country with the most number of cinemas per capita (129 cinemas per 1,000 inhabitants), surpassing the United States (127 cinemas). Conversely, for 40% of the countries in the sample, the accessibility to films seems very low with less than ten cinemas per 1,000 inhabitants. For countries like Cameroon, the Lao PDR, Niger and Mozambique, the numbers of cinemas is less than one per 1,000 inhabitants (0.72, 0.87, 0.36, and 0.57 cinemas, respectively in 2006).

Two other variables may be used to analyse the variety distributed:

- the number of admissions per cinema;
- the percentage of multiplexes (i.e. cinemas with eight screens or more) (*see Appendix, Tables A5 and A6*).

[14] The United States, Sweden, France, Austria, Andorra, the Czech Republic, Denmark, Iceland, Luxembourg, Norway, Switzerland and Ukraine.

**Table 7. Number of cinemas per capita** [a]

| Number of cinemas | Countries |
|---|---|
| ≥ 100 | Sweden, USA |
| 50-100 | France, Austria, Andorra, Czech Republic, Denmark, Iceland, Luxembourg, Norway, Switzerland, Ukraine |
| ≤ 10 | Azerbaijan, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Dominican Republic, Egypt, India, Indonesia, Iran, Israel, China Macao Special Administrative Region, Malaysia, Mexico, Morocco, Namibia, Oman, Philippines, Republic of Moldova, Romania, Russian Federation, Singapore, Thailand, Tunisia Turkey, Niger, Cameroon, Mozambique, Lao People's Democratic |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

Some countries have a low number of cinemas per inhabitant but possess a developed network of multiplexes. Therefore, a low number of cinemas per inhabitant does not necessarily translate to a low number of screens per inhabitant. Thus, it would be preferable to know the number of screens instead of the number of cinemas per capita.

In the same way, theatres with a wide capacity can compensate for the existence of a low number of cinemas. Hence, countries like Ireland, Malaysia, Singapore, India and Mexico may have a low number of cinema theatres per capita and a high level of admissions per cinema – more than 150,000 admissions per cinema for Ireland (325,000 in 2006), Malaysia (409,852 in 2006), India (359,047 in 2005), Mexico (192,373 in 2006) and more than 500,000 for Singapore (577,333 in 2006). For countries like Singapore, Ireland and Mexico, the high number of admissions per cinema is due to the development of multiplexes that represent 26%, 39% and 32%, respectively of the total number of cinemas (see ***Tables 8*** *and* ***9***). For a country like Malaysia, where multiplexes represent only 15% of the total number of cinemas, the size of the theatres is one of the factors that explains the relatively high number of admissions per cinema.

**Table 8. Number of admissions per cinema** [a]

| Number of admissions | Countries |
|---|---|
| ≥ 500 000 | Singapore |
| 100 000 - 500,000[ | Malaysia, India, Australia, Chile, Costa Rica, Egypt, Ireland, China Macao Special Administrative Region, Mexico, Netherlands, Portugal, Republic of Moldova, Spain, UK |
| ≤ 10 000 | United Arab Emirates, Kyrgyzstan, Cuba, Azerbaijan |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

**Table 9. Percentage of cinemas with eight screens or more (multiplexes)** [a]

| Percentage of cinemas | Countries |
|---|---|
| ≥ 30% | Ireland, Mexico, Dominican Republic, France |
| 20-30% | Australia, Chile, Costa Rica, Singapore |
| 5-20% | Israel, Italy, Malaysia, Brazil, Germany, Philippines, The Netherlands, Poland, Spain, Portugal, Turkey |
| < 5% | Croatia, Estonia, Finland, Portugal, Turkey, Latvia, Lebanon, Lithuania, Norway, Romania, Slovakia, Switzerland |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

Analysis of the variety consumed is based on the cinema-going average (i.e. average number of admissions per inhabitant). The rate of admissions is higher than 2 for 12 out of 45 countries (26% of the countries). In 2006, Iceland (5.04 admissions per capita) was the leader within the countries sampled in terms of the cinema-going average, which puts Iceland ahead of Ireland (4.93), the United States (4.78)[15] and Australia (4.00). In Singapore, India and France, the number of admissions per capita is also high (3.56, 3.32[16] and 3.08, respectively in 2006) (*see **Table 10** and Appendix Table A5*).

**Table 10. Admissions per capita** [a]

| Admissions per capita | Countries |
|---|---|
| ≥ 4 | Iceland, Ireland, USA, Australia |
| 3-4 | Singapore, India |
| 2-3 | France, UK, Switzerland, Spain, Norway, Lebanon |
| 2-1 | Austria, Belarus, British Virgin Islands, Estonia, Finland, Germany, Hungary, Italy, China Macao Special Administrative Region, Malaysia, Mexico, Netherlands, Portugal, United Arab Emirates |
| < 1 | Argentina, Bulgaria, Chile, Costa Rica, Colombia, Croatia, Cuba, Egypt, Indonesia, Latvia, Lithuania, Morocco, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, Thailand, Ukraine |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

[15] In 2005, data were not available for Ireland. As a result, the United States was in the lead at this date.
[16] For India, admissions per capita are only available for 2005.

*ii) Variety and balance distributed by title*

If we consider the number of distribution companies *(see **Table 11** and Appendix Table A7)*, four distinct groups emerge consisting of countries with contrasting cinema industry profiles. Among the 8 countries with more than 50 distribution companies, Malaysia and the Philippines have an especially high number of companies (458 and 231, respectively). Three countries have a high but less impressive number of companies (Spain, Nigeria and France with 176, 139 and 108 companies, respectively).

Interpreting this variable is not easy. On the one hand, the existence of a large number of distribution companies makes it easier for film producers to find a distributor to invest in their films. Yet, a vast dispersion could ultimately weaken the impact of distribution companies.

**Table 11. Number of distribution companies** [a]

| Number of distribution companies | Countries |
|---|---|
| ≥ 50 | Malaysia, Philippines, Spain, Nigeria, France, Germany, United Kingdom, Bulgaria |
| 20-49 | Switzerland, Italy, Australia, Belgium, Brazil, Poland, Sweden, Austria, Romania, Chile, Slovenia |
| 10-19 | Denmark, Czech Republic, Mexico, Norway, Turkey, Hungary, Netherlands, Lebanon, Portugal, India, Ukraine, Finland, Egypt, Slovakia |
| < 10 | Oman, Croatia, Belarus, Ireland, Mauritius, Morocco, Singapore, Lithuania, Rep. of Moldova, Iceland, Cyprus, Latvia, Estonia, Costa Rica, Cuba, Dominican Republic, Lao People's D.R., Namibia |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

The market share of the three main distribution companies *(see **Table 12**)* sheds light on this question – in spite of some inconsistencies in the answers of three countries[17], which were not included in Table 12.

Countries with 20 to 49 companies include those in Europe and South-America. Countries with the highest concentration (i.e. market share) correspond to those that are not necessarily democratic countries and have only one distribution company (Cuba, Lao PDR), and to countries that produce a small number of films (Croatia, Iceland, Estonia, Latvia, Costa Rica) (*see Table 12 and Appendix Table A7*).

[17] - Malaysia declares 387 distribution companies in 2005, 529 in 2006 and a market share of 100% for the three main companies.
- Nigeria declares 139 distribution companies in 2005, 139 in 2006 also and a market share of 100% for the three main companies.
- Namibia declares only one distribution company in 2005 and 2006 but a market share of 90% for the three main companies.

**Table. 12. Total market share of the three main distribution companies (in % of admissions)**[a]

| Total market share (% admissions) | Countries |
|---|---|
| ≤ 50 | France, Italy, Canada, the United States of America, Spain, the Netherlands |
| 50-70 | Japan, Slovenia, Germany, Mexico, Switzerland, Norway, Chile, Brazil, Austria, Russian Federation, United Kingdom, Australia, Lebanon, Slovakia |
| 70-85 | Ukraine, Romania, Hungary, Finland, Belarus, Portugal |
| ≥ 85 | Croatia, Iceland, Estonia, Latvia, Costa Rica, Cuba, Lao PDR |
| < 10 | Oman, Croatia, Belarus, Ireland, Mauritius, Morocco, Singapore, Lithuania, Rep. of Moldova, Iceland, Cyprus, Latvia, Estonia, Costa Rica, Cuba, Dominican Republic, Lao People's D.R., Namibia |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

*iii) Balance and disparity by titles consumed*

To compare the balance between the different countries in terms of individual films, the share in total admissions of the top ten films is calculated. Due to the lack of data, this variable can only be calculated for 24 countries at most (*see Appendix Table A8*).

The $CR_{10}$ criterion leads to quite contrasting observations. Between 2005-2006, the top ten films acquired on average more than 30% of admissions in all the countries sampled *(see **Table 13**)*. However, the concentration of admissions for a small number of films appears to be higher than 40% in Chile and Poland. Conversely, it appears lower than 15% in Morocco (13.6%) and in Lebanon where admissions for the top ten films represent only 7% of the total number of admissions. Australia (26.9%), Iceland (27.7%), Malaysia (22.3%), Romania (25.5%), France (24.9%), Latvia (28.9%), Portugal (27.5%) and Switzerland (29.1%) occupy intermediate positions.

With the exception of five countries (Australia, Lebanon, Mexico, Portugal and Romania) out of the 23 countries for which the comparison is feasible between 2005 and 2006, admissions appear to be more and more concentrated on a small number of big successes. The network effect that characterizes film consumption[18] – heightened by the supply strategies of the producers (i.e. investments in notoriety) and the distributors (i.e. the number of copies put into circulation) – seems to have resulted in a concentration of admissions on a limited number of films. Ultimately, this works to the detriment of cultural diversity.

[18] Cultural consumption is characterized by network externalities arising from the phenomena of mimicry and social infectiousness. To reduce their uncertainty about the quality of cultural products, most consumers tend to consume the products they have heard about (from friends, press or publicity) or which have achieved the most commercial success (Kretschmer et al., 1999).

**Table 13. Market share of the top ten films (in % of admissions)** [a]

| Market share (% of admissions) | Countries |
|---|---|
| ≥ 40 | Chile, Poland |
| 30-40 | Austria, Bulgaria, Costa Rica, Estonia, Finland, Germany, Hungary, Lithuania, Mexico, Netherlands, Norway, |
| 20-30 | Australia, France, Iceland, Latvia, Malaysia, Portugal, Romania, Switzerland |
| < 15 | Morocco, Lebanon |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

Disparity by titles is approximated by the rate of similarity between the national top ten films and the global top ten *(see Section 5 for the methodology)*. This rate seems relatively high *(see Appendix Table A9)*. On average, between 2005 and 2006, each country shares 5.7 titles in common with the global top ten.

**Table 14** shows that:

- Among 33 top ten films – for at least one of the two years analysed – on average, 9 countries (27% of those sampled) share at least 7 titles in common with the global top ten over the 2005-2006 period. This percentage bears testimony to the existence of a globalized taste but also of the persistence of an audience ready to assert national and/or local preferences.
- National top ten are deeply different from global top ten in the countries that are culturally rather distant from the United States, like Japan (3.5 titles from 2005-2006), Malaysia (3.5), Morocco (3) and the Republic of Korea (3).
- The case in Italy seems peculiar. The rate of similarity (2) is the weakest of the sample in 2005. Yet, since data are not available for Italy in 2006, we cannot conclude that the Italian top ten is more diverse than for one of the other countries.

**Table 14. Rate of similarity between top ten films and the global top ten (%)** [a]

| Rate of similarity (%) | Countries |
|---|---|
| ≥ 70 | Australia, Czech Republic, Germany, Hungary, Iceland, Latvia, The Netherlands, Romania, Sweden |
| [60 , 70[ | Austria, Bulgaria, Estonia, Ireland, Lithuania, Norway, Poland, Portugal, Slovakia, |
| [50 , 60[ | Brazil, Chile, Costa Rica, Finland, Lebanon, Mexico, Switzerland, Turkey |
| < 50 | Denmark, France, Japan (4), Malaysia(4), Morocco (2), Republic of Korea (2), Italy (1) |

**Notes:** [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

## 6.2 Variety and balance by language

*i) The number of languages in which films are shot*

Films can be shot in several languages. This is especially true in multi-language countries like Austria, India, Nigeria, Slovenia, Spain and Switzerland *(see **Table 15**)*. In some cases, there can be more than five languages in a given country. **Table 16** indicates the number of foreign languages in which films are shot.

**Table 15. Number of different languages in which films are shot** [a]

| Number of languages | Countries |
|---|---|
| 1 | Azerbaijan, Chile, Egypt, Hungary, Israel, Kyrgyzstan, Latvia, Lebanon, China Macao Special Administrative Region, Mongolia, Mozambique, New Zealand, Oman, Ukraine |
| 2-4 | Australia, Cambodia, Cameroon, Canada, Croatia, Cyprus, Estonia, Finland, Malaysia, Morocco, Namibia, Netherlands, Portugal, Romania, Singapore, Slovakia |
| ≥ 5 | Austria, India, Nigeria, Slovenia, Spain, Switzerland |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

**Table 16. Number of foreign languages in which films are shot** [a]

| Number of foreign languages | Countries |
|---|---|
| 0 | Australia, Azerbaijan, Belarus, Canada, Chile, Croatia, Egypt, Hungary, India, Israel, Kyrgyzstan, Latvia, Lebanon, China Macao Special Administrative Region, Mongolia, Mozambique, New Zealand, Oman, Ukraine |
| 0-2 | Belarus, Cambodia, Cameroon, Cyprus, Estonia, Iceland, Lithuania, Mexico, Morocco, Netherlands, Nigeria, Rep. of Moldova, Slovakia, Slovenia |
| ≥ 2 | Austria, Finland, Portugal, Romania, Singapore, Spain, Switzerland |

**Note**: [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

The balance between different languages is somewhat high for Canada, Croatia, India, Morocco, Nigeria, Singapore, Slovakia, Slovenia and Switzerland. This balance concerns only two main languages in the cases of Canada and Croatia (*see Appendix Table A10*).

Variety by language is also known for the top ten films (*see Appendix Table A13*). Eight countries have exactly two languages while 26 countries have more than two. As for the number of foreign languages, 5 countries use only 1 language, 2 countries have between 1 and 2 languages, 16 have exactly 2 and 11 countries have more than 2 languages.

*ii) Variety, balance and disparity consumed by language – A comparison of indexes*

We can compare the average rank of each country ($[R_{2005} + R_{2006}]/2$) for the three indexes: HHI, $H_{st}$ and $H_{bfp}$[19].

The ranks obtained based on the HHI resulted in the following order – from the most diverse countries to the least *(see **Table 17** and Appendix Table A14).*

**Table 17. Ranks obtained on average (2005-2006) with the HHI Index**

| Rank (range) | Countries |
|---|---|
| 1-5 | Rep. of Korea, Morocco, France, Japan, Denmark |
| 6-10 | Italy, Malaysia, Hungary, Poland, Finland |
| 11-15 | Switzerland, Turkey, Lebanon, Norway, Brazil |
| 16-20 | Lithuania, Germany, Latvia, Iceland, Sweden |
| 21-28 | Portugal, Estonia, Chile, The Netherlands, Mexico, Austria, Czech Rep., Australia, Costa Rica, Ireland, Romania, Slovakia, Bulgaria |

**Note:** The first group corresponds to the countries with an average rank between 1 and 5, the second between 6 and 10, the third between 11 and 15, the fourth between 16 and 20, and the fifth from 21 to 28. Some countries may have the same rank. Therefore, the number of countries exceeds the number of ranks.

*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

[19] When the rank for one of the two years is ignored, it is hypothesized that the average rank equals the rank obtained for the other year (2005 or 2006).

The ranks obtained based on the $H_{st}$ Index led to a quite different hierarchy among countries[20] *(see **Table 18**)*.

**Table 18. Ranks obtained on average (2005-2006) with the $H_{st}$ Index**

| Rank (range) | Countries |
|---|---|
| 1-5 | Japan, Morocco, Hungary, France, Italy |
| 6-10 | Finland, Poland, Turkey, Lebanon, Denmark |
| 11-15 | Brazil, Lithuania, Switzerland, Estonia, Latvia |
| 16-20 | Portugal, Chile, Germany, Sweden, Iceland |
| 21-25 | Mexico, The Netherlands, Austria, Czech Rep., Australia, Bulgaria, Ireland, Romania,, Slovakia, Costa Rica |

*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

The ranks obtained on the basis of the $H_{bfp}$ Index led to a different order but not one that differs greatly from the previous one[21] *(see **Table 19**)*. Differences in ranks are summarized in the Appendix *(see Table A14).*

**Table 19. Ranks obtained on average (2005-2006) with the $H_{bfp}$ Index**

| Rank (range) | Countries |
|---|---|
| 1-5 | Japan, Morocco, Hungary, Finland, France |
| 6-10 | Turkey, Lebanon, , Italy, Poland, Brazil |
| 11-15 | Estonia, Lithuania, Portugal, Chile, Denmark |
| 16-20 | Latvia, Mexico, Germany, Iceland, Sweden |
| 21-25 | The Netherlands, Austria, Czech Rep., Australia, Bulgaria, Ireland, Romania,, Slovakia, Costa Rica |

*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

How can we interpret the differences between the ranks obtained with the three indexes?

- The HHI led to a very different ranking than the two other indexes. It only measures the two dimensions (variety and balance) without considering disparity. Also, the rather high rank obtained by the Republic of Korea, Morocco, France, Japan and Denmark results from the balance between the different languages in film distribution but is not a sufficient measure of diversity.

[20] For Malaysia, Norway and the Republic of Korea, the indexes cannot be calculated as the estimation of linguistic distances is missing.

[21] For Malaysia, the Republic of Korea and Switzerland, the methodology is not available.

- The $H_{st}$ and the $H_{bfp}$ indexes are much more similar. Both take into account the three dimensions of diversity – variety, balance *and* disparity. Nevertheless, the $H_{bfp}$ leads to a more accurate view of diversity as it introduces not only the distance between languages but also the distance between the national dominant language and the others. Therefore, it provides a better estimation of the cultural openness of a country. For instance, Chile, Estonia, Finland, Lebanon, Mexico and Portugal obtained a better rank with the $H_{bfp}$, which is probably due to the ability of the movie distributors in these countries to present a diversified panel of films (i.e. in the terms of more distant languages) with all other factors being equal. Conversely, the position of Denmark and Italy is slightly deteriorated using this index.

### 6.3 Variety and balance produced and consumed by country of origin

*i) The case of co-productions*

Data show the low level of development of co-productions in countries with the exception of those within the European Union *(see **Table 20** and Appendix Table A15).* More precisely, France reported 95 co-productions on average between 2005 and 2006, followed by the United Kingdom (62), Germany (56), Spain (47) and Italy (28) – these countries release more than 52% of the co-productions of the sample. Conversely, 53% of the countries analysed (24 out of 45) co-produce only 58 films out of 551 (i.e. 10.5%) of the total number of the films that are co-produced. This is mainly due to the growing importance of European agreements for co-productions and to the subsidies granted by the fund Eurimages[22].

**Table 20. Number of films co-produced (variety produced by country of origin)** [a]

| Number of films co-produced | Countries |
|---|---|
| ≥ 50 | France (1), Germany (2), UK (2), Spain (4) |
| 20-50 | China (5 in 2005), Italy, Egypt, |
| 5-20 | Austria, Canada, Czech Republic, Ireland, Romania, Sweden, Switzerland Belgium, Bulgaria, Hungary, Lebanon, Mexico, Netherlands, Portugal |
| ≤ 5 | Armenia, Australia, Burkina Faso, Cameroon, Chile, Croatia, Cuba, Cyprus, Dominican Republic, Estonia, Finland, Iceland, Israel, Kyrgyzstan, Lithuania, Morocco, New Zealand, Norway, Poland, Republic of Moldova, Singapore, Slovakia, Slovenia, Turkey |

**Note:** [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

[22] Eurimages supports full-length feature films and animation as well as documentaries of a minimum length of 70 minutes. Because the support is for co-productions, all projects submitted must have at least two co-producers from different Member States of the Fund. The participation of the majority co-producer must not exceed 80% of the total co-production budget, and the participation of the minority co-producer must not be lower than 10%. For bilateral co-productions with a budget above 5 millions Euros, the participation of the majority co-producer must not exceed 90% of the total budget of the co-production.

The analysis of the balance between the percentage of feature films that are 100% nationally produced and the percentage of feature films that are co-produced leads to the identification of three groups of countries *(see **Table 21** and Appendix Table A15).* For nine countries in the sample, the number and share of co-productions are very low as more than 70% of the productions are 100% national. These countries release a low number of films per year. Seventeen countries occupy an intermediary position with a relatively balanced production between 100% nationally produced and co-produced films. Among them are Canada and important European film industries (France, the United Kingdom, Germany and Spain). Italy belongs to the third group of 17 countries where national films represent less than 30% of the total production.

**Table 21. Percentage of 100% national feature films produced[a] (balance produced by country of origin)**

| 100% nationally produced films (%) | Countries |
|---|---|
| > 70 | Croatia, Cuba Cyprus, Iceland, Kyrgyzstan, Lebanon, Lithuania, Republic of Moldova, Slovakia |
| 30-70 | Austria, Belgium, Bulgaria, Burkina Faso, Canada, Estonia, France, Germany, Ireland, The Netherlands, New Zealand, Portugal, Romania, Spain, Sweden, Switzerland, United Kingdom |
| < 30 | Armenia, Australia, Cameroon, Chile, Czech Republic, Dominican Republic, Finland, Hungary, Israel, Italy, Mexico, Morocco, Norway, Poland, Slovenia, Singapore, Turkey |

**Note:** [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

*ii) Variety and balance consumed by country of origin*

**Tables 22, 23, 24, 25** and Appendix Table A16 present information that is vital to assessing cultural diversity. First, we observe that the market share of national films is less than 5% or even non-existent for a number of countries. Conversely, for four countries, the market share of domestic films exceeds 50%: Cambodia, Japan, Nigeria and the United States. The United States is not a very open country in the cultural field with a public that is supposedly not very interested in non-American films. Foreign films do show in a few cinemas but this is mostly limited to the biggest cities.

Nigeria is a “cinema exception”, as we have already noticed, with a domestic production that is probably well-suited to the audiences’ tastes. Most countries present a polarized situation with an important market share for the American cinema. The market share of American films exceeds 75% in 20 countries out of 28 (*see Table 23*). This predominance should be qualified for some countries given the ranks of domestic films in the top ten by country (*see Appendix Table A17*). For example, in Finland, France, Iceland, Morocco and Turkey, a national film reached the top spot in 2006.

**Table 22. Market share of national films** [a]

| Market share of national films | Countries |
|---|---|
| 0 | British Virgin Isl., Costa Rica, Lao People's DR, China Macao Special Administrative Region, Namibia, Republic of Moldova, Saint Vincent and the Grenadines |
| 0-5 | Slovakia, Azerbaijan, Latvia, Slovenia, Austria, Ireland, Portugal, Australia, Croatia, Lithuania |
| 5-15 | Mexico, Ukraine, Malaysia, Estonia, Lebanon, Switzerland, Poland, Brazil, Netherlands, Morocco, Hungary, Norway |
| 15-30 | Spain, Finland, Germany, Sweden, Italy, Czech Republic |
| 30-50 | Denmark, France |
| ≥ 50 | Cambodia, Japan, Nigeria, United States of America |

**Note:** [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

**Table 23. Market share of US films** [a]

| Market share of US films | Countries |
|---|---|
| 0-30 | Lao People's DR, Japan, Nigeria, Cambodia |
| 30-50 | Morocco, France, Malaysia, China Macao Special Administrative Region |
| 50-75 | Hungary, Germany, Norway, Ukraine, Spain, Portugal, Sweden, Finland, Latvia, Poland, Czech Republic, Switzerland, Denmark, Italy |
| 75-85 | Australia, Croatia, Iceland, British Virgin Isl., Lithuania, Slovakia, Chile, Estonia, Brazil, Austria, Netherlands |
| ≥ 85 | Saint Vincent and the Grenadines, Costa Rica, Namibia, Azerbaijan, Republic of Moldova, Canada, Romania, Slovenia, Mexico |

**Note:** [(a)] The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009

The level of market shares of the “other films” (i.e. non-national and non-American) is lower than 15% in 21 countries. The openness of countries is often limited to films from the United States, resulting in the other films being under-distributed, under-programmed, and hence under-consumed. This assertion would require more substantial evidence, which could be obtained given access to the national repartition of the films of “rest of the world”. For a set of countries (i.e. Japan, Poland, Portugal, Switzerland, Latvia, Cambodia, Morocco, Lebanon, and Chile, Malaysia, China Macao Special Administrative Region, Lao PDR and Ireland), the market shares of the “other films” are over 30%. But to what extent is this openness effective and not concentrated on only a sole foreign country? This question deserves further investigation.

**Table 24. Market share of other films** [a]

| Market share of other films | Countries |
|---|---|
| ≤ 5 | Saint Vincent and the Grenadines, Costa Rica, Azerbaijan, Namibia |
| 5-15 | Canada, Romania, Mexico, Iceland, Brazil, Croatia, Germany, Republic of Moldova, Slovenia, United States of America, Australia, Czech Republic, Estonia, Netherlands, France, Hungary, Lithuania |
| 15-30 | Denmark, Slovakia, Sweden, British Virgin Isl., Spain, Finland, Norway, Italy, Austria, Nigeria, Ukraine |
| 30-50 | Japan, Poland, Portugal, Switzerland, Latvia, Cambodia, Morocco, Lebanon |
| ≥ 50 | Chile, Malaysia, China Macao Special Administrative Region, Lao People's DR, Ireland |

**Note:** The ranking is based on the mean for the years 2005 and 2006.
*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

Table 25 shows that the "best countries" for the HHI calculated for the variable "Market share of national, US and other films" are very diverse. Results should be interpreted cautiously as the balanced situation of the countries at the head of the ranking can hide diverse realities – from the effective openness of France to the illusory openness in Laos where the supposed "balance" is more the result of a weak domestic film production.

**Table 25. Market share of national, US and other films, based on the average between 2005 and 2006 (ranked with the HHI Index)**

| Market share of national, US and other films | Countries |
|---|---|
| 1-10 | China Macao Special Administrative Region, Malaysia, Lao People's DR, Morocco, Japan, Cambodia, Lebanon, Switzerland, France, Latvia |
| 11-20 | Poland, Denmark, Sweden, Czech Republic, Finland, Spain, Norway, Ukraine, Germany, Hungary |
| 21-30 | Netherlands, Austria, Brazil, Chile, Estonia, Slovakia, Lithuania, Australia, Croatia, Iceland |
| 31-38 | Mexico, Slovenia, Canada, Romania, Republic of Moldova, United States of America, Azerbaijan, Costa Rica |

*Source:* UIS 2007 Feature Film Statistics Survey, 2009.

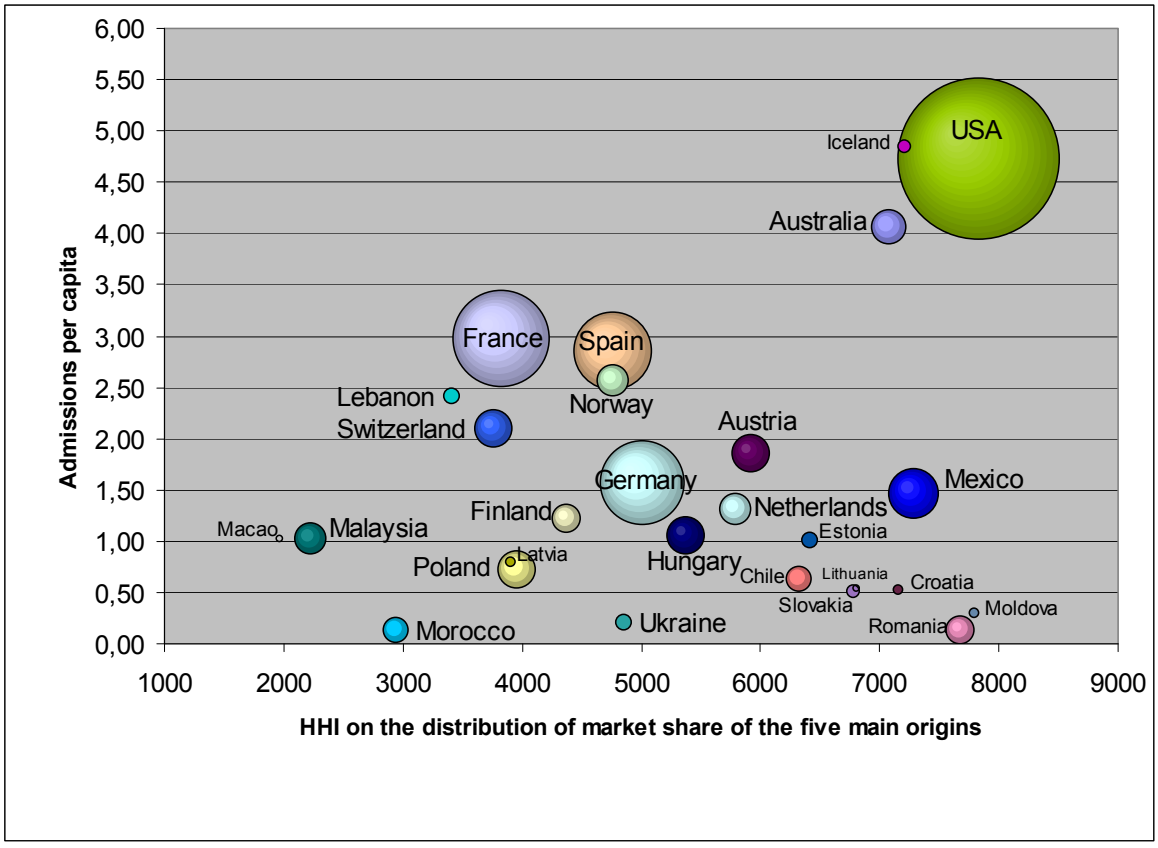
## 6.4 Towards a more general appreciation of cultural diversity

Finally, it is interesting to sketch out a multi-criteria classification of the countries in terms of cultural diversity in the film industry. To capture the largest sample size of countries, it was necessary to restrict the analysis to the smallest common denominator of the list of criteria, which are the following three: number of national films produced, admissions per capita and the HHI (for the five main origins). Taking these criteria into consideration equally, the ranking – based on averages over the 2005-2006 period – is as illustrated in **Table 26** and **Figure 1**.

The six most diverse countries comprise four European countries (France, Spain, Switzerland and Germany, in descending order) while one Asian country (Malaysia) and one Arabic country (Lebanon) share the fifth rank. The United States and Norway are both ranked seventh followed by Austria, Australia and Hungary (all at the 9th position).

The position of France at the top of this scale of cultural diversity must correlate to the policy, which was put into effect between the two World Wars and reinforced afterwards. It is regrettable that Canada and the United Kingdom are absent from this list due to the surprising lack of data for both countries.

**Figure 1. Cultural diversity in the movie industry among 27 countries**




**Note**: The size of the sphere which represents each country is proportional to the number of national films produced in this country.

*Source:* Based on UIS 2007 Feature film Statistics Survey, 2009.

**Table 26. Ranking of 27 countries based on the analysis of three criteria of cultural diversity (2005-2006)**

| Criteria | N° of national films produced | | Admissions per capita | | HHI (five main origins) | | Three criteria | |
|---|---|---|---|---|---|---|---|---|
| Country | Mean | Rank | Mean | Rank | Mean | Rank | Mean | Rank |
| Australia | 26.5 | 10 | 4.06 | 3 | 7 072 | 21 | 11 | 9 |
| Austria | 32 | 9 | 1.86 | 9 | 5 915 | 16 | 11 | 9 |
| Chile | 14.5 | 16 | 0.63 | 20 | 6 314 | 17 | 18 | 20 |
| Croatia | 2 | 24 | 0.53 | 22 | 7 146 | 22 | 23 | 26 |
| Estonia | 6 | 19 | 1.01 | 17 | 6 406 | 18 | 18 | 21 |
| Finland | 19.5 | 14 | 1.22 | 13 | 4 375 | 9 | 12 | 13 |
| France | 221.5 | 2 | 2.98 | 4 | 3 817 | 6 | 4 | 1 |
| Germany | 160 | 3 | 1.58 | 10 | 5 010 | 13 | 9 | 4 |
| Hungary | 36 | 6 | 1.06 | 14 | 5 370 | 14 | 11 | 9 |
| Iceland | 4 | 22 | 4.86 | 1 | 7 207 | 23 | 15 | 17 |
| Latvia | 3 | 23 | 0.80 | 18 | 3 900 | 7 | 16 | 19 |
| Lebanon | 7.5 | 18 | 2.42 | 7 | 3 403 | 4 | 10 | 5 |
| Lithuania | 1.5 | 26 | 0.54 | 21 | 6 800 | 20 | 22 | 24 |
| China, Macao SAR | 1 | 27 | 1.03 | 15 | 1 959 | 1 | 14 | 16 |
| Malaysia | 25.5 | 11 | 1.02 | 16 | 2 227 | 2 | 10 | 5 |
| Mexico | 58.5 | 5 | 1.47 | 11 | 7 280 | 24 | 13 | 15 |
| Morocco | 14 | 17 | 0.14 | 26 | 2 939 | 3 | 15 | 17 |
| Netherlands | 25 | 12 | 1.32 | 12 | 5 782 | 15 | 13 | 14 |
| Norway | 22.5 | 13 | 2.58 | 6 | 4 761 | 11 | 10 | 7 |
| Poland | 33.5 | 8 | 0.73 | 19 | 3 956 | 8 | 12 | 12 |
| Rep of Moldova | 2 | 24 | 0.30 | 24 | 7 785 | 26 | 25 | 27 |
| Romania | 19 | 15 | 0.13 | 27 | 7 676 | 25 | 22 | 24 |
| Slovakia | 5 | 21 | 0.52 | 23 | 6 781 | 19 | 21 | 23 |
| Spain | 146 | 4 | 2.86 | 5 | 4 760 | 10 | 6 | 2 |
| Switzerland | 34 | 7 | 2.11 | 8 | 3 751 | 5 | 7 | 3 |
| Ukraine | 6 | 19 | 0.21 | 25 | 4 844 | 12 | 19 | 22 |
| United States | 589.5 | 1 | 4.73 | 2 | 7 827 | 27 | 10 | 7 |

Further analysis shows that the correlation rate between the number of films and the HHI is very low ($R^2 = 0.053$), while it is much higher between the number of films and the level of admissions ($R^2 = 0.55$).

Beyond the rankings, it is possible to sketch a typology including seven groups of countries, as shown in **Table 27**.

**Table 27. A typology based on two criteria – Admissions and balance in consumption**

| | Attendance | | |
|---|---|---|---|
| **Balance** | **High** | **Average** | **Low** |
| **High** | France, Switzerland, Spain, Lebanon (1) | Finland, Mexico, Malaysia, China, Macao SAR (4) | Poland, Morocco, Latvia (6) |
| **Average** | Norway, Austria, Germany (2) | Netherland, Hungary, Estonia (5) | _ |
| **Low** | USA, Iceland, Australia (3) | _ | Croatia, Republic of Moldova, Lithuania, Romania (7) |

In spite of a strong attendance, some countries appear reluctant to practice diversity (3). Conversely, countries with a low level of attendance are relatively open (6). Some countries cumulate a high level of attendance and diversity (1) while others combine a low level of both criteria (7). A number of countries fall into an average position for both criteria (2, 4, 5). Overall, this general view helps policy-makers better understand the dimensions and criteria of diversity, and to draw on elements of comparison that can be linked to cultural traditions, economic trends and cultural policies.

# 7. Conclusion

This theoretical and empirical report confirms the importance of the definition of reliable indexes of cultural diversity. The two main topics explored are:

- the construction of an index that improves on the Stirling index
- an international comparison of diversity in the film industry based on the UNESCO database and on an original methodology.

This section highlights some proposals for improving the database. This report stresses the importance of partial and synthetic indexes. It is important to note the evolution of cultural diversity with time and cultural policies. It is also necessary to reiterate that caution be used when interpreting the results stated here – understanding the scope of cultural diversity requires taking into account both historical and economic contexts.

Further research to investigate the link between the variables of diversity and the variables of the democratization of consumption could be of interest. Additional remarks concern the two related topics of public access to and the impact of new technologies on cinema.

## 7.1 Proposals for improvements to the database

Three main suggestions have emerged from this report:

1. As seen previously, the variety produced by title can be measured by the number of national feature films produced in a given country over the course of one year. Although this variable indicates the size of the total production of national films, it would also be interesting to know the number of different films (foreign and domestic) that are shown in cinema theatres. Thanks to a winner-takes-all phenomenon, a non-negligible number of films produced is never even shown in theatres. Thus, supplied variety differs from produced variety. Consumed variety should be captured through additional specific variables, such as price, categories of films and degree of urbanization.

2. The variety consumed – evaluated based on average admissions per cinema – should be supplemented with information on the videocassette and DVD market[23] as well as on films on TV. The consumption of films on the internet is also likely to grow – to the detriment of cinema and traditional TV. This trend will depend on how equipped households are with new technologies. It may be interesting to collect detailed data on this phenomenon.

3. Evaluating disparity will require more criteria than “languages” alone. Some of these criteria, in spite of the difficulties linked to this kind of classification, can rely on the type of film produced (i.e. comedies, dramas, fantastic, etc.) and/or on the “identity of the film-maker” (novice or experienced professional, country of origin, genre, age, etc.). Post-production criteria, such as the success and the quality of films – measured not only by attendance but also by awards garnered and by the judgement of experts – can shed light on the “quality potential” of a domestic cinema industry.

[23] Information on this topic is requested in the UIS Feature Film Survey but the responses were unreliable.

## 7.2 Partial and synthetic indexes

It is important to be able to compare the level of diversity between two countries or between two periods. A synthetic index harbours the advantage of enabling these comparisons. However, one should keep in mind the limitations when interpreting a positive or negative evolution. Firstly, it is very difficult to capture the reality of the third dimension of diversity – disparity. As noted previously, disparity involves many elements, and "languages" or "country of origin" alone cannot summarize nor represent the wide scope of those elements. Secondly, with synthetic indexes, the rise of one criterion can compensate for the decline of another one, which allows one to disregard the determinants of the evolution observed. Thus, the objectives and tools of a policy in favour of diversity cannot be defined.

Therefore, analyses are "condemned" to be modest and build partial but significant theoretical and empirical approaches that combine data (i.e. on the number of films or the number of films released by new film-makers) with more sophisticated indexes such as the ones presented in this report.

*i) The risk associated with presenting contradictory interpretations*

Some dimensions of diversity can increase while others may diminish. The number of films released may increase drastically and this growth can go hand in hand with a decrease in the diversity of genres, in the level of artistic innovation or in the propensity to employ lesser-known actors and film makers as opposed to movie stars and well-known film makers. In the same way, balance can be evaluated as almost perfect despite a low level of national film-production.

Some variables are difficult to interpret, such as the market share of national distribution companies. If this market share is a necessary condition to achieve a satisfying level of distribution for national films, it is thus not a sufficient condition – national companies may be less interested in national films and more interested in distributing films produced in the United States due to popular demand. Most surveys reveal that global cinema is American and that this consumption is generally shared between American and national films while the "rest of the world" benefits from a very small market share (Cohen and Verdier, 2008). On the other hand, the existence of only national distribution companies may signal the existence of a bureaucratic industry, owned by public authorities with a very low capacity for artistic and cultural innovation and freedom. Conversely, it can bear testimony to the will to form a strong policy favouring the development of a national industry. Ultimately, in the cinema industry, distribution activity dictates economic power.

As previously discussed, Appendix Table A16 shows that many countries display a market share of national companies that is greater than 90%. In Belarus, Bulgaria, Costa Rica, Croatia, Cuba, the Dominican Republic, Lao PDR, Slovenia, Ukraine, Mauritius, the Republic of Moldova, Malaysia and Singapore, this phenomenon is probably due to the political state organization or the inherited political organization. In most countries on this list, cinema is still considered a subversive media that has to be controlled. In India and Nigeria, the same phenomenon (i.e. national companies that hold large market shares) is due to the strength of national production and the specific status of cinema consumption despite a low real purchasing power. In Germany, Iceland, the Netherlands, Spain and Switzerland, it is, to some extent, the result of the cultural policies that support national companies or the privatization of the cinema industry.

*ii) The variation in hierarchies*

Comparison of the ranks assigned to different countries depending on their index score and/or their fulfilment of certain criteria shows that diversity cannot be considered a singular concept. As Flores (2006) demonstrates, the concept in itself is diverse and complex.

### 7.3 Observing the evolution of cultural diversity with time

It is important to note that the data in the UNESCO database covers only two years. The average value of variables for both years was used in this report, which does not take into account the evolution between 2005 and 2006. Thus, caution is advised when interpreting changes seen in data. Cultural products are prototype goods and a single blockbuster can explain an atypical rise in consumption, as in the emblematic cases of *Titanic* (for the United States and many other countries), *La Chute de l'Empire américain* (for Canada), *Les Ch'tis* (for France), etc. To more accurately capture the evolution of cultural diversity with time, a longer period of observation is needed.

### 7.4 The correlation between the level of indexes and cultural policies

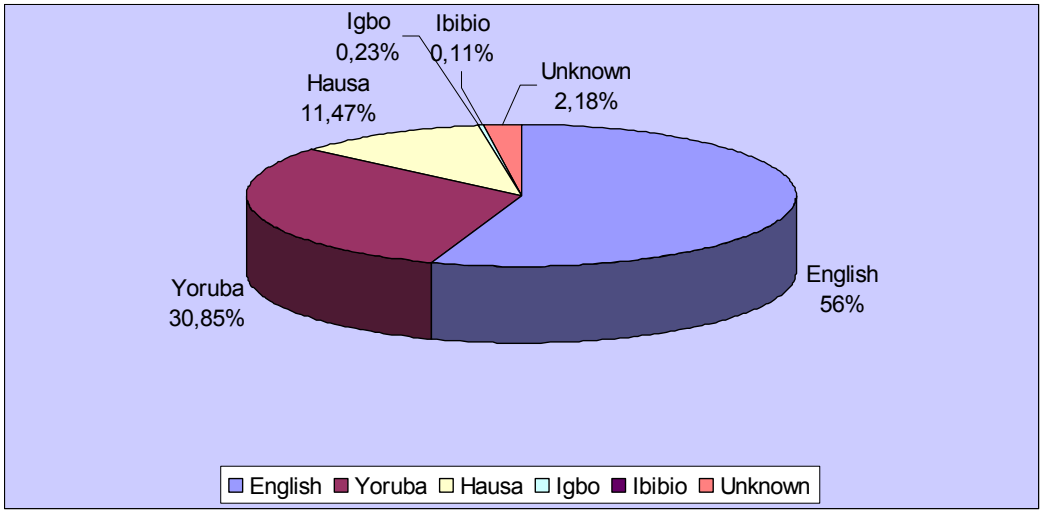
The correlation between policies and diversity remains difficult to define. To gain a better understanding of this link, a study of the evolution of diversity when a change in policy occurs is needed – with all other things being equal of course. A continuous collection of information on cultural policies is needed to observe the evolution of national cultural policies so that analyses can be done when diversity is in question. One example of a policy that may affect cultural diversity and thus should be analysed is the adoption of retail price maintenance (RPM) for books in Mexico and Switzerland, which will probably result in the promotion of less-popular books (i.e. books that target a narrow readership). In the same way, recent changes in the "chronologie des médias[24]" in France can affect the market share of cinemas versus TV and thus, impact the level of diversity.

### 7.5 The limits of comparisons – Can the same indexes be used in different cultural contexts?

Some countries display very strong peculiarities. For example, the history and legacy of an existing diversity in a country can explain the different languages spoken in the country and used in film. This is the case in Nigeria *(see **Figure 2**)* as well as India *(see **Figure 3**).* An intrinsic diversity can coexist with a low degree of openness to other non-national cultures. In other terms, the internal diversity creates an absence of interest for what we can call extrinsic diversity.

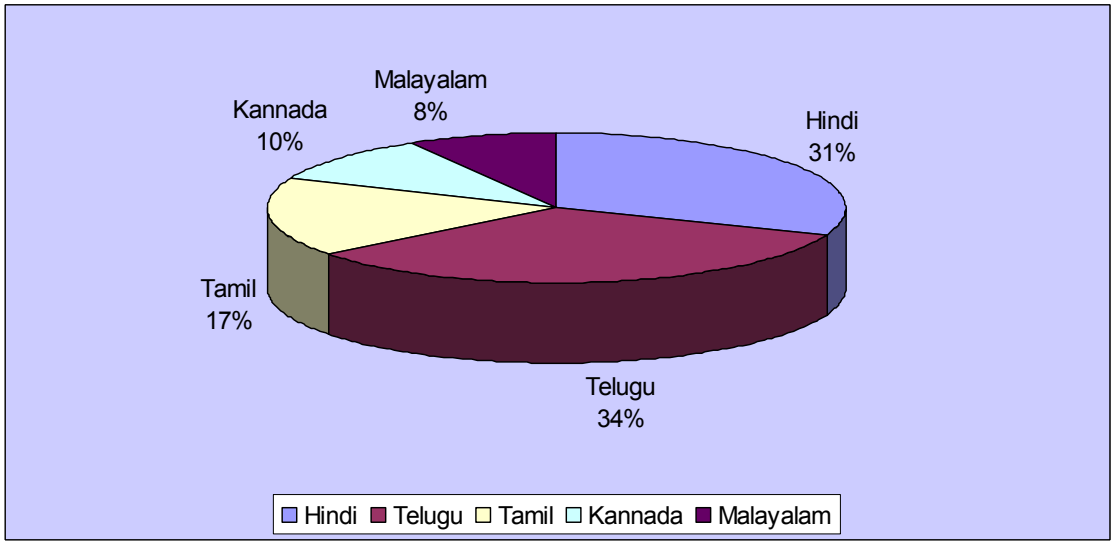
[24] Since 1983, regulations have imposed a delay (called "chronology of media") between the programming of a film in theatres and its broadcasting on traditional TV channels, coded TV channels, videos and "pay per view" TV.

**Figure 2. Diversity in production languages for Nigerian films, 2005 (number of films produced: 872)**




*Source:* Based on UIS-UNESCO, 2009.

**Figure 3. Diversity in production languages for Indian films, 2005 (number of films produced: 1041)**




*Source:* Based on UIS-UNESCO, 2009.

More generally speaking, context is essential to understanding the scope of diversity. Assessing criteria alone does not always convey the reality of a situation, depending on the national or even local culture.

## 7.6 Correlation between variables of diversity and variables of democratization of consumption

In terms of strengthening the initial methodology proposed by Stirling, one of the main contributing aspects of the study here is the introduction of a distinction between the respective notions of diversity supplied, diversity distributed and diversity consumed. Diversity is not "naturally" desired as some may assume. As many studies show (Benhamou, 2002), consumers can exhibit reluctance when faced with diversity (Schooler, Ohlsson et Brooks, 1993). The diversity of cultural consumption depends on many factors – especially on long-term experience. A strong effort in favour of consumption is never immediately efficient – learning and access are also crucial elements.

*i) Accessing cultural services (cinema theatres)*

Diversity is not the only desirable outcome per se. The opportunity to consume is a necessary condition for the development of cultural diversity. Cinemas must be numerous, well-dispersed across the whole territory (i.e. not limited to the biggest cities only) and not too expensive as to prohibit the public from accessing this source of leisure and culture.

*ii) Access to other media (video, VOD, TV, catch-up TV, internet, cellular phones)*

New media are a tool that can broaden access to a variety of cultural products. This report does not fully address this topic but it is important to be mindful that the number of cinemas alone does not fully reflect access to cinema. Further data are needed to shed light on this important aspect of access.

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# Appendix

All data presented in the following tables originate from the 2009 UIS Feature Film Statistics Database.

**Table A1. Response rate (in %) by number of criteria, 2005-2006**

| Country | All criteria (11 total) | Six criteria | Four criteria | Three criteria |
|---|---|---|---|---|
| Armenia | 14 | 17 | 25 | 33 |
| Andorra | 5 | 0 | 0 | 0 |
| Argentina | 14 | 17 | 25 | 33 |
| Australia | 100 | 100 | 100 | 100 |
| Austria | 95 | 100 | 100 | 100 |
| Azerbaijan | 38 | 33 | 50 | 67 |
| Bahrain | 5 | 0 | 0 | 0 |
| Belarus | 43 | 33 | 50 | 67 |
| Belgium | 24 | 17 | 25 | 33 |
| Brazil | 62 | 67 | 75 | 67 |
| British Virgin Is | 33 | 33 | 50 | 33 |
| Bulgaria | 57 | 67 | 50 | 67 |
| Burkina Faso | 10 | 0 | 0 | 0 |
| Cambodia | 24 | 17 | 25 | 33 |
| Cameroon | 33 | 17 | 25 | 33 |
| Canada | 48 | 33 | 50 | 67 |
| Chile | 100 | 100 | 100 | 100 |
| China | 14 | 17 | 25 | 33 |
| Colombia | 10 | 17 | 25 | 33 |
| Costa Rica | 71 | 83 | 75 | 67 |
| Croatia | 67 | 50 | 75 | 100 |
| Cuba | 38 | 33 | 50 | 67 |
| Cyprus | 38 | 17 | 25 | 33 |
| Czech Republic | 62 | 67 | 75 | 67 |
| Denmark | 57 | 67 | 75 | 67 |
| Dominican Republic | 29 | 17 | 25 | 33 |
| Egypt | 38 | 17 | 25 | 33 |
| Estonia | 95 | 100 | 100 | 100 |
| Finland | 95 | 100 | 100 | 100 |
| France | 86 | 100 | 100 | 100 |
| Germany | 86 | 100 | 100 | 100 |
| Hungary | 100 | 100 | 100 | 100 |
| Iceland | 95 | 100 | 100 | 100 |
| India | 38 | 33 | 50 | 67 |
| Indonesia | 29 | 33 | 50 | 67 |
| Iran, Islamic Rep of | 5 | 0 | 0 | 0 |
| Ireland | 71 | 67 | 75 | 67 |
| Israel | 38 | 17 | 25 | 33 |
| Italy | 76 | 67 | 75 | 67 |
| Japan | 52 | 67 | 75 | 67 |
| Kyrgyzstan | 38 | 17 | 25 | 33 |
| Lao PDR | 33 | 33 | 25 | 33 |
| Latvia | 86 | 83 | 100 | 100 |
| Lebanon | 100 | 100 | 100 | 100 |
| Lithuania | 100 | 100 | 100 | 100 |
| Luxembourg | 5 | 0 | 0 | 0 |
| China, Macao SAR | 43 | 50 | 75 | 100 |
| Madagascar | 5 | 17 | 25 | 33 |
| Malaysia | 81 | 83 | 75 | 100 |
| Mauritius | 14 | 0 | 0 | 0 |
| Mexico | 100 | 100 | 100 | 100 |
| Mongolia | 19 | 17 | 25 | 33 |
| Morocco | 81 | 83 | 75 | 100 |
| Mozambique | 29 | 17 | 25 | 33 |
| Namibia | 38 | 33 | 25 | 33 |
| Netherlands | 95 | 83 | 100 | 100 |
| New Zealand | 29 | 17 | 25 | 33 |
| Niger | 5 | 0 | 0 | 0 |
| Nigeria | 38 | 33 | 25 | 33 |

**Table A1. Response rate (in %) according by number of criteria, 2005-2006 (continued)**

| Country | All criteria (11 total) | Six criteria | Four criteria | Three criteria |
|---|---|---|---|---|
| Norway | 81 | 83 | 83 | 100 |
| Oman | 29 | 17 | 25 | 33 |
| Philippines | 19 | 17 | 25 | 33 |
| Poland | 81 | 100 | 100 | 100 |
| Portugal | 95 | 83 | 75 | 67 |
| Republic of Korea | 24 | 33 | 25 | 33 |
| Republic of Moldova | 52 | 50 | 75 | 100 |
| Romania | 100 | 100 | 100 | 100 |
| Russian Federation | 24 | 33 | 50 | 67 |
| St Vincent/Grenadines | 10 | 0 | 0 | 0 |
| Singapore | 52 | 33 | 50 | 67 |
| Slovakia | 100 | 100 | 100 | 100 |
| Slovenia | 57 | 33 | 50 | 67 |
| Spain | 67 | 50 | 75 | 100 |
| Sweden | 67 | 83 | 75 | 67 |
| Switzerland | 100 | 100 | 100 | 100 |
| Thailand | 19 | 33 | 50 | 67 |
| Tunisia | 10 | 0 | 0 | 0 |
| Turkey | 57 | 50 | 50 | 33 |
| Ukraine | 52 | 50 | 75 | 100 |
| United Arab Emirates | 10 | 17 | 25 | 33 |
| United Kingdom | 38 | 33 | 50 | 67 |
| United States | 33 | 50 | 75 | 100 |

**Notes:** Six criteria: number of national films produced, admissions per capita, market share of the top ten films, rate of similarity between national top ten films and the global top ten, $H_{bfp}$, HHI on the market share of the five main origins.

Four criteria: number of national films produced, admissions per capita, $H_{bfp}$, HHI on the market share of the five main origins.

Three criteria: number of national films produced, admissions per capita, HHI on the market share of the five main origins.

## Table A2. Availability of data by country and criteria

| Criteria / Country | Number of films produced | Admissions per capita | Admissions per cinema | Number of cinemas per capita | % of multiplexes | Number of film distributions companies | Market share of the 3 distribution companies | Market share of the top ten films in total admissions | Rate of similarity | Number of differ-rent languages in which films are shot | Number of foreign languages | Number of different language of the top ten | Number of foreign languages in the top ten | HHI distribution of films produced by language | HHI distribution of top ten films admissions by languages | Hst on distribution of top ten films admissions by languages | Hfbp distribution of top ten films admissions by languages | Number of films coproduced | % of 100% nationnal feature films produced | HHI on the five mains countries of origin | Analysis of the maket share of nationnal, US, others countries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Armenia | * | | | | | | | | | | | | | | | | | * | * | | |
| Andorra | | | | * | | | | | | | | | | | | | | | | | |
| Argentina | | * | * | * | | | | | | | | | | | | | | | | | |
| Australia | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Austria | * | * | * | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Azerbaijan | * | | * | * | | | | | | * | * | | | * | | | | | | * | * |
| Bahrain | | | | * | | | | | | | | | | | | | | | | | |
| Belarus | * | * | * | * | | * | * | | | * | * | | | * | | | | | | | |
| Belgium | * | | | * | | * | | | | | | | | | | | | * | * | | |
| Brazil | * | | | * | * | * | * | | * | | | * | * | | * | * | * | | | * | * |
| British Virgin Is | | * | * | * | | | | | | | | | | | | | | | | | * |
| Bulgaria | * | * | * | * | * | * | | * | * | | | * | * | | * | * | * | * | * | | |
| Burkina Faso | * | | | | | | | | | | | | | | | | | * | * | | |
| Cambodia | | | | | | | | | | * | * | | | * | | | | | | * | * |
| Cameroon | * | | | * | | | | | | * | * | | | * | | | | * | * | | |
| Canada | * | | | * | | | * | | | * | * | | | * | | | | * | * | * | * |
| Chile | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| China | * | | | * | | | | | | | | | | | | | | * | | | |
| Colombia | | * | | * | | | | | | | | | | | | | | | | | |
| Costa Rica | | * | * | * | * | * | * | * | * | | | * | * | | * | * | * | | | * | * |
| Croatia | * | * | * | * | * | * | * | | | * | * | | | * | | | | * | * | * | * |
| Cuba | * | * | * | * | | * | * | | | | | | | | | | | * | * | | |
| Cyprus | * | | | * | | * | | | | * | * | | | * | | | | * | * | | |
| Czech Rep. | * | | | * | | * | | | * | | | * | * | | * | * | * | * | * | * | * |
| Denmark | * | | | * | | * | * | | * | | | * | * | | * | * | * | | | * | * |

**Table A2. Availability of data by country and criteria (continued)**

| Criteria | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | Number of films produced | Admissions per capita | Admissions per cinema | Number of cinemas per capita | % of multiplexes | Number of film distributions companies | Market share of the 3 distribution companies | Market share of the top ten films in total admissions | Rate of similarity | Number of differ-rent languages in which films are shot | Number of foreign languages | Number of different language of the top ten | Number of foreign languages in the top ten | HHI distribution of films produced by language | HHI distribution of top ten films admissions by languages | Hst on distribution of top ten films admissions by languages | Hfbp distribution of top ten films admissions by languages | Number of films coproduced | % of 100% nationnal feature films produced | HHI on the five mains countries of origin | Analysis of the maket share of nationnal, US, others countries |
| Dominican Rep. | * | | | * | * | * | | | | | | | | | | | | * | * | | |
| Egypt | | * | * | * | | * | | | | * | * | | | * | | | | * | | | |
| Estonia | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Finland | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| France | * | * | * | * | * | * | * | * | * | | | * | * | | * | * | * | * | * | * | * |
| Germany | * | * | * | * | * | * | * | * | * | | | * | * | | * | * | * | * | * | * | * |
| Hungary | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Iceland | * | * | * | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| India | * | * | * | * | | * | | | | * | * | | | * | | | | | | | |
| Indonesia | * | * | * | * | | | | | | | | | | | | | | | * | | |
| Iran, IR | | | | * | | | | | | | | | | | | | | | | | |
| Ireland | * | * | * | * | * | * | | | * | | | * | * | | * | * | * | * | * | | * |
| Israel | * | | | * | * | | | | | * | * | | | * | | | | * | * | | |
| Italy | * | * | * | * | * | * | * | | * | | | * | * | | * | * | * | * | * | | * |
| Japan | * | | | * | | | * | | * | | | * | * | | * | * | * | | | * | * |
| Kyrgyzstan | * | | * | * | | | | | | * | * | | | * | | | | * | * | | |
| Lao PDR | | | * | * | | * | * | | | | | | | | | | | | | * | * |
| Latvia | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | | * | * |
| Lebanon | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Lithuania | * | * | * | * | * | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Luxembourg | | | | * | | | | | | | | | | | | | | | | | |
| China, Macao SAR | * | * | * | * | | | | | | * | * | | | * | | | | | | * | * |

**Table A2. Availability of data by country and criteria (continued)**

| Criteria | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | Number of films produced | Admissions per capita | Admissions per cinema | Number of cinemas per capita | % of multiplexes | Number of film distributions companies | Market share of the 3 distribution companies | Market share of the top ten films in total admissions | Rate of similarity | Number of differ-rent languages in which films are shot | Number of foreign languages | Number of different language of the top ten | Number of foreign languages in the top ten | HHI distribution of films produced by language | HHI distribution of top ten films admissions by languages | Hst on distribution of top ten films admissions by languages | Hfbp distribution of top ten films admissions by languages | Number of films coproduced | % of 100% nationnal feature films produced | HHI on the five mains countries of origin | Analysis of the maket share of nationnal, US, others countries |
| Madagascar | * | | | | | | | | | | | | | | | | | | | | |
| Malaysia | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | | | | * | * |
| Mauritius | | | | * | | * | | | | | | | | | | | | | | | |
| Mexico | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Mongolia | * | | | | | | | | | * | * | | | * | | | | | | | |
| Morocco | * | * | * | * | | * | | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Mozambique | * | | * | * | | | | | | * | * | | | * | | | | | | | |
| Namibia | * | | | * | | * | * | | | * | * | | | * | | | | | | | |
| Netherlands | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| New Zealand | * | | | | | | | | | * | * | | | * | | | | * | * | | |
| Niger | | | | * | | | | | | | | | | | | | | | | | |
| Nigeria | * | | | * | | * | * | | | * | * | | | * | | | | | | | |
| Norway | * | * | * | * | * | * | * | * | * | | | * | * | | * | * | | * | * | * | * |
| Oman | * | | | * | | * | | | | * | * | | | * | | | | | | | |
| Philippines | * | | | * | * | * | | | | | | | | | | | | | | | |
| Poland | * | * | * | * | * | * | | * | * | | | * | * | | * | * | * | * | * | * | * |
| Portugal | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | * |
| Rep. of Korea | * | | | | | | | | * | | | * | * | | * | | | | | | |
| Rep. of Moldova | * | * | * | * | | * | | | | * | * | | | * | | | | * | | * | * |
| Romania | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Russian Fed. | * | * | * | * | | | * | | | | | | | | | | | | | | |

**Table A2. Availability of data by country and criteria (continued)**

| Criteria | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | Number of films produced | Admissions per capita | Admissions per cinema | Number of cinemas per capita | % of multiplexes | Number of film distributions companies | Market share of the 3 distribution companies | Market share of the top ten films in total admissions | Rate of similarity | Number of differ-rent languages in which films are shot | Number of foreign languages | Number of different language of the top ten | Number of foreign languages in the top ten | HHI distribution of films produced by language | HHI distribution of top ten films admissions by languages | Hst on distribution of top ten films admissions by languages | Hfbp distribution of top ten films admissions by languages | Number of films coproduced | % of 100% nationnal feature films produced | HHI on the five mains countries of origin | Analysis of the maket share of nationnal, US, others countries |
| St Vincent/Grenad. | | | | * | | | | | | | | | | | | | | | | | * |
| Singapore | * | * | * | * | * | * | | | | * | * | | | * | | | | * | * | | |
| Slovakia | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| Slovenia | * | | | * | * | * | * | | | * | * | | | * | | | | * | * | * | * |
| Spain | * | * | * | * | * | * | * | | | * | * | | | * | | | | * | * | * | * |
| Sweden | * | | | * | | * | | | * | | | * | * | | * | * | * | * | * | * | * |
| Switzerland | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | * | * | * | * |
| Thailand | * | * | * | * | | | | | | | | | | | | | | | | | |
| Tunisia | | | * | * | | | | | | | | | | | | | | | | | |
| Turkey | * | | | * | * | * | | | * | | | * | * | | * | * | * | * | * | | |
| Ukraine | * | * | * | * | | * | * | | | * | * | | | * | | | | | | * | * |
| United Arab Em. | | * | | * | | | | | | | | | | | | | | | | | |
| United Kingdom | * | * | * | * | | * | * | | | | | | | | | | | * | * | | |
| United States | * | * | * | * | | | * | | | | | | | | | | | | | * | * |
| Number of answers | 66 | 45 | 48 | 75 | 32 | 51 | 37 | 24 | 33 | 41 | 41 | 33 | 33 | 41 | 33 | 31 | 29 | 45 | 43 | 38 | 43 |
| Total number of countries | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 | 208 |
| Response ratio (%) | 31.25 | 21.63 | 23.08 | 36.06 | 15.38 | 25.00 | 17.31 | 12.50 | 16.35 | 19.71 | 19.71 | 16.35 | 16.35 | 19.71 | 16.35 | 14.90 | 14.42 | 22.12 | 20.67 | 18.27 | 20.67 |

**Table A3. Summary of the data**

| Criteria | | Number of observations | Mean | Median | Min. | Max |
|---|---|---|---|---|---|---|
| Number of films produced | | 66 | 77.02 | 20.75 | 1.00 | 1066.00 |
| Admissions per capita | | 45 | 1.47 | 1.02 | 0.13 | 4.93 |
| Admissions per cinema | | 48 | 100209.38 | 48227.22 | 3319.68 | 578741.67 |
| Number of cinemas per capita | | 75 | 24.29 | 14.02 | 0.37 | 128.99 |
| % of multiplexes | | 32 | 11.69 | 6.95 | 0.91 | 39.06 |
| Number of film distributions companies | | 51 | 37.40 | 14.00 | 1.00 | 458.00 |
| Market share of the 3 distribution companies | | 37 | 69.57 | 69.00 | 33.45 | 100.00 |
| Market share of the top ten films in total admissions | | 24 | 30.54 | 31.26 | 7.07 | 41.28 |
| Rate of similarity of the top ten films | | 33 | 57.12 | 60.00 | 20.00 | 80.00 |
| Number of different languages in which films are shot [(a)] | | 41 | 2.44 | 2.00 | 1.00 | 6.00 |
| Number of foreign languages [(a)] | | 41 | 0.80 | 0.50 | 0.00 | 4.00 |
| Number of different languages of the top ten | | 33 | 2.82 | 2.50 | 2.00 | 5.50 |
| Number of foreign languages in the top ten | | 33 | 2.11 | 2.00 | 1.00 | 4.50 |
| HHI distribution of films produced by language | | 41 | 7365.49 | 7500.00 | 1489.32 | 10000.00 |
| HHI on the distribution of top ten films admissions by languages | | 33 | 7718 | 8166.70 | 3079.5 | 10000 |
| Hst on the on the distribution of top ten films admissions by languages | | 30 | 728.23 | 541.85 | 0 | 2473.99 |
| Hfbp on the distribution of top ten films admissions by languages | | 29 | 603.48 | 343.87 | 0 | 2473.99 |
| Number of films coproduced | | 45 | 12.24 | 4.00 | 1.00 | 95.00 |
| Percent of 100% national feature films produced | | 43 | 43.16 | 34.78 | 9.09 | 100.00 |
| HHI on the five mains countries of origin | | 38 | 5421.30 | 5190.13 | 1958.65 | 9636.18 |
| Market share of national, US and other countries | National | 45 | 13.55 | 6.00 | 0.00 | 88.42 |
| | US | 43 | 65.26 | 67.00 | 10.00 | 100.00 |
| | Others countries | 44 | 23.65 | 16.82 | 0.00 | 97.17 |

**Note:** [(a)] (a) For this variable, the value of “at least x languages”, has been reduced to the singular value “x” in order to better quantify this value.

**Table A4. Number of films produced in each country (variety produced by title)**

| Country | 2005 | 2006 | Mean 2005-2006 | Rank 2005-2006 |
|---|---|---|---|---|
| Armenia | 10 | 8 | 9.00 | 41 |
| Australia | 25 | 28 | 26.50 | 28 |
| Austria | 30 | 34 | 32.00 | 25 |
| Azerbaijan | 2 | 3 | 2.50 | 56 |
| Belarus | 2 | 2 | 2.00 | 57 |
| Belgium | na | 10 | 10.00 | 39 |
| Brazil | 24 | 27 | 25.50 | 29 |
| Bulgaria | 9 | 10 | 9.50 | 40 |
| Burkina Faso | 4 | 5 | 4.50 | 51 |
| Cameroon | 4 | 7 | 5.50 | 48 |
| Canada | 52 | 74 | 63.00 | 14 |
| Chile | 18 | 11 | 14.50 | 36 |
| China | 260 | na | 260.00 | 5 |
| Croatia | na | 2 | 2.00 | 57 |
| Cuba | 4 | 6 | 5.00 | 49 |
| Cyprus | na | 4 | 4.00 | 53 |
| Czech Republic | na | 35 | 35.00 | 21 |
| Denmark | 41 | 34 | 37.50 | 19 |
| Dominican Republic | 3 | 9 | 6.00 | 45 |
| Estonia | 5 | 7 | 6.00 | 45 |
| Finland | 20 | 19 | 19.50 | 34 |
| France | 240 | 203 | 221.50 | 6 |
| Germany | 146 | 174 | 160.00 | 7 |
| Hungary | 26 | 46 | 36.00 | 20 |
| Iceland | 2 | 6 | 4.00 | 53 |
| India | 1041 | 1091 | 1066.00 | 1 |
| Indonesia | na | 60 | 60.00 | 15 |
| Ireland | 10 | 19 | 14.50 | 36 |
| Israel | 22 | 22 | 22.00 | 33 |
| Italy | 98 | 116 | 107.00 | 9 |
| Japan | 356 | 417 | 386.50 | 4 |
| Kyrgyzstan | na | 1 | 1.00 | 61 |
| Latvia | 4 | 2 | 3.00 | 55 |
| Lebanon | 7 | 8 | 7.50 | 43 |
| Lithuania | 2 | 1 | 1.50 | 60 |
| China, Macao SAR | na | 1 | 1.00 | 61 |
| Madagascar | 26 | 40 | 33.00 | 24 |
| Malaysia | 23 | 28 | 25.50 | 29 |
| Mexico | 53 | 64 | 58.50 | 16 |
| Mongolia | 1 | na | 1.00 | 61 |
| Morocco | 16 | 12 | 14.00 | 38 |
| Mozambique | na | 1 | 1.00 | 61 |
| Namibia | 1 | na | 1.00 | 61 |
| Netherlands | 29 | 21 | 25.00 | 31 |
| New Zealand | 3 | 6 | 4.50 | 51 |
| Nigeria | 872 | na | 872.00 | 2 |
| Norway | 24 | 21 | 22.50 | 32 |
| Oman | na | 1 | 1.00 | 61 |
| Philippines | 84 | 65 | 74.50 | 13 |
| Poland | 30 | 37 | 33.50 | 23 |
| Portugal | 22 | 32 | 27.00 | 27 |
| Republic of Korea | 87 | 110 | 98.50 | 11 |
| Republic of Moldova | 1 | 3 | 2.00 | 57 |
| Romania | 20 | 18 | 19.00 | 35 |
| Russian Federation | 86 | 67 | 76.50 | 12 |
| Singapore | 8 | 10 | 9.00 | 41 |
| Slovakia | 7 | 3 | 5.00 | 49 |
| Slovenia | 10 | 3 | 6.50 | 44 |
| Spain | 142 | 150 | 146.00 | 8 |
| Sweden | na | 46 | 46.00 | 17 |
| Switzerland | 30 | 38 | 34.00 | 22 |

**Table A4. Number of films produced in each country (variety produced by title) (continued)**

| Country | 2005 | 2006 | Mean 2005-2006 | Rank 2005-2006 |
|---|---|---|---|---|
| Thailand | na | 42 | 42.00 | 18 |
| Turkey | 28 | 35 | 31.50 | 26 |
| Ukraine | 5 | 7 | 6.00 | 45 |
| United Kingdom | 106 | 107 | 106.50 | 10 |
| USA | 699 | 480 | 589.50 | 3 |

**Note**: na: not available

**Table A5. Admissions per capita (variety consumed by title), number of cinemas per capita and number of admissions per cinema (variety distributed by title)**

| Criteria | Admissions per capita | | | | Number of cinemas per capita (cinema per 1,000 inhabitants) | | | | Number of admissions per cinema | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | 2005 | 2006 | Mean 05-06 | Rank 05-06 | 2005 | 2006 | Mean 05-06 | Rank 05-06 | 2005 | 2006 | Mean 05-06 | Rank 05-06 |
| Andorra | cna | cna | cna | cna | 76.39 | 73.87 | 75.13 | 4 | na | na | na | na |
| Argentina | cna | 0.90 | 0.90 | 27 | 25.24 | 24.99 | 25.12 | 26 | na | 36196.32 | 36196.32 | 33 |
| Australia | 4.12 | 4.00 | 4.06 | 4 | 25.55 | 24.06 | 24.81 | 27 | 161079.00 | 166396.76 | 163737.88 | 9 |
| Austria | 1.82 | 1.89 | 1.86 | 13 | - | 69.89 | 69.89 | 21 | | 27101.34 | 27101.34 | 37 |
| Azerbaijan | - | - | na | na | 2.51 | 2.26 | 2.39 | 67 | 5496.05 | 6163.68 | 5829.87 | 45 |
| Bahrain | cna | cna | cna | cna | na | 35.19 | 35.19 | 20 | cna | cna | cna | cna |
| Belarus | 1.34 | 1.43 | 1.39 | 19 | 14.60 | 14.27 | 14.43 | 38 | 91448.25 | 100572.66 | 96010.46 | 16 |
| Belgium | cna | cna | cna | cna | .na | 48.61 | 48.61 | 12 | cna | cna | cna | cna |
| Brazil | cna | cna | cna | cna | 4.23 | 4.65 | 4.44 | 56 | cna | cna | cna | cna |
| British Virgin Islands | 1.02 | cna | 1.02 | 25 | 45.35 | cna | 45.35 | 13 | 22500.00 | 22500.00 | 22500.00 | 40 |
| Bulgaria | 0.31 | 0.31 | 0.31 | 39 | 8.01 | 8.84 | 8.42 | 50 | 39062.44 | 35018.59 | 37040.51 | 32 |
| Cameroon | cna | cna | cna | cna | 0.73 | 0.72 | 0.72 | 73 | cna | cna | cna | cna |
| Canada | cna | cna | cna | cna | 20.33 | cna | 20.33 | 33 | cna | cna | cna | cna |
| Chile | 0.61 | 0.66 | 0.63 | 31 | 3.99 | 3.83 | 3.91 | 60 | 152042.94 | 171262.49 | 161652.72 | 10 |
| China | cna | cna | cna | cna | na | 28.58 | 28.58 | 25 | cna | cna | cna | cna |
| Colombia | cna | 0.36 | 0.36 | 38 | 9.95 | cna | 9.95 | 46 | cna | cna | cna | cna |
| Costa Rica | 0.86 | 0.92 | 0.89 | 28 | 4.16 | 4.55 | 4.35 | 57 | 205698.56 | 201565.65 | 203632.10 | 6 |
| Croatia | 0.48 | 0.59 | 0.53 | 34 | 23.51 | 19.10 | 21.30 | 32 | 20286.07 | 30641.51 | 25463.79 | 38 |
| Cuba | 0.12 | 0.14 | 0.13 | 45 | 38.81 | 38.79 | 38.80 | 18 | 3144.39 | 3494.97 | 3319.68 | 48 |
| Cyprus | cna | cna | cna | cna | 15.66 | 12.84 | 14.25 | 39 | cna | cna | cna | cna |
| Czech Republic | cna | cna | cna | cna | na | 68.80 | 68.80 | 7 | cna | cna | cna | cna |
| Denmark | cna | cna | cna | cna | 71.81 | 70.90 | 71.36 | 6 | cna | cna | cna | cna |
| Dominican Republic | cna | cna | cna | cna | 2.22 | 2.18 | 2.20 | 69 | cna | cna | cna | cna |
| Egypt | 0.40 | cna | 0.40 | 37 | 2.26 | 2.94 | 2.60 | 64 | 178042.42 | cna | 178042.42 | 8 |
| Estonia | 0.86 | 1.17 | 1.01 | 26 | 43.14 | 41.05 | 42.10 | 15 | 19817.64 | 28587.16 | 24202.40 | 39 |
| Finland | 1.16 | 1.27 | 1.22 | 21 | 40.41 | 38.96 | 39.69 | 17 | 28762.51 | 32619.73 | 30691.12 | 36 |
| France | 2.88 | 3.08 | 2.98 | 7 | 87.98 | 87.43 | 87.70 | 3 | 32685.43 | 35193.96 | 33939.69 | 35 |
| Germany | 1.53 | 1.63 | 1.58 | 14 | 22.43 | 22.06 | 22.25 | 31 | 68087.71 | 73841.72 | 70964.71 | 18 |
| Hungary | 1.07 | 1.04 | 1.06 | 22 | 24.09 | 21.47 | 22.78 | 30 | 44382.34 | 48548.15 | 46465.25 | 26 |
| Iceland | 4.67 | 5.04 | 4.86 | 2 | 71.01 | 73.72 | 72.36 | 5 | 65818.71 | 68346.64 | 67082.68 | 19 |
| India | 3.32 | cna | 3.32 | 6 | 9.26 | cna | 9.26 | 47 | 359047.62 | cna | 359047.62 | 3 |
| Indonesia | 0.19 | cna | 0.19 | 42 | 3.99 | cna | 3.99 | 59 | 48004.43 | cna | 48004.43 | 25 |
| Iran. Islamic Republic of | cna | cna | cna | cna | 3.51 | cna | 3.51 | 62 | cna | cna | | cna |
| Ireland | cna | 4.93 | 4.93 | 1 | 15.45 | 15.16 | 15.30 | 36 | cna | 325000.00 | 325000.00 | 4 |
| Israel | cna | cna | cna | cna | 8.97 | 8.52 | 8.74 | 49 | cna | cna | cna | cna |
| Italy | cna | 1.57 | 1.57 | 15 | 35.26 | 32.49 | 33.88 | 23 | cna | 48227.22 | 48227.22 | 24 |
| Japan | cna | cna | cna | cna | 22.88 | 23.93 | 23.40 | 28 | cna | cna | cna | cna |
| Kyrgyzstan | - | - | - | - | 12.30 | 10.08 | 11.19 | 44 | 4054.69 | 4307.55 | 4181.12 | 46 |
| Lao PDR | cna | - | - | - | 0.88 | 0.87 | 0.88 | 72 | cna | 17520.00 | 17520.00 | 42 |
| Latvia | 0.70 | 0.90 | 0.80 | 29 | 19.55 | 18.35 | 18.95 | 34 | 35877.89 | 48818.93 | 42348.41 | 27 |
| Lebanon | 2.46 | 2.39 | 2.42 | 11 | 36.40 | 36.99 | 36.70 | 19 | 67534.25 | 64500.00 | 66017.12 | 20 |

**Table A5. Admissions per capita (variety consumed by title), number of cinemas per capita and number of admissions per cinema (variety distributed by title) (continued)**

| Criteria | Admissions per capita | | | | Number of cinemas per capita (cinema per 1000 inhabitants) | | | | Number of admissions per cinema | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Country | 2005 | 2006 | Mean 05-06 | Rank 05-06 | 2005 | 2006 | Mean 05-06 | Rank 05-06 | 2005 | 2006 | Mean 05-06 | Rank 05-06 |
| Lithuania | 0.35 | 0.73 | 0.54 | 33 | 14.89 | 14.08 | 14.49 | 37 | 23309.59 | 51661.33 | 37485.46 | 30 |
| Luxembourg | cna | cna | cna | cna | . | 52.02 | 52.02 | 10 | cna | cna | cna | cna |
| China, Macao SAR | 1.08 | 0.99 | 1.03 | 23 | 8.46 | 8.38 | 8.42 | 51 | 127229.75 | 118365.50 | 122797.63 | 13 |
| Malaysia | 0.98 | 1.07 | 1.02 | 24 | 2.57 | 2.60 | 2.59 | 65 | 379242.42 | 409852.94 | 394547.68 | 2 |
| Mauritius | cna | cna | cna | cna | 12.89 | 13.58 | 13.24 | 42 | cna | cna | cna | cna |
| Mexico | 1.48 | 1.46 | 1.47 | 17 | 7.60 | 7.61 | 7.60 | 53 | 194441.02 | 192373.14 | 193407.08 | 7 |
| Morocco | 0.16 | 0.12 | 0.14 | 43 | 3.90 | 3.11 | 3.51 | 63 | 40031.41 | 39966.77 | 39999.09 | 28 |
| Mozambique | cna | - | - | - | 0.54 | 0.57 | 0.55 | 74 | 20743.18 | 15417.83 | 18080.51 | 41 |
| Namibia | cna | cna | cna | cna | 1.98 | 1.47 | 1.72 | 71 | cna | cna | cna | cna |
| Netherlands | 1.23 | 1.41 | 1.32 | 20 | 10.47 | 9.95 | 10.21 | 45 | 117824.56 | 141533.74 | 129679.15 | 12 |
| Niger | cna | cna | cna | cna | 0.38 | 0.36 | 0.37 | 75 | cna | cna | cna | cna |
| Nigeria | cna | cna | cna | cna | 34.46 | 33.66 | 34.06 | 22 | cna | cna | cna | cna |
| Norway | 2.58 | 2.57 | 2.58 | 10 | 51.95 | 50.34 | 51.14 | 11 | 49652.51 | 51116.99 | 50384.75 | 23 |
| Oman | cna | - | - | - | 5.58 | 7.07 | 6.33 | 54 | cna | - | - | - |
| Philippines | cna | cna | cna | cna | 2.61 | 2.45 | 2.53 | 66 | cna | cna | cna | cna |
| Poland | 0.62 | 0.84 | 0.73 | 30 | 14.27 | 13.48 | 13.87 | 41 | 43239.51 | 62283.99 | 52761.75 | 22 |
| Portugal | 1.43 | 1.47 | 1.45 | 18 | 15.01 | 13.33 | 14.17 | 40 | 95122.39 | 110166.89 | 102644.64 | 15 |
| Republic of Moldova | 0.30 | - | 0.30 | 40 | 2.22 | 2.23 | 2.23 | 68 | 135312.50 | 143300.00 | 139306.25 | 11 |
| Romania | 0.13 | 0.13 | 0.13 | 44 | 3.93 | 3.39 | 3.66 | 61 | 33288.98 | 38038.58 | 35663.78 | 34 |
| Russian Federation | 0.58 | 0.62 | 0.60 | 32 | 6.95 | 9.21 | 8.08 | 52 | 83016.98 | 67854.44 | 75435.71 | 17 |
| St Vincent - Grenadines | - | - | - | - | 16.79 | 16.70 | 16.74 | 35 | - | - | - | - |
| Singapore | 3.49 | 3.56 | 3.52 | 5 | 6.01 | 6.16 | 6.08 | 55 | 580150.00 | 577333.33 | 578741.67 | 1 |
| Slovakia | 0.41 | 0.63 | 0.52 | 35 | 41.21 | 40.27 | 40.74 | 16 | 9838.95 | 15648.25 | 12743.60 | 44 |
| Slovenia | cna | cna | cna | cna | 30.51 | 28.49 | 29.50 | 24 | cna | cna | cna | cna |
| Spain | 2.94 | 2.77 | 2.86 | 8 | 24.24 | 22.56 | 23.40 | 29 | 121330.80 | 122878.79 | 122104.79 | 14 |
| Sweden | cna | cna | cna | cna | . | 128.99 | 128.99 | 1 | cna | cna | cna | cna |
| Switzerland | 2.01 | 2.20 | 2.11 | 12 | 56.30 | 55.53 | 55.92 | 9 | 35765.57 | 39566.04 | 37665.80 | 29 |
| Thailand | 0.52 | cna | 0.52 | 36 | 8.86 | cna | 8.86 | 48 | 58243.73 | cna | 58243.73 | 21 |
| Tunisia | - | cna | - | - | 2.18 | cna | 2.18 | 70 | 13636.36 | cna | 13636.36 | 43 |
| Turkey | cna | cna | cna | - | 4.30 | 4.09 | 4.19 | 58 | cna | cna | cna | cna |
| Ukraine | 0.19 | 0.24 | 0.21 | 41 | 60.21 | 58.85 | 59.53 | 8 | 3182.76 | 4039.96 | 3611.36 | 47 |
| United Arab Emirates | na | 1.51 | 1.51 | 16 | 45.07 | cna | 45.07 | 14 | cna | cna | cna | cna |
| United Kingdom | 2.73 | 2.59 | 2.66 | 9 | 10.94 | 11.52 | 11.23 | 43 | 249924.13 | 224620.38 | 237272.25 | 5 |
| USA | 4.68 | 4.78 | 4.73 | 3 | 125.86 | 126.85 | 126.36 | 2 | 37175.41 | 37719.64 | 37447.53 | 31 |

**Notes**: na: not available
cna: category not applicable
(-): magnitude nil or negligible

**Table A6. Percentage (%) of cinemas with 8 screens or more (multiplexes)**

| Country | 2005 | 2006 | Mean 05-06 | Rank 05-06 |
|---|---|---|---|---|
| Australia | 22.16 | 21.05 | 21.61 | 7 |
| Brazil | 7.09 | 6.70 | 6.90 | 17 |
| Bulgaria | 4.84 | 7.35 | 6.10 | 19 |
| Chile | 23.08 | 22.22 | 22.65 | 5 |
| Costa Rica | 22.22 | 20.00 | 21.11 | 8 |
| Croatia | 0.93 | 1.15 | 1.04 | 31 |
| Dominican Republic | 38.10 | 38.10 | 38.10 | 2 |
| Estonia | 1.72 | 1.82 | 1.77 | 30 |
| Finland | 1.89 | 2.44 | 2.16 | 28 |
| France | 31.83 | 32.38 | 32.10 | 3 |
| Germany | 7.23 | 7.35 | 7.29 | 15 |
| Hungary | 4.94 | 5.56 | 5.25 | 21 |
| Ireland | 39.06 | 39.06 | 39.06 | 1 |
| Israel | 16.67 | 17.24 | 16.95 | 10 |
| Italy | 4.50 | 5.29 | 4.89 | 22 |
| Latvia | 2.22 | 2.38 | 2.30 | 27 |
| Lebanon | 2.74 | 2.67 | 2.70 | 25 |
| Lithuania | 3.92 | 4.17 | 4.04 | 23 |
| Malaysia | 13.64 | 14.71 | 14.17 | 11 |
| Mexico | 29.17 | 32.42 | 30.79 | 4 |
| Netherlands | 7.02 | 8.59 | 7.80 | 13 |
| Norway | 3.32 | 2.55 | 2.94 | 24 |
| Philippines | 6.79 | 8.53 | 7.66 | 14 |
| Poland | 6.06 | 6.61 | 6.33 | 18 |
| Portugal | 10.13 | 10.64 | 10.38 | 12 |
| Romania | 2.35 | 2.74 | 2.55 | 26 |
| Singapore | 19.23 | 25.93 | 22.58 | 6 |
| Slovakia | 0.90 | 0.92 | 0.91 | 32 |
| Slovenia | 4.92 | 7.02 | 5.97 | 20 |
| Spain | 16.16 | 18.18 | 17.17 | 9 |
| Switzerland | 1.67 | 1.93 | 1.80 | 29 |
| Turkey | 6.05 | 7.95 | 7.00 | 16 |

## Table A7. Variety and balance distributed by title

| Criteria | Total number of distribution companies | | | | Total market share of the three main distribution companies | | | |
|---|---|---|---|---|---|---|---|---|
| **Country** | **2005** | **2006** | **Mean 05-06** | **Rank 05-06** | **2005** | **2006** | **Mean 05-06** | **Rank 05-06** |
| Australia | 34 | 29 | 31.50 | 11 | 67 | 59 | 63.00 | 18 |
| Austria | 23 | 24 | 23.50 | 16 | 61.1 | 53.8 | 57.45 | 15 |
| Belarus | 7 | 7 | 7.00 | 36 | 77.7 | 77.2 | 77.45 | 26 |
| Belgium | 28 | na | 28.00 | 12 | cna | cna | cna | cna |
| Brazil | 25 | 29 | 27.00 | 13 | 58.5 | 56 | 57.25 | 14 |
| Bulgaria | 52 | 56 | 54.00 | 8 | cna | cna | cna | cna |
| Canada | na | na | na | na | 44.4 | 44.1 | 44.25 | 3 |
| Chile | 23 | 20 | 21.50 | 18 | 60.4 | 53.3 | 56.85 | 13 |
| Costa Rica | 2 | 2 | 2.00 | 47 | 100 | 100 | 100.00 | 33 |
| Croatia | 8 | 7 | 7.50 | 35 | 84 | 89 | 86.50 | 28 |
| Cuba | 1 | 1 | 1.00 | 48 | 100 | 100 | 100.00 | 33 |
| Cyprus | na | 5 | 5.00 | 44 | cna | cna | cna | cna |
| Czech Republic | 17 | na | 17.00 | 21 | cna | cna | cna | cna |
| Denmark | 18 | na | 18.00 | 20 | 64 | 79 | 71.50 | 22 |
| Dominican Republic | 1 | 1 | 1.00 | 48 | cna | cna | cna | cna |
| Egypt | 9 | 11 | 10.00 | 32 | cna | cna | cna | cna |
| Estonia | 4 | 5 | 4.50 | 46 | 98 | 99 | 98.50 | 31 |
| Finland | 11 | 11 | 11.00 | 31 | 76 | 78 | 77.00 | 25 |
| France | 108 | na | 108.00 | 5 | 33 | 33.9 | 33.45 | 1 |
| Germany | 79 | 89 | 84.00 | 6 | 56.8 | 49 | 52.90 | 9 |
| Hungary | 16 | 13 | 14.50 | 25 | 73 | 77 | 75.00 | 24 |
| Iceland | 7 | 4 | 5.50 | 43 | 97 | 99 | 98.00 | 30 |
| Ireland | 7 | 7 | 7.00 | 36 | cna | cna | cna | cna |
| India | 12 | 12 | 12.00 | 29 | cna | cna | cna | cna |
| Italy | 36 | 36 | 36.00 | 10 | cna | 38.1 | 38.10 | 2 |
| Japan | na | na | na | na | 48.5 | 53.5 | 51.00 | 7 |
| Lao PDR | 1 | 1 | 1.00 | 48 | 100 | 100 | 100.00 | 33 |
| Latvia | 6 | 4 | 5.00 | 44 | 98 | 99 | 98.50 | 31 |
| Lebanon | 13 | 14 | 13.50 | 27 | 75 | 63 | 69.00 | 19 |
| Lithuania | 7 | 6 | 6.50 | 41 | cna | cna | cna | cna |
| Malaysia | 387 | 529 | 458.00 | 1 | 100 | 100 | 100.00 | 33 |
| Mauritius | 8 | 6 | 7.00 | 36 | cna | cna | cna | cna |
| Mexico | 16 | 17 | 16.50 | 22 | 56 | 51 | 53.50 | 10 |
| Morocco | 7 | 7 | 7.00 | 36 | cna | cna | cna | cna |
| Namibia | 1 | 1 | 1.00 | 48 | 90 | 90 | 90.00 | 29 |
| Netherlands | 14 | 14 | 14.00 | 26 | 54.11 | 45.75 | 49.93 | 6 |
| Nigeria | 139 | 139 | 139.00 | 4 | 100 | 100 | 100.00 | 33 |
| Norway | 16 | na | 16.00 | 23 | 56 | 56 | 56.00 | 12 |
| Oman | 9 | 9 | 9.00 | 34 | cna | cna | cna | cna |
| Philippines | 223 | 239 | 231.00 | 2 | cna | cna | cna | cna |
| Poland | 26 | 28 | 27.00 | 13 | cna | cna | cna | cna |
| Portugal | 11 | 15 | 13.00 | 28 | 82 | 86 | 84.00 | 27 |
| Rep. of Moldova | 6 | 7 | 6.50 | 41 | cna | cna | cna | cna |
| Romania | 27 | 17 | 22.00 | 17 | 73.9 | 74.6 | 74.25 | 23 |
| Russian Federation | na | na | na | na | 55.5 | 62.3 | 58.90 | 16 |
| Singapore | 7 | 7 | 7.00 | 36 | cna | cna | cna | cna |
| Slovakia | 9 | 11 | 10.00 | 32 | 71.52 | 67.37 | 69.45 | 20 |
| Slovenia | 20 | 20 | 20.00 | 19 | 49 | 56.1 | 52.55 | 8 |
| Spain | 176 | 176 | 176.00 | 3 | 49.2 | 48.57 | 48.89 | 5 |
| Sweden | 25 | na | 25.00 | 15 | cna | cna | cna | cna |
| Switzerland | 43 | 46 | 44.50 | 9 | 52.2 | 55.2 | 53.70 | 11 |
| Turkey | 16 | na | 16.00 | 23 | cna | cna | cna | cna |
| Ukraine | 10 | 13 | 11.50 | 30 | 68 | 74 | 71.00 | 21 |
| United Kingdom | 69 | 67 | 68.00 | 7 | 61.6 | cna | 61.60 | 17 |
| USA | na | na | na | na | 42.5 | 46.4 | 44.45 | 4 |

**Notes**: na: not available
cna: category not applicable

**Table A8. Market Share of top ten films in total admissions (balance consumed by title)**

| Country | 2005 | 2006 | Change 05-06 | Mean 05-06 | Rank 05-06 |
|---|---|---|---|---|---|
| Australia | 28.11 | 25.67 | -8.68 | 26.89 | 6 |
| Austria | 30.25 | 40.35 | 33.37 | 35.30 | 18 |
| Bulgaria | 32.83 | 29.75 | -9.38 | 31.29 | 13 |
| Chile | 41.92 | 40.65 | -3.03 | 41.28 | 24 |
| Costa Rica | 39.40 | 40.16 | 1.92 | 39.78 | 22 |
| Estonia | 24.50 | 41.22 | 68.22 | 32.86 | 14 |
| Finland | 30.83 | 42.69 | 38.48 | 36.76 | 20 |
| France | 23.33 | 26.49 | 13.57 | 24.91 | 4 |
| Germany | 32.00 | 35.35 | 10.49 | 33.67 | 15 |
| Hungary | 36.04 | 35.48 | -1.55 | 35.76 | 19 |
| Iceland | 25.79 | 29.64 | 14.93 | 27.71 | 8 |
| Latvia | na | 28.91 | Na | 28.91 | 9 |
| Lebanon | 7.13 | 7.01 | -1.71 | 7.07 | 1 |
| Lithuania | 32.24 | 38.08 | 18.13 | 35.16 | 17 |
| Malaysia | 18.63 | 26.00 | 39.52 | 22.32 | 3 |
| Mexico | 31.69 | 30.45 | -3.93 | 31.07 | 11 |
| Morocco | 9.46 | 17.75 | 87.69 | 13.60 | 2 |
| Netherlands | 29.08 | 33.37 | 14.73 | 31.23 | 12 |
| Norway | 31.85 | 36.51 | 14.64 | 34.18 | 16 |
| Poland | 38.27 | 43.70 | 14.18 | 40.98 | 23 |
| Portugal | 28.27 | 26.64 | -5.76 | 27.46 | 7 |
| Romania | 27.64 | 25.42 | -8.05 | 26.53 | 5 |
| Slovakia | 33.09 | 45.05 | 36.13 | 39.07 | 21 |
| Switzerland | 27.33 | 30.85 | 12.88 | 29.09 | 10 |
| Ukraine | na | 7.78* | Na | na | na |

**Notes**: * Market share of the top three
na: not available

**Table A9. Rate of similarity between top ten films and the global top ten (disparity consumed by title)**

| Criteria | Number of titles belonging to the global top ten | | Rate of similarity (%) | | | | |
|---|---|---|---|---|---|---|---|
| Country | 2005 | 2006 | 2005 | 2006 | Change 05-06 | Mean 05-06 | Rank 05-06 |
| Australia | 7 | 8 | 70 | 80 | 10 | 75.00 | 31 |
| Austria | 7 | 6 | 70 | 60 | -10 | 65.00 | 21 |
| Brazil | 5 | 6 | 50 | 60 | 10 | 55.00 | 10 |
| Bulgaria | 7 | 6 | 70 | 60 | -10 | 65.00 | 21 |
| Chile | 5 | 6 | 50 | 60 | 10 | 55.00 | 10 |
| Costa Rica | 5 | 6 | 50 | 60 | 10 | 55.00 | 10 |
| Czech Republic | 7 | 9 | 70 | 90 | 20 | 80.00 | 32 |
| Denmark | 3 | 6 | 30 | 60 | 30 | 45.00 | 6 |
| Estonia | 6 | 7 | 60 | 70 | 10 | 65.00 | 21 |
| Finland | 5 | 5 | 50 | 50 | 0 | 50.00 | 8 |
| France | 6 | 3 | 60 | 30 | -30 | 45.00 | 6 |
| Germany | 8 | 6 | 80 | 60 | -20 | 70.00 | 25 |
| Hungary | 8 | 6 | 80 | 60 | -20 | 70.00 | 25 |
| Iceland | 7 | 9 | 70 | 90 | 20 | 80.00 | 32 |
| Ireland | 6 | na | 60 | na | na | 60.00 | 16 |
| Italy | 2 | na | 20 | na | na | 20.00 | 1 |
| Japan | 3 | 4 | 30 | 40 | 10 | 35.00 | 4 |
| Latvia | na | 7 | na | 70 | na | 70.00 | 25 |
| Lebanon | 6 | 4 | 60 | 40 | -20 | 50.00 | 8 |
| Lithuania | 6 | 6 | 60 | 60 | 0 | 60.00 | 16 |
| Malaysia | 3 | 4 | 30 | 40 | 10 | 35.00 | 4 |
| Mexico | 5 | 6 | 50 | 60 | 10 | 55.00 | 10 |
| Morocco | 3 | 3 | 30 | 30 | 0 | 30.00 | 2 |
| Netherlands | 8 | 6 | 80 | 60 | -20 | 70.00 | 25 |
| Norway | 5 | 7 | 50 | 70 | 20 | 60.00 | 16 |
| Poland | 7 | 5 | 70 | 50 | -20 | 60.00 | 16 |
| Portugal | 6 | 6 | 60 | 60 | 0 | 60.00 | 16 |
| Rep. of Korea | 3 | 3 | 30 | 30 | 0 | 30.00 | 2 |
| Romania | 8 | 6 | 80 | 60 | -20 | 70.00 | 25 |
| Slovakia | 7 | 6 | 70 | 60 | -10 | 65.00 | 21 |
| Sweden | na | 7 | na | 70 | na | 70.00 | 25 |
| Switzerland | 7 | 4 | 70 | 40 | -30 | 55.00 | 10 |
| Turkey | 4 | 7 | 40 | 70 | 30 | 55.00 | 10 |
| Ukraine | na | 2* | na | 66.66* | na | 66.66* | na |

**Notes**: * calculated on the Top 3
na: not available

## Table A10. Variety and balance supplied by language

| Criteria | Number of different languages in which films are shot | | | Number of foreign languages | | | HHI calculated on the market share of each language in total production | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Country | 2005 | 2006 | Mean 05-06 | 2005 | 2006 | Mean 05-06 | 2005 | 2006 | Mean 05-06 | Rank 05-06 |
| Australia | 2 | 2 | 2 | 0 | 0 | 0 | 9232 | 9311 | 9272 | 25 |
| Austria | na | 5 | 5 | na | 4 | 4 | na | 5647 | 5647 | 15 |
| Azerbaijan | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | na | 10000 | 27 |
| Belarus | 1 | 2 | 1.5 | 0 | 1 | 0.5 | 10000 | 5000 | 7500 | 19 |
| Cambodia | 2 | 2 | 2 | 1 | 1 | 1 | 8644 | 9683 | 9163 | 24 |
| Cameroon | 2 | 3 | 2.5 | 1 | 1 | 1 | 6250 | 4286 | 5268 | 11 |
| Canada | 2 | at least 3 | 2 | 0 | 0 | 0 | 5126 | 4843 | 4984 | 8 |
| Chile | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | 10000 | 10000 | 27 |
| Croatia | na | 2 | 2 | na | 0 | 0 | na | 5000 | 5000 | 9 |
| Cyprus | na | 2 | 2 | na | 1 | 1 | na | 6250 | 6250 | 17 |
| Egypt | 1 | na | 1 | 0 | na | 0 | 10000 | na | 10000 | 27 |
| Estonia | 2 | 4 | 3 | 1 | 2 | 1.5 | 6800 | 5510 | 6155 | 16 |
| Finland | at least 4 | at least 3 | at least 3. 5 | at least 2 | at least 2 | at least 2 | 4900 | 5734 | 5317 | 12 |
| Hungary | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | 10000 | 10000 | 27 |
| Iceland | 2 | 1 | 1.5 | 1 | 0 | 0.5 | 5000 | 10000 | 7500 | 19 |
| India | 5 | na | 5 | 0 | na | 0 | 1489 | na | 1489 | 1 |
| Israel | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | 10000 | 10000 | 27 |
| Kyrgyzstan | na | 1 | 1 | na | 0 | 0 | na | 10000 | 10000 | 27 |
| Latvia | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | 10000 | 10000 | 27 |
| Lebanon | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | 10000 | 10000 | 27 |
| Lithuania | 2 | 1 | 1.5 | 1 | 1 | 1 | 5000 | 10000 | 7500 | 19 |
| China, Macao SAR | na | 1 | 1 | na | 0 | 0 | na | 10000 | 10000 | 27 |
| Malaysia | 2 | 4 | 3 | 1 | 1 | 1 | 7732 | 5485 | 6608 | 18 |
| Mexico | 1 | 2 | 1.5 | 0 | 1 | 0.5 | 10000 | 9395 | 9697 | 26 |
| Mongolia | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | 10000 | 10000 | 27 |
| Morocco | 3 | 4 | 3.5 | 1 | 2 | 1.5 | 5078 | 4861 | 4970 | 7 |
| Mozambique | na | 1 | 1 | na | 0 | 0 | na | 10000 | 10000 | 27 |
| Namibia | 3 | na | 3 | 0 | na | 0 | 10000 | na | 10000 | 27 |
| Netherlands | 4 | 2 | 3 | 3 | 1 | 2 | 8074 | 9093 | 8583 | 23 |
| New Zealand | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | na | 10000 | 27 |
| Nigeria | at least 6 | na | at least 6 | at least 1 | na | at least 1 | 4131 | na | 4131 | 6 |
| Oman | na | 1 | 1 | na | 0 | 0 | na | 10000 | 10000 | 27 |
| Portugal | at least 3 | at least 4 | at least 3. 5 | at least 1 | at least 3 | at least 2 | 6901 | 3271 | 5086 | 10 |
| Rep. of Moldova | 1 | 2 | 1.5 | 0 | 1 | 0.5 | 10000 | 5556 | 7778 | 22 |
| Romania | 4 | 3 | 3.5 | 3 | 2 | 2.5 | 4300 | 6358 | 5329 | 13 |
| Singapore | na | 4 | 4 | na | 2 | 2 | na | 2800 | 2800 | 3 |
| Slovakia | 4 | 3 | 3.5 | 2 | 1 | 1.5 | 2245 | 3333 | 2789 | 2 |
| Slovenia | at least 4 | 6 | 6 | na | 1 | 1 | 4200 | 3333 | 3767 | 4 |
| Spain | at least 6 | at least 5 | at least 5.5 | at least 2 | at least 2 | at least 2 | 5735 | 4973 | 5354 | 14 |
| Switzerland | 5 | at least 5 | 5 | 3 | at least 3 | 3 | 4244 | 3850 | 4047 | 5 |
| Ukraine | 1 | 1 | 1 | 0 | 0 | 0 | 10000 | 10000 | 10000 | 27 |

## Table A11. Admissions by language for the top ten films, 2005

| Country | Language | Admission | % | Country | Language | Admission | % |
|---|---|---|---|---|---|---|---|
| Australia | English | 20400000 * | 86.81 * | Lithuania | English | 267157 | 69.72 |
| Australia | English/French | 3100000 * | 13.19 * | Lithuania | English/French | 51653 | 13.48 |
| Australia | Total | 23500000 | 100.00 | Lithuania | Lithuanian | 64399 | 16.81 |
| Austria | English | 3835000 | 84.12 | Lithuania | Total | 383209 | 100.00 |
| Austria | English/French | 724000 | 15.88 | Malaysia | English | 2985642 | 64.01 |
| Austria | Total | 4559000 | 100.00 | Malaysia | English/French | 584971 | 12.54 |
| Brazil | English | 23708451 | 71.00 | Malaysia | Mandarin | 772174 | 16.56 |
| Brazil | English/French | 4363724 | 13.07 | Malaysia | Tamil | 321458 | 6.89 |
| Brazil | Portuguese | 5319677 | 15.93 | Malaysia | Total | 4664245 | 100.00 |
| Brazil | Total | 33391852 | 100.00 | Mexico | English | 42612899 | 87.32 |
| Bulgaria | English | 724904 | 91.18 | Mexico | English/French | 6189888 | 12.68 |
| Bulgaria | English/French | 70128 | 8.82 | Mexico | Total | 48802787 | 100.00 |
| Bulgaria | Total | 795032 | 100.00 | Morocco | English | 149441 | 33.18 |
| Chile | English | 3576609 | 86.34 | Morocco | Hindi | 78584 | 17.45 |
| Chile | English/French | 566074 | 13.66 | Morocco | Urdu/Hindi/Punjabi | 34227 | 7.60 |
| Chile | Total | 4142683 | 100.00 | Morocco | Thai | 41810 | 9.28 |
| Costa Rica | English | 1160205 | 79.53 | Morocco | Arabic | 146350 | 32.49 |
| Costa Rica | English/French | 298621 | 20.47 | Morocco | Total | 450412 | 100.00 |
| Costa Rica | Total | 1458826 | 100.00 | Netherlands | English | 4844000 | 82.66 |
| Denmark | English | 823112 | 20.51 | Netherlands | English/French | 1016000 | 17.34 |
| Denmark | English/French | 623656 | 15.54 | Netherlands | Total | 5860000 | 100.00 |
| Denmark | Danish | 2229692 | 55.57 | Norway | English | 2651728 | 69.58 |
| Denmark | German | 336063 | 8.38 | Norway | English/French | 585088 | 15.35 |
| Denmark | Total | 4012523 | 100.00 | Norway | Norwegian | 309735 | 8.13 |
| Estonia | English | 235239 | 83.52 | Norway | German | 264431 | 6.94 |
| Estonia | English/French | 46416 | 16.48 | Norway | Total | 3810982 | 100.00 |
| Estonia | Total | 281655 | 100.00 | Poland | English | 5766714 | 63.94 |
| Finland | English | 1347344 | 71.67 | Poland | English/French | 1373747 | 15.23 |
| Finland | English/French | 360884 | 19.20 | Poland | Italian | 1878124 | 20.83 |
| Finland | Finnish | 171709 | 9.13 | Poland | Total | 9018585 | 100.00 |
| Finland | Total | 1879937 | 100.00 | Portugal | English | 3404993 | 80.13 |
| France | English | 26970000 | 65.93 | Portugal | English/French | 527176 | 12.41 |
| France | English/French | 9540000 | 23.32 | Portugal | Portuguese | 317234 | 7.47 |
| France | French | 4400000 | 10.76 | Portugal | Total | 4249403 | 100.00 |
| France | Total | 40910000 | 100.00 | Republic of Korea | English | 10203800 | 23.32 |
| Germany | English | 30670416 | 75.93 | Republic of Korea | English/French | 3473400 | 7.94 |
| Germany | English/French | 7563181 | 18.73 | Republic of Korea | Korean | 14694644 | 33.58 |
| Germany | German | 2156934 | 5.34 | Republic of Korea | Korean/English | 8008622 | 18.30 |
| Germany | Total | 40390531 | 100.00 | Republic of Korea | Korean/ English/Thai/ Russian/Mandarin | 3723752 | 8.51 |
| Hungary | English | 2633054 | 67.74 | Republic of Korea | Korean/English/Japanese | 3650000 | 8.34 |
| Hungary | English/French | 550121 | 14.15 | Republic of Korea | Total | 43754218 | 100.00 |
| Hungary | Hungarian | 703567 | 18.10 | Romania | English | 717609 | 91.75 |
| Hungary | Total | 3886742 | 100.00 | Romania | English/French | 64568 | 8.25 |
| Iceland | English | 309303 | 86.78 | Romania | Total | 782177 | 100.00 |
| Iceland | English/French | 47119 | 13.22 | Slovakia | English | 603239 | 83.46 |
| Iceland | Total | 356422 | 100.00 | Slovakia | English/French | 119514 | 16.54 |
| Ireland | English | 36698882 | 88.54 | Slovakia | Total | 722753 | 100.00 |
| Ireland | English/French | 4752178 | 11.46 | Switzerland | English | 2985301 | 73.06 |
| Ireland | Total | 41451060 | 100.00 | Switzerland | English/French | 612090 | 14.98 |
| Italy | English | 16958599 | 68.09 | Switzerland | German | 488849 | 11.96 |
| Italy | Italian | 7947816 | 31.91 | Switzerland | Total | 4086240 | 100.00 |
| Italy | Total | 24906415 | 100.00 | Turkey[a] | English | 4008486 | 84.24 |
| Japan | English | 27595142 | 51.47 | Turkey[a] | English/French | 749704 | 15.76 |
| Japan | Japanese | 26016194 | 48.53 | Turkey[a] | Total | 4758190 | 100.00 |
| Japan | Total | 53611336 | 100.00 | Czech Republic[a] | English | 1790229 | 75.08 |
| Lebanon | English | 532000 | 75.68 | Czech Republic[a] | English/French | 467182 | 19.59 |
| Lebanon | Arabic | 171000 | 24.32 | Czech Republic[a] | German | 127089 | 5.33 |
| Lebanon | Total | 703000 | 100.00 | Czech Republic[a] | Total | 2384500 | 100.00 |

**Notes**: * Estimation
[a] Based on the top 50 films by admissions in Europe

## Table A12. Admissions by language for the top ten films, 2006

| Country | Language | Admission | % | Country | Language | Admission | % |
|---|---|---|---|---|---|---|---|
| Australia | English | 18500000 | 87.68* | Lithuania | Japanese | 48323 | 5.12 |
| Australia | English/French | 2600000 | 12.32* | Lithuania | Total | 944276 | 100.00 |
| Australia | Total | 21100000 | 100.00 | Malaysia | English | 4530844 | 62.53 |
| Austria | English | 4419953 | 69.46 | Malaysia | English/French | 434710 | 6.00 |
| Austria | English/French | 1482000 | 23.29 | Malaysia | Mandarin | 1703679 | 23.51 |
| Austria | German | 461783 | 7.26 | Malaysia | Malay | 576806 | 7.96 |
| Austria | Total | 6363736 | 100.00 | Malaysia | Total | 7246039 | 100.00 |
| Brazil | English | 24927491 | 75.00 | Mexico | English | 37587522 | 80.02 |
| Brazil | English/French | 4663464 | 14.03 | Mexico | English/French | 5389793 | 11.47 |
| Brazil | Portuguese | 3644956 | 10.97 | Mexico | Spanish | 3994533 | 8.50 |
| Brazil | Total | 33235911 | 100.00 | Mexico | Total | 46971848 | 100.00 |
| Bulgaria | English | 564160 | 79.64 | Morocco | English | 75245 | 11.05 |
| Bulgaria | English/French | 144253 | 20.36 | Morocco | English/French | 35216 | 5.17 |
| Bulgaria | Total | 708413 | 100.00 | Morocco | Arabic/French | 180915 | 26.57 |
| Chile | English | 3183173 | 72.58 | Morocco | Arabic | 389519 | 57.21 |
| Chile | English/French | 573733 | 13.08 | Morocco | Total | 680895 | 100.00 |
| Chile | Spanish | 628948 | 14.34 | Netherlands | English | 5291000 | 68.73 |
| Chile | Total | 4385854 | 100.00 | Netherlands | English/French | 1423000 | 18.49 |
| Costa Rica | English | 1476495 | 91.20 | Netherlands | Dutch | 984000 | 12.78 |
| Costa Rica | English/French | 142402 | 8.80 | Netherlands | Total | 7698000 | 100.00 |
| Costa Rica | Total | 1618897 | 100.00 | Norway | English | 3432058 | 78.25 |
| Denmark | English | 2774108 | 62.18 | Norway | English/French | 442599 | 10.09 |
| Denmark | English/French | 623989 | 13.99 | Norway | Norwegian | 511254 | 11.66 |
| Denmark | Danish | 1063215 | 23.83 | Norway | Total | 4385911 | 100.00 |
| Denmark | Total | 4461312 | 100.00 | Poland | English | 9925011 | 70.95 |
| Estonia | English | 487588 | 75.23 | Poland | English/French | 1218387 | 8.71 |
| Estonia | English/French | 62095 | 9.58 | Poland | Polish | 2845311 | 20.34 |
| Estonia | Estonian | 98420 | 15.19 | Poland | Total | 13988709 | 100.00 |
| Estonia | Total | 648103 | 100.00 | Portugal | English | 3103579 | 74.99 |
| Finland | English | 1574868 | 55.16 | Portugal | English/French | 756770 | 18.28 |
| Finland | English/French | 365276 | 12.79 | Portugal | Portuguese | 278421 | 6.73 |
| Finland | Finnish | 914766 | 32.04 | Portugal | Total | 4138770 | 100.00 |
| Finland | Total | 2854910 | 100.00 | Republic of Korea | English | 10369692 | 16.49 |
| France | English | 13120000 | 26.25 | Republic of Korea | English/French | 3339082 | 5.31 |
| France | English/French | 8270000 | 16.54 | Republic of Korea | Japanese/Korean | 3880308 | 6.17 |
| France | French/Romanian | 3480000 | 6.96 | Republic of Korea | Korean/English | 13019740 | 20.70 |
| France | French/Arabic | 3000000 | 6.00 | Republic of Korea | Korean | 32282421 | 51.33 |
| France | French | 22120000 | 44.25 | Republic of Korea | Total | 62891243 | 100.00 |
| France | Total | 49990000 | 100.00 | Romania | English | 556373 | 78.82 |
| Germany | English | 34448978 | 72.39 | Romania | English/French | 149463 | 21.18 |
| Germany | English/French | 5638982 | 11.85 | Romania | Total | 705836 | 100.00 |
| Germany | German | 7501254 | 15.76 | Slovakia | English | 1214934 | 79.43 |
| Germany | Total | 47589214 | 100.00 | Slovakia | English/French | 314673 | 20.57 |
| Hungary | English | 2238829 | 60.18 | Slovakia | Total | 1529607 | 100.00 |
| Hungary | English/French | 538221 | 14.47 | Sweden | English | 4579385 | 80.39 |
| Hungary | Hungarian | 943385 | 25.36 | Sweden | English/French | 654437 | 11.49 |
| Hungary | Total | 3720435 | 100.00 | Sweden | Swedish/Italian/ English/French | 462820 | 8.12 |
| Iceland | English | 311666 | 69.94 | Sweden | Total | 5696642 | 100.00 |
| Iceland | English/French | 52389 | 11.76 | Switzerland | English | 3425959 | 67.79 |
| Iceland | Icelandic | 81580 | 18.31 | Switzerland | English/French | 601341 | 11.90 |
| Iceland | Total | 445635 | 100.00 | Switzerland | German | 745706 | 14.76 |
| Japan | English | 17866992 | 29.87 | Switzerland | French | 280801 | 5.56 |
| Japan | English/French | 16264396 | 27.19 | Switzerland | Total | 5053807 | 100.00 |
| Japan | Japanese | 25685320 | 42.94 | Ukraine** | English | 820000 | 41.67 |
| Japan | Total | 59816708 | 100.00 | Ukraine** | English/French | 612000 | 31.10 |
| Latvia | English | 445662 | 75.17 | Ukraine** | Russian | 536000 | 27.24 |
| Latvia | English/French | 97450 | 16.44 | Ukraine** | Total | 1968000 | 100.00 |
| Latvia | Russian | 49757 | 8.39 | Turkey [a] | English | 4232259 | 44.47 |
| Latvia | Total | 592869 | 100.00 | Turkey [a] | English/French | 1028928 | 10.81 |
| Lebanon | English | 632500 | 93.29 | Turkey [a] | Turkish | 4256567 | 44.72 |
| Lebanon | Arabic | 45500 | 6.71 | Turkey [a] | Total | 9517754 | 100.00 |
| Lebanon | Total | 678000 | 100.00 | Czech Republic [a] | English | 2704853 | 83.69 |

## Table A12. Admissions by language for the top ten films, 2006 (continued)

| Country | Language | Admission | % | Country | Language | Admission | % |
|---|---|---|---|---|---|---|---|
| Lithuania | English | 780566 | 82.66 | Czech Republic [a] | English/French | 527167 | 16.3 |
| Lithuania | English/French | 115387 | 12.22 | Czech Republic [a] | Total | 3232020 | 100.00 |

**Notes**: * Estimation
** Calculated on the top three
[a] Based on the top 50 films by admissions in Europe

## Table A13. Variety by language for the top ten films

| Criteria | Number of languages | | | Number of foreign languages | | |
|---|---|---|---|---|---|---|
| Country | 2005 | 2006 | Mean 05-06 | 2005 | 2006 | Mean 05-06 |
| Australia* | 2 | 2 | 2 | 1 | 1 | 1 |
| Austria | 2 | 3 | 2.5 | 1 | 2 | 1.5 |
| Brazil | 3 | 3 | 3 | 2 | 2 | 2 |
| Bulgaria | 2 | 2 | 2 | 2 | 2 | 2 |
| Chile | 2 | 3 | 2.5 | 2 | 2 | 2 |
| Costa Rica | 2 | 2 | 2 | 2 | 2 | 2 |
| Denmark | 3 | 3 | 3 | 3 | 2 | 2.5 |
| Estonia | 2 | 3 | 2.5 | 2 | 2 | 2 |
| Finland | 3 | 3 | 3 | 2 | 2 | 2 |
| France | 2 | 4 | 3 | 1 | 3 | 2 |
| Germany | 3 | 3 | 3 | 2 | 2 | 2 |
| Hungary | 3 | 3 | 3 | 2 | 2 | 2 |
| Iceland | 2 | 3 | 2.5 | 2 | 2 | 2 |
| Ireland | 2 | na | 2 | 1 | na | 1 |
| Italy | 2 | na | 2 | 1 | na | 1 |
| Japan | 2 | 3 | 2.5 | 1 | 2 | 1.5 |
| Latvia | na | 3 | 3 | na | 3 | 3 |
| Lebanon | 2 | 2 | 2 | 1 | 1 | 1 |
| Lithuania | 3 | 3 | 3 | 2 | 3 | 2.5 |
| Malaysia | 4 | 4 | 4 | 3 | 3 | 3 |
| Mexico | 2 | 3 | 2.5 | 2 | 2 | 2 |
| Morocco | 6 | 3 | 4.5 | 5 | 2 | 3.5 |
| Netherlands | 2 | 3 | 2.5 | 2 | 2 | 2 |
| Norway | 4 | 3 | 3.5 | 3 | 2 | 2.5 |
| Poland | 3 | 3 | 3 | 3 | 2 | 2.5 |
| Portugal | 3 | 3 | 3 | 2 | 2 | 2 |
| R. of Korea | 7 | 4 | 5.5 | 6 | 3 | 4.5 |
| Romania | 2 | 2 | 2 | 2 | 2 | 2 |
| Slovakia | 2 | 2 | 2 | 2 | 2 | 2 |
| Sweden | na | 4 | 4 | na | 3 | 3 |
| Switzerland | 3 | 3 | 3 | 1 | 1 | 1 |
| Ukraine** | na | 3** | 3 | na | 3 | 3 |
| Turkey [a] | 2 | 3 | 2.5 | 2 | 2 | 2 |
| Czech Republic [a] | 3 | 2 | 2.5 | 3 | 2 | 2.5 |

**Notes**: * Estimation
** Calculated on the Top 3
[a] Based on the top 50 films by admissions in Europe

## Table A14. Balance and disparity for the top ten films by language

| | HHI [1] | | | | Hst [2] | | | | Hfbp [3] | | | | Difference of ranking between [1] and [2] | Difference of ranking between [1] and [3] | Difference of ranking between [2] and [3] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Country** | **2005** | **2006** | **Mean 05-06** | **Rank 05-06** | **2005** | **2006** | **Mean 05-06** | **Rank 05-06** | **2005** | **2006** | **Mean 05-06** | **Rank 05-06** | **05-06** | **05-06** | **05-06** |
| Australia* | 10000.00 | 10000.00 | 10000.00 | 28 | 0.00 | 0.00 | 0.00 | 25 | 0.00 | 0.00 | 0.00 | 24 | 3 | 4 | 1 |
| Austria | 10000.00 | 8654.02 | 9327.01 | 26 | 0.00 | 284.00 | 142.00 | 23 | 0.00 | 119.85 | 59.92 | 22 | 3 | 4 | 1 |
| Brazil | 7321.38 | 8047.16 | 7684.27 | 15 | 1017.87 | 742.08 | 879.98 | 11 | 773.58 | 563.98 | 668.78 | 10 | 4 | 5 | 1 |
| Bulgaria | 10000.00 | 10000.00 | 10000.00 | 28 | 0.00 | 0.00 | 0.00 | 25 | 0.00 | 0.00 | 0.00 | 24 | 3 | 4 | 1 |
| Chile | 10000.00 | 7543.22 | 8771.61 | 23 | 0.00 | 933.58 | 466.79 | 17 | 0.00 | 709.52 | 354.76 | 14 | 6 | 9 | 3 |
| Costa Rica | 10000.00 | 10000.00 | 10000.00 | 28 | 0.00 | 0.00 | 0.00 | 25 | 0.00 | 0.00 | 0.00 | 24 | 3 | 4 | 1 |
| Denmark | 4458.04 | 6369.54 | 5413.79 | 5 | 1079.26 | 738.80 | 909.03 | 10 | 387.04 | 300.69 | 343.87 | 15 | -5 | -10 | -5 |
| Estonia | 10000.00 | 7424.05 | 8712.02 | 22 | 0.00 | 1287.98 | 643.99 | 14 | 0.00 | 1287.98 | 643.99 | 11 | 8 | 11 | 3 |
| Finland | 8340.10 | 5644.99 | 6992.54 | 10 | 829.95 | 2177.50 | 1503.73 | 6 | 829.95 | 2177.50 | 1503.73 | 4 | 4 | 6 | 2 |
| France | 5005.61 | 3004.93 | 4005.27 | 3 | 1328.65 | 2026.32 | 1677.48 | 4 | 1015.09 | 1515.57 | 1265.33 | 5 | -1 | -2 | -1 |
| Germany | 8989.00 | 7344.41 | 8166.70 | 17 | 213.32 | 560.33 | 386.83 | 18 | 90.02 | 236.46 | 163.24 | 18 | -1 | -1 | 0 |
| Hungary | 7035.00 | 6214.57 | 6624.79 | 8 | 1482.50 | 1892.71 | 1687.61 | 3 | 1482.50 | 1892.71 | 1687.61 | 3 | 5 | 5 | 0 |
| Iceland | 10000.00 | 7008.96 | 8504.48 | 19 | 0.00 | 678.97 | 339.48 | 20 | 0.00 | 308.25 | 154.13 | 19 | -1 | 0 | 1 |
| Ireland | 10000.00 | na | 10000.00 | 28 | 0.00 | na | 0.00 | 25 | 0.00 | na | 0.00 | 24 | 3 | 4 | 1 |
| Italy | 5654.44 | na | 5654.44 | 6 | 1636.10 | na | 1636.10 | 5 | 1231.98 | na | 1231.98 | 8 | 1 | -2 | -3 |
| Japan | 5004.34 | 5099.69 | 5052.01 | 4 | 2497.83 | 2450.16 | 2473.99 | 1 | 2497.83 | 2450.16 | 2473.99 | 1 | 3 | 3 | 0 |
| Latvia | na | 8462.35 | 8462.35 | 18 | na | 582.77 | 582.77 | 15 | na | 299.96 | 299.96 | 16 | 3 | 2 | -1 |
| Lebanon | 6318.48 | 8747.89 | 7533.19 | 13 | 1840.76 | 626.06 | 1233.41 | 9 | 1840.76 | 626.06 | 1233.41 | 7 | 4 | 6 | 2 |
| Lithuania | 7203.79 | 9028.88 | 8116.34 | 16 | 1096.11 | 485.56 | 790.84 | 12 | 859.35 | 380.68 | 620.02 | 12 | 4 | 4 | 0 |
| Malaysia | 6181.91 | 5312.24 | 5747.08 | 7 | mna | mna | mna | mna | mna | mna | mna | mna | mna | mna | mna |
| Mexico | 10000.00 | 8443.82 | 9221.91 | 25 | 0.00 | 591.35 | 295.67 | 21 | 0.00 | 449.42 | 224.71 | 17 | 4 | 8 | 4 |
| Morocco | 2604.90 | 4241.79 | 3423.35 | 2 | mna | 1852.72 | 1852.72 | 2 | mna | 1852.72 | 1852.72 | 2 | 0 | 0 | 0 |
| Netherlands | 10000.00 | 7770.28 | 8885.14 | 24 | 0.00 | 437.03 | 218.51 | 22 | 0.00 | 171.31 | 85.66 | 21 | 2 | 3 | 1 |
| Norway | 7327.97 | 7940.41 | 7634.19 | 14 | mna | mna | mna | mna | mna | mna | mna | mna | mna | mna | mna |
| Poland | 6702.36 | 6759.42 | 6730.89 | 9 | 1241.56 | 1233.04 | 1237.30 | 7 | 721.85 | 938.34 | 830.10 | 9 | 2 | 0 | -2 |
| Portugal | 8618.39 | 8745.08 | 8681.73 | 21 | 525.01 | 476.87 | 500.94 | 16 | 399.01 | 362.42 | 380.72 | 13 | 5 | 8 | 3 |
| R. of Korea | 2582.10 | 3576.60 | 3079.35 | 1 | mna | mna | mna | mna | mna | mna | mna | mna | mna | mna | mna |
| Romania | 10000.00 | 10000.00 | 10000.00 | 28 | 0.00 | 0.00 | 0.00 | 25 | 0.00 | 0.00 | 0.00 | 24 | 3 | 4 | 1 |
| Slovakia | 10000.00 | 10000.00 | 10000.00 | 28 | 0.00 | 0.00 | 0.00 | 25 | 0.00 | 0.00 | 0.00 | 24 | 3 | 4 | 1 |
| Sweden | na | 8507.13 | 8507.13 | 20 | na | 374.72 | 374.72 | 19 | na | 126.32 | 126.32 | 20 | 1 | 0 | -1 |
| Switzerland | 7893.58 | 6598.84 | 7246.21 | 11 | 444.45 | 896.45 | 670.45 | 13 | mna | mna | mna | mna | -2 | mna | mna |
| Ukraine** | na | 6036.42 | 6036.42 | na | na | 1502.20 | 1502.20 | na | na | 257.95 | 257.95 | na | na | na | na |
| Turkey [a] | 10000.00 | 5055.71 | 7527.85 | 12 | 0.00 | 2472.15 | 1236.07 | 8 | 0 | 2472.15 | 1236.07 | 6 | 4 | 6 | 2 |
| Czech Republic [a] | 8990.85 | 10000.00 | 9495.43 | 27 | 212.93 | 0.00 | 106.46 | 24 | 119.76 | 0.00 | 59.88 | 23 | 3 | 4 | 1 |

**Notes**: na: not available

mna: methodology not available

* Estimation

** Calculated on the top three

[a] Based on the top 50 films by admissions in Europe

For the films *Harry Potter* and *Da Vinci Code*, the original language is considered English.

## Table A15. Variety and balance supplied by country of origin

| Criteria | Number of films coproduced | | | | Percentage (%) of 100% national feature films produced | | |
|---|---|---|---|---|---|---|---|
| **Country** | **2005** | **2006** | **Mean 05-06** | **Rank 05-06** | **2005** | **2006** | **Mean 05-06** |
| Armenia | - | 2 | 2.00 | 36 | - | 25.00 | 25.00 |
| Australia | 3 | 3 | 3.00 | 26 | 12.00 | 10.71 | 11.36 |
| Austria | 13 | 11 | 12.00 | 12 | 43.33 | 32.35 | 37.84 |
| Belgium | na | 6 | 6.00 | 19 | cna | 60.00 | 60.00 |
| Bulgaria | 7 | 6 | 6.50 | 18 | 77.78 | 60.00 | 68.89 |
| Burkina Faso | 2 | 3 | 2.50 | 30 | 50.00 | 60.00 | 55.00 |
| Cameroon | 1 | 1 | 1.00 | 42 | 25.00 | 14.29 | 19.64 |
| Canada | 16 | 21 | 18.50 | 9 | 30.77 | 28.38 | 29.57 |
| Chile | 3 | 2 | 2.50 | 30 | 16.67 | 18.18 | 17.42 |
| China | 37 | na | 37.00 | 5 | cna | - | |
| Croatia | na | 2 | 2.00 | 36 | - | 100.00 | 100.00 |
| Cuba | 3 | 4 | 3.50 | 25 | 75.00 | 66.67 | 70.83 |
| Cyprus | na | 3 | 3.00 | 26 | cna | 75.00 | 75.00 |
| Czech Rep. | na | 7 | 7.00 | 17 | cna | 20.00 | 20.00 |
| Dominican Rep. | .na | 1 | 1.00 | 42 | - | 11.11 | 11.11 |
| Egypt | 23 | na | 23.00 | 7 | - | - | - |
| Estonia | 1 | 4 | 2.50 | 30 | 20.00 | 57.14 | 38.57 |
| Finland | 5 | 3 | 4.00 | 23 | 25.00 | 15.79 | 20.39 |
| France | 114 | 76 | 95.00 | 1 | 47.50 | 37.44 | 42.47 |
| Germany | 55 | 57 | 56.00 | 3 | 37.67 | 32.76 | 35.21 |
| Hungary | 9 | 9 | 9.00 | 14 | 34.62 | 19.57 | 27.09 |
| Iceland | 2 | 3 | 2.50 | 30 | 100.00 | 50.00 | 75.00 |
| Ireland | 7 | 12 | 9.50 | 13 | 70.00 | 63.16 | 66.58 |
| Israel | 2 | na | 2.00 | 36 | 9.09 | - | 9.09 |
| Italy | 30 | 26 | 28.00 | 6 | 30.61 | 22.41 | 26.51 |
| Kyrgyzstan | na | 1 | 1.00 | 42 | - | 100.00 | 100.00 |
| Lebanon | 5 | 6 | 5.50 | 21 | 71.43 | 75.00 | 73.21 |
| Lithuania | 2 | 1 | 1.50 | 40 | 100.00 | 100.00 | 100.00 |
| Mexico | 4 | 8 | 6.00 | 19 | 7.55 | 12.50 | 10.02 |
| Morocco | 3 | 2 | 2.50 | 30 | 18.75 | 16.67 | 17.71 |
| Netherlands | 10 | 6 | 8.00 | 15 | 34.48 | 28.57 | 31.53 |
| New Zealand | - | 2 | 2.00 | 36 | - | 33.33 | 33.33 |
| Norway | 5 | 1 | 3.00 | 26 | 20.83 | 4.76 | 12.80 |
| Poland | 4 | 2 | 3.00 | 26 | 13.33 | 5.41 | 9.37 |
| Portugal | 9 | 19 | 14.00 | 11 | 40.91 | 59.38 | 50.14 |
| Republic of Moldova | 1 | - | 1.00 | 42 | 100.00 | - | 100.00 |
| Romania | 11 | 4 | 7.50 | 16 | 55.00 | 22.22 | 38.61 |
| Singapore | 2 | 3 | 2.50 | 30 | 25.00 | 30.00 | 27.50 |
| Slovakia | 5 | 3 | 4.00 | 23 | 71.43 | 100.00 | 85.71 |
| Slovenia | 2 | 1 | 1.50 | 40 | 20.00 | 33.33 | 26.67 |
| Spain | 53 | 41 | 47.00 | 4 | 37.32 | 27.33 | 32.33 |
| Sweden | na | 16 | 16.00 | 10 | cna | 34.78 | 34.78 |
| Switzerland | 15 | 24 | 19.50 | 8 | 50.00 | 63.16 | 56.58 |
| Turkey | 5 | 4 | 4.50 | 22 | 17.86 | 11.43 | 14.64 |
| United Kingdom | 67 | 57 | 62.00 | 2 | 63.21 | 53.27 | 58.24 |

**Notes**: na: not available
(- ): magnitude nil or negligible

## Table A16. Balance consumed by country of origin

| Criteria | HHI on the market shares of the five main origins | | | | Market Share | | | Market Share | | | Market Share | | | Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2006 | Mean 05-06 | Rank 05-06 | 2005 | | | 2006 | | | Mean 05-06 | | | |
| Country | | | | | National | US | Others countries | National | US | Others countries | National | US | Others countries | |
| Australia | 6715 | 7430 | 7072 | 28 | 2.8 | 81.2 | 16 | 4.6 | 85.9 | 9.5 | 4 | 84 | 13 | 2 |
| Austria | 5715 | 6116 | 5915 | 22 | 2.7 | 75 | 22.3 | 2.6 | 77 | 20.4 | 3 | 76 | 21 | 1 |
| Azerbaijan | 8536 | 9258 | 8897 | 37 | 3 | 92.3 | 4.7 | 1.4 | 96.2 | 2.4 | 2 | 94 | 4 | 2 |
| Brazil | 6789 | 5810 | 6300 | 23 | 9.49 | 81.78 | 8.73 | 12 | 75 | 13 | 11 | 78 | 11 | 4 (based on the number of copies) |
| British Virgin Is | na | na | na | na | 0 | 80 | 20 | 0 | 85 | 15 | 0 | 83 | 18 | 1 |
| Cambodia | 3029 | 3158 | 3094 | 6 | 50 | 5 | 45 | 50 | 15 | 35 | 50 | 10 | 40 | 3 |
| Canada | 7359 | 7790 | 7575 | 33 | 5.5 | 85.5 | 9 | 4.3 | 88.1 | 7.6 | 5 | 87 | 8 | 2 |
| Chile | na | 6314 | 6314 | 24 | 3.6 | na | 96.4 | 6.9 | 79.1 | 14 | 5 | 79 | 55 | 1 |
| Costa Rica | 9554 | 9718 | 9636 | 38 | 0 | 97.74 | 2.26 | 0 | 98.58 | 1.42 | 0 | 98 | 2 | 2 |
| Croatia | 6945 | 7348 | 7146 | 29 | 2.9 | 83.1 | 14 | 5.2 | 85.4 | 9.4 | 4 | 84 | 12 | 4 (based on the num-beer of exhibited films) |
| Czech Republic | 4266 | 4295 | 4280 | 14 | 25.1 | 60 | 14.9 | 30.1 | 58 | 11.9 | 28 | 59 | 13 | |
| Denmark | 4193 | 4094 | 4144 | 12 | 32 | 56 | 12 | 25 | 58 | 17 | 29 | 57 | 15 | 1 |
| Estonia | 6119 | 6694 | 6406 | 25 | 7.8 | 77.3 | 14.9 | 8.1 | 81.3 | 10.6 | 8 | 79 | 13 | 1 |
| Finland | 4384 | 4365 | 4375 | 15 | 15 | 63 | 22 | 23.9 | 61.1 | 15 | 19 | 62 | 19 | 1 |
| France | 3643 | 3991 | 3817 | 9 | 36.6 | 46.1 | 17.3 | 44.7 | 44.2 | 11.1 | 41 | 45 | 14 | |
| Germany | 5016 | 5004 | 5010 | 19 | 17.1 | 68.4 | 14.5 | 25.8 | 65.8 | 8.5 | 21 | 67 | 12 | 1 |
| Hungary | 5004 | 5737 | 5370 | 20 | 12.1 | 69.5 | 18.4 | 16.4 | 73.8 | 9.8 | 14 | 72 | 14 | 1 |
| Iceland | 7137 | 7277 | 7207 | 30 | 2.7 | 83.9 | 13.4 | 7.8 | 84.9 | 7.3 | 5 | 84 | 10 | 1 |
| Ireland | na | na | na | na | 1.16 | na | 98.84 | 4.5 | na | 95.5 | 3 | na | 97 | |
| Italy | na | na | na | na | 26 | 46 | 28 | 22.9 | 64.2 | 12.9 | 24 | 55 | 20 | |
| Japan | 2890 | 3042 | 2966 | 5 | 48.7 | 20.9 | 30.4 | 50.8 | 20.1 | 29.1 | 50 | 21 | 30 | 4 (based on the number of feature films exhibited) |
| Lao PDR | 1948 | 2631 | 2290 | 3 | 0 | 20 | 80 | 0 | 35 | 65 | 0 | 28 | 73 | |
| Latvia | 4041 | 3758 | 3900 | 10 | 2 | 63 | 35 | 2 | 61 | 37 | 2 | 62 | 36 | 4 (based on the number of films) |
| Lebanon | 3387 | 3418 | 3403 | 7 | 5 | 49 | 46 | 10 | 51 | 39 | 8 | 50 | 43 | 2 |
| Lithuania | 6169 | 7430 | 6800 | 27 | 7 | 78 | 15 | 1 | 86 | 13 | 4 | 82 | 14 | 1 |
| China, Macao SAR | 1841 | 2076 | 1959 | 1 | 0 | 36 | 64 | 0.4 | 36.5 | 63.1 | 0 | 36 | 64 | 4 (based on the number of films exhibited in this region) |
| Malaysia | 2454 | 2000 | 2227 | 2 | 5.75 | 42 | 52.25 | 7.36 | 34.87 | 57.77 | 7 | 38 | 55 | 4 (based on the number of films) |
| Mexico | 7280 | 7280 | 7280 | 31 | 5 | 85 | 10 | 7 | 85 | 8 | 6 | 85 | 9 | 2 |
| Morocco | 3283 | 2594 | 2939 | 4 | 8 | 49 | 43 | 18 | 42 | 40 | 13 | 46 | 42 | |

## Table A16. Balance consumed by country of origin (continued)

| Criteria | HHI on the market shares of the five main origins | | | | Market Share | | | Market Share | | | Market Share | | | Criteria |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2005 | 2006 | Mean 05-06 | Rank 05-06 | 2005 | | | 2006 | | | Mean 05-06 | | | |
| Country | | | | | National | US | Others countries | National | US | Others countries | National | US | Others countries | |
| Namibia | na | na | na | na | 0 | 95 | 5 | 0 | 97 | 3 | 0 | 96 | 4 | 2 |
| Netherlands | 5728 | 5836 | 5782 | 21 | 13.16 | 74.42 | 12.42 | 11.31 | 75.42 | 13.27 | 12 | 75 | 13 | 2 |
| Nigeria | na | na | na | na | 50 | 20 | 30 | 70 | 10 | 20 | 60 | 15 | 25 | 4 (based on Audience preference) |
| Norway | 4451 | 5071 | 4761 | 17 | 12 | 65 | 23 | 16 | 69 | 15 | 14 | 67 | 19 | 1 |
| Poland | 4103 | 3810 | 3956 | 11 | 3.38 | 63.14 | 33.48 | 15.86 | 58.45 | 25.69 | 10 | 61 | 30 | 2 |
| Portugal | na | na | na | na | 3 | 62 | 35 | 3 | 66 | 31 | 3 | 64 | 33 | 1 |
| Rep. of Moldova | 7959 | 7610 | 7785 | 35 | 0 | 89 | 11 | 0 | 87 | 13 | 0 | 88 | 12 | 4 (based on the country of origin of the feature film) |
| Romania | 7551 | 7802 | 7676 | 34 | 4.7 | 86.7 | 8.6 | 4.3 | 88.17 | 7.53 | 5 | 87 | 8 | 1 |
| St Vincent/Grenad. | na | na | na | na | 0 | 100 | 0 | 0 | 100 | 0 | 0 | 100 | 0 | 4 |
| Slovakia | 6345 | 7217 | 6781 | 26 | 1.67 | 79.17 | 19.16 | 0.6 | 84.67 | 14.73 | 1 | 82 | 17 | 1 |
| Slovenia | 6724 | 8347 | 7535 | 32 | 2.4 | 81.9 | 15.7 | 0.9 | 91.3 | 7.8 | 2 | 87 | 12 | 1 |
| Spain | 4142 | 5378 | 4760 | 16 | 16.73 | 60.14 | 23.13 | 15.47 | 71.22 | 13.31 | 16 | 66 | 18 | 2 |
| Sweden | 4231 | na | 4231 | 13 | 22.6 | 59.8 | 17.6 | 18.8 | 65.4 | 15.8 | 21 | 63 | 17 | |
| Switzerland | 3669 | 3833 | 3751 | 8 | 5.9 | 58.2 | 35.9 | 9.5 | 59.7 | 30.8 | 8 | 59 | 33 | 1 |
| Ukraine | 4797 | 4891 | 4844 | 18 | 6 | 66 | 28 | 6 | 67 | 27 | 6 | 67 | 28 | 1 |
| USA | 7419 | 8236 | 7827 | 36 | 86.11 | na | 13.89 | 90.73 | na | 9.27 | 88 | na | 12 | 2 |

**Notes**: na : not available

Criteria 1: The number of admissions
Criteria 2: The number of box office receipts
Criteria 3: The amount of distributors' turnover
Criteria 4: Any other criteria

## Table A17. Rank of national films in the top five by country

| Rank of national films | Year | Countries |
|---|---|---|
| First | 2005 | Brazil, Japan, Lithuania, Morocco, Rep. of Korea |
| | 2006 | Finland, France, Iceland, Morocco |
| Second | 2005 | Italy, Switzerland, Morocco, Rep. of Korea, Denmark |
| | 2006 | Morocco, Poland (co-production with The USA and Italy) |
| Third | 2005 | France, Hungary, Italy, Rep. of Korea |
| | 2006 | Brazil, Morocco, The Netherlands |
| Fourth | 2005 | Finland, Rep. of Korea, Denmark |
| | 2006 | Denmark, France, Germany, Hungary, Japan, Morocco |
| Fifth | 2005 | Estonia, Norway, Rep. of Korea, Denmark |
| | 2006 | Estonia, Japan, Denmark |

**Note**: This table can be interpreted as follows: In the Republic of Korea, in 2005, a domestic film reached the first rank of the top ten as well as the second, the third, the fourth and the fifth rank.

## Table A18. Balance distributed by country of origin

| Criteria | % of nationally controlled distribution companies | | | % of foreign-controlled distribution companies | | |
|---|---|---|---|---|---|---|
| **Country** | **2005** | **2006** | **Mean 05-06** | **2005** | **2006** | **Mean 05-06** |
| Austria | 47.83 | 37.50 | 42.66 | 52.17 | 62.50 | 57.34 |
| Belarus | 100.00 | 100.00 | 100.00 | - | - | - |
| Brazil | 80.00 | 79.31 | 79.66 | 20.00 | 20.69 | 20.34 |
| Bulgaria | 98.08 | 98.21 | 98.15 | 1.92 | 1.79 | 1.85 |
| Chile | 17.39 | 20.00 | 18.70 | 82.61 | 80.00 | 81.30 |
| Costa Rica | 100.00 | 100.00 | 100.00 | - | - | - |
| Croatia | 100.00 | 100.00 | 100.00 | - | - | - |
| Cuba | 100.00 | 100.00 | 100.00 | - | - | - |
| Cyprus | cna | - | - | cna | 100.00 | 100.00 |
| Dominican Republic | cna | 100.00 | 100.00 | cna | cna | cna |
| Egypt | 100.00 | cna | 100.00 | - | cna | - |
| Estonia | 75.00 | 80.00 | 77.50 | 25.00 | 20.00 | 22.50 |
| Finland | 54.55 | 54.55 | 54.55 | 45.45 | 45.45 | 45.45 |
| Germany | 93.67 | 94.38 | 94.03 | 6.33 | 5.62 | 5.97 |
| Iceland | 100.00 | 100.00 | 100.00 | - | - | - |
| Ireland | 42.86 | 42.86 | 42.86 | 57.14 | 57.14 | 57.14 |
| India | 100.00 | 100.00 | 100.00 | - | - | - |
| Lao People's D.R. | 100.00 | 100.00 | 100.00 | - | - | - |
| Lebanon | 53.85 | 57.14 | 55.49 | 46.15 | 42.86 | 44.51 |
| Lithuania | 71.43 | 66.67 | 69.05 | 28.57 | 33.33 | 30.95 |
| Malaysia | 100.00 | 100.00 | 100.00 | cna | - | - |
| Mauritius | 100.00 | 100.00 | 100.00 | - | - | - |
| Mexico | 68.75 | 70.59 | 69.67 | 31.25 | 29.41 | 30.33 |
| Morocco | 100.00 | 100.00 | 100.00 | - | - | - |
| Namibia | - | - | - | 100.00 | 100.00 | 100 |
| Netherlands | 64.29 | 64.29 | 64.29 | 35.71 | 35.71 | 35.71 |
| Nigeria | 97.12 | 97.12 | 97.12 | 2.88 | 2.88 | 2.88 |
| Norway | cna | cna | | cna | cna | |
| Oman | 55.56 | 55.56 | 55.56 | 44.44 | 44.44 | 44.44 |
| Philippines | 22.42 | 20.50 | 21.46 | 77.58 | 79.50 | 78.54 |
| Poland | 76.92 | 75.00 | 75.96 | 23.08 | 25.00 | 24.04 |
| Portugal | 81.82 | 86.67 | 84.24 | 18.18 | 13.33 | 15.76 |
| Rep. of Moldova | 100.00 | 100.00 | 100.00 | - | - | - |
| Singapore | 100.00 | 100.00 | 100.00 | - | - | - |
| Slovakia | 77.78 | 72.73 | 75.25 | 22.22 | 27.27 | 24.75 |
| Slovenia | 85.00 | 85.00 | 85.00 | 15.00 | 15.00 | 15.00 |
| Spain | 96.59 | 96.59 | 96.59 | 3.41 | 3.41 | 3.41 |
| Sweden | cna | cna | | cna | cna | |
| Switzerland | 90.70 | 91.30 | 91.00 | 9.30 | 8.70 | 9.00 |
| Turkey | cna | cna | cna | cna | cna | cna |
| Ukraine | 100.00 | 100.00 | 100.00 | - | - | - |

**Notes**: na: not available
cna: category not applicable
(-): magnitude nil or negligible

# STUDY 2

# AN INTERNATIONAL COMPARISON OF THE ABILITY OF TELEVISION CHANNELS TO PROVIDE DIVERSE PROGRAMMING: Testing the Stirling Model in France, Turkey and the United Kingdom

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## Abstract

The beginning of 2009 marked the end of advertising on public French television channels after 8 p.m. One of the arguments put forth in favour of this change was that this reform would promote diversity as public channels would be less inclined to schedule homogeneous programming for the sake of higher ad revenues. Based on a comparison between British, French and Turkish channels, the aim of this paper is to determine whether advertising deters diversity. Previous literature, notably on two-sided markets, found that the more advertising plays a role in the funding of the broadcasters, the less diverse their programming. This paper proposes a methodology to assess diversity based on the definition proposed by Stirling (2007). The methodology includes a set of indexes to measure diversity of programming as well as tools to assess disparity of the programming. This study shows that contrary to the literature, there is no clear link between the type of financing and the level of diversity.

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# 1. Introduction

There have been huge debates in many countries on the regulation of the audiovisual industry. In France, since the beginning of 2009, advertising has been prohibited on public television (TV) channels after 8 p.m. Total prohibition is forecasted towards the end of 2011, a reform which has been much debated. On the one hand, critics point out the fact that such a reform would only worsen structural funding difficulties endured by the public channels. On the other, the reform could help remove the pressures of the ratings race faced by the channels. In effect, public channels could then propose programmes that would be radically different from the ones proposed by channels funded by advertising. Public programmes could in fact be more diverse and of better quality. This point has been discussed in economics and communication sciences literature and is summarized in the following section.

The British Broadcasting Corporation (BBC) is generally considered an exemplary public TV corporation. However, the BBC will have to share the revenues derived from the licence fees from 2012 with ITV, which is enduring a huge drop of advertising revenues. This would be a first for the corporation created in 1922.

In Turkey, the Turkish Radio and Television Institute (TRT) was the only public group to broadcast radio and television programmes – among all the channels, However, the TRT is now no longer the only institution to hold that monopoly. TRT 6 is the only one to broadcast in Kurdish to take into account the specific Kurdish culture.

Such disruptions revive the debate around the link between the nature of broadcasted programmes and the means of funding these programmes. This debate has been fuelled for a long time by the economists who have studied to what extent the methods of funding might influence supplied diversity. The economic analysis has been renewed with the emergence of the theory of two-sided markets. In such markets, the TV broadcaster sells broadcast time to the advertisers yet freely supplies content to viewers. The theory generally assumes that the broadcaster proposes homogeneous programmes to reach the highest number of viewers as possible. As a result, funding by advertisers would have a negative impact on programme diversity.

However, such a theoretical result has only been rarely checked empirically, and only in the very specific case of television in the US. In this article, it is therefore proposed, based on a quantification of programme diversity, an empirical comparison between programming by channels funded by advertising (pr, i.e. private) and channels funded through a licence fee (pu, i.e. public).

An important assumption in this work is that the quality of a TV programme cannot be assessed per se. Rather, this report proposes a framework based on the Stirling model (2007) that allows the measurement of the diversity of programming of a TV channel over a period of time.

To conduct this study, the main results of the literature are first reviewed on the influence of the type of funding on the diversity of programming (Aslama 2006). Then the methodology is detailed– in particular, the application of the framework designed by Stirling to this study is explicitly noted (2007) (Baxter, 1974). The empirical results are then presented (i.e. the diversity of programming for the six TV channels in the study sample is provided) (BBC 2009). This includes a distinction between what is broadcasted over the whole day (including prime time) versus on prime time only.

# 2. Supplied diversity and market structure: The economic theory of duplication

## 2.1 Competition, public intervention and diversity

Standard theoretical analysis of the links between competition and diversity concludes that competition does not necessarily lead to diversity. Quite the contrary – competition tends to reduce diversity. As a result, public channels favour diversity since they do not directly endure competitive pressures.

*i) In the case of funding through advertising, competition may hinder diversity*

Competing broadcasters tend to reach a low level of differentiation when they are seeking funding through advertising.

This outcome was originally discovered by Steiner (1952) using a simple model of broadcasting radio channels that were completely funded by advertising. As a result of this funding structure, every one of them tries to get the highest share of audience. A further assumption is that every listener likes only one type of programme but equally likes every programme that belongs to this preferred type. Steiner also shows that the competing broadcasters will not necessarily broadcast the most diverse programming, even though this means that they will not reach the widest range of listeners.

A broadcaster may be incited to propose a programme that belongs to an existing type of programme – Steiner terms this as *duplication*. Let us assume for example that among 355,000 listeners, there are 300,000 that want to listen to humorous programmes and 55,000 that would rather be listening to a report. Two competing radio stations would each programme a humorous programme since this would allow them to each get 150,000 listeners, which is far more than the 55,000 listeners they would get by programming a report. A third station would also programme a humorous programme since every broadcaster would then get 100,000 listeners. Only the sixth broadcaster would propose a report since he would only get 50,000 listeners if he was programming a humorous programme $\left(\frac{300{,}000}{6} = 50{,}000 < 55{,}000\right)$.[25] Moreover, this sixth entrant would only get 55,000 listeners compared with the 60,000 that every one of its competitor is going to get.

Steiner's results are comparable to Hotelling's (1929) who employed a spatial linear model to demonstrate that two competing suppliers are incited to propose similar products to reach the average consumer. Ultimately, however, this outcome is at the expense of consumers as a whole, most notably those who have marginal tastes. One important difference between the models is that Hotelling was interested in studying goods that are purchased by consumers while Steiner studies goods that are not purchased by the consumers (i.e. the audience) but that are funded indirectly through advertising. However, in both cases, the actions taken to capture the majority of consumers – or what is identified as the average consumer – ultimately prevents diversity.

[25] Steiner does not consider differences in terms of relative costs of programme production.

Not only does Steiner shows that competition alone may not be enough to increase supplied diversity, he also shows that anticompetitive contexts may in fact lead to more diversity – the same result was found by Hotelling (1929). Thus, it would be better for the consumers as well as for the broadcasters to collude.[26] This would allow them to reach a larger audience and thus achieve higher incomes due to advertising. Going back to the example used above, two colluding stations could reach 355,000 listeners instead of 300,000. The listeners that prefer reports could gain access to this type of programme while the others still have access to a humorous programme. Instead of two colluding stations, there could also be a monopoly that controls all radio stations. According to Steiner, the monopoly allows a better result in terms of the diversity of supplied programmes – notably, from the consumers' point of view – compared to a model with competing stations. Beebe (1977) confirms but moderates this result: the monopoly's superiority prevails only in some cases while generally no structure clearly outperforms the other.

*ii) Public channels favour programming diversity*

A state monopoly structure (e.g. the old *Office de radiodiffusion télévision française* (ORTF) for French television and radio systems) has never been studied to our knowledge. Public intervention and, more specifically, public channels are studied instead as they coexist with private channels. Private channels are predominantly if not exclusively funded through advertising. As a result, they aim to capture the highest share of audience possible and could propose very homogeneous programmes in an effort to reach the average viewer. On the other hand, public channels are funded at least partially by licence fees. This should reduce the constraints on them in terms of programming, allowing these channels to supply programmes that are more diverse. According to Van der Wurff (2005), obligations linked to their statute as a public service should lead them to supply more diversity. Public channels should notably propose programmes that are more complex. In the same way, Spence and Owen (1977) show through a theoretical model that in a landscape composed only of private channels – either free TV funded by advertising or pay-TV – some programmes are likely not to be produced even though they *"ought to be produced, in the sense that their marginal benefits exceed their marginal costs*".

Most analyses find that state intervention favours supplied diversity *(see **Table 1**)*. Among these, only Baxter (1974) voices criticism of public intervention, namely by the Federal Communications Commission (FCC) in the US. The argument here was that the lack of regulation for the press industry does not hinder its diversity while the regulation for radio and television has negative effects. On the contrary, for Steiner (1952), the FCC limits duplication thanks to the fact that it conditions the right to broadcast as a "*public service responsibility*". Due to this responsibility, programmes chosen are not necessarily geared towards maximizing audience numbers. It is important to note, however, that these results do not concern the analysis in this report directly as it is studying the impact of public channels on diversity rather than the influence of public administration.

Empirical analyses as applied to the television sector generally points to a positive role for public channels that ultimately favours diversity. As such, Levin (1971) recommends a reinforcement of public television in the US to increase diversity. Van der Wurff (2005) finds that supplied diversity is higher on public channels than on commercial ones. His analysis is interesting as he uses a large set of data on European markets from the end of the 80s to the 90s.

[26] However, this may be illegal.

A quite different approach is used by Aslama (2006) who focuses on the case in Finland. More precisely, she considers diversity of programming in all Finnish TV channels from 1993 to 2004. She found that over this period, the public channel programming was more diverse than the private ones. Also, the public channels increasingly favoured local productions over the period as compared to the private ones. Moreover, the public channels differentiated one from another following the entrance of a new private channel in 1997. From this point of view, the most important result of her study is that the public and the private channel programming does not converge over this set period, which stands as an argument in favour of keeping public channels.

**Table 1. The impact of the presence of public channels on diversity**

| Model | Impact |
|---|---|
| Steiner (1952) | Positive |
| Levin (1971) | Positive |
| Baxter (1974) | Negative |
| Van der Wurff (2005) | Positive |
| Aslama (2006) | Positive |

*Source*: Ranaivoson, 2008.

## 2.2 Two-sided markets confirm that channels funded by advertising have less diverse programming

While these studies agree on the importance of advertising in broadcasters' strategies, they tend to neglect the specific role played by broadcasters. In actuality, they act as platforms to connect advertisers and consumers and as a result, they have to manage the tension between these two groups' contradictory interests. The theory of two-sided markets analyses this role and the resulting tension (Gabszewicz and Anderson, 2006).

*i) Two-sided markets: A new theory for an old reality*

There is no such thing as "*a unified theory of* [two-sided] *markets*" (Bounie and Bourreau, 2008). Two-sided markets can, however, be defined as all the markets for which there are inter-group network externalities (Armstrong, 2006).

Network externalities[27] were first used to describe network infrastructures (e.g. telecommunications). There are such externalities when the utility derived from one product or service is positively correlated with the number of users of this product or service (Varian, 2000). Such externalities might be direct or indirect (Katz and Shapiro, 1994). There are direct externalities when the number of users has a direct positive impact on the utility derived from the product (Liebowitz and Margolis, 2002). For example, the higher the number of phone users, the more useful it is for one to have a phone. There are indirect externalities when such an impact is

[27] Externalities include everything an agent receives due to another agent's activity (consumption or production) without any market counterpart.

mediated by another market (Liebowitz and Margolis, 2002). For example, the higher the number of circulating cars, the higher the number of garages and then the more useful it is for one to have a car. As soon as the installed base reaches a critical mass of users, there can be a snowball effect in favour of the adoption of the product by more and more users. Such an effect stops when there is congestion (i.e. when the number of users is so high that networks are saturated or it negatively affects the quality of services).

The standard literature on intra-group network externalities was completed since the turn of the century by the analysis of inter-group externalities. Such externalities are characteristic features of two-sided (or multi-sided) markets. Two-sided markets exist as soon as the utility of any user (A) is correlated with the number of users (B). These models were first applied to credit card markets (Rochet et Tirole, 2002). In such markets, the higher the number of credit card holders, the more interesting it becomes for shops to be equipped with devices that allow payment with these cards. Conversely, the higher the number of equipped shops, the more utility one card holder will derive from having such a card.

In media, the two categories of users are on the one hand viewers (or readers or listeners) and on the other hand advertisers. Essentially, media stand as the platform that connects both categories of users. The edited and broadcasted content is a joint product – so on the one hand, it is content for the viewers and on the other, it provides advertisers with attention from the viewers. Of course, Steiner did consider that advertisers aim at reaching the largest share of audience possible. The theory of two-sided markets, however, enables the systematic taking into account of the fact that media are a platform whose role is to internalize externalities between advertisers and viewers.

The existence of network externalities in two-sided markets has unexpected economic consequences on price formation, level and structure (Rochet and Tirole, 2004). First, broadcasters face the hen causality dilemma: to get viewers they must have a significant amount of interesting programmes. However, advertisers are only going to fund such programmes if they know they can reach enough viewers. As a result, according to models, it is necessary to subsidize one side of the market in order to attract customers from the other side. More precisely, a profit-maximizing platform should apply higher tariffs to the customers whose price elasticity is the lowest, in order to attract customers whose price elasticity is the highest. In the context discussed here, media should apply higher tariffs to the advertisers to sell the product (e.g. the television programme) to the viewers. Products can be totally subsidized, in which case one side of the market becomes freely available. This is the case for many media where the product (e.g. free-to-air television, radio, free newspapers) is freely given to the viewers.

The main peculiarity of media compared to other two-sided markets is the fact that inter-group externalities are not necessarily positive contrary to the founding example of credit cards. In fact, while such externalities are positive for the advertisers, they can be negative for the viewers (Bounie and Bourreau, 2008). The higher the number of viewers, the higher the number of advertisers ready to pay to have an ad; however, more advertising can correlate to less consumer satisfaction.[28]

[28] There can be differences according to the kind of media (i.e. advertising on the radio or on the television is more annoying than on the Internet or in newspapers) or the market segment (i.e. advertising might be considered more interesting in specialized media, such as newspapers directed towards professionals).

*ii) Two-sided markets and diversity*

This report is particularly interested in the conclusions of two-sided markets as far as content diversity is concerned (see Waterman, 1990 in the case of television).[29] Diversity is modeled in different and incomplete ways *(see **Box 1**).* Results are however rather straightforward: as soon as advertising represents an important share of the platform's revenues, content tends to be homogeneous (Bounie and Bourreau, 2008). Further illustrating this outcome, Gabszewicz et al. (2001) show that two competing newspapers tend to provide the same political view. Such results are thus confirming Steiner's findings.

These results are only mitigated by the nature of the externality that advertising constitutes for the viewers. When viewers dislike advertising, broadcasters tend to differentiate more (e.g. Gabszewicz *et al.*, 2004 ; Peitz and Valletti, 2007). In fact, differentiation is the only way for broadcasters to continue attracting viewers. The conflicting influences between the importance of advertising revenues and distaste towards advertising yield different results according to a model's parameters.

**Box 1. How to model diversity in a two-sided market?**

The example of models built by Gabszewicz *et al.* (2001 ; 2002)

Models by Gabszewicz et al. analyse to what extent competing newspapers will propose a differentiated supply. To model content diversity, they used Hotelling's (1929) spatial linear model. They combined this representation of diversity with a game theory model.

Thus, they assume that two newspapers are competing on a horizontal line that represents political opinions (Gabszewicz et al., 2002). They are simultaneously competing on the market for advertising space. In the first period, newspapers are competing in terms of retail price. In the second period, they are competing in terms of advertising space prices. Advertisers in the second period choose either one of the newspapers according not only to the latter price but also to the newspaper's market share among readers. Advertisers are aiming at reaching the highest amount of readers as possible.[30] In this model, diversity corresponds to the number of available journals, which varies between 1 and 2.

In a previous paper, a third period is added before the other two specified above. In this new first period, newspapers are competing for their location on the line (i.e. for the type – conservative or progressive – and the intensity – moderate or extreme – of their expressed political opinion) (Gabszewicz et al., 2001). Thus, the diversity of expressed content – although addressed only in one dimension – then becomes a strategic tool. However, in this model, the number of competing newspapers is always two and there appears to be no interest in the balance of supply in both papers.

[29] Thus far, research within the frame of the theory of two-sided markets has not shown much interested in exploring possible relationships between supplied diversity and consumed diversity (i.e. diversity as it is proposed by the broadcasters and actual viewing behaviour of viewers). In this theory, it seems that supplied diversity directly influences consumed diversity – together with the viewers' stable and defined preferences.

[30] The authors also consider whether the readers love advertising or not.

In conclusion, theoretical models based on two-sided markets generally show that funding by advertising hinders content diversity supplied by media. Based on the same idea as Steiner's own model (1952), they allow distinction to be made between the respective behaviors of the audience, the broadcasters and the advertisers. Thus, they also provide a theoretical framework for the empirical result according to which public channels are generally more diverse than private ones. The argument is the following: private channels sell advertising space, the value of which depends on the size of the audience. As a result, private channels are looking for the widest audience and thus provide homogeneous, duplicated programmes. The argument is particularly fitting for all generalist private media.

Applied to public channels, the argument of two-sided markets could be the following: public channels do not sell advertising space (or rely less on advertising) and as a result, they do not need to look for the widest audience and may provide a more diverse programming. This resonates with arguments provided by Steiner (1952) and Van der Wurff (2005) that public funding guarantees that public channels are going to maximize their audience numbers.

# 3. Empirical analysis: Methodology

This study in this report concerns the analysis of the programming of six television channels, which are briefly described. Then the focus turns to the description of the typology of programmes of these channels. Then, the issue of measuring diversity is considered. The study recalls Stirling's (2007) definition of diversity, which constitutes the basis of the analysis presented here. One aspect of diversity is disparity, the methodology of which is also described. Finally, the different indexes used to assess diversity is described.

## 3.1 Sources

The study concerns three countries: France, Turkey and the United Kingdom. These countries were selected in part due to their relative cultural and socio-economic proximities, which explains the choice of two European countries – France and the United Kingdom. To provide a global answer to the questions posed in this study, a different country needed to be included as well. Turkey, being not 'completely' European, appeared to be the best compromise. Moreover, all three countries are members of the OECD (socio-economic proximity). Consequently, it is possible to draw a comparison of their TV channels, especially in terms of qualitative issues, such as TV programming. On the other hand, the inclusion of Turkey allows some diversity to be included in the sample of countries.

In every case, the most popular (based on viewership) private and public TV channels were chosen. It was also ensured that the private channel was significantly funded through advertising, which led to the abandonment of the analysis of other countries' TV channels. Finally, all these channels target a wide audience in their respective territory. To reach the aim of a wide audience, they all pretend to be generalist (i.e. they are specialized neither in one category of programme in contrast to channels specialized in music like MTV or to news channels like CNN nor in programmes that aim at one category of the population, such community television). Every channel studied broadcasts 24 hours a day.

The programming of six television channels was studied during the month of November 2009. Two channels are French (TF1 (pr) and France 2 (pu)), two are British (BBC 1 (pu) and ITV1) and two are Turkish (TRT1 and Kanal D (pr)). November was chosen as it is a rather neutral month with not too many 'events'[31] and therefore, can be considered as representative of what is broadcasted the rest of the year. Two kinds of analyses were done so far: one over the whole day and another over prime time periods (i.e. 7:15-10:00 p.m. for France, 6:00-10:30 p.m. for Great Britain and 8:00-11:00 p.m. for Turkey)[32]. The time periods for prime time were chosen according to the standard used by the European Audiovisual Observatory (2009), which is the most consensual data source for the European audiovisual sector.

All channels are generalist ones. Channels that are not freely available to viewers were excluded (i.e. pay television like Canal Plus in France). To test the influence of advertising revenues on the level of diversity in programming, channels predominantly funded by advertising were compared to channels predominantly funded through license fees. **Table 2** presents the funding situation of the different channels in this study. The following are brief descriptions of the channels included (by country).

[31] Events in this context refer to, for example, the end of summer vacation, holiday banks, international sport competitions or political elections.

[32] The prime time period is significantly longer in Great Britain (4h30) than in Turkey (3h) and in France (2h45). As such, analyses were conducted with a prime time reduced to 7:00-10:00 p.m. for Great Britain, which did not lead to significantly different results.

**Table 2. A comparison of the financial situation of the channels in this study**

| | Channels | | | | | |
|---|---|---|---|---|---|---|
| | **ITV London** | **BBC 1** | **TF1** | **France 2** | **Kanal D** | **TRT 1** |
| **Turnover (M€)** | 2326.5 | 1581 (2008) | 2764 | 1733(2007) | | 339[33] |
| **Share of advertising in turnover** | 100% | 0 % | 63 % | 30 % | 100 % | 8.1 %[34] |
| **Other fundings** | - | Licence fees (3/4), international | Thematical channels, teleshopping, broadcasting rights, international | Licence fees (2/3) | - | Public funds (90.3%), other funds (1.7%)[35] |
| **Cost of content (M€)** | n/a | 1255 | 1024 | 788 | | |
| **Audience (whole day)** | 19.2%[36] | 22 % | 30.7 % | 18.1 % | 14.2% | 3.9% |
| **Audience (prime time)** | 24.5%[37] | 23.9 % | 32.6 % | 18.1 % | 17.3% | 3.5% |

*Source*: EAO, 2008 ; BBC, 2009 ; ITV1, 2008.

## France

TF1 (pr) is the oldest commercial channel in France with the exception of the pay television channel Canal Plus. It was launched on 8 July 1974 and was privatized in 1986. It has been predominant in France as witnessed by the fact that it reaches the highest audience rating at the European level. Although its share in audience has been diminishing for some years and now reaches around 30%, its market share in advertising remains superior to 50%. The situation of TF1 (pr) in the French audiovisual industry is very peculiar, notably when one considers its very high audience.[38]

France 2 (pu) is the main channel (with an audience rate of 18%) in the public group France Télévision, which includes most French public channels (France 2, France 3, France 4, France 5 and France O). Within the group, France 2 has the highest average audience rate and its aim is specifically to propose "*a diversified programming to a large audience*" (France Télévisions' website). France 2 and TF1 are direct competitors in terms of programming. Moreover, since the beginning of 2009, France 2 no longer broadcasts advertisings after 8 pm, which makes the TV channel be even less dependent on advertisement funding.

[33] Data for TRT as a whole.
[34] Data for TRT as a whole.
[35] Data for TRT as a whole.
[36] Audience for ITV1 as a whole.
[37] Audience for ITV1 as a whole.
[38] TF1's (pr) audience is higher than any other channel's in any other European market.

**United Kingdom**

Since its creation in 1922, the British Broadcasting Corporation (BBC) has headed a public service mission. It has become a worldwide public television model since the huge majority of its revenues come from its licence fee and it does not broadcast any advertising. BBC 1 (pu) is the main television channel of the BBC group and the most relevant one for this study as it targets a wide audience (22% of audience rate).

ITV1 was created in 1955 to compete with the BBC and was the first private television channel ever in the United Kingdom. ITV1 is considered to be the most relevant channel to compare to BBC 1 (pu) as it is a direct competitor. It is the first British commercial television channel in terms of audience share (18%) and advertising revenues since it attracts 30% of television advertising spending.

**Turkey**

The Turkish Radio and Television Institute (TRT) was the only institution that was broadcasting radio and television programmes until the early 90s. After the beginning of the 90s, in order to compete, the private channels of TRT started to have other channels. TRT 1 (pu) was intended to be the popular TV channel within the TRT group. TRT 1 (pu) is the sixth popular TV channel in Turkey (with 3-4% of the audience) and the most popular public channel that is 78% funded by the state (via two taxes, one included with the electricity bills and one with the revenue stamp used for TV, radio and similar devices). The second kind of financial resource is advertisements.

Kanal D (pr) is the most popular TV channel in Turkey with around 14% of the audience. Its TV serials and news are very popular. The channel uses the news sources of its parent company Dogan Holding Corp. which owns 7 newspapers and 11 television channels. The channel is categorized as a "family channel" broadcasting programmes that are aimed at all members of a standard Turkish family.

## 3.2 The typology: Explanation of the categories used in the research

The first step in this study was to define categories of programmes so as to draw comparisons in the most complete and objective way possible. Other typologies have been proposed before to classify cultural products (e.g. Peterson and Berger, 1975; Dowd, 2001) but only Greenberg and Barnett (1971) proposed an original typology to classify TV programmes.

All together, 27 categories were defined that fit into 8 groups: Entertainment, Information, Culture, Sport, Fiction, Children, Educational and Others *(see Table 3).*[39]

- Entertainment includes real TV, game and lottery shows, on-set TV shows, teleshopping and other entertainment.
- Information includes news programmes, news magazines and other information.
- Culture includes performance, cultural magazine and other culture.
- Sport includes live football, sport magazines and other live sporting events.
- Fiction includes cinema movies, TV movies, serials and other fiction.
- Children includes children's programmes, children's series and other.
- Educational includes documentary, practical, religion, coaching and other educational.
- Other includes all the programmes that could not be included in the other categories.

[39] See Appendix I for a definition of every category. Please note that this grouping (into 8 groups) has no impact on our measurements of diversity as the study focused directly on the typology of 27 categories.

For every programme broadcasted in November 2009, the moment (day, hour, minute) it started and finished were recorded and the category to which it belonged.[40] It must be stated that every programme documented was ensured to belong to only one category. The study analysis relies on the length of the programmes and not on the number of times they appear. As a result, mainly relative times devoted to categories were compared.

### 3.3 A definition of diversity

The first requirement in the analysis was a definition of diversity, which would then allow its assessment.

It is important to remember here that diversity was measured and not quality. Beyond the purely quantitative approach of the editorial line, the study thus far does not factor in the more qualitative aspects of every programme. Notably, one category might include programmes that one may consider as being very different one from another. For example, an on-set TV show may consist of a serious debate with politicians as well as of a succession of interviews with pop singers and humorists. Even two emissions that belong to the same category and deal with the same issues may greatly differ in how they deal with them. As it stands, the study indexes can not capture such nuances. In fact, they assess diversity and not quality.

The definition by Stirling (2007) which he applied to quite another topic, namely the analysis of national energy portfolios was used in this study. According to Stirling, diversity has three components: variety, balance and disparity. All else being equal, diversity increases when variety or balance or disparity increases *(see **Figure 1**).*

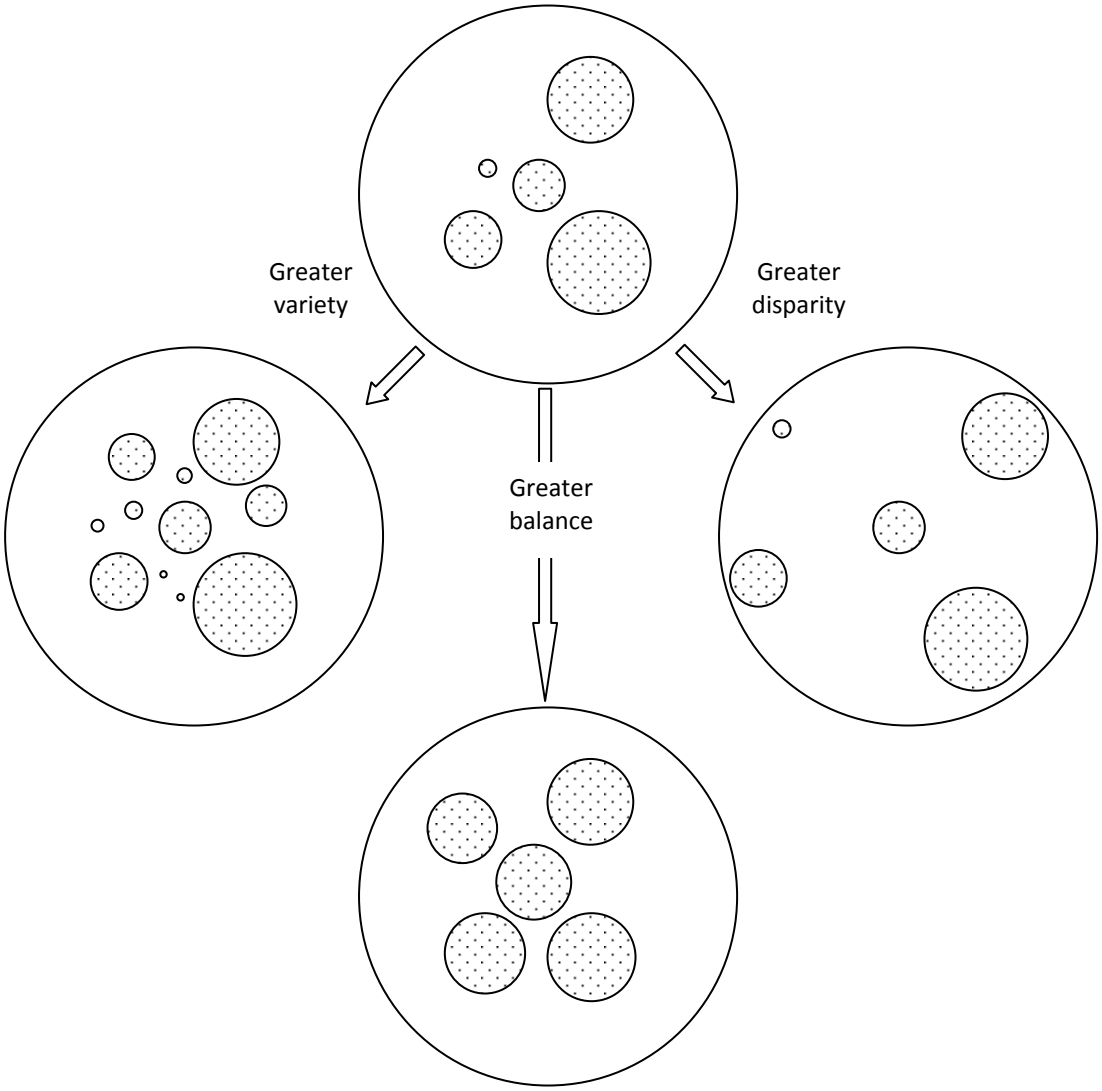
The diversity of a system (programming of a channel) can only be assessed when its elements (i.e. programmes in this case) have been grouped into categories. Once this categorization has been done, variety corresponds to the number of categories; balance to the way the elements are spread among categories (e.g. the duration devoted to every category of programme); disparity to the level of difference between the categories (e.g. between every pair of them or between the two most distinct).

The categorization process is crucial in the assessment of diversity as the choice of categories directly influences variety. For example, if one decides that two categories should be grouped into one, this directly reduces variety. It also influences balance and disparity. On the other hand, one advantage of applying Stirling's definition is to take the importance of categorization into account in an explicit way. Programs that are grouped in the same category are assumed to be 'closer' to one another compared to programmes from another category. The chosen categorization then may represent implicit views on the distances between programmes.

Once the categorization is done (i.e. once the typology is finished), it is rather easy to assess variety and balance through now standard indexes. The assessment of disparity is, however, far less easy. This is what will be explored next.

[40] Other pieces of information were noted for fiction (in terms of genre or origin) but are not used in this paper.

**Figure 1. The relation between diversity and its three components: Variety, balance and disparity**




Based on Stirling, 1998.

### 3.4 The issue of measuring disparity

Disparity corresponds to the extent to which two programmes differ. To assess this, a set of distances were proposed between pairs of categories of programmes that relied on seven attributes *(see **Table 3**)*. In doing so, a matrix of distances is constructed between every pair of categories, which will thereafter be called the *disparity structure*. Every category of programme is assumed to be rather homogenous as far as this attribute is concerned and is compared to other categories for every attribute listed here:[41]

- An age attribute, not of the programme itself but of the category it belongs to
- A specificity attribute, which is a function of the ability of the category to exist without being broadcasted on television
- An informative attribute, from purely entertaining to purely informative
- A heritage attribute, which distinguishes between stock and flux
- A cost attribute
- A risk attribute, which distinguishes between programmes depending on whether its utility can be predicted by the viewer before watching it
- A story attribute, which considers to which extent the programme was scripted before being produced and edited.

The choice of the attributes relies on an analysis of previous typologies used and some that were created by academics and by professionals in the audiovisual sector. The aim was to obtain the most complete set of independent attributes. While the relevance of every attribute could be debated, let it be noted that none of these attributes influence the disparity structure in a significant way (i.e. if one attribute is dropped, it does not change distances between every pair of categories to a large extent) *(see Appendix II).* The attributes are explained in the next subsections. Table 3 sums up the values attributed to every category for every attribute.

*The age attribute*

Contents are classified in terms of their emergence on television. This choice relies on the intuitive view that categories of programmes that appeared more lately are intrinsically different from categories that appeared decades before. To assign values, the analysis in this report is based on the history of television in France even though it might not correspond to the case in British or Turkish television as programmes may have appeared at different times in all three countries. As such, a bias might result, which however has no significant impact on the disparity structure. Dates go from 1947 (news programmes) to 1999 (real TV).

The year 1947 is assigned the value 0 and 1999 is assigned the value of 1. Intermediate values are estimated according to their position in the interval between 1947 and 1999. Thus, the first game or lottery emerges in 1954 on French television and as a result, the category is assigned the value: $\frac{1954-1947}{1999-1947} \cong 0.13$

[41] The term "*attribute*" is used by Stirling (2007) (more precisely "*disparity attribute*"). Synonyms are "*indicator*" and, to some extent, "*characteristic*" (as used in Lancaster, 1979). Lancaster defines "goods" as "bundles of characteristics", with some characteristics being quantifiable, which might correspond to our assignment of a value for every attribute for every category of programme.

## Table 3. Disparity attributes by category of programme[42]

| | | Age | | Specificity | | Informative | | Heritage | | Cost | | Risk | | Story | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Date | | Specific? | | Informative? | | Heritage? | | Costly? | | Unpredictable? | | Scripted? | |
| Category of program | | | Value | | Value | | Value | | Value | | Value | | Value | | Value |
| Entertainment | Real tv | 1999 | 1,00 | Always | 1,00 | Never | 0,00 | Rather flux | 0,33 | Always | 1,00 | Hardly | 0,25 | Sometimes | 0,50 |
| | Game and lottery | 1954 | 0,13 | Always | 1,00 | Hardly | 0,25 | Flux | 0,00 | Hardly | 0,25 | Never | 0,00 | Hardly | 0,25 |
| | On-set tv show | 1952 | 0,10 | Always | 1,00 | Never | 0,00 | Flux | 0,00 | Sometimes | 0,50 | Hardly | 0,25 | Hardly | 0,25 |
| | Teleshopping | 1987 | 0,77 | Always | 1,00 | Never | 0,00 | Flux | 0,00 | Never | 0,00 | Never | 0,00 | Hardly | 1,00 |
| | Other - entertainment | 1973 | 0,50 | Always | 1,00 | Hardly | 0,06 | Flux | 0,08 | Sometimes | 0,44 | Hardly | 0,13 | Sometimes | 0,50 |
| Information | News programme | 1947 | 0,00 | Always | 1,00 | Always | 1,00 | Flux | 0,00 | Often | 0,75 | Hardly | 0,25 | Hardly | 0,25 |
| | News magazine | 1959 | 0,23 | Always | 1,00 | Often | 0,75 | Rather flux | 0,33 | Sometimes | 0,50 | Often | 0,75 | Sometimes | 0,50 |
| | Other - information | 1953 | 0,12 | Always | 1,00 | Often | 0,88 | Rather flux | 0,17 | Often | 0,63 | Sometimes | 0,50 | Sometimes | 0,38 |
| Culture | Performance | 1950 | 0,06 | Never | 0,00 | Sometimes | 0,50 | Rather stock | 0,67 | Rather | 0,50 | Always | 1,00 | Hardly | 0,25 |
| | Cultural magazine | 1953 | 0,12 | Always | 1,00 | Often | 0,75 | Rather flux | 0,33 | Sometimes | 0,50 | Often | 0,75 | Often | 0,75 |
| | Other - culture | 1952 | 0,09 | Sometimes | 0,50 | Never | 0,63 | - | 0,50 | Sometimes | 0,50 | Hardly | 0,88 | Sometimes | 0,50 |
| Sport | Live football | 1952 | 0,10 | Sometimes | 0,50 | Never | 0,00 | Flux | 0,00 | Often | 0,75 | Sometimes | 0,50 | Never | 0,00 |
| | Sport magazine | 1969 | 0,42 | Always | 1,00 | Never | 0,00 | Flux | 0,00 | Sometimes | 0,50 | Sometimes | 0,50 | Sometimes | 0,50 |
| | Other live sporting events | 1948 | 0,02 | Hardly | 0,25 | Never | 0,00 | Flux | 0,00 | Sometimes | 0,50 | Sometimes | 0,50 | Never | 0,00 |
| Fiction | Cinema movie | 1950 | 0,06 | Never | 0,00 | Hardly | 0,25 | Stock | 1,00 | Always | 1,00 | Always | 1,00 | Always | 1,00 |
| | Tv movie | 1957 | 0,19 | Always | 1,00 | Hardly | 0,25 | Stock | 1,00 | Sometimes | 0,50 | Hardly | 1,00 | Always | 1,00 |
| | Serial | 1949 | 0,04 | Always | 1,00 | Hardly | 0,25 | Stock | 1,00 | Sometimes | 0,50 | Hardly | 0,25 | Always | 1,00 |
| | Other - fiction | 1952 | 0,10 | Often | 0,67 | Hardly | 0,25 | Stock | 1,00 | Often | 0,67 | Often | 0,75 | Always | 1,00 |
| Children | Children's programmes | 1950 | 0,06 | Always | 1,00 | Often | 0,50 | Rather flux | 0,33 | Hardly | 0,25 | Never | 0,25 | Often | 0,75 |
| | Children's series | 1962 | 0,29 | Often | 0,75 | Hardly | 0,25 | Stock | 1,00 | Never | 0,50 | Sometimes | 0,50 | Never | 1,00 |
| | Other - Children | 1956 | 0,17 | Always | 0,88 | Sometimes | 0,38 | Rather stock | 0,67 | Sometimes | 0,38 | Sometimes | 0,38 | Hardly | 0,88 |
| Educational | Documentary | 1952 | 0,10 | Always | 1,00 | Always | 1,00 | Stock | 1,00 | Sometimes | 0,50 | Often | 0,75 | Hardly | 0,75 |
| | Practical | 1953 | 0,12 | Always | 1,00 | Often | 0,75 | Rather flux | 0,33 | Sometimes | 0,50 | Never | 0,00 | Often | 0,75 |
| | Religion | 1949 | 0,04 | Sometimes | 0,50 | Sometimes | 0,50 | Flux | 0,00 | Never | 0,00 | Never | 0,00 | Often | 0,75 |
| | Coaching | 1999 | 1,00 | Always | 1,00 | Hardly | 0,25 | Rather flux | 0,33 | Sometimes | 0,50 | Hardly | 0,25 | Sometimes | 0,50 |
| | Other - Educational | 1963 | 0,31 | Often | 0,88 | Often | 0,63 | Rather flux | 0,42 | Hardly | 0,38 | Hardly | 0,25 | Often | 0,69 |
| Other - other | | 1959 | 0,24 | Often | 0,80 | Sometimes | 0,39 | Rather flux | 0,40 | Sometimes | 0,50 | Sometimes | 0,45 | Sometimes | 0,60 |

*The specificity attribute*

Contents are then classified for their ability to exist in the absence of television. More precisely, the questions are: is the content produced for television? Would it exist if it was not broadcasted on television? Thus, performance television is generally only one outlet among others. This category was assigned the value 0. On the contrary, most content that are broadcasted would not be produced if there was no broadcast. This is notably the case for on-set TV shows. Such content is assigned the value 1. In an intermediate position, one can find programmes that exist outside television but on which broadcasting has a great influence as it may change their form. This is notably the case for live sports.

[42] The categories labelled 'other – …' take average values for every attribute compared to other categories in the group (except for "other live sporting events", which takes specific values). "Other – other" takes for every attribute, a value that is the average of all other categories for the attribute.

*The informative attribute*

Categories of programmes were also classified as a function of their informative aim. More precisely, categories are ranked on an axis from purely entertaining, which are assigned a value of 0 (e.g. game and lottery programmes) to purely informative, which receive a 1 (e.g. news programmes). The choice of the attribute is based on works by Jost (2004), which propose three categories of programmes: entertainment programmes, programmes based on the real world and fiction. This report focuses on the opposition between the two former categories, which is based on the opposition between information and entertainment.

*The heritage attribute*

An attribute that relies on the standard distinction between stocks and flux is also used (Flichy, 1980). Flux programmes are those that are not going to be broadcasted again or reused through a release on DVDs for example – at least they were not designed to. These are assigned a value of 0 and include live sporting events (football or others) or teleshopping. Stock programmes can be broadcasted again and their value remains stable or may increase over time – They receive a value of 1. Fiction programmes are typical stock programmes.

*The cost attribute*

The programmes are classified according to their cost. The costliest categories receive a value of 1 (e.g. real TV) while the least costly are assigned the value 0 (e.g. religious programmes). While this indicator may seem simple, two specifications should be pointed out. First, cost was determined on a per minute basis so that the cost does not depend of the length of the programme. Moreover, since the analysis here is focused on the characteristics of the programmes, the total production cost of content was taken into consideration rather than its acquisition cost by the channel. These are important differences to note as for example, cinema movies receive a value of 1 although on average they are very costly even if broadcasters do not necessarily pay a high amount of money to run them since they are marketed through numerous versions.

*The risk attribute*

A distinction is made between programmes, depending on whether their utility can be predicted by the viewer before watching it. In other words, there is content towards which the viewer feels unsure in advance as to whether it will provide a satisfying or thrilling experience – the so-called 'experience goods' (Nelson, 1970).[43] This is notably the case for cinema movies. Such content receives a value of 1. On the other hand, for some content, satisfaction can be predicted, which is the case for most game and lottery programmes as they are based on a repetitive scheme. The latter type of content is assigned the value 0.

[43] Cultural economists label such goods whose utility cannot be known in advance (i.e. before they are consumed) as "experience goods", referring to Nelson (1970). Most cultural goods could thus be considered as experience goods (movies, recordings, novels, etc.). However, Nelson insists upon the fact that consumers have two ways of getting information on a product: searching (e.g. comparing prices, reading articles on the good) and experiencing (consuming to make their own opinion). Thus, "experience goods" in Nelson's sense might include the afore mentioned cultural goods as well as "brands of tuna fish" (Nelson, 1970) because the price of a can of tuna is so low that it is not worth searching for information on this product before trying a new brand.

*The story attribute*

Programmes can finally differ according to the importance of the story (i.e. of the script and the edition). First, some programmes can be scripted before being produced, which is the case for TV movies as compared to live sporting events. Secondly, programmes can be edited after being produced, which is the case for programmes dedicated to coaching for example. Programmes that are scripted and edited are assigned a value of 1. Programmes that are not scripted and not heavily edited receive a value of 0. This attribute is related to creativity but is not really the same thing as creativity appears too complex a notion to be assessed using one attribute. The influence on the results is discussed in Appendix II.

*Building distances*

Once every category is assigned values, distances are built for every pair of category of programmes. To do so, Euclidian distances *d* is used, for which the formula is:

$d_{jk} = \sqrt{\sum_{i=1}^{7}(x_{ji} - x_{ki})}$ , where:

*j* and *k* are categories of programmes;
*i* is a disparity attribute;
$x_{ji}$ represents the value taken by category *j* for the attribute *i*.

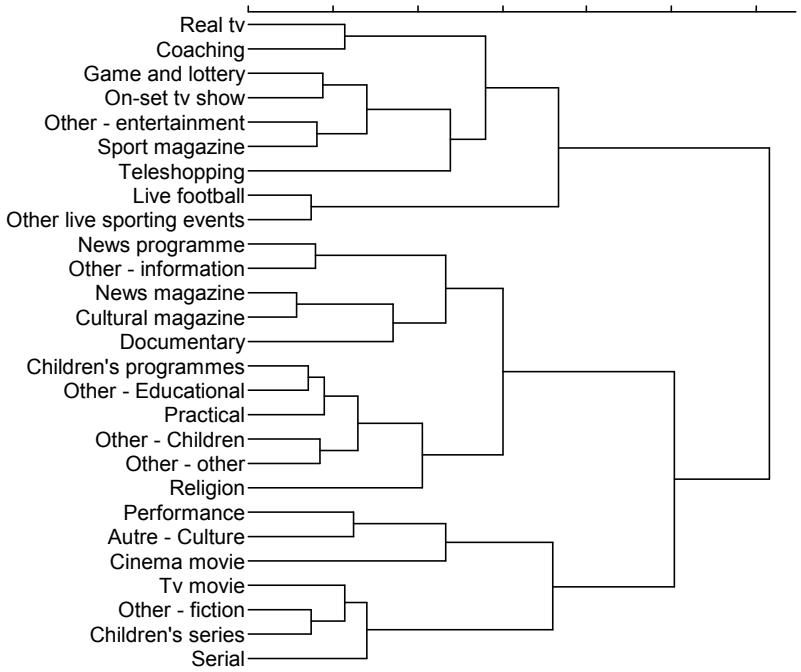
Being a very common modeling of distance, *d* respects the properties of a distance: symmetry, separation and triangular inequality.

The following dendrogram (**Figure 2**) is based on the Euclidian distances between the categories of programmes. While it yields only an imperfect picture of all existing distances, it does help illustrate the notion of 'distances' between the categories of programmes. In Figure 2, any distance between two categories of programme is symbolized by the length of the horizontal segments necessary to go from one category to the other (vertical segments bear no significance). Thus, news magazines and cultural magazines appear as the closest categories of programmes here while game and lottery programmes are very different compared to cinema movies.

In addition, some programmes are more isolated than others as can be seen by observing the length of the horizontal segment before this segment joins others. For example, this is the case for documentary programmes, religious programmes, teleshopping or cinema movies. Finally, if read from right to left, it is possible to see in Figure 2 the implicit groupings between categories that do not necessarily correspond to the groupings used to make up the lists of programmes used for November 2009. Overall, it is possible to identify two groups: one that that includes all the categories until 'Other live sporting events' and the second with all categories listed below this point. The second group can be further differentiate using the categories listed until 'Religion' and those below this point.

While the dendrogram is not a substitute for calculating various indexes, it does provide graphical visual.

**Figure 2. Dendrogram of the categories of programmes**




### 3.5 The indexes of diversity

There is a lot of literature on the measurement of diversity, notably as applied to biodiversity (Simpson, 1949; Disney, 1972; Patil and Taillie, 1982; Weitzman, 1992). Some of the indexes retained here were first applied to assess biodiversity. All these indexes are positive functions of diversity: the higher the diversity, the higher the value of the indexes and vice versa. It is important, however, to specify that most indexes do not convey much when considered on their own and should therefore be used for comparisons, (e.g. to compare different channels).

The number and proportion of categories assess variety. To obtain the proportion of categories, simply divide the number of categories by the total number of existing categories. Thus, an index with a value of 0.4 signifies that 40% of all existing categories have been broadcasted over the analysed period. Indexes that assess only variety are frequently used in studies on diversity in cultural and media industries (e.g. Moreau and Peltier, 2004)

The Shannon Evenness Index assesses balance (Pielou, 1969) and is applied to the way broadcast time is spread among the categories of programmes: the more balanced, the higher the index. The index has seldom been used to assess diversity in the cultural and media industries (*e.g.* in Ranaivoson, 2008) but it is based on the far more common Shannon index (Shannon, 1948).

The Sum of Distances on Variety (SDV) Index is a ratio of the Sum of Distances Index on the proportion of categories. While the Sum of Distances Index sums the distances between all pairs of categories[44] of programmes that have been broadcasted at least once, this study introduces the 'on variety' ratio to neutralize the effect of increasing variety. The index used here (as compared to the unmodified Sum of Distances Index) ensures that a mere increase in the number of broadcasted categories of programmes does not lead to an increase in disparity when the category is simply very close to already existing ones. It is possible for disparity to decrease, which would result in duplication. More generally, contrary to most (empirical and theoretical) analyses discussed before, this study systematically takes disparity into account. This component has only rarely been accounted for in the past due to the methodological issues it raises.

Use of the Stirling Index proved to be a major breakthrough in this research. It allowed the issue of diversity to be addressed in the most complete way possible by considering variety, balance and disparity simultaneously (Stirling, 2007). While Stirling's definition has now gained some recognition among cultural economists (e.g. its use by Moreau and Peltier, 2004; Benhamou and Peltier, 2007; Flores, 2009), the index has only lately been used in research on media and cultural industries (e.g. Benhamou and Peltier, 2009).

Moreover, an enriched version of the Stirling Index is considered, which was introduced in Stirling (2007):

$$\sum_{j,k\in[1,n]^2,\, j\neq k} \left(d_{jk}\right)^{\alpha} \left(p_j p_k\right)^{\beta} .$$

The introduction of α allows one to play with the weighting of disparity as compared to variety and balance.[45] In the same way, the introduction of β allows one to play with the weighting of balance as compared to variety and disparity.[46] The studies mentioned before only considered the case where α = β = 1. However, there is no reason to prefer such values to any other ones in the [0,1] interval.

From a more general point of view, this is the first time that one index is used to assess diversity, which provides a complete approach to diversity, allowing one to give different weightings to the three components.

To provide an overview of the most common indexes used to assess diversity, the Simpson (Hill) [47] and the Shannon indexes are included in this analysis *(see **Table 4**).* Both are 'dual concept' diversity indexes (i.e.. they assess variety and balance at the same time) (Stirling, 1998). As such, they do not explicitly take disparity into account. The aim of considering both indexes is to provide a comparison with other indexes and to address the issue of preferring one over the other, which remains critical – notably, in cultural economy (e.g. Flôres, 2009).

[44] See Stirling, 1998.

[45] The lower α (with $0 < \alpha \leq 1$), the higher the emphasis is on disparity.

[46] The lower β (with $0 < \beta \leq 1$), the higher the emphasis is on balance.

[47] The Hill index was chosen for this study, which is the inverse function of the Simpson index. This makes the reading of the results easier since the higher the Hill index, the higher the diversity.

**Table 4. Assessment of diversity indexes**

| Components of diversity | Index | Formula |
|---|---|---|
| Variety | Number of Categories | $h$ |
| | Proportion of Categories | $\frac{h}{n}$ |
| Balance | Shannon Evenness Index | $-\frac{\sum_{i=1}^{n} p_i \ln p_i}{\ln n}$ |
| Disparity | Sum of Distances on Variety Index | $\frac{\sum_{j,k\in[1,n]^2} d_{jk}}{h/n}$ |
| Variety, Balance & Disparity | Stirling Index | $\sum_{j,k\in[1,n]^2} (d_{jk})^{\alpha} (p_j p_k)^{\beta}$ |
| Variety & Balance | Hill Index | $\frac{1}{\sum_{i=1}^{n} (p_i)^2}$ |
| | Shannon Index | $-\sum_{i=1}^{n} p_i \ln p_i$ |

**Notes**:

*h* is the number of categories of programmes, which were broadcasted at least once over the period;

*n* is the total number of categories of programmes;

$p_i$ is the share of broadcast time, which was devoted to the category of programme *I* ($0 \le p_i \le 1$);

$d_{jk}$ is the Euclidian distance between the categories *i* and *j* ($0 \le d_{jk} \le \sqrt{7}$);

α and β are parameters of the Stirling Index ($0 \le \alpha \le 1$; $0 \le \beta \le 1$). In the following analyses, $\alpha = \beta = 0.5$. The rationale behind this choice is discussed in Appendix III.

# 4. Empirical analysis: Results

The description and analysis of the results of this study are presented here. The diversity of programming for six TV channels were analysed and applied in every case for all the indexes listed in Table 4. The aim is to find whether channels provide more or less diverse programmes depending on how they are funded.

## 4.1 Editorial choices versus the homogenization of the AV landscape at the international level

The first step in the approach used in this study consists of analysing the main categories of programmes broadcasted by the channels in the study sample. The case of fiction programmes was specifically considered. Across all the channels in the sample, the programming reflects editorial choices and yet there are some constants among them all.

Every channel first appears to have its own identity or editorial line despite being generalist at the same time. For every channel, about half of the programming relies on three categories *(see **Tables 5** and **6**):*

- On-set TV shows, serials and news programmes for ITV London (pr)
- News programmes, serials and news magazines for BBC 1 (pu)
- Serials, children's series and news magazines for TF1 (pr)
- On-set TV shows, serials and game and lottery programmes for France 2 (pu)
- Serials, on-set TV shows and practical programmes for Kanal D (pr)
- Serials, on-set TV shows and news programmes for TRT 1 (pu)

A channel's editorial choice might thus be crucial in the determination of the diversity and the quality of the channel's programming. On the other hand, one could argue that all these channels' programmings are very similar – especially since serials represent more than 12% of total broadcast time (39% for Kanal D) and of prime time. News programmes and magazines, on-set TV shows and game and lottery programmes generally represent a significant part of overall programming.

**Table 5. Share in broadcast time of categories of programmes by channel over the whole day**

| | | ITV London (pr) | BBC 1 | TF1 (PR) | France 2 (pu) | Kanal D (pr) | TRT1 |
|---|---|---|---|---|---|---|---|
| Entertainment | Real TV | 4.1% | 2.4% | 0.4% | 0.0% | 0.0% | 0.6% |
| | Game and lottery | **6.4%** | **5.3%** | **7.1%** | **14.1%** | **0.0%** | **6.4%** |
| | On-set TV show | **27.4%** | **1.9%** | **5.2%** | **24.2%** | **22.4%** | **21.7%** |
| | Teleshopping | 0.0% | 0.0% | 3.1% | 0.0% | 1.4% | 0.0% |
| | Other - Entertainment | 1.1% | 1.3% | 1.0% | 0.0% | 0.0% | 2.4% |
| Information | News programme | **11.7%** | **28.5%** | **6.6%** | **8.5%** | **6.3%** | **10.8%** |
| | News magazine | **4.3%** | **10.8%** | **10.8%** | **8.7%** | **2.0%** | **5.9%** |
| | Other - Information | 0.3% | 0.8% | 0.0% | 0.1% | 0.0% | 0.5% |
| Culture | Performance | 0.0% | 0.5% | 0.3% | 1.2% | 0.0% | 0.9% |
| | Cultural magazine | 0.3% | 0.9% | 0.7% | 5.7% | 0.4% | 0.0% |
| | Other - Culture | 0.0% | 0.0% | 1.6% | 0.0% | 0.2% | 2.8% |
| Sport | Live football | 2.6% | 0.0% | 0.9% | 0.0% | 0.0% | 0.0% |
| | Sport magazine | 4.1% | 2.8% | 1.6% | 2.1% | 0.0% | 3.3% |
| | Other live sporting events | 0.1% | 1.8% | 0.3% | 0.8% | 0.0% | 0.5% |
| Fiction | Cinema movie | 7.6% | 2.7% | 5.8% | 3.9% | 10.7% | 9.0% |
| | TV movie | 0.4% | 0.5% | 7.3% | 2.0% | 0.5% | 0.0% |
| | Serial | **13.3%** | **12.1%** | **27.4%** | **16.7%** | **38.8%** | **26.1%** |
| | Other - Fiction | 0.0% | 0.0% | 0.0% | 0.7% | 0.0% | 0.0% |
| Children | Children's programmes | 0.4% | 2.8% | 0.0% | 0.0% | 3.4% | 0.0% |
| | Children's series | 4.7% | 3.5% | **13.5%** | 2.5% | 0.7% | 0.2% |
| | Other - Children | 0.4% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Educational | Documentary | 1.5% | 9.3% | 3.9% | 5.4% | 0.0% | 3.4% |
| | Practical | 0.0% | 9.0% | 2.0% | 0.2% | **13.1%** | 0.4% |
| | Religion | 0.0% | 0.7% | 0.0% | 3.0% | 0.0% | 4.3% |
| | Coaching | 0.2% | 0.1% | 0.6% | 0.0% | 0.0% | 0.4% |
| | Other - Educational | 0.0% | 1.8% | 0.0% | 0.0% | 0.0% | 0.5% |
| | Other - Other | 9.1% | 0.5% | 0.0% | 0.0% | 0.0% | 0.0% |

**Note:** The categories of programmes that are the most representative of the channel's overall programming are in bold.

**Table 6. Share in broadcast time of categories of programmes by channel over prime time**

| | | ITV London (pr) | BBC 1 | TF1 (PR) | France 2 (pu) | Kanal D (pr) | TRT1 |
|---|---|---|---|---|---|---|---|
| Entertainment | Real TV | 20.3% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Game and lottery | 2.6% | 8.7% | 19.2% | 21.5% | 0.0% | 4.5% |
| | On-set TV show | 6.2% | 0.0% | 12.0% | 11.9% | 11.7% | 8.1% |
| | Teleshopping | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Other - Entertainment | 1.7% | 4.1% | 0.1% | 0.0% | 0.0% | 2.8% |
| Information | News programme | 22.2% | 24.7% | 18.3% | 17.9% | 4.0% | 0.0% |
| | News magazine | 3.8% | 14.0% | 9.5% | 11.2% | 0.0% | 0.9% |
| | Other - Information | 0.0% | 1.1% | 0.0% | 0.0% | 0.0% | 2.7% |
| Culture | Performance | 0.0% | 1.9% | 0.0% | 0.0% | 0.0% | 3.6% |
| | Cultural magazine | 0.7% | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Other - Culture | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Sport | Live football | 5.7% | 0.0% | 6.1% | 0.0% | 0.0% | 0.0% |
| | Sport magazine | 1.2% | 1.8% | 0.5% | 0.0% | 0.0% | 12.6% |
| | Other live sporting events | 0.0% | 0.0% | 0.0% | 3.6% | 0.0% | 0.0% |
| Fiction | Cinema movie | 4.5% | 1.1% | 10.5% | 12.3% | 0.0% | 15.9% |
| | TV movie | 0.7% | 0.0% | 4.8% | 7.5% | 0.0% | 0.0% |
| | Serial | 26.2% | 24.9% | 16.5% | 11.6% | 84.4% | 44.7% |
| | Other - Fiction | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Children | Children's programmes | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Children's series | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Other - Children | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Educational | Documentary | 3.4% | 15.0% | 1.7% | 1.9% | 0.0% | 1.0% |
| | Practical | 0.0% | 2.1% | 0.9% | 0.5% | 0.0% | 0.0% |
| | Religion | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 3.2% |
| | Coaching | 0.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Other - Educational | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| | Other - Other | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

Fiction programmes and especially serials are a major component of the studied TV channels' programming – they make up at least 20% of their programming over the whole day and 25% on prime time.[48] The analysis was detailed by looking at the genre, origin and production date of all broadcasted fiction programmes. **Table 7** sums up the main characteristics of fiction programmes.

[48] Children's series are included in the calculation.

**Table 7. Volume of broadcasted fiction**

| | Broadcast time (min) | Number of units | Share of fiction over total broadcast time | Average duration of one fiction (min) |
|---|---|---|---|---|
| **France 2 (pu)** | 10,129 | 200 | 38% | 50.65 |
| **TF1 (pr)** | 17,385 | 276 | 40% | 62.99 |
| **BBC 1 (pu)** | 6,580 | 143 | 15% | 46.01 |
| **ITV London (pr)** | 9,075 | 157 | 21% | 57.80 |
| **Kanal D (pr)** | 21,600 | 306 | 35% | 70.59 |
| **TRT 1 (pu)** | 15,147 | 191 | 51% | 79.30 |

In terms of origin, France 2 (pu) is the only TV channel in the sample that broadcasts a significant amount of European fiction programmes while the other French channel, TF1 (pr) broadcasts US fiction programmes essentially *(see **Table 8**)*.

There is, however, no general distinction between private and public channels as far as the origin of fiction programmes is concerned. While the French and British public channels broadcast more national fiction than their respective private counterpart, the Turkish channel Kanal D (pr) broadcasts more national fiction than TRT 1 (pu).

Finally, the Turkish channels programme the highest amount of national fictions – 63% for TRT 1 (pu) and 85% for Kanal D (pr) – and the lowest amount of US fictions – 15% for TRT 1 (pu) and 4% for Kanal D (pr).

**Table 8. Fiction by origin**

| | National | | European | | US | | Others | |
|---|---|---|---|---|---|---|---|---|
| | **Units** | **Duration** | **Units** | **Duration** | **Units** | **Duration** | **Units** | **Duration** |
| **France 2 (pu)** | 31% | 28% | 33% | 42% | 45% | 31% | 0% | 0% |
| **TF1 (pr)** | 12% | 17% | 4% | 5% | 81% | 73% | 3% | 4% |
| **BBC 1 (pu)** | 73% | 65% | 1% | 2% | 26% | 34% | 0% | 0% |
| **ITV London (pr)** | 68% | 55% | 0% | 0% | 31% | 43% | 1% | 2% |
| **TRT 1 (pu)** | 60% | 63% | 12% | 8% | 13% | 15% | 16% | 15% |
| **Kanal D (pr)** | 87% | 85% | 0% | 0% | 15% | 14% | 1% | 2% |

The focus on the genre of fiction programmes shows homogenous preferences among all TV channels to broadcast dramas *(see **Table 9**)*. In this case, however, it is possible to shows similarities between channels according to country. The Turkish channels broadcast around 30% of comedies; the French ones broadcast more than 40% of crimes and thrillers; the British channels also broadcast crimes and thrillers with a preference for dramas.

**Table 9. Fiction by genre (% of duration)**

| | Action | Comedy | Drama | Historical | Crime / Thriller | Science-Fiction / Fantasy |
|---|---|---|---|---|---|---|
| **France 2 (pu)** | 6 | 4 | 32 | 3 | 51 | 5 |
| **TF1 (pr)** | 4 | 14 | 29 | 2 | 40 | 10 |
| **BBC 1 (pu)** | 2 | 12 | 46 | 1 | 29 | 10 |
| **ITV London (pr)** | 7 | 9 | 36 | 0 | 39 | 8 |
| **TRT 1 (pu)** | 11 | 30 | 34 | 18 | 7 | 2 |
| **Kanal D (pr)** | 7 | 29 | 42 | 2 | 21 | 1 |

Another common point among the TV channels is that the majority broadcast recent programmes (produced after 2000), as shown in **Table 10**.

**Table 10. Fiction by production date (% of duration)**

| Production date | France 2 (pu) | TF1 (pr) | BBC 1 (pu) | ITV London (pr) | TRT 1 (pu) | Kanal D (pr) |
|---|---|---|---|---|---|---|
| **Before 1980** | 13 | 0 | 1 | 8 | 9 | 4 |
| **1980-1990** | 1 | 2 | 20 | 6 | 2 | 5 |
| **1990-2000** | 23 | 14 | 4 | 9 | 2 | 5 |
| **2000-2007** | 45 | 65 | 6 | 23 | 45 | 40 |
| **2008-2009** | 18 | 19 | 69 | 53 | 42 | 46 |

## 4.2 Comparison of the diversity of overall programming

*i) Over the whole day: the ambiguous influence of funding according to country*

In the UK, ITV London's (pr) programming is less diverse than that of BBC 1 (pu) *(see **Table 11** and **Figure 3**):*

- More categories of programmes are broadcast on BBC 1 (pu).
- Balance of programming is slightly higher for BBC 1 (pu) as shown by the values of the Shannon Evenness Index.
- The programmes are more differentiated on BBC 1 (pu) than on ITV London (pr) as shown by the values of the SDV Index.
- As a result, diversity is higher on BBC 1 (pu) than on ITV London (pr) as shown by the Stirling Index. More categories of programmes are broadcasted on the public TV channel that differ from one another and are more evenly programmed.
- It should be noted that the Shannon and the Hill (Simpson) Indexes provide results that are consistent with all theses findings.

The same picture emerges for the Turkish channels. In fact, the gap between Kanal D's (pr) and TRT 1's (pu) programming in terms of diversity is even larger *(see Table 11 and Figure 3):*

- More categories of programmes are broadcast on TRT 1 (pu).
- Balance of programming is higher for TRT 1 (pu) as shown by the values of the Shannon Evenness Index.

– The programmes are more differentiated on TRT 1 (pu) than on Kanal D (pr) as shown by the values of the SDV Index.

– As a result, diversity is higher on TRT 1 (pu) than on Kanal D (pr) as shown by the Stirling Index. More categories of programmes are broadcasted on the public TV channel that differ from one another and are more evenly programmed.

– Consistently, the Shannon and the Hill (Simpson) Indexes show a higher diversity for TRT 1 (pu).

However, a completely opposite picture emerges for the French channels *(see Table 11 and Figure 3):*

– There are more categories of programmes, which are available on TF1 (pr) than on France 2 (pu). In actuality, the public channel does not broadcast some categories, such as real TV or live football. On the other hand, it broadcasts religious programmes, which are not broadcasted by TF1 (pr).

– France 2 (pu)'s programming is less balanced as shown by the Shannon Evenness Index.

– TF1 (pr) has a more differentiated programming over the whole day as shown by the SDV Index. For example, teleshopping is a programme that is rather different from the others.

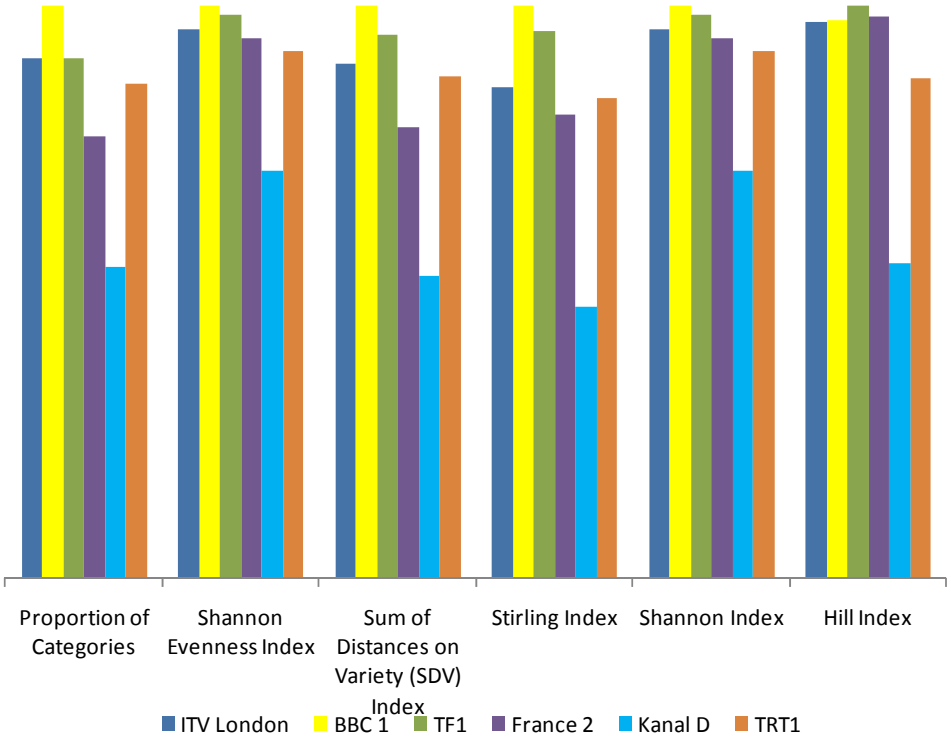
– As a result, the French private TV channel's programming proves to be more diverse than the public channel's as shown by comparing their respective Stirling Indexes.

– It should also be noted that the Shannon and Hill (Simpson) Indexes yield consistent results.

**Table 11. Indexes of diversity by channel over the whole day**

| Components of diversity | Index | Channels | | | | | |
|---|---|---|---|---|---|---|---|
| | | ITV London | BBC 1 | TF1 | France 2 | Kanal D | TRT1 |
| Variety | Number of Categories | 20 | 22 | 20 | 17 | 12 | 19 |
| | Proportion of Categories | 0.741 | 0.815 | 0.741 | 0.630 | 0.444 | 0.704 |
| Balance | Shannon Evenness Index | 0.706 | 0.737 | 0.726 | 0.698 | 0.526 | 0.679 |
| Disparity | Sum of Distances on Variety (SDV) Index | 0.185 | 0.206 | 0.196 | 0.162 | 0.109 | 0.181 |
| All | Stirling Index | 4.478 | 5.231 | 5.004 | 4.262 | 2.489 | 4.387 |
| Variety and balance | Shannon Index | 2.327 | 2.430 | 2.394 | 2.299 | 1.734 | 2.239 |
| | Hill Index | 7.496 | 7.536 | 7.725 | 7.623 | 4.249 | 6.746 |

**Figure 3. Comparison of the diversity of programming over the whole day (per channel)[49]**




As a result, a straightforward answer cannot be found to the question "do public TV channels have a more diverse programming than private ones?" Next, this report turns to prime time to refine the study's analysis. In this case, public channels are expected to become (or to remain) more diverse than private ones.

*ii) Programming becomes less diverse during prime time*

The Turkish and the French cases yielded results that are comparable to those for the whole day *(see **Table 12** and **Figure 4**)*:

- The French private channel TF1 (PR) remains more diverse than the French public channel France 2 (pu) although the difference in the level of diversity is lower over prime time than over the whole day – for every index.
- The Turkish public channel TRT 1 (PU) remains more diverse than the Turkish private channel Kanal D (pr). However, in this case, the difference between both channels is higher for every index.

On the other hand, ITV London (pr) becomes more diverse than BBC 1 (pu) *(see Table 12 and Figure 4)*:

[49] Indexes were scaled to obtain a more readable chart. Actual values of the indexes can be found in Appendix IV.

– The number of broadcasted categories of programmes decreases on both UK channels but more on BBC 1 (pu) so that in the end there are more different categories of programmes on ITV London (pr). The same is true for balance and disparity.

– As a result, programming is reduced on both channels but BBC 1's (pu) programming becomes less diverse than ITV London's (pr).[50] An important feature of the Stirling Index here is that it cumulates the differences in terms of diversity (i.e. rather small differences in terms of diversity for every aspect amount to a rather high difference in terms of diversity).

– It should be noted that the Shannon and Hill (Simpson) Indexes exhibit behaviours that are consistent with these findings.

Yet again a straightforward answer cannot be found to the question: "do public TV channels have more diverse programming than private ones?" – even when the focus is on prime time.

However, diversity decreases for every aspect for every TV channel.

– This is completely intuitive in the case of variety. Since variety corresponds here to the number of categories of programmes that are broadcast at least once, the smaller the time period that is considered, the lower the number of different categories of programmes *(see **Figure 5**)*. The reduction is, however, particularly steep for BBC 1 (pu) or Kanal D (pr).

**Table 12. Indexes of diversity by channel on prime time**

| Components of diversity | Index | Channels | | | | | |
|---|---|---|---|---|---|---|---|
| | | ITV London | BBC 1 | TF1 | France 2 | Kanal D | TRT1 |
| Variety | Number of Categories | 14 | 12 | 12 | 11 | 3 | 11 |
| | Proportion of Categories | 0.519 | 0.444 | 0.444 | 0.407 | 0.111 | 0.407 |
| Balance | Shannon Evenness Index | 0.621 | 0.593 | 0.637 | 0.626 | 0.158 | 0.538 |
| Disparity | Sum of Distances on Variety (SDV) Index | 0.132 | 0.110 | 0.112 | 0.103 | 0.021 | 0.103 |
| All | Stirling Index | 3.499 | 2.876 | 3.183 | 3.008 | 0.456 | 2.702 |
| Variety and balance | Shannon Index | 2.046 | 1.955 | 2.098 | 2.065 | 0.521 | 1.774 |
| | Hill Index | 5.803 | 5.694 | 7.227 | 7.105 | 1.375 | 3.949 |

[50] Among the reasons for such an evolution is the fact that there is no real TV on BBC 1 (pu) during prime time.

**Figure 4. Comparison of the diversity of programming on prime time (per channel)[51]**

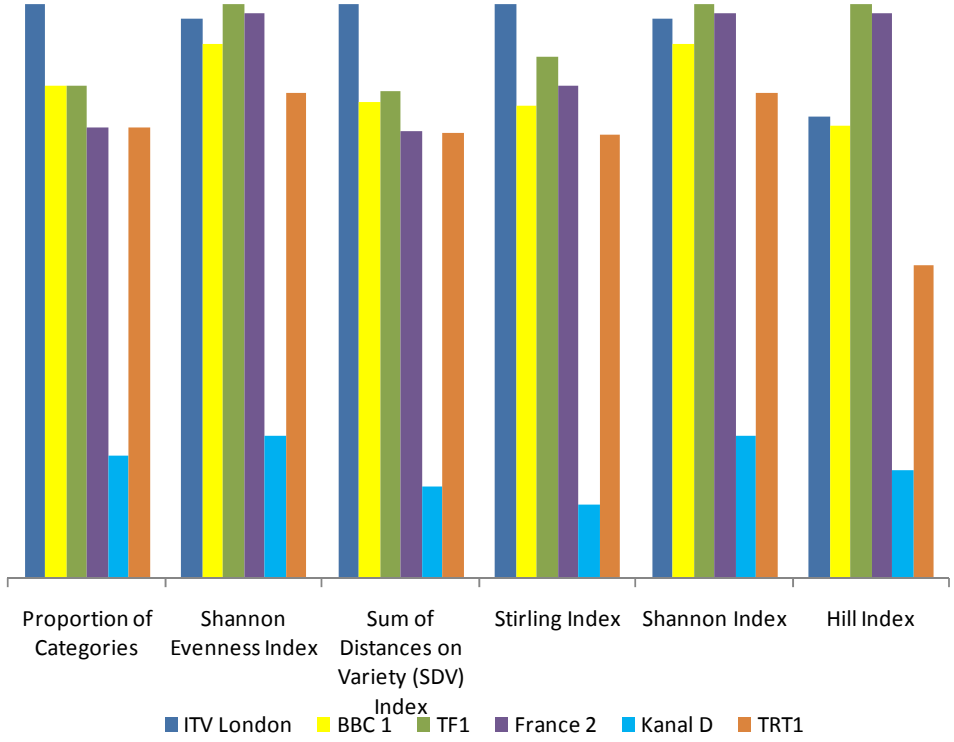
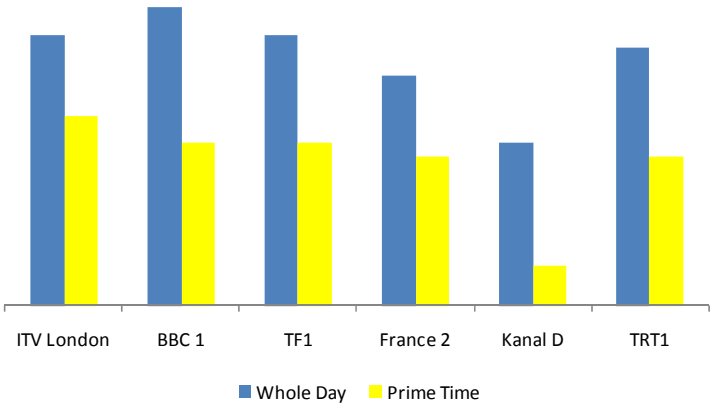


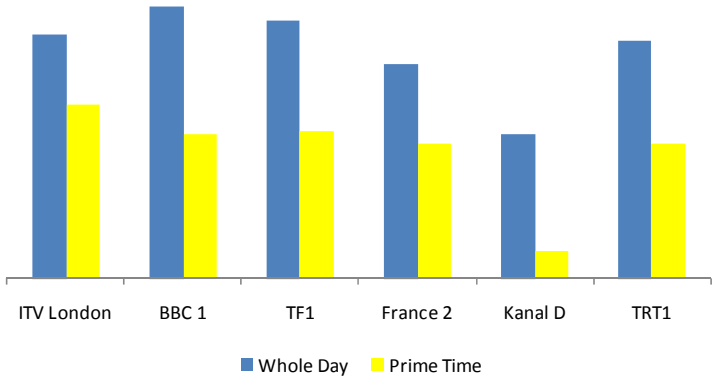

**Figure 5. Variety**




– One would also expect disparity to be reduced since the category specifies that a programme only needs to be broadcasted once for it to be account for in the index. On the other hand, with the use of the 'On Variety' ratio, an increase in disparity could in fact have been obtained (i.e. disparity might increase if the whole set was characterized by a huge proportion of duplication). That is not the case here and disparity decreases for every channel *(see **Figure 6**)*.

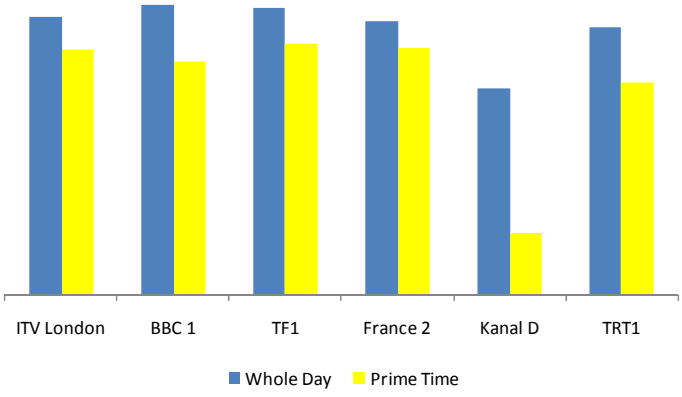
[51] Indexes were scaled to get a more readable chart. Actual values of the indexes can be found in Appendix IV.

**Figure 6. Disparity**



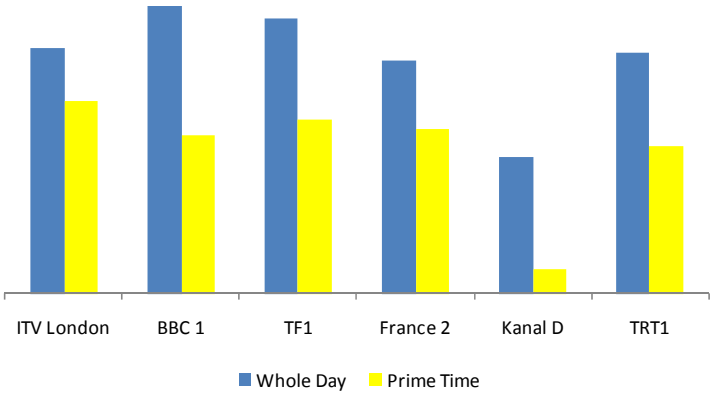

– Contrary to the two other aspects of diversity, one could expect balance to increase when one focuses on a smaller time period. Balance takes into account the time devoted to the different categories of programmes so that with fewer different categories broadcasted, a more balanced distribution among them could have been obtained (e.g. with the disappearance of categories that are only marginally present during the whole day's scale). This is, however, never the case *(see **Figure 7**)*.

**Figure 7. Balance**




– Consistently across the board, diversity of programming is lower during prime time compared to during the whole day as shown by the comparison of the values of the Stirling Index for every TV channel for the whole day and for prime time *(see **Figure 8**)*.

**Figure 8. Stirling Index**




The most important result here consists of the overall reduction of diversity for every channel and, thus, for every country and for every type of channel (both public and private). Such a result does not help conclude whether funding through advertising prevents diversity, as opposed to funding through licence fees.

### 4.3 Analysis of the distinctiveness of every TV channel at the national level

*i) The application of Stirling's approach to assess distinctiveness*

Steiner (1952) and two-sided market models (e.g. Gabszewicz et al., 2001) consider the impact of competition on the level of provided diversity *at the market level.* Thus far, only the impact on diversity *at every channel's level* has been considered. To get an assessment closer to these theoretical models, a comparison is needed of the channels' programming in a given country at a given time.

Thus, to conclude the empirical analysis, the distinctiveness of the TV channels at the national level needs to be compared. More precisely, the programming of every pair of national channels needs to be compared to reveal whether the public and the private channels tend to provide either differentiated or similar programmes. Analyses were conducted during one week, from November 16-23.[52] For every hour, the distance between the two broadcasted programmes was given, assuming that two similar programmes have a distance equal to 0. This distance represents distinctiveness: the bigger the distance, the higher the distinction between the two channels' programmes at the given time period. In other words, disparity is used here to assess the level of differentiation between both channels.

**Figures 9, 10** and **11** sum up the evolution of the level of distinctiveness between both channels in every country for every hour of the week. In every case, the minimum, the average and the maximum distances are given. The minimum distance is 0 when both programmes are similar; the maximum distance is the one between the two most different programmes (in this case, teleshopping and cinema movies); and the average distance is the average of all distances for every pair of programmes.

[52] Consistent with the rest of the analysis, the programming day is assumed to begin at 6 am and to finish at 6 am the following day.

**Figure 9. Distance between programmes in the United Kingdom**

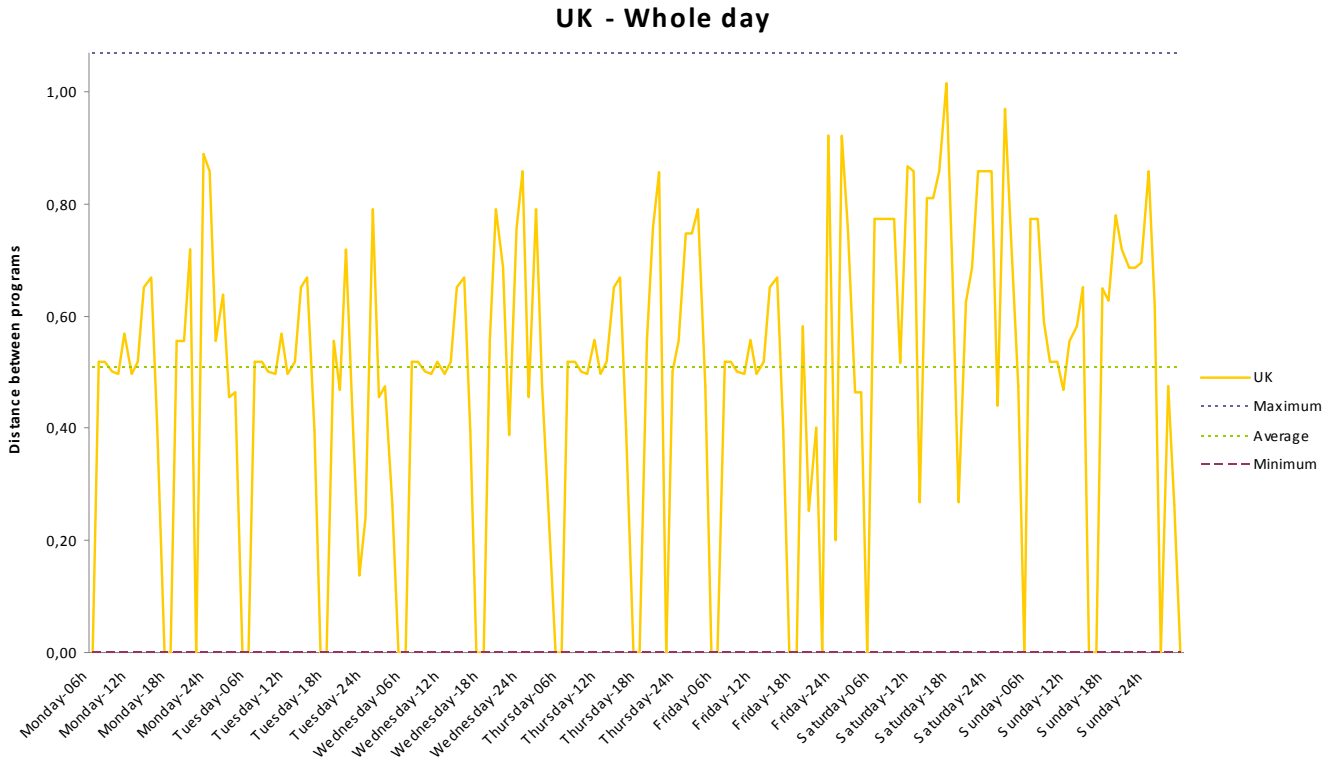



**Figure 10. Distance between programmes in France**

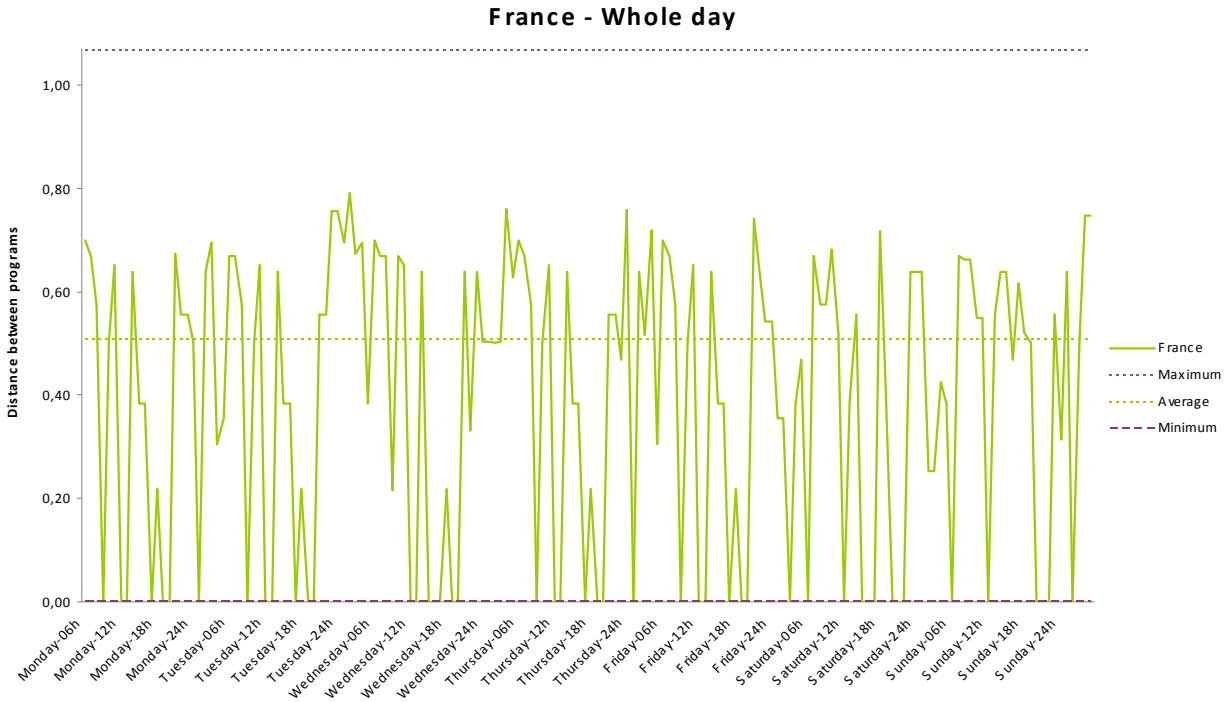
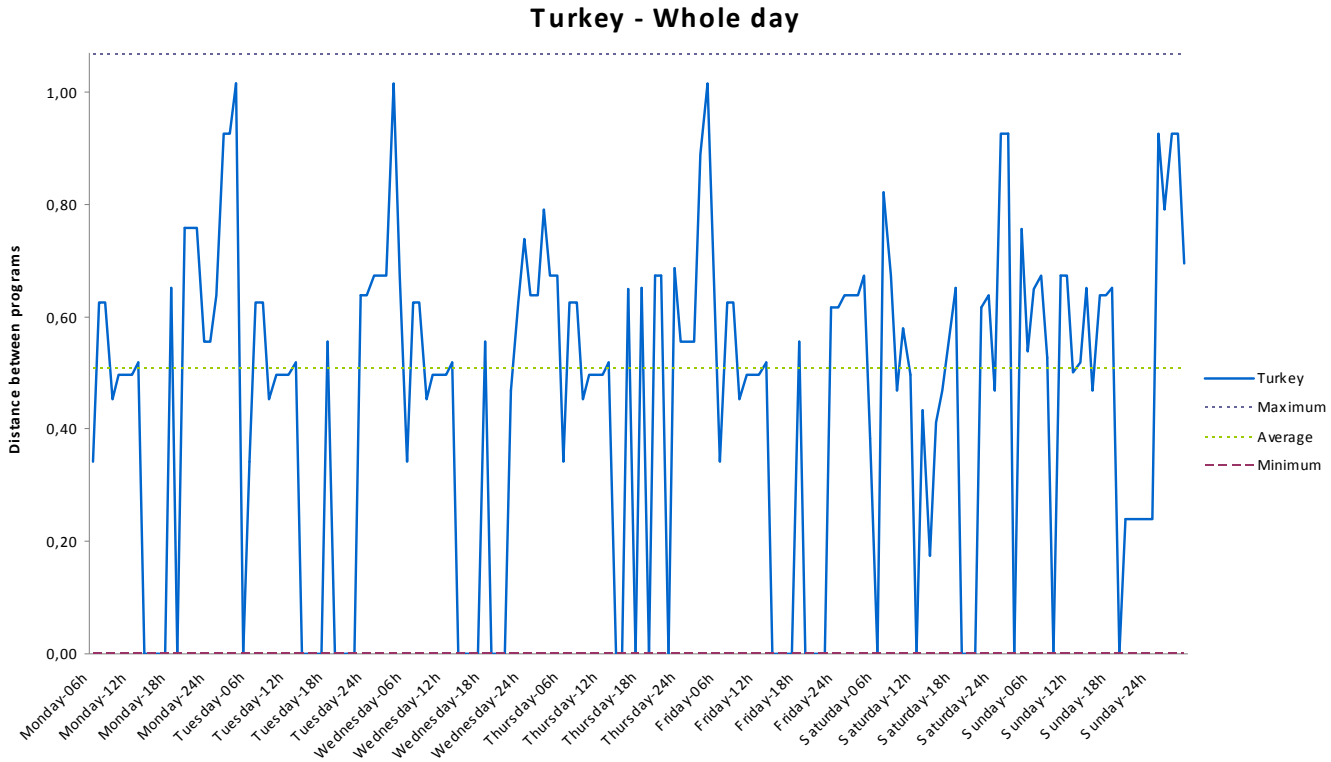


**Figure 11. Distance between programmes in Turkey**




*ii) Distinctiveness by country*

The analysis reveals differences between countries in the sample in terms of distinctiveness between both the most popular private and public channels. Although every channel studied is described as a generalist one, this leads to different profiles: in some countries and during some time periods, the public and the private channels are more similar than in other countries or during other time periods.

The analysis first confirms a certain regularity in the programming of both channels in every country, (i.e. every channel keeps a rather similar programming during the week in the daytime from around 6 am to 7 pm). The aim might simply be to enable viewers to have regular daily appointments with these programmes.

In general, the UK is the country where both channels are the most distinctive (average value of 0.49); France is where both channels are the least distinctive (average value of 0.39); and Turkey falls in the middle (average value of 0.45). The number of pure alignments exemplifies this: in the UK, ITV London (pr) and BBC 1 (pu) proposes the same category of programmes at the same time in 28 cases (out of 168) while the number of cases reaches 47 for France and 41 for Turkey.

**Table 13. Distinctiveness by country and by time period**

| Criterion | UK | France | Turkey |
|---|---|---|---|
| Average disparity | 0.49 | 0.39 | 0.45 |
| Number of pure alignment | 28 | 47 | 41 |
| Average disparity during weekends | 0.61 | 0.39 | 0.50 |
| Number of pure alignment during weekends | 5 | 14 | 7 |
| Average disparity during the week | 0.45 | 0.39 | 0.43 |
| Number of pure alignment during the week | 23 | 33 | 34 |
| Average disparity during prime time | 0.50 | 0.19 | 0.18 |
| Number of pure alignment during prime time | 5 | 14 | 11 |
| Average disparity during prime time (during the week) | 0.45 | 0.21 | 0.15 |

**Note**: Calculations over one week, i.e. 168 hours. Prime times are not directly comparable because duration differs according to the country.

*iii) Distinctiveness by time period: a reduction seen during prime time*

For every country, the distinctiveness between both channels evolves differently according to the time period. Channels in the UK and in Turkey distinguish themselves more during weekends (as compared to weekdays). Turkey's average disparity increases from 0.43 (in the week) to 0.5 (on the weekend) and UK's varies from 0.45 (in the week) to 0.61 (on the weekend). In France, there is not much of a difference in average between weekdays and weekends in terms of distinctiveness for French channels.

The important result here is that distinctiveness tends to decrease during prime time when compared to the whole day. Thus, in the UK, the distinctiveness falls from 0.49 (all week) to 0.45 at prime time during week. The decline is much sharper for France and Turkey, which drops from 0.39 to 0.21 and from 0.45 to 0.15, respectively. The British channels stand out as the most different among the ones in the three countries studied. News programmes and serial channels represent almost half of the broadcast time for both public and private channels. However, ITV London (pr) does broadcast a lot of real TV as well while BBC 1 (pu) produces a lot of documentary and news magazines. During prime time, the Turkish channels appear the most similar in terms of programming. This is consistent with previous findings and notably, with the importance of serials on the overall programming on Turkish channels.

## 4.4 The role of the competitive context

The analyses conducted here disprove the idea that the means of funding crucially determines the diversity of programming. It is believed that the competitive context may stand as a more important determinant of programming than whether or not the channel is funded through advertising. Above all, it is the search for the largest audience rate that leads to a reduced diversity. This point is discussed here before broaching other possible explanations that determine the level of diversity.

*i) The search for the largest audience rate prevents diversity*

A consistent result of the analyses in this study is that diversity is lower during prime time compared to the rest of the day (or the week). Overall diversity is lower for every channel in this study's sample and moreover, channels in the same country tend to provide more similar programmes during week day prime time than during the rest of the week. During this time period, the channels in the sample are competing for the largest number of viewers – no matter how they are funded.

The main point here is that private channels are not the only ones seeking the highest possible audience rating. The literature generally uses the justification that public channels have more diverse programming because they are less subject to audience maximizing since they do not rely on advertising. However, as one manager of France 2 (pu) explains, "*audience* (...) [is] *an aim, an ambition* (...) *a duty*".[53] As a result, any channel that aims to maximize their audience should provide less diversity, especially when competition is the highest (i.e. during prime time). This remains true for both private or public TV channels so long as maximizing the audience is the key to sustainability for the channel.

A consequence of this is that channels that aim at maximizing their audience rate will tend to provide more similar programmes. This is the result of the analysis in the previous section on the distinctiveness of the private and the public channels during a whole week.

Conversely, as long as a channel does not aim to maximize their audience, it may provide more peculiar programming. This is notably the case for thematic channels as they do not need to reach the maximal audience but rather to appear as the reference in their niche market.

A particularly important result here is that if one assumes that all channels eagerly seek to maximize their audience over prime time, this tends to makes for more homogeneity in their programming. A particularly striking case here is the one in Turkey. The Turkish audience seems to appreciate serials. This must be the reason why serials represent 39% and 26% of Kanal D (pr) and TRT's programming respectively over the whole day. Over prime time, their shares reach 84% and 45%, respectively at the expense of other categories of programmes. It is, however, important to note that there is not 'naturally' or 'mathematically' less diversity during prime time than over the whole day.

Regulation may play somewhat of a role in increasing diversity at one channel's level or in increasing distinctiveness. France 2 (pu) is supposed to broadcast 15 lyrical, dramatic and choreographic performances per year; TF1 (pr) must produce 1,000 hours of programming for the youth, both a certain amount of national and European fiction.[54] Such regulations might, however, be applied to non-prime time periods. As a result, during prime time, competition becomes more tense for either public or private channels at the expense of diversity. This remains true from the viewer's point of view since programmes of both channels tend to become more similar during this time.

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[53] Patricia Boutinard Rouelle, person in charge of documentaries for France Télévision, in *Masse Critique* on the French radio channel *France Culture* (31/01/10).

[54] For details see http://www.obs.coe.int/oea_publ/iris/iris_plus/iplus8_2006.pdf.fr

*ii) The channel's insertion into an AV group*

Another sign of a channel's market power as well as of its strategy, is whether they belong to a group. One consequence of this is namely that channels included in groups may not be as generalist as they pretend to be. Thus, the programming of BBC 1 (pu), France 2 (pu) and TRT 1 (pu) might correspond to a generalist channel's programming. However, every one of these channels also belongs to a public audiovisual group (BBC, France Télévision and the Turkish Radio and Television Corporation, respectively). Every group has several channels, which could lead to a kind of specialization among these channels. The private channels in this study's sample may also belong to larger groups but the other channels are specialized (e.g. the news channel LCI that belongs to the same group as TF1).

This might explain BBC 1's (pu) relatively low level of diversity during prime time. The channel actually seems to be specialized in information, which constitutes almost 40% of its broadcast time during prime time. Such a concentration makes the programming less balanced but is justified by the positioning of the channel in the group. To consider more precisely the diversity of content available, one should look at the content programmed by the group as a whole.

In addition, an important determinant of programming is simply the budget of the channel (i.e. the amount it can use to purchase content). In a concrete way, BBC 1 (pu) may devote almost one-fourth of its broadcast time to journals and TF1 (PR) 10% to real TV. Both categories of programmes are among the costliest and are available to them only because they can afford it: the cost of content is far higher for these channels compared to France 2 (pu).

### 4.5 Conclusion: The lack of a systematic link between the form of funding and the level of diversity

The basic challenge undertaken here was to draw a comparison between a sample of public channels (i.e. channels that are funded by licence fees, such as France 2, BBC 1 and TRT 1) and a sample of private channels (i.e. channels that are funded by advertising, such as TF1, ITV London and Kanal D). The aim was to determine the influence of the means of funding on programming and more precisely on the diversity of programming.

The main result of the analysis in this study is that the way channels are funded (advertising versus licence fee) does not seem to have a decisive impact on supplied diversity. Contrary to common belief, there is no plain univocal link between funding by advertising and diversity of programming. Public channels do not necessarily have more diverse programming than private ones while public and private channels may tend to provide similar programmes at the same time period. One may then conclude that to delete or to maintain advertising will not in itself instigate change as far as diversity and quality of programming are concerned.

The French private channel has more diverse programming than the public one, regardless of the time period. It was not possible to directly assess the impact of the deletion of advertising on the diversity of programming (after 8:00 p.m. since 2009; completely from 2011 on). In any case, this reform is somewhat contradicted by the authorization for programmes to be sponsored (which leads to ubiquitous sponsorship) and the Audiovisual Media Services Directive that allows product placement (and thus another form of advertisement).

The Turkish public channel has more diverse programming than the private one, regardless of the time period. The British public channel's programming is more diverse over the whole day than the private one but results are reversed during prime time.

The focus on prime time reveals a straightforward reduction of diversity in all channels. Moreover, prime time is the time period during which the private and public channels' programmes are the most similar. Since prime time is the moment when there are the most viewers, it can be deduced that trying to appeal to the majority of viewers induces more homogeneous programming – unfortunately, a lack of data on actual viewing behaviours cannot corroborate this statement. TV channels appear to be looking for the least common denominator, and this behaviour appears to be independent from their means of funding.

From a methodological point of view, the main aim of the analysis has been to provide a comparison between standard indexes of diversity and the Stirling Index. The Stirling Index seems to give results that, on the one hand, are consistent with the other indexes and, on the other hand, are more complete than the others. In the end, the Stirling Index brought to light some observations that would otherwise have remained hidden. In addition, the disparity concept was used in this study to provide an original analysis of distinctiveness.

A clear limitation of the Stirling Index is that it is demanding in terms of its requirements for available data. One aim of the research was to indicate how it would be possible to apply the Index to the analysis of diversity in the cultural industries. Although it required some time to list the relevant data, this could be done with public and easily accessible data. This is one of the numerous reasons why it is worth applying the framework provided by Stirling's works on diversity more widely to the cultural field and the analysis of cultural diversity. In the particular context of this study, since no definitive conclusions can be drawn from the results, further investigation that includes more channels and more countries would be necessary.

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# APPENDIX I

## Definitions of categories

Categories were defined by existing typologies, as used, for example, by academics, television (TV) guides or marketing specialists. The important points to capture were the nature of the content (e.g. sports vs culture), whom it addresses (e.g. programmes aimed at children are separated from others) and the format (e.g. live vs on-set).

### Children

'Children's programmes' include programmes aimed at children with the exception of fictions.

'Children's series' include series aimed at children.

'Other – include other children programmes excluding the two categories defined above'

### Culture

'Performance' includes full retransmissions of cultural live events (e.g. dance, concerts, operas, theatre plays).

'Cultural magazine' includes on-set TV shows or documentaries exclusively related to art issues (e.g. visual arts, music, dance, cinema, literature).

'Other – Culture' (e.g. music video)

### Educational

'Documentary' includes documentaries on issues such as history, geography, science, nature, wildlife (with the exception of news and sports). Programmes in this category generally introduce less usual issues.

'Practical' includes documentaries and on-set TV shows on issues of everyday life, such as health, consumption, decoration and food (with the exception of news and sports).

'Religion' includes retransmissions of religious rites and other programmes on religious issues.

'Coaching' includes programmes in which experts advise an individual who aims at modifying something in his/her life.

'Other – include other educational programmes excluding the four categories defined above'

### Entertainment

'Real TV' includes programmes in which the daily life of people (either anonymous or famous) is followed. This is often related to a game or the winning of a prize.

'Game and lottery' includes programmes in which candidates compete to win a prize and those in which lottery results are given.

'On-set TV show' includes entertainment programmes in which one or a few presenters welcome guests.

'Teleshopping' includes programmes in which goods are presented to be bought by viewers.

'Other – Entertainment' includes all other entertainment, particularly programmes that are included in two of the preceding categories, e.g. *Hole in the Wall* (broadcasted on BBC 1 (pu)) which is at the same time a game and an on-set TV show. More generally, categories labeled 'Other' are used to classify programmes that belong to more than one category.

**Fiction**

'Cinema movie' includes full-length films initially produced for the cinema.

'TV movie' includes films initially produced to be broadcasted on TV.

'Serial' includes fictions composed of several episodes.

'Other – include other fictions excluding the three categories defined above'

**Information**

'News programme' includes programmes that give fresh pieces of information (e.g. on local, national or international news, weather forecast, traffic, stock exchange).

'News magazine' includes magazines, reports and on-set TV shows that deal with current events or social issues.

'Other – information' (e.g. the special news headlines on BBC 1 (pu)).

**Other Programme**

'Other– other' includes all the programmes that could not be included in other categories (e.g. ITV Nightscreen on ITV London (pr)).

**Sports**

'Live football' includes retransmissions of football matches.

'Sports magazine' includes on-set TV shows devoted to sports.

'Other live sporting events' include retransmissions of other sports.

# APPENDIX II

## The influence of disparity attributes[55] No disparity attribute has a major influence on the disparity structure

Since disparity corresponds to the extent to which two programmes differ, the disparity structure represents Euclidian distances for every pair of (categories of) programmes. Such distances rely on the seven attributes used to distinguish between the programmes. Dendrograms, based on the Euclidian distances between the programmes, are used for illustrative purposes. In addition, the influence of every attribute on the disparity structure was tested, i.e. whether omitting one attribute would change the distances between every pair of programmes and to what extent. In other words, do we have robust results or are these results strongly dependent on every attribute?

To answer this question, eight different situations were considered. In the first one, all attributes are taken into account; in every other situation, one attribute is omitted. Groups were built according to the closeness between the categories. More precisely, starting from the right end of the dendrogram, all embranchments before the half of the dendrogram were considered as significantly distinguishing between groups of programme categories. Let us insist upon the fact that a programme that belongs to one group is closer to another programme from the same group than from programmes from other groups. Nevertheless, this does not involve any causality on the value or the quality of any group compared to the others. In very case, five to six groups were obtained.

The basic case (i.e. with all attributes being given the same weight) is used in **Figure A1** to illustrate the approach. Starting from the right, there are two branches. The upper one divides into two, which we labelled Groups 1 and 2. Group 1 includes 'Real TV', 'Coaching', 'Game and lottery', 'On-set TV shows', 'Other – Entertainment', 'Sports magazine' and 'Teleshopping'. Group 2 includes 'Live football' and Other live sporting events'. The lower branch gives three groups, labelled from 3 to 5. Group 3 includes 'News programme', 'Other – Information', 'News magazine', 'Cultural magazine', 'Documentary', 'Children's programmes', 'Other – Educational', 'Practical', 'Other – Children', 'Other – Other', Religion.[56] Group 4 includes 'Performance', 'Other – Culture' and 'Cinema movie'. Group 5 includes 'TV movie', 'Other – Fiction', 'Children's series', 'Serial' and 'Documentary'.

While all dendrograms are given below, the belonging of every programme to a group in each case is summarized in **Table A1**. Therefore, it can be seen that 'Real TV' belongs to the first group in each case, while 'Serial' generally belongs to the fifth group – except when either the heritage or risk attribute is omitted, in which cases 'Serial' belongs to the fourth group. The last line gives the distinction between the first upper and lower branches (starting from the right)[57].

---

[55] Our gratitude goes to Dr. Stirling and Dr. Yoshizawa for having programmed the macros that allowed us to test the influence of disparity attributes. Pr. Stirling also suggested the need to test the influence of every attribute taken separately.

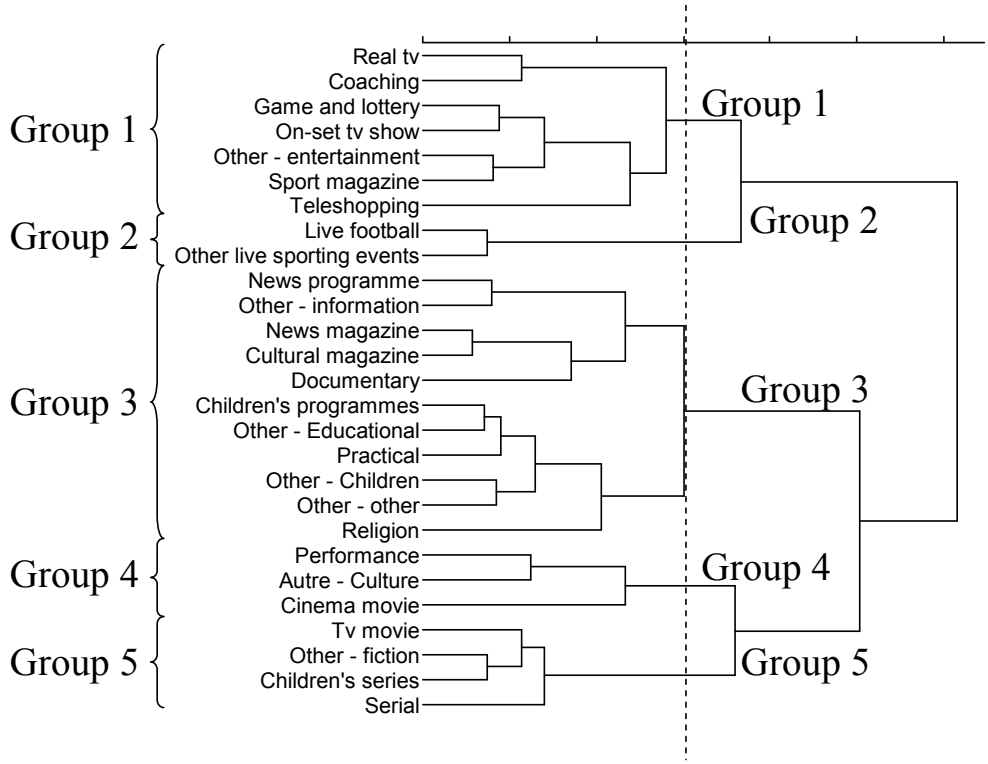
[56] This Group 3 could have been subdivided into two groups: one including all programmes from News programme to Documentary; the other one including all programmes from Children's programmes to Religion.

[57] A bold frame was also put around every lower branch in every case.

Thus, in the case where every attribute was equally taken into account (i.e. the basic case), programmes of Groups 1 and 2 are closer to one another than programmes of the other groups. In the case where the heritage attribute was omitted, programmes of Groups 1 to 4 are closer to one another than programmes of Groups 5 and 6.

An important result is that groupings remain stable when disparity attributes are omitted, i.e. no attribute is so important that omitting or adding it turns all results upside down. Groupings, of course, may change from one case to another, and thus, programmes that belong to the same group in one case may no longer in another case, e.g. 'Real TV' and 'On-set TV show' belong to the first group in the basic case but to two different (although not too far one from another) groups when the cost attribute is omitted.

**Figure A1. Dendrogram of (the categories of) programmes – Basic case**




Colours were added in order to distinguish 'sub-groups' that remain stable across all cases, of which there are six. Of course, there are some exceptions, i.e. some situations in which sub-groups are different from the basic case. Also, one should note the ambiguous behaviour of 'Documentary' that sometimes belongs to the green sub-group and sometimes to the pink sub-group. This may be due to the fact this programme is designed at the same time to inform (e.g. 'News programme') and to become a legacy (e.g. 'TV movie').

**Table A1. Groupings of categories of programmes for every dendrogram**

| | With every attribute | Without 'story' | Without 'risk' | Without 'specificity' | Without 'cost' | Without 'heritage' | Without 'informative' | Without 'age' |
|---|---|---|---|---|---|---|---|---|
| Real TV | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Coaching | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| Teleshopping | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 |
| Game and lottery | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 |
| On-set TV show | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 |
| Other - Entertainment | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 |
| Sport magazine | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 1 |
| Children's programmes | 3 | 2 | 3 | 4 | 3 | 4 | 2 | 2 |
| Other - Children | 3 | 2 | 3 | 4 | 5 | 4 | 2 | 5 |
| Practical | 3 | 2 | 3 | 4 | 3 | 4 | 2 | 2 |
| Religion | 3 | 2 | 3 | 4 | 3 | 4 | 2 | 2 |
| Other - Educational | 3 | 2 | 3 | 4 | 3 | 4 | 2 | 2 |
| Other - Other | 3 | 2 | 3 | 4 | 3 | 4 | 2 | 2 |
| News programme | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 |
| News magazine | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 |
| Other - Information | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 |
| Cultural magazine | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 |
| Documentary | 3 | 5 | 4 | 3 | 5 | 3 | 5 | 3 |
| TV movie | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 |
| Serial | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 |
| Other - Fiction | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 |
| Children's series | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 |
| Performance | 4 | 3 | 5 | 3 | 4 | 5 | 3 | 4 |
| Autre - Culture | 4 | 3 | 5 | 3 | 4 | 5 | 3 | 4 |
| Cinema movie | 4 | 3 | 5 | 5 | 4 | 5 | 3 | 4 |
| Live football | 2 | 4 | 6 | 2 | 2 | 6 | 4 | 1 |
| Other live sporting events | 2 | 4 | 6 | 2 | 2 | 6 | 4 | 1 |
| **Limitation (first embranchment) after…** | **2** | **2** | **2** | **2** | **3** | **4** | **2** | **3** |

**Note:** A bold frame was put around every lower branch in every case.

Our approach also allows us to consider which disparity attribute weighs more in the final level of diversity. More precisely, we can consider only some of the disparity attributes and see which one is the result in either case.

Consistently with previous results, we first found that omitting any of the attributes leads to more or less similar overall results over the whole day as well as over prime time.[58] Therefore, we concentrate on isolating every attribute, which may lead to significantly different results as shown in **Table A2**. Thus, when the only attribute taken into account is the age, it leads to the same raking as in the basic case, whereas the ranking is turned upside down when the attribute taken into account is risk.[59]

**Table A2. Rankings of TV channels in terms of diversity with various disparity attributes over the whole day**

| Situations | Ranking over the whole day | | | | | |
|---|---|---|---|---|---|---|
| | ITV London (pr) | BBC 1 | TF1 (PR) | France 2 (pu) | Kanal D (pr) | TRT1 |
| With every attribute | 3 | 1 | 2 | 5 | 6 | 4 |
| Only 'story' | 3 | 1 | 2 | 4 | 6 | 5 |
| Only 'risk' | 5 | 2 | 1 | 3 | 6 | 4 |
| Only 'specificity' | 3 | 4 | 2 | 5 | 6 | 1 |
| Only 'cost' | 2 | 1 | 4 | 5 | 6 | 3 |
| Only 'heritage' | 3 | 1 | 2 | 5 | 6 | 4 |
| Only 'informative' | 4 | 1 | 2 | 5 | 6 | 3 |
| Only 'age' | 3 | 1 | 2 | 5 | 6 | 4 |

BBC 1 is generally ranked first, except for risk and most of all specificity, i.e. its programmes are not very different from one another as far as their specificity for TV is concerned. One reason may be the fact that it broadcasts less 'Cinema movies' than the other channels. While being generally ranked as second, TF1 (PR) performs particularly well for the risk attribute (and France 2 (pu) also, although to a lesser extent). This may be due to the channel's ability to offer programmes that are more risky from the consumer's point of view, like 'TV and Cinema movies', and programmes that are more predictable, notably 'Serials' or 'Games and lotteries'. Finally, TRT1 is more diverse when disparity is restricted to specificity. The reason may be that, while most programmes are designed specifically for TV, TRT1 broadcasts a significant amount of 'Cinema movies' and, albeit to a lesser extent, 'Performance'.

The overall ranking changes when one focuses on prime time *(see **Table A3**),* but interestingly the same attribute, as identified in table A2 has influenced the level of diversity for every channel. This seems to show the ability of each channel to promote only one kind of diversity as if it was part of the channel's identity. As such, the French TV channels perform better when the risk attribute is concerned. In the same way, TRT1 is still more diverse when disparity is restricted to specificity.

[58] More precisely this never changes the rankings while it of course has an impact on the level of diversity as measured by the Stirling Index. Here all calculations were made with $\alpha = 0.5$ and $\beta = 0.5$.

[59] In all cases, however, Kanal D (pr) remains the least diverse channel.

**Table A3. Rankings of TV channels in terms of diversity with various disparity attributes over prime time**

| Situations | Ranking over prime time | | | | | |
|---|---|---|---|---|---|---|
| | ITV London (pr) | BBC 1 | TF1 (PR) | France 2 (pu) | Kanal D (pr) | TRT1 |
| With every attribute | 1 | 4 | 2 | 3 | 6 | 5 |
| Only 'story' | 1 | 4 | 2 | 3 | 6 | 5 |
| Only 'risk' | 5 | 3 | 1 | 2 | 6 | 4 |
| Only 'specificity' | 4 | 5 | 2 | 3 | 6 | 1 |
| Only 'cost' | 1 | 5 | 2 | 3 | 6 | 4 |
| Only 'heritage' | 1 | 2 | 3 | 4 | 6 | 5 |
| Only 'informative' | 1 | 2 | 3 | 4 | 6 | 5 |
| Only 'age' | 1 | 2 | 3 | 5 | 6 | 4 |

Finally, the strengths and weaknesses of every channel can be analyzed in terms of diversity – notably by analyzing Tables A2 and A3 by columns rather than by lines. The following results give only first hints, but we believe the use of the disparity structure in Stirling's framework could lead to more complete descriptions of every channel's programming:

– TRT 1 (pu) proposes programmes that are more diverse as far as specificity is concerned;

– ITV London (pr)'s programmes are not very diverse when only risk is considered. Over prime time, specificity is another weakness although the channel is generally more diverse than the others;

– BBC 1 (pu) is far less diverse over prime time as shown earlier. This is specifically due to less diversity in terms of specificity and cost, although it is rather diverse in terms of the attributes of heritage, information and age;

– TF1 (pr) proposes programmes that are particularly diverse when one considers their risk from the consumer's point of view – with a balance of unpredictable and predictable programmes;

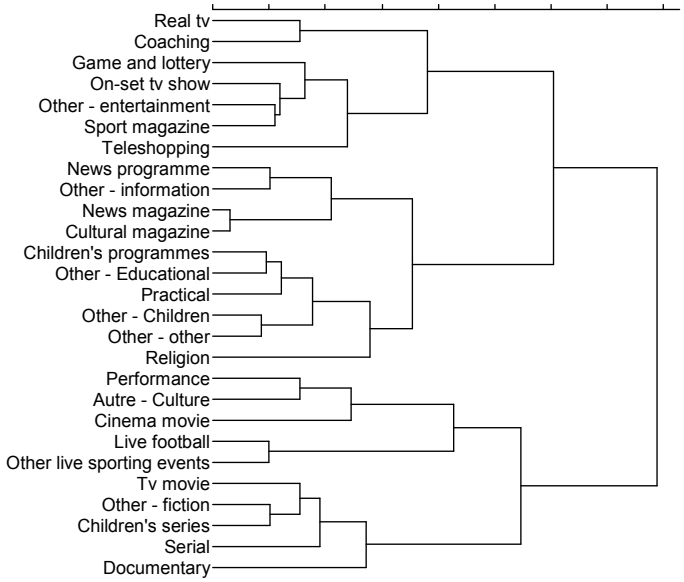
– France 2 (pu) performs also better in terms of risk. Prime time programmes are not diverse in terms of their age[60]; and

– Kanal D (pr) does not have diverse programming. No matter the disparity attribute taken into account, variety and balance are so low that the resulting value ranks the channel as the least diverse according to all indexes during the whole day, as well as over prime time.

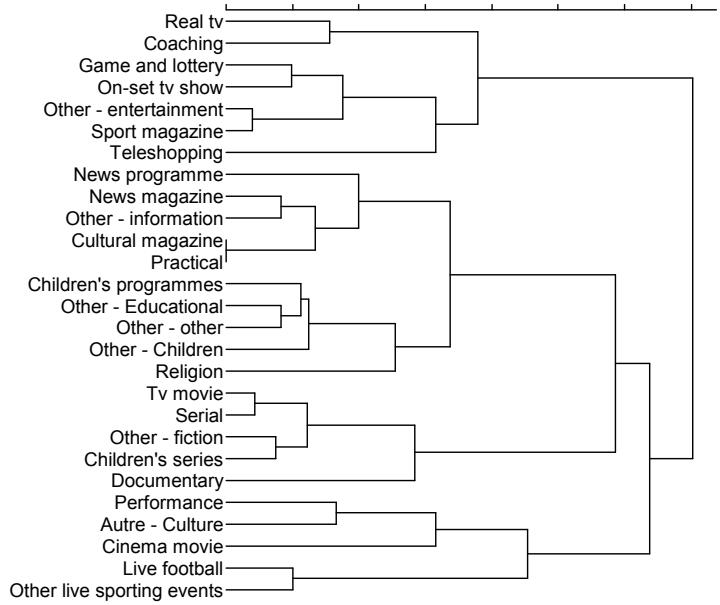
[60] This is the age of the category of programme not of the programme in particular, e.g. there have been movies for a long time on television screens, while the movie that is broadcasted can be fairly recent.

## Dendrograms

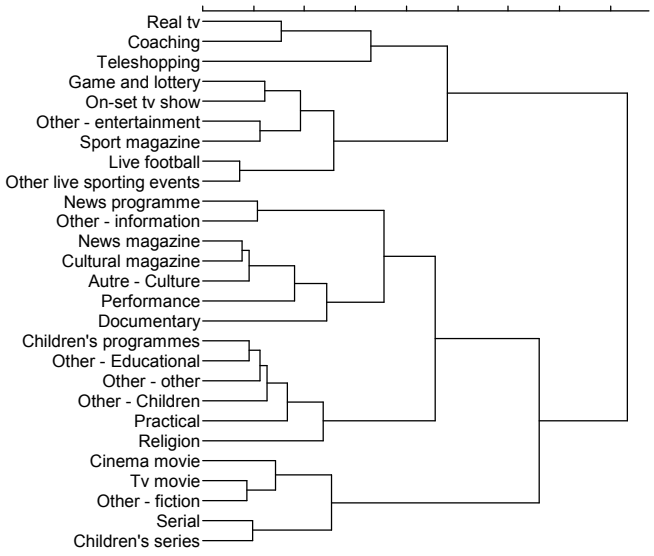
Without ‘Scripted’



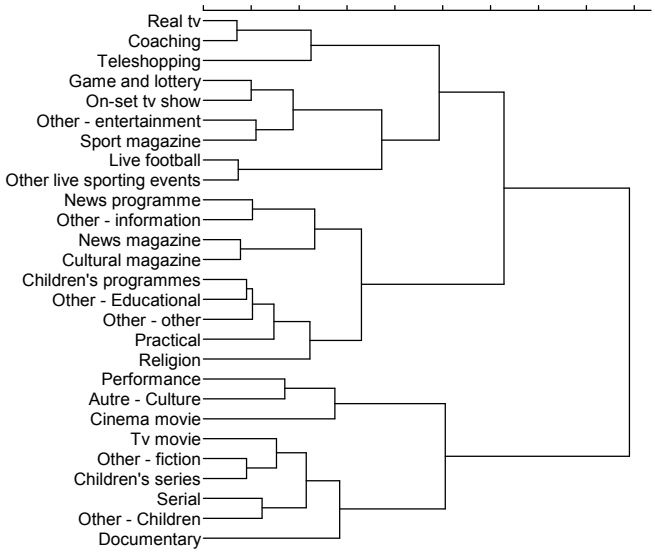

Without ‘Experience’



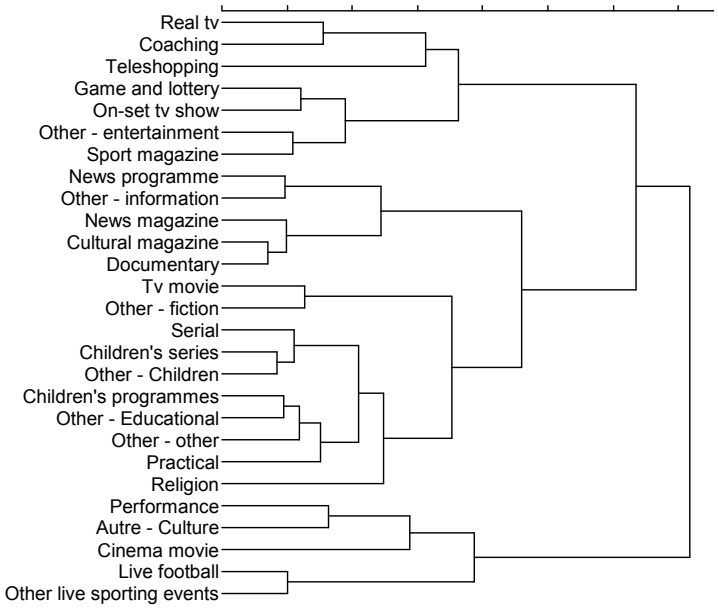
Without ‘TV specific’



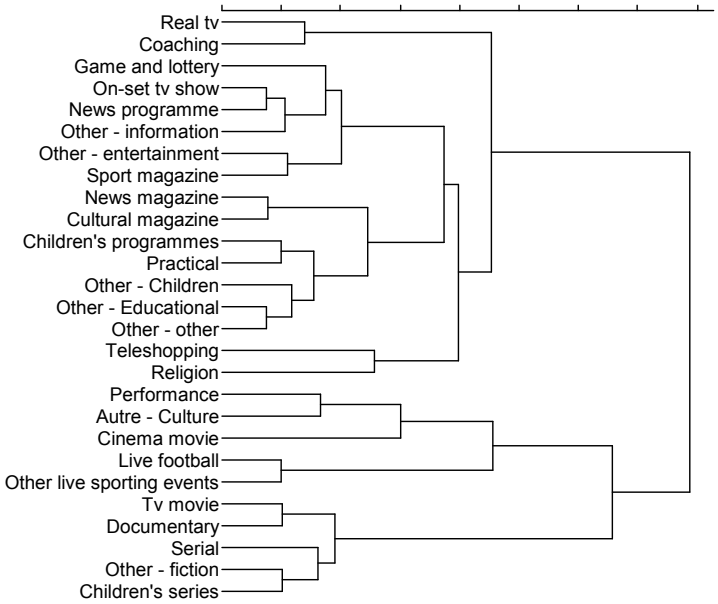

Without ‘Costly’



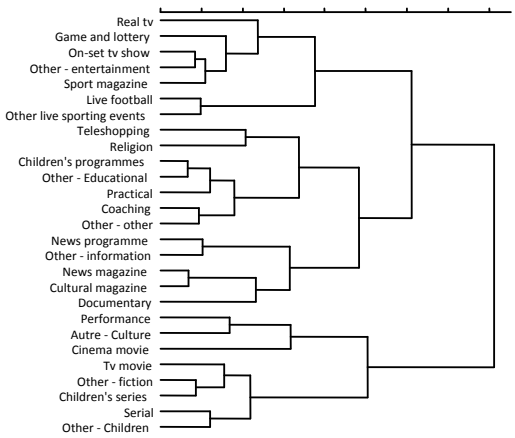
## Without ‘Stock’




## Without ‘Educational’



Without ‘Recent’



# APPENDIX III

## Shannon and Simpson Indexes

One methodological aim of the analysis is to compare the results provided by both dual concept indexes. First they should be compared with the Shannon and Simpson Indexes, especially the Stirling Index, since their use is far easier (especially since there is no need for calculating distances). If the same results are obtained, it would be worth wondering what is the use of using the Stirling Index.

A quick look at results over prime time shows some differences across the Stirling, Shannon and Simpson Indexes. According to the Stirling Index, ITV London (pr) has the most diverse programming. This is not the case when using the Shannon and Simpson Indexes, and thus, they are considered to be incomplete. The highest value granted by the Stirling Index is due to the highest variety but also highest disparity. Since neither the Shannon nor Simpson Index take disparity into account,[61] they fail in giving a proper view of diversity.

However, does one fail less than the other? We will illustrate a theoretical question that has been debated several times (e.g. see Stirling, 1998; Benhamou and Peltier, 2008; Flôres, 2009). While this has no intent of being a definitive answer, we believe it can give interesting insights.

Data over prime time show no difference in terms of ranking between both indexes. However, the derivative of the Simpson Index gives a very high value to the French TV channels as compared to the British ones, which is not reflected in our indexes related to variety and balance.

Data on the whole day show that, according to the derivative of the Simpson Index, TF1 (PR) has the most diverse programming - which is unusual considering that it has neither the highest variety nor the most balanced programming. In the same way, France 2 (pu) is ranked as second by the Simpson Index, while it is fifth in terms of variety and fourth in terms of balance.

On the other hand, the ranking of the top three is the same for variety, balance and the Shannon Index.

From our point of view, this illustrates that the Shannon Index is preferable to the Simpson Index. In the absence of any metrics of methodology to assess disparity, the Shannon Index stands as the second best solution.

[61] One should rather say that disparity is taken implicitly into account by stating that all categories are considered as being equally distant one from another *(see Stirling, 2007).*

# APPENDIX IV

## A note on the different rankings yielded by playing with the values of α and β

The study relies on the use of an enriched version of the Index, which was introduced to our knowledge in Stirling (2007): $\sum_{j,k\in[1,n]^2, j\neq k}(d_{jk})^{\alpha}(p_j p_k)^{\beta}$. The introduction of α allows us to play with the weighting of disparity as compared to variety and balance. In the same way, the introduction of β allows us to play with the weighting of balance as compared to variety and disparity.

More precisely, the lower α (with $0 < \alpha \leq 1$), the higher the emphasis put on disparity. The lower β (with $0 < \beta \leq 1$), the higher the emphasis put on balance. As Yoshizawa et al. (2009) recall, values of $\alpha = \beta = 0$ yield an index of variety (comparable to the Proportion of Categories); $\alpha = 0$ and $\beta = 1$ yield an index of balance (comparable to the Shannon Evenness Index); $\alpha = 1$ and $\beta = 0$ yield an index of disparity (comparable to the Sum of Distances). In a related way "*shifting values of alpha and beta between 0 and 1 collectively addresses all possible relative weightings on variety, balance and disparity*" (p.80). On the other hand there is no specific reason to prefer a given couple of α and β to any other couple, as long as $\alpha, \beta \in [0,1]^2$.[62] In this section we explain the rationale behind our choice for $\alpha = \beta = 0.5$.

Let us note, however, that such a problem exists even with standard indexes such as the Simpson and Shannon Indexes. There is no straightforward reason to use $\sum_{i=1}^{n} p_i^2$ rather than $\sum_{i=1}^{n} p_i^4$. In the same way, there are different kinds of logarithms that could be used instead of the Neperian logarithm in the Shannon Index. One of the great assets of the Stirling Index is that it allows us to play with its some of its parameters, i.e. to make explicit some choices in the building of the index.

**Comparison of the indexes over the whole day**

We first shift values of α and β for the Stirling Index applied to data over the whole day for every TV channel in our set of data[63]. We considered to what extent this could modify the channel's ranking. This allows us to identify a general case, i.e. a general ranking in terms of diversity for the TV channels in our sample. Actually, in 15 out of 25 cases we get in decreasing order: BBC 1 (pu) (pu), TF1 (PR) (pr), ITV London (pr) (pr), TRT1 (pu), France 2 (pu) (pu), Kanal D (pr) (pr).

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62 When α (respectively β) < 0, the positive correlation of the Index with an increase in diversity is lost. The same happens when α (respectively β) > 1 since $0 \leq d_{jk} \leq 1$ (respectively $p_j p_k$).

63 In practice α and β's values were shifted from 0.25 over the [0,1] interval.

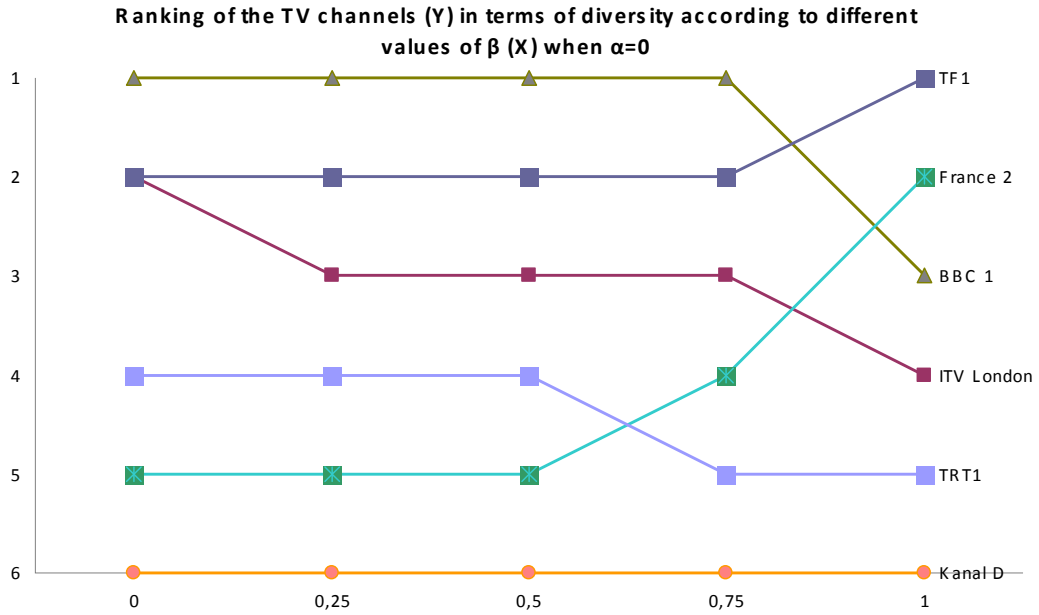
Different results appear:

- when β = 1. Results are then greatly differing; with TRT1 being generally ranked as first (except when α = 0)
- when β = 0.75. Rankings can then be slightly different.
- when α = 1 and β = 0.5. Rankings can then be slightly different.

A comparison with the values of the other indexes gives the following results:

- the Shannon and the Shannon Evenness Indexes give similar rankings that are similar to the case when α = 0 and β = 0.75. These rankings are not very different from the general case.
- the Hill Index yields the same ranking as when α = 0 and β = 1. The ranking is very different from the general case.
- The Sum of Distances on Variety Index gives the same ranking as when α = 1 and β = 0.5.

As a result BBC 1 (pu) is the most diverse TV channel;[64] TF1 (PR) is ranked second;[65] ITV London (pr) is ranked third;[66] TRT1 is ranked fourth;[67] France 2 (pu) is ranked fifth;[68] and Kanal D (pr) is always ranked sixth.



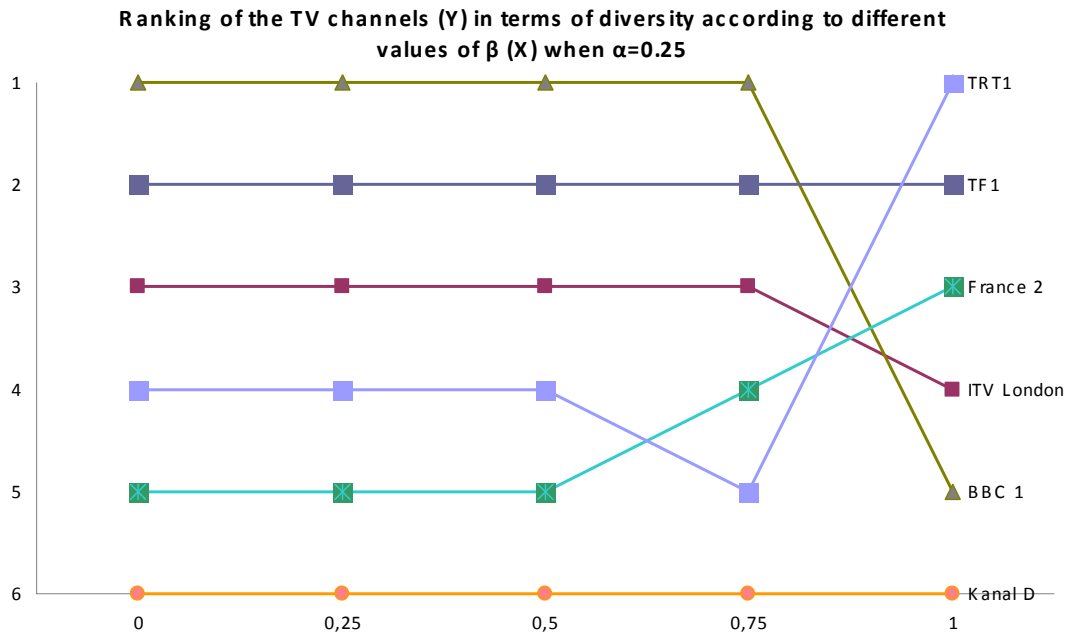

64 Except for the Hill Index and when β = 1 (or when α = 1 and β = 0.75). It is ranked third or even fifth in those cases (except when α = 1 and β = 0.75).

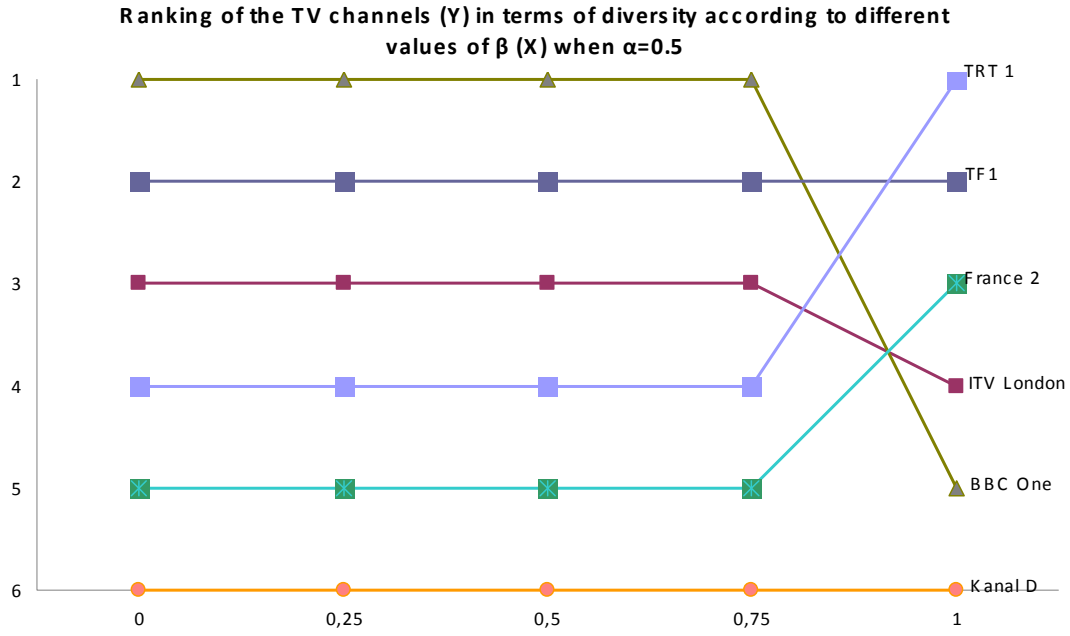
65 But first in some cases (when α = 1 and β = 0.75; when α = 0 and β = 1; with Hill Index) or third (when α = 0.75 and β = 1 or when α = 1 and β = 1).

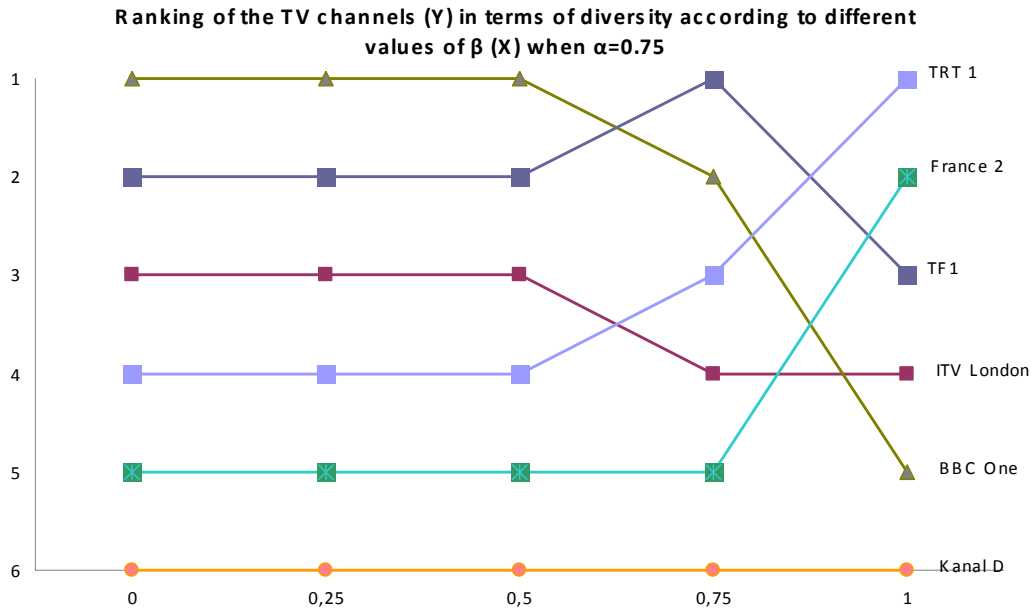
66 But fourth in some cases (when β = 1; when α = 1 and β = 0.5; when α = 1 and β = 0.75; with Hill Index; with SDV).

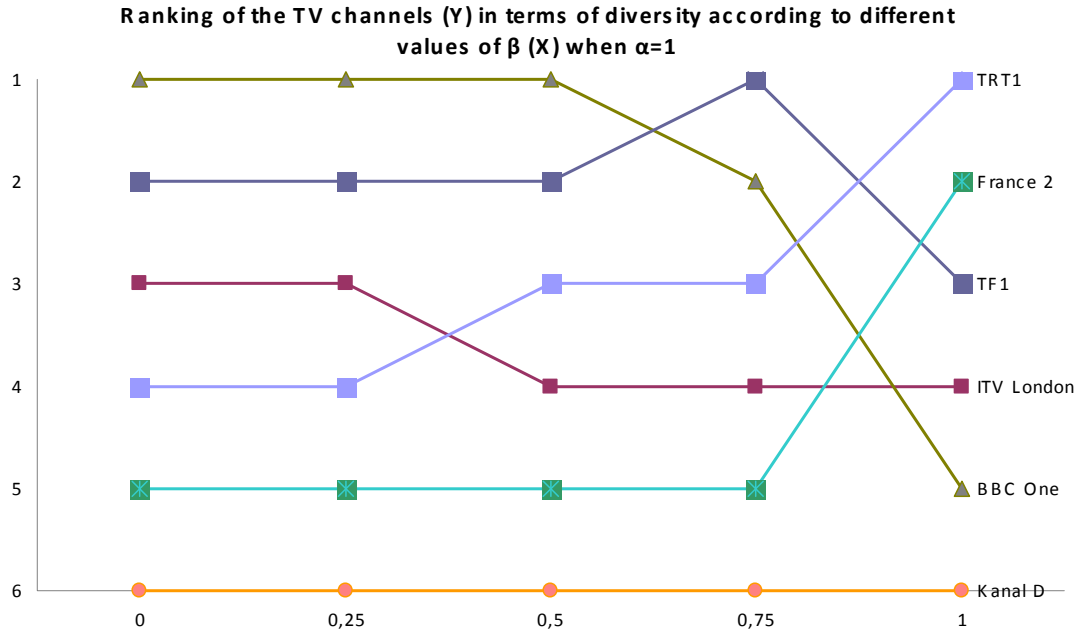
67 First when β = 1 (except when α = 0). 3rd when α = 1 and β = 0.5 and when α = 1 and β = 0.75 and with SDV. Fifth when α = 0 and β = 0.75 and when α = 0 and β = 1 and with Shannon Evenness, Shannon and Hill.

68 Second when α = 0 and β = 1 when α = 0.75 and β = 1 when α = 1 and β = 1 and with Hill. Third when α = 0.25 and β = 1 when α = 0.5 and β = 1. Fourth when α = 0 and β = 0.75 and with Shannon and Shannon Evenness.


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=0.25
1
2
3
4
5
6
0
0,25
0,5
0,75
1
TRT1
TF1
France 2
ITV London
BBC 1
Kanal D


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=0.5
1
2
3
4
5
6
0
0,25
0,5
0,75
1
TRT 1
TF1
France 2
ITV London
BBC One
Kanal D


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=0.75
1
2
3
4
5
6
0
0,25
0,5
0,75
1
TRT 1
France 2
TF1
ITV London
BBC One
Kanal D


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=1
1
2
3
4
5
6
0
0,25
0,5
0,75
1
TRT1
France 2
TF1
ITV London
BBC One
Kanal D

**Comparison of the indexes on prime time**

We then shift values of α and β for the Stirling Index applied to data on prime time for every TV channel in our set of data[69]. On prime time, the situation is a bit more complicated. Actually, there are two general cases according to the respective rankings of France 2 (pu) and BBC 1 (pu). In 11 cases out of 25 we get in decreasing order: ITV London (pr) (pr), TF1 (PR) (pr), BBC 1 (pu) (pu), France 2 (pu) (pu), TRT1 (pu), Kanal D (pr) (pr). In 7 cases out of 25 we get in decreasing order: ITV London (pr) (pr), TF1 (PR) (pr), France 2 (pu) (pu), BBC 1 (pu) (pu), TRT1 (pu), Kanal D (pr) (pr).

Different results appear:

- when β = 1. Results are then greatly differing; with France 2 (pu) being generally ranked as first (except when α = 0)
- when β = 0.75. Rankings can then be slightly different.
- when α = 1 and β = 0.75. Rankings can then be slightly different (same ranking as with as the SDV Index)

A comparison with the values of the other indexes gives the following results:

- the Shannon, the Shannon Evenness and the Hill Indexes give similar rankings that are similar to the case when α = 0.25 and β = 1 and when α = 0 and β = 1. These rankings are different from the general case.
- The Sum of Distances on Variety Index gives the same ranking as the general case (when BBC 1 (pu) is ranked before France 2 (pu)).

As a result, ITV London (pr) is the most diverse TV channel;[70] TF1 (PR) is ranked second;[71] BBC 1 and France 2 (pu) are alternatively third and fourth;[72] TRT1 is ranked fifth;[73] Kanal D (pr) is always ranked sixth.

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69 In practice α and β's values were shifted from 0.25 over the [0,1] interval.

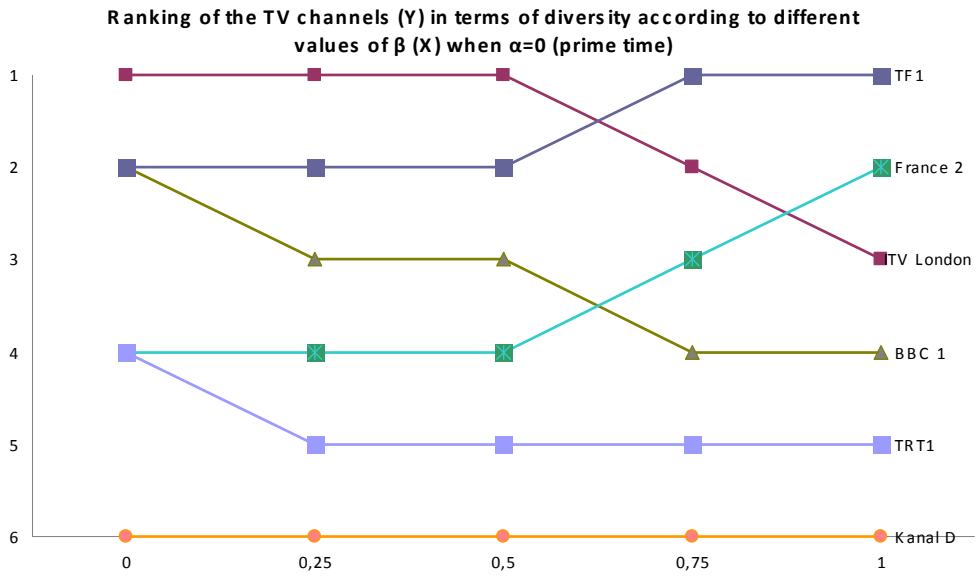
70 Except for the Hill, Shannon and Shannon Evenness Indexes and when β = 1 (or when α = 0 and β = 0.75). It is ranked third in those cases (except when α = 0 and β = 0.75 when it is ranked second).

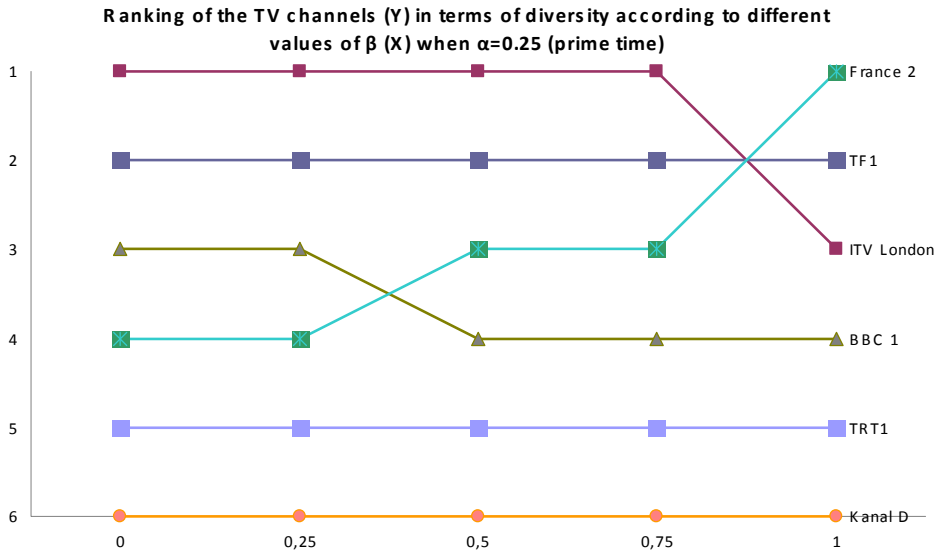
71 First when α = 0 and β = 0.75; when α = 0 and β = 1; with the Shannon, Hill and Shannon Evenness Indexes.

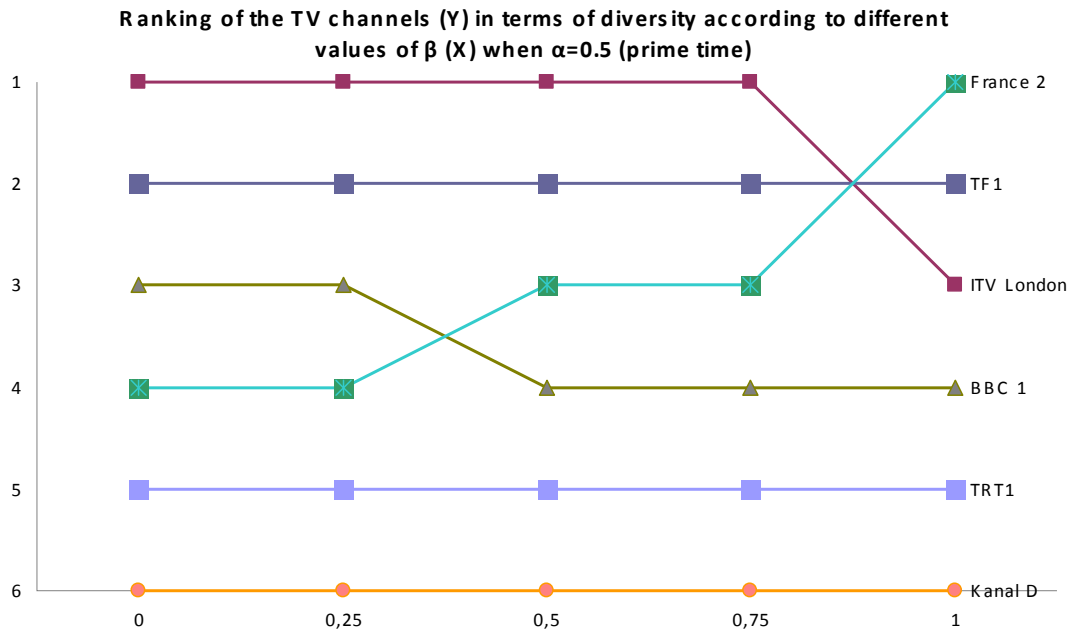
72 What makes the difference between both is the value of β. As long as β < 0.5 and including the case when α = 0 and β = 0.5; BBC 1 (pu) is ranked third and France 2 (pu) fourth. In the other cases BBC 1 (pu) is ranked fourth and France 2 (pu) third. Other rankings for BBC 1 (pu) include second (for pure variety); fifth (when α = 1 and β = 0.75; when α = 0.75 and β = 1; when α = 1 and β = 1). Other rankings for France 2 (pu) include first (when β = 1); second (when α = 0 and β = 1; with Shannon, Shannon Evenness and Hill).

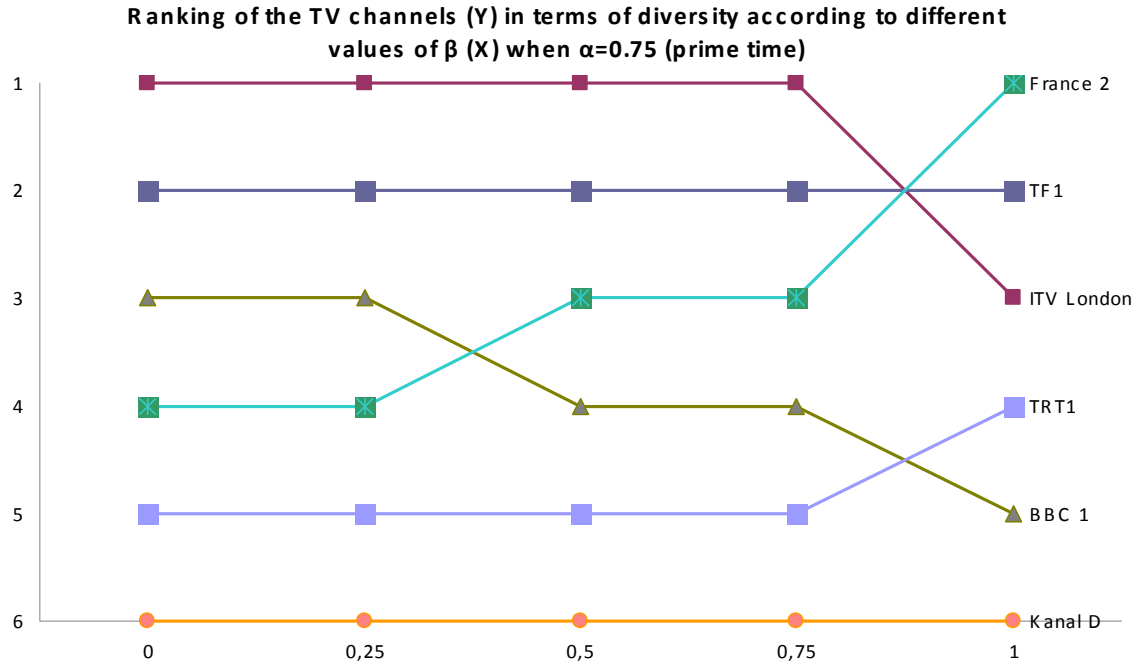
73 Alternatively ranked fourth when pure variety; when α = 1 and β = 0.75; when α = 0.75 and β = 1; when α = 1 and β = 1.

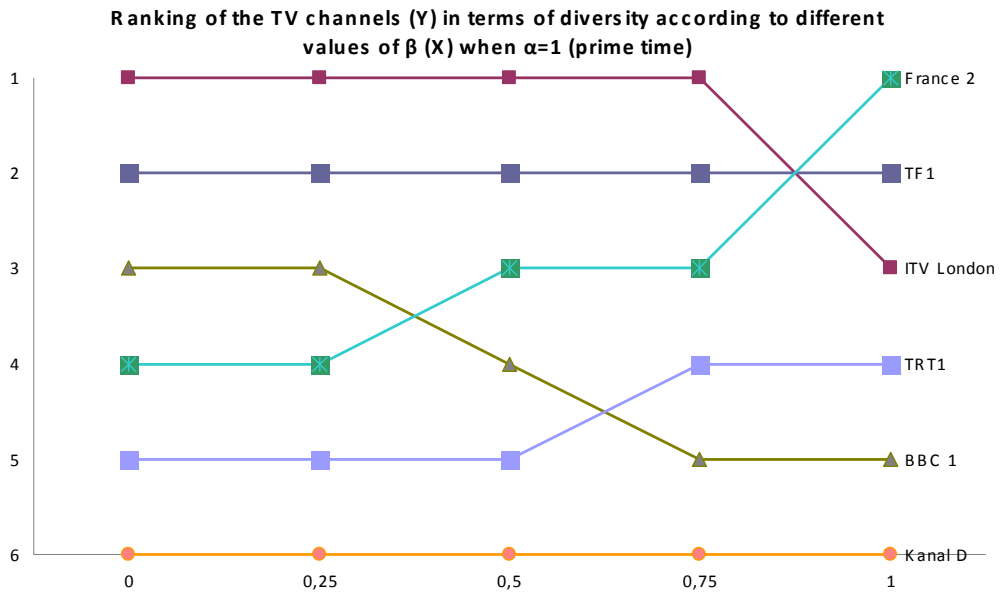
*Appendix IV*


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=0 (prime time)
1
2
3
4
5
6
0
0,25
0,5
0,75
1
TF1
France 2
ITV London
BBC 1
TRT1
Kanal D


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=0.25 (prime time)
1
2
3
4
5
6
0
0,25
0,5
0,75
1
France 2
TF1
ITV London
BBC 1
TRT1
Kanal D


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=0.5 (prime time)
1
2
3
4
5
6
0
0,25
0,5
0,75
1
France 2
TF1
ITV London
BBC 1
TRT1
Kanal D


Ranking of the TV channels (Y) in terms of diversity according to different values of β (X) when α=0.75 (prime time)
1
2
3
4
5
6
0
0,25
0,5
0,75
1
France 2
TF1
ITV London
TRT1
BBC 1
Kanal D




As a conclusion the case when α = β = 0.5 corresponds to the general case. That is why we chose these values for α and β. We do not intend to show that the Stirling Index should always be applied with these values. Particularly it has not been so far possible to mathematically demonstrate why the Index gives very different rankings in a few cases, like when β = 1.

However, we think this analysis shows that any application of the Stirling Index should test different values for α and β, rather than fix an arbitrary value for α and β. Apart from testing different values, there is no reason to prefer any couple of values to any other one in the $[0,1]^2$ interval.

When the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions was adopted in 2005, the importance of monitoring and measuring the status of cultural diversity was brought to the forefront. In order for countries to better assess cultural diversity, the UNESCO Institute for Statistics (UIS) is developing methodologies and indicators needed to measure and monitor the breadth of cultural practices and expressions.

On the recommendation of the UIS international expert group on cultural diversity, two studies were commissioned to evaluate the feasibility of using the Stirling Index of Diversity, recognised as one of the most robust methodologies in this field. The results are presented in this report.

Given the complex nature of categorising and measuring cultural expressions, the first study defines specific indicators to measure cultural diversity in the global cinema industry, underlining the strengths of the Stirling Model and providing suggestions for further improvements.

Using comparative statistics on television programming from three selected countries, the second study examines the diversity of programming between public and private channels. Specifically, the model is tested and compared to selected standard indexes of diversity. This study highlights the relevance and added value of the Stirling Index in comparison to other methodologies. These findings can help foster further discussion on measuring diversity in today's changing world.

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