LINGUISTIC DIVERSITY AND CHANGING TECHNOLOGY IN INDIA'S
REGIONAL FILM MARKETS

Sunitha Chitrapu

Appendix D

DOCTORAL ACCEPTANCE PAGE

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Accepted by the Graduate Faculty, Indiana University, in partial fulfillment of the requirements
for the degree of Doctor of Philosophy.


Doctoral Committee

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(Date of Dissertation Defense – December 8th, 2008)

**Dedication**

This dissertation is dedicated to my husband, Ashwyn Balsaver.

television industries. Karishma Tandan helped by sharing elusive reports. I am grateful to Eliza Lewis for sharing her knowledge of the language dubbing industry in Mumbai.

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Appendix G

ABSTRACT

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Sunitha Chitrapu

<u>Linguistic Diversity and Changing Technology in India's Regional Film Markets</u>

Theoretical frameworks of the home market model of international media trade and market size theories from the economics literature were applied to empirical data from multiple Indian language film markets to estimate the effect of market size on product quality and variety in Indian language film markets. Cross sectional and panel regressions revealed that market size measured by number of language speakers and gross state domestic product had a significant positive effect on the number of films produced in a language market as predicted. Anecdotal evidence shows that films produced in larger Indian language markets have higher film production investment, greater variety of genre elements, and are exported more, providing supplemental evidence.

The contrary trend of persistent film admissions in the face of growing television penetration in India was also examined, in the context of five major film producing countries such as US, UK, France, Germany and Japan.  Econometric estimation of time series data from the introduction of television in each of these markets till 2005 relating to two measures of the annual number of theatrical admissions ─ aggregate admissions, and admissions per capita ─ and two additional measures, i.e., the annual number of films produced, and the number of screens at the individual country level as well as at the group level reveals that India fits the international pattern of the significant negative effect of television penetration on aggregate and per capita admissions.   India was similar to the US and France where television penetration did not have a

statistically significant effect on the number of films produced rather than the UK and Japan where television penetration had a significant negative effect. Television penetration had a statistically non- significant effect on the number of screens in India unlike in the US where it had a significant negative effect on the number of screens. Since the major share of Indian film industry revenues (78%) comes from theatrical admissions, television penetration poses a serious threat to Indian film industry revenues unless premium services can be used to add revenues.

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# Tables and Figures

## *Chapter 1- Introduction*

*"The motion picture is a business and any country's industry will try to expand if it feels*

*it can create a market for its products elsewhere…If all industries are trying to export*

*film, what occurs within markets?"*

*(Guback, 1969, p. 12- 14)*

American domination of the global film business is a well established phenomenon that

has received much research attention. In almost every country of the world, including historically

film producing countries such as the UK, France, Germany, and Italy, imported American films

have a greater share of the market than domestic films[1].  India appears to be an exception to this

rule. In India, the largest producer of films in the world, domestic films retain 93-95% market

share while Hollywood films only have 5-7% market share (Kheterpal, 2005). The only other

country with this extent of domestic dominance is the US[2].

Research tells us that large domestic markets produce higher quality and a greater variety

of media products than do smaller markets. These higher quality products are both successful at

home and tend to have a better chance of international success (Hoskins & Mirrus, 1988;

Waterman, 1988; Wildman & Siwek, 1988). From this perspective we would expect  Indian

films to have a high share of the international film business. However, counter to this

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[1] Domestic shares are indicated within parentheses – UK (19%), France (44.8%), Germany (25%), Italy (24.8%). In recent years Japanese films have seen a revival and now take 53% of their national market unlike in previous years when their share was lower ( Screen Digest, 2006)

[2] Other than countries with closed borders such as North Korea, for instance.

expectation, Indian films earn a surprisingly meager share of global cinema revenues[3]. A closer look at the Indian film industry reveals a third interesting phenomenon, Indian films are produced in numerous regional languages ─ the 1,041 Indian films made in 2005 were produced in 25 different languages.[4] Film production in more than one language in any national market is quite rare and is observed in only a few film producing countries such as Canada and Belgium[5]. However neither country supports film production in such a wide variety of languages as does India. From a film production point of view, India appears to be similar to a multilingual group of film markets like the European Union, rather than to any other film producing country.

In a world dominated by American media products, all three of these patterns related to the Indian film market – domestic dominance, domestic dominance coupled with international insignificance, and linguistic diversity of production – make it exceptional and worthy of research interest.

The research questions guiding this dissertation are:

1) What are the factors that explain the unusual pattern of the combination of domestic dominance and international insignificance of the Indian film industry?

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[3] An Indian film industry study reports that India's share of global cinema revenue is only 1% (cited in Bharadwaj, 2006)

[4] In 2006, India made more films than the 25 countries of the EU taken together (Screen Digest, 2006).

[5] In Canada films are produced in English, French and Aboriginal languages. French language '*cinéma québécois*' is produced in Quebec and attempts to "protect the cinematic '*québécitude*' from the fascinating Hollywood patterns" (Warren, 1991, p.6). It is a "publicly supported, semi-commercial cinema" produced in Montreal and accounts for about 25% of box office revenues in Quebec (White, 2006, p. 6). In addition to the *cinéma québécois* Canada also has a tradition of English and Aboriginal cinema (White, 2006). Belgium has two film industries – in Flemish (Dutch) and French, based in and catering to the distinct linguistic regions of Flanders and Wallonia (Mosley, 2001). Despite considerable linguistic diversity in Indonesia, films are produced in Indonesian, the national language. Heider (1991) in his book on Indonesian film notes that, "There are *no* regional film industries in Indonesia" (p. 11, italics mine).

2) What are the implications of film production in multiple languages for the Indian film trade?

To answer these questions, I use the theoretical frameworks of the home market model, which has been used to explain patterns of international trade in media products, and market size theories from the economics literature, which explain the effect of market size on product quality and variety. Time series data relating to the number of films produced, number of language speakers, and gross state domestic product was assembled from multiple Indian language film markets from the coming of sound in 1931 to 2005. This data was empirically analyzed to examine the relationships between film production in India's many regional languages and the size and wealth of the corresponding linguistic population.

The topic of market size naturally leads us to the effects of competing audiovisual technologies. Competing audiovisual technologies such as broadcast television made their appearance as early as the 1930's and had a number of effects on the international film industry. A study of the economics of film markets therefore needs to include an examination of the effects of these competing technologies on the film industry. This leads to the third research question:

3) How has the diffusion of broadcast television affected the Indian film industry compared to the film industry in other countries?

To answer this question, a dataset including three measures of theatrical admissions, along with additional measures such as the number of films produced, the number of theatrical screens, and the number of television households, was assembled from six of the world's largest domestic box office markets, i.e., the US, UK, France, Germany, Japan and India. This dataset

was used to empirically investigate the effects of the diffusion of broadcast television on the film industry in India compared to the other five countries.

Considering that India is the largest producer of films in the world and has been so for some years now, an understanding of the economics underlying its prolific output will be a worthwhile contribution to the research on the economics of the international film trade. Establishing empirical evidence of the fragmented film market structure in India allows us to freshly examine the observed trade patterns of Indian films. Film scholars have noted that Indian films are made in numerous languages (see Ganti, 2004; Pendakur, 2003; Rajadhyaksha and Willemen, 1999; and Thoraval, 2000), but there has been no research until now about the economic effects of this linguistic diversity[6] on film production.

The diffusion of new technology has policy implications relating to diversity, and the balance of film trade. An examination of the effects of the introduction of competing technologies such as television gives us insights that we can apply to the introduction of newer modes of delivery of audiovisual programming. Further, the comparative approach used in this study allows us to situate India in the context of the broad international patterns relating to the film trade. The Indian film and television markets have not been examined from this quantitative empirical perspective before this.

In Chapter 2, I review the literature that provides a theoretical framework for this dissertation. In Chapter 3, I present background information on the history, market structure and policy related to the film and television industries in India. In Chapter 4 the relationship between film production in each of the regional languages, and the size and wealth of the corresponding

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[6] Barring Jain (1960), Oomen and Joseph (1981), Mittal (1995) and some discussion by Pendakur (2003) there are few instances of research into the economics of the Indian film industry. Qualitative analyses are far more popular, for instance Rajadhyaksha (1999), Vasudevan (2001), Prasad (1998), Ganti, (2004), Gopalan (2002), Thomas (1985), Dwyer (2002), and many others.

linguistic population is empirically analyzed. In Chapter 5 the effects of the diffusion of

television on the film industry in India compared with other countries is econometrically

analyzed, and Chapter 6 provides conclusions and directions for future research.

## *Chapter 2 – Literature Review*

Research on the international trade in media products has its roots in cultural imperialism research. Cultural imperialism scholars (Guback, 1969; Beltran, 1978; Mattelart, 1973; Schiller, 1969; Nordenstreng and Varis, 1974) held that former imperialist countries controlled the audiovisual media trade in a continuation of their imperialist ambitions and that such trade would eventually harm the culture of the importing countries. Economic models such as the home market model brought an alternate  understanding of the media trade by identifying the underlying economic factors such as consumer spending and its effect on exports and imports of media products.  Empirical studies using the home market model examined the various forms of consumer spending that contributed to film industry revenues, including the role played by competing technologies such as television.

In this chapter I present the research literature relating to three main areas to establish the theoretical framework that has guided past inquiry. The three areas are 1) the home market model of the international trade in media products which shows the importance of economic variables in explaining the relative ability of a country's film (or television) industry to compete internationally, 2) economics research that examines the effect of market size on media products and 3) empirical analyses of the effects of television diffusion on the film industry.

### *2.1. The home market model*

Early empirical investigations of the international trade in media found that economic and demographic variables showed some correlation with the patterns of international media trade (Nordenstreng and Varis, 1974; Varis, 1985). Pool (1977) noted that high quality media production required the foundation of capital, specialized personnel and production expertise that

was only found in "great organizations and centers" (p. 148).  Expanding in this theoretical direction, the home market model draws on economic theory to explain media trade patterns.

The model makes two assumptions about audience preferences relating to the origin, and production investment in television programming. The first assumption is that all other things being equal, audiences are attracted by media products with larger production investments. The second assumption is that all other things being equal, audiences prefer domestic productions (Waterman, 1988).  Foreign television programs thus suffer a 'cultural discount' (Hoskins and Mirrus, 1988) when imported. This is  because,  "A particular program rooted in one culture and thus attractive in that environment, will have a diminished appeal elsewhere as viewers find it difficult to identify with the style, values, beliefs, institutions and behavioral patterns of the material in question," (Hoskins and Mirrus, 1988, p. 500). This cultural discount reduces the revenues that a foreign program can earn in an importing country.

Since media products enjoy economies of scale, producers would like to make their products attractive to the widest possible audience (Wildman and Siwek, 1988). Producers from larger and wealthier markets are able to increase their production investment to a greater extent than are producers from smaller markets (Waterman, 1988).  An increase in production investment makes it possible for high quality talent in the form of cast and crew to be employed, thereby creating an attractive final product (Wildman and Siwek, 1988; Waterman, 1988). This confers a 'domestic opportunity advantage' which is the competitive advantage enjoyed by media products produced in countries with large populations and allows these products to enjoy a relatively favorable position internationally (Wildman and Siwek, 1988).  According to the home market model, the US enjoys a favorable position in the international television trade compared

to the UK, France, West Germany, and Italy because of its relative advantage due to the size of its population and economic resources (Waterman, 1988).

Larger linguistic markets produce more films because diversity and choice are valued by audiences (Wildman and Siwek, 1988). Thus, the number of speakers of a language and their spending power play an important role in the number and quality of the films produced in that language. A variety of studies have demonstrated empirical support for the model (Waterman, 1988; Waterman and Rogers, 1994; Dupagne and Waterman, 1998; Jayakar & Waterman, 2000; Lee, 2002; Lee and Waterman; 2007; and Oh, 2001).

The home market model provides an important theoretical framework for thinking about the effect of the size and wealth of markets on the competitiveness of their film industries. Wildman and Siwek (1988) point to the importance of the number of language speakers as a measure of market size. Schement, Gonzalez, Lum and Valencia (1984) observed that, "The linguistic imperative is the starting point for understanding international television distribution patterns" (p.172). A visible difference between India and other film producing countries is that Indian film audiences speak a variety of different languages while film audiences in the other historically large film producing countries are united into a single market by their national language. The relationships suggested by the model underline the importance of linguistic divisions while examining a country's position in the film trade.

### 2.1.1. India, an outlier

An examination of recent film industry statistics for India, US, Japan, France, Germany, UK, Italy, and Spain (Table 2.1 below), shows that India is comparable only to the US when it comes to domestic films' share of the domestic market (94%). India also produces the highest number of films in the world, has the highest number of admissions and has cinema screens second only to the US. This leading position however is reversed for other statistics; India is at

the bottom of the table with the lowest average budget per film, the lowest total film production investment, the lowest number of screens per million heads of population, the lowest ticket price, and the lowest annual film spending per head. As the table illustrates, countries producing films with lower budgets, having fewer screens per million populations and lower film spending per head simply don't have a high share of their domestic market or produce quite as many films. Yet, in spite of these factors, the domestic film industry in India earned box office revenues second only (although a distant second)  to the US.

-----Table 2.1 here ----

When it comes to international revenues, an Indian film industry report estimated that in 2005 only 8% of the revenue earned by Indian films came from overseas. Fu (2006) conducted an examination of the national origin of the number of films present in 94 countries over 14 years using UNESCO statistics. He found that Indian films have a lower international presence than do films from Russia, Italy, Germany and France. In comparison, American movies earn more revenues from the international market than from the domestic market (Guider, 2008).

The literature shows multiple instances of the anomalous position occupied by India in the film trade.  Jayakar and Waterman (2000) note that  "In general, although there are some exceptions (notably India and Hong Kong), the size and spending contrasts between the United States and foreign countries appear to be even greater in smaller countries, with the market shares of U.S. products tending to be higher as well"  (p. 158). This is echoed by Oh (2001) who notes that India along with Hong Kong and Japan is the exception to the rule of a high ratio of US imports seen in most countries.

## 2.2. *Market size and product attributes*

In general, market size is a key variable that affects both the quality and variety of products that rely on high fixed costs to increase their quality (Shaked and Sutton (1987), Sutton (1989), Waldfogel (1999), Dixit and Stiglitz (1977), Krugman (1980), Krugman (1991), and Fujita, Krugman and Venables, 1999). Media products fall under the category of products with high fixed costs. The entire production budget of a movie needs to be expended before the first print can be struck off, leading to the term 'first copy cost' (which also applies to other media products such as newspapers, radio programs and television shows). Thus the theory of endogenous fixed costs can be applied to media product markets as revealed through the empirical work of Berry and Waldfogel (2003) on newspaper markets and Waldfogel (1999) on radio markets. In the next two sections I present the literature on the relationships between market size and 1) product variety and 2) product quality.

### 2.2.1. Market size and product variety

Waldfogel's (1999) study showed that high fixed costs and heterogeneous preferences of consumers increase product variety in radio markets. He empirically examined 246 radio markets in the US and found that larger markets (measured through population) supported higher quality and variety of radio programming measured through hours spent listening to the radio and variety of programming. George and Waldfogel (2003) in a study of 269 newspaper markets observe that, "When fixed costs are large and product preferences differ among consumers, the mix of products available in any market can depend on the mix of consumer types in the market. Individuals in larger groups, facing products better tailored to their preferences, are more likely to consume" (p. 781).

### 2.2.2. Market size and product quality

The relationship between market size and product quality is examined in vertical product differentiation models or models that examine product differentiation based on quality. The positive relationship between market size and product quality is explained by Shaked and Sutton (1987). They present a theoretical examination of the conditions under which high fixed costs are borne by firms to increase consumers' willingness to pay. In their examples of the concentrated market structure of aircraft and mainframe computer industries, they note that firms are willing to accept higher fixed costs when there is an opportunity to improve technological quality, because higher quality makes the products more attractive to consumers. Specifically, they note that these companies are accepting of higher fixed costs because of the large market size.

These fixed costs are endogenous (Sutton, 1991). Sutton (1989) observes, "For by raising its fixed expenditures to enhance the 'perceived quality' or 'image' of its product, the firm can enhance its market share relative to its rivals - and the returns from doing this become greater as the number of consumers in the market increases" (Sutton, 1989, p.337). Berry and Waldfogel (2003) provide empirical support from the media industry through their examination of newspaper markets in the US. Using a twenty-year data set of 283 metropolitan areas, they found that newspaper quality, as measured by number of pages, number of staff reporters and number of Pulizer prizes won by the paper, all increased in market size measured by population.

Competing technologies play a key factor in determining revenues to the film industry. In the next section, I present the literature that examines the effect of television on the film industry.

## 2.3. The effects of television diffusion on the film industry in the US and Europe

The end of the decade of the 1930s saw the introduction of television in USA, UK, Germany and France. RCA's 1939 presentation at the World's Fair is well documented as one of

the early moments in American television broadcasting history (Sterling and Kittross, 2001). In the USA (as in European countries), television development did not receive priority during WWII, and it is only in the post-war period that television diffused rapidly. By 1948, 48 commercial television broadcast stations were in service in 23 American cities (FCC, 2005). In the UK, the BBC had begun some television broadcasts by 1936. In the post-war period regular services including news programs were telecast. In 1953 the coronation of Queen Elizabeth saw television audiences overtake radio audiences for the first time in the UK (BBC, n.d.). French television services which started in 1935 resumed after liberation in 1944 (Bertho et al, 1984 cited in Noam, 1991). Germany also had television services by the mid 1930's (the Berlin Olympics in 1936 were covered on television) and services continued through WWII (Noam, 1991). Japan introduced television services in 1953 (NHK, n.d).

The diffusion of television affected all segments of the film industry. Four patterns have been observed with regard to television's effect on the film industry: first, as television penetration increases, film admissions decline; second, even as admissions are falling, some theaters are able to raise ticket prices; third, the nature of film production changes as films attempt to retain their audiences and four, television finally takes its place as one of the revenue sources of the film industry (Waterman, 2005).

The first effect, TV's strong negative effect on theatrical film admissions is well documented[7]. TV broadcasting started in the UK in 1936. In a study of the British theatrical exhibition industry after the arrival of television Spraos (1962) notes that TV started a cycle of admission losses in those regions of the country with the highest diffusion of TV. The greatest

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[7] Scholars have noted that television was not the only factor that negatively impacted film audiences. Sorlin (1991) speculates that Britain's embargo on American films may have kept audiences away from British theaters before television became widespread, thus starting the decline that TV later hastened.

loss occurred from 1955 to 1956, when British film admissions fell by 20% (Sorlin, 1991).

Fewer admissions meant the closure of cinema theaters and this meant a further reduction in film

admissions in those regions. In just one decade, from 1950 to 1960, UK lost a third of its cinema

theaters, from 4,500 cinemas in 1950 to only 3000 in 1960  (Spraos, 1962).

This loss was an echo of the loss on the other side of the Atlantic. Television

broadcasting in the US was in its early stages the 1940's. In the decade from 1946 to 1956,

weekly attendance in American theaters fell by half, from 90 million per week in 1946 to 46

million per week in 1956. In the six year period from 1948 to 1954, American theaters decreased

from 18,631 to 18,491 (Stuart, 1982).

In Italy, TV was introduced in 1952, with regular services available from 1954.

Theatrical attendance fell from 819 million in 1955 to 745 million in 1960, 680 million in 1965,

530 million in 1970 and 513 million in 1975. Cinema spending constituted 67% of entertainment

spending in 1955, it fell to 59% in 1960, 49% in 1965, and 42% in 1970. Sorlin (1996), notes

that 2,000 cinema theaters closed from 1955 to 1975. Stuart (1982) empirically established that

per capita motion picture receipts could be predicted from per-capita income and the percentage

of TV set ownership.

The second effect appears to be counter intuitive, even at a time when admissions were

falling; cinema theaters were able to raise ticket prices without fear of losing even more

customers. Spraos (1962) documented this trend and ascribed it to the inelasticity of demand

when it comes to the price of movie tickets. A more complete explanation was later offered by

Waterman (2005) using the concepts of market segmentation and price discrimination.

Television, according to Waterman (2005), appealed to the market segment of lower value

demands because of its inexpensiveness. Before television, this segment of the audience had

patronized later-run theaters. Lower-run theaters were closing because television had begun to take their place, leaving behind higher-run theaters that had higher ticket prices. TV played an important role in market segmentation, i.e., TV catered to the lower value demand and took the place of lower run theaters. Higher value demands preferred the higher quality of the theatrical experience to the lower quality of the television experience thus leading to the contrary pattern of lower run theaters closing, leaving higher run theaters that had higher ticket prices. Higher value demand that preferred the theatrical experience could now be separated, thereby allowing studios to price discriminate more finely. Despite some ticket price rises, the overall effect of television at this point was a steep revenue loss to the Hollywood studios.

Third, to cope with the losses in revenue due to falling theatrical attendance, film production in Hollywood changed considerably (Stuart, 1982). American studios were already undergoing changes as a result of the divorcement of exhibition from production and distribution due to antitrust litigation from the Paramount case. Most studios shifted from the 'stock company' mode which meant extended contracts with creative and other personnel, to a 'per-picture' mode in which separate short term contracts were made for each individual film. This resulted in a great reduction of fixed costs (Stuart, 1982). In Europe, government subsidies stepped in to save their film industries; nearly a quarter of a film's budget could be expected to come from such sources (Sorlin, 1991). Waterman (2005) notes that TV raised the risk levels in the movie industry as studios increased production budgets in their scramble to differentiate their movies from television programs. Stuart (1982) also documents that studios experimented with various alternate film projection formats that would enhance the film viewing experience.

In the near term television has a negative effect on film admissions and therefore on film industry revenues as it attracts audiences away from theaters (Spraos, 1962; Stuart, 1982). In the

long term the presence of television allows for finer intertemporal price discrimination, i.e., films are exhibited in separate windows of time to audiences depending on the price that the specific segment of the audience is willing to pay. Thus starting with theatrical exhibition, the film winds its way through premium pay-per-view channels on cable, followed by home video, basic cable and finally ends up on broadcast television, mopping up revenues from every segment along the way (Waterman, 2005). This allowed the studios to price discriminate more efficiently than the earlier system of   higher and lower-run theaters This windowing increases film industry revenues from theatrical distribution as well because it allows for cinema ticket prices to be increased catering to the highest value demand (Waterman, 2005). The diffusion of television thus generates new revenue streams which are more lucrative to the film industry than revenues from broadcast advertising. These services ensured an inflow of revenues to the Hollywood studios which resulted in the production of higher quality films that eventually attracted more audiences to the theaters (Waterman, 2005). Waterman (2005), and Illott (1996), note that broadcast television is an inefficient means of returning revenues to the film industry compared to other technologies such as pay-cable.

The revenues from these other streams can play a crucial role in giving films from such markets a competitive advantage when it comes to trade (see Waterman and Jayakar, 2000; Lee, 2002), i.e., countries with well developed home video, cable, and pay-cable markets are able to produce films  with larger budgets.. These expensively produced films attract audiences into theaters, have a higher share of their domestic market and also earn higher export revenues than films produced at lower budgets in countries that have less developed non theatrical markets. Non-theatrical revenues can thus stimulate theater admissions.

These effects were documented in the US, which has been a lower importer of films than European countries. Higher importers of films, such as Italy, for instance, documented another effect of television on the film industry, i.e., the effect on market share of domestic films.  The reduction in theatrical revenues had an effect on market share of domestic films. Sorlin (1996), notes that the size of the Italian theatrical audience in the 1990s had shrunk to a fifth of its size in 1960. As the audience shrank, he observes that American films became more and more popular in the theaters. When the Italian home market shrank in relation to the American home market because of the arrival of TV, Italian film budgets dropped compared to Hollywood films, and the more expensive Hollywood films gained a further advantage in the Italian market. This result is in line with home market model research.

Spraos (1962) also observed that in the initial phase after the introduction of television, theatrical admissions did not steeply decline. He attributed this to the diffusion of television among the rich who did not form a bulk of the theatrical audience. It is only when working class families were able to afford television that theatrical admissions took a steep fall.

Thus from  past research we learn that television diffusion has a negative effect on film industry revenues in the near term, but in the long term, technologies based on television provide additional revenue sources to film industries.

Additionally, in international markets, a fifth effect was seen, the reduction in theatrical revenues had an effect on market share. We see from the example of Italy where Sorlin (1996) notes that the size of the theatrical audience in the 1990s had shrunk to a fifth of its size in 1960. As the audience shrank, he observes that American films became more and more popular in the theaters. This result is as the home market model would predict. When the Italian home market

shrank in relation to the American home market because of the arrival of TV, Hollywood films

gained a further advantage in the Italian market.

## *2.4. Conclusion*

The home market model (Waterman, 1988; Hoskins and Mirrus, 1988; and Wildman and

Siwek, 1988)  and Shaked and Sutton's (1987) theory of endogenous fixed costs are in

agreement about market size being a key variable that affects product quality and variety in

markets with high fixed costs. The home market model further predicts that larger markets have

higher exports than smaller markets. Two observations can be made about the empirical studies

in the literature based on the home market model. First, the literature  documents the anomalous

position of India in the international film trade.  When we consider this theoretical framework

and apply it to the fact that Indian films are produced in multiple regional languages, we are

provided with a new opportunity to empirically analyze the effect of market size on film

production and exports in a unique new context which thus far has been documented to be at

odds with theoretical predictions.  To date the effect of the fragmentation of the Indian film

market into multiple regional language markets on Indian film exports has not been examined.

Second, while Wildman and Siwek (1988) emphasize the importance of *linguistic* markets, most

studies examine national markets rather than linguistic markets.  For the most part this approach

is useful since most national markets are united by a single language. However, an examination

of the Indian language film markets gives us a unique opportunity to examine the evidence for

Wildman and Siwek's (1988) prediction about the importance of linguistic market size to the

media trade.

This leads us to ask 1) 'What are the factors that explain the unusual pattern of the

combination of domestic dominance and international insignificance of the Indian film

industry?' And 2) 'What are the implications of film production in multiple languages for the Indian film trade?' These are the research questions that the empirical analysis in Chapter 4 seeks to answer.

Internationally, television appears to have negative effects on theatrical film revenues in the short term, but in the long term, the film industry is able to increase its revenues through price discrimination as in the case of the US. In some countries, such as Italy, television penetration led to lowered theatrical revenues and falling domestic film production, resulting in an increase in Hollywood imports. This leads to the third research question 3) 'How has the diffusion of broadcast television affected the Indian film industry compared to the film industry in other countries? This is the research question that the empirical analysis in Chapter 5 seeks to answer.

In the next chapter — Chapter 3, I present background information on 1) the Indian film industry, and 2) the introduction of television in India to cast some light on the unique history, policy and film market structure in India which will aid us in understanding the specific context for the empirical analyses in Chapters 4 and 5 and also in interpreting the results of these analyses.

## *Chapter 3 ─ Overview of Indian Film Markets: History, Market Structure, Policy, and the Introduction of Television*

This chapter describes the historical development of the Indian film industries, film industry structure, film policy, and the diffusion of television in India to provide an overview of the context of film production in India before we move to the empirical analyses of the later chapters.

Issues related to the historical development of the Indian film industry through the two world wars, the coming of sound, the partition of India and the role played by the linguistic reorganization of Indian states are described in the first part of the chapter. The second part of the chapter examines the film market structure and the nature of Indian film financing. Genres of Indian films are discussed – Indian films belong to a distinct cinematic tradition which includes the formula of "big star, eight hit songs, several dances" that sets them apart from their more successful Hollywood counterparts. The third part of the chapter describes the nature of government support for the film industry, both direct and indirect, at the national and state level. We also take note of the disdain for popular cinema and the birth of the New Indian cinema in this part. Further, the extent of Indian government support is contrasted with the extent of European subsidies to film industries.

The introduction of television in India with respect to its timing and Government control is examined in the fourth and final part of this chapter. This part also addresses the arrival of video and cable to the Indian market and describes the current sources of revenue to the Indian industry. The extent of piracy and changes in theatrical exhibition that have followed the arrival of television are also described in this part.

## 3.1. Historical development of Indian film markets

Certain key milestones standout in the early history of cinema in India. First, from the very beginning, the big cities such as Bombay, Calcutta and Madras were the main centers of film production. The first film showing in India took place in 1896 at Bombay. Silent film production in India began soon afterwards. Barnouw and Krishnaswamy's (1980) book *Indian Film* is widely considered to be the authoritative source on Indian film history[8]. I turn to this source for the origins of Indian language film production. Initially, short films of topical interest were produced by Harischandra Bhatvadekar in Bombay in the years 1897-1903. Simultaneously, the new technology spread to Calcutta where Hiralal Sen filmed and exhibited sections of plays in 1898. Full length feature film production began in India in 1913 in Bombay. The first full length feature film produced in India, called *Raja Harischandra*, was directed and produced by DG Phalke. By 1921, Calcutta had produced its first feature film, *England Returned*, directed by Dhiren Ganguly. Film production quickly spread to Madras, Kolhapur, Hyderabad, Lucknow, Gaya, Delhi, Ahmedabad, Peshawar, Secunderabad, and Nagercoil by the 1930s.

Second, from its inception, Indian film production captured a uniquely Indian flavor. We see this in the descriptions offered by Barnouw and Krishnaswamy. They note that Bhatavadekar's short films produced in Bombay included wrestling matches, the training of performing monkeys, the return of an Indian scholar from Britain and celebratory events in New Delhi from the coronation of Edward VII. Phalke's feature film was based on the legend of an Indian king who was prepared to sacrifice everything he had, including his family, for the cause

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8 Many other authors including Yves Thoraval in his Cinemas of India (2000) rely heavily on Barnouw and Krishnaswamy's seminal work.

of truth.  Ganguly's film revolved around the manners of anglicized Indians.  These silent films carried subtitles in the English, Hindi, Tamil or Telugu languages depending on the region of the sub-continental film market which included Pakistan, Bangladesh, Myanmar, and Sri Lanka.

Third, both world wars proved to be beneficial to the Indian film industry. WWI resulted in rapid urbanization that consolidated Indian audiences in easily reached urban areas (Armes, 1987).  As Armes (1987) notes, "Phalke arrived at a propitious moment. World War I led to an upsurge in industrialization, triggered by the needs of the war effort and by increased import difficulties. This rapid industrialization led in turn to an enormous urban working class, which was to form the bulk of the cinema's audience. Indian capital made profits that could be invested in cinema, where popular audience demand outstripped local product availability" (p.106-107). WWII had an even more direct effect in the form of increased investment in film production by war-time speculators (Armes, 1987). Armes (1987) notes the following, "Economically, however the war years were also a period of greed and speculation, as rapidly increasing industrialization led to vast undeclared 'black' profits for the unscrupulous few. A favorite area for the reinvestment of this black money was the film industry, which quickly became a place of secret cash payments and concealed financial deals" (p. 113). This is a markedly different situation from what happened in Europe where Guback (1969) notes that the war effort halted film production.

### 3.1.1. The coming of sound

Sound films arrived in Indian in 1929 with *The Melody of Love*, a Hollywood production from Universal Pictures.  Most countries produced their first feature films with sound around this time, Germany and France produced their first sound features in 1929, Italy's first sound film was produced in 1930 and Japan's in 1931 ("100 Years of Cinema").   While the coming of sound led to the decline of many smaller European film industries such as the Scandinavian film

industry (see Guback, 1969), in India it led to the inception of new film industries in the various languages in India.  This technological change laid the foundation for regional film markets.

Barnouw and Krishnaswamy (1980) refer to the events following the introduction of sound as the '*Discord of Tongues'*.  Sound film production began in India in 1931 with the release of *Alam Ara*, a Hindi language film produced by Ardeshir Irani in Bombay. Older production companies closed down, but new production companies geared for sound appeared on the scene.  The large sub-continental audience was replaced by a mosaic of smaller linguistic audiences, the largest of which was 140 million Hindi speakers, followed by the Bengali (53 million), Telugu (28 million), Marathi (21 million), Tamil (20 million +), Punjabi (15 million), Gujarati and Kannada (11 million each), Malayalam (9 million), Assamese and Oriya (2 million each) and Kashmiri (1 million) populations. (Chatterji (1945) cited in Barnouw and Krishnaswamy, 1980).

A close examination of the years when film production started in various languages shows that regional language film production began earlier in languages that had larger populations. For instance, records of the CBFC reveal that film production in the Tamil and Bengali languages started in 1931 and was soon followed by Telugu, Marathi and Gujarati language production in 1932. Kannada language production started in 1934, Punjabi and Assamese production in 1935, Oriya production in 1936 and Malayalam production in 1938. Within eight years of the arrival of sound, film production had commenced in 11 languages which in the next seventy-five years produced approximately 97% of all the films produced in India. In other words, the most prolific industries all got their start in the first decade of the beginning of sound film product.  An entire decade passed by before the next wave of production

in other languages began, the first Konkani film was released in 1950, followed by Sindhi

(1958), Rajasthani (1961), Bhojpuri (1962) and Manipuri (1972).

### 3.1.2.Partition

Barnouw and Krishnaswamy (1980) note that in 1947 when India achieved

independence,  and was partitioned, Bengali cinema lost access to 40% of its audience which

was in Bangladesh (then known as East Pakistan). The eastern part of Bengal was carved up into

East Pakistan (now Bangladesh) and resulted in the loss of a large part of the Bengali film

audience. Pakistan did not hesitate to impose import duties on Bengali films from India. The

Indian government also imposed re-import duties when the films returned after exhibition.

Differences in exchange rates and protectionist measures from Pakistan for its fledgling film

industry further contributed to the downfall of the Bengali film industry in Calcutta. In the

ensuing decay, there was a flight of intellectual capital to the other centers like Bombay. The

Punjabi film industry was similarly affected by the partition of India, when its western districts

became a part of Pakistan.

### 3.1.3.Linguistic nationalism

India is different from most film producing countries because of the sheer diversity of

languages spoken by its citizens. The eighth schedule of the Indian constitution lists twenty-two

official languages (Constitution of India, 2008).  Within the first decade of Indian independence,

Indian states were reorganized on a linguistic basis. According to (Guha, 2007), "The

movements for linguistic states revealed an extraordinary depth of popular feeling. For

Kannadigas and Andhras, for Oriyas and Maharashtrians, language proved a more powerful

marker of identity than caste or religion. This was manifest in their struggles and in their

behavior when the struggle was won. One sign of this was official patronage of the arts. Thus

great effort, and cash, went into funding books, plays and films written or performed in the official language of the state" (p. 207).

In Tamil Nadu, linguistic nationalism was closely tied to films. In the decade of the 1940s, political developments had an important effect on the film industry in Madras. According to Barnouw and Krishnaswamy, the rise of 'southern linguistic nationalism' in the years after WWII was a factor that was exploited well by the Madras film industry. They note that the Dravidian movement started in the 1930s as a move by Tamil speakers to free themselves from the tyranny of the caste structure which put Brahmins at the top of the social hierarchy, thus everything that was Brahmin had to go, including the use of Sanskrit and its modern day successor – Hindi. By the 1950s, a number of people involved in this movement were working in the film industry, they successfully introduced its symbolism and ideology into many of the films which were popular at the time, and further, stars who had been co-opted into the movement led huge public rallies against the 'imposition' of Hindi as a national language as India gained its independence in 1947 (Barnouw and Krishnaswamy, 1980).

### 3.2. Film market structure

The effect of India's linguistic heterogeneity is seen in its film markets. To cater to these different language groups, Indian cinema is produced in various languages in different centers[9]. Hindi cinema is the closest that India has in terms of a national cinema. It reaches out to the largest group of language speakers—nearly 330 million Hindi speakers[10] living in eight states of the country — but even so large a linguistic group forms only 40% of the national population. Production in about fifteen languages has been consistent over the years (as seen from Censor

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[9] Indian films have been made in approximately 67 languages to date (calculated from censor board figures).

[10] Hindi cinema also reaches an additional 40 million speakers of the Urdu language which is noted to be a closely related language to Hindi.

Board statistics). The arrival of sound in Indian cinema is widely considered to be the seminal event that triggered production in many languages (Shah 1950; Thoraval, 2000).

Output in some individual Indian languages is in the same league if not considerably higher than in some of the historic film producing countries. In 2005, the largest numbers of Indian films were produced in Telugu (268 films), Hindi (245 films), Tamil (136 films), Kannada (81 films) and Malayalam (67 films). In comparison, the national outputs of European countries were – France (240 films), UK (131 films), Germany (103 films), and Italy (98 films) in the same year.

Table 3.1 shows economic and demographic characteristics of the four Indian states with the highest film production. In terms of economic indicators, these four states, i.e., Andhra Pradesh, Tamil Nadu, Karnataka, and Kerala have a joint Gross State Domestic Product that adds up to 22% of the Indian Gross Domestic Product. When it comes to exhibition infrastructure, these four states far outstripped the other states in terms of number of cinemas and seats as long ago as 1959 (Jain, 1960). By 1997 these states had 7,847 theaters out of the national total of 12,804 theaters (61%) according to Pendakur (2003). These figures illustrate the effect of size and wealth of markets on film production.

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### 3.2.1. Film Finance

Barnouw and Krishnaswamy (1980) note that in the early days of Indian cinema, films were produced in a studio system where all cast and crew members were employees of movie production studios (similar to the 'stock company' model that was prevalent in Hollywood). World War II changed this system of production as war-time speculation led to a rush of capital into the film industry. Talent was enticed away from studios leading to an eventual collapse of the studio system. So rather than retain cast and crew on a salary basis, Indian films began to be

produced on a 'per picture' basis. Indian film production today is characterized by decentralization (Ganti, 2004). As she notes, "Each Hindi film is made by a team of people who operate as independent contractors or freelancers and work together on a particular project rather than being permanent employees of a particular production company" (p. 54-55).

In addition to a decentralized mode of production, the other well known and much lamented characteristic of the Indian film industry is its reliance on 'not- entirely- legitimate' sources of funding . Barnouw and Krishnaswamy (1980) note that cast and crew began to accept cash payments from war-time speculators because they had the dual benefit of being able to conceal it from the tax authorities as well as the satisfaction that they were contributing to the freedom struggle by not paying taxes to a colonizing authority. This system of 'black money' has continued into this century. "It's mysterious where the money comes from and who's paid what. And you have no clue as to what are the revenues." (Prithvi Haldea, managing director of Prime Data Base, a New Delhi-based company that tracks corporate fund-raising, cited in Dugger, 2007). The lack of access to institutional lending and its attendant benefits has led to allegations of the involvement of organized crime (Dugger, 2001). This affects our study of the economics of the Indian film industry because budget and revenue figures are impossible to come by. When figures are made available as in trade reports, they are clearly noted to be estimates.

Until 1998, Indian films could not borrow money from banks and other lending organizations due to government policy (Chatterjee, 1999). In 1998, the film industry was granted 'industry status' and the Reserve Bank of India added film production to its list of industries that could attract public sector lenders (Dugger, 2001). This led to capital in-flows that had previously not existed. By 2004, the Film and Television Producers' Guild of India (Kheterpal, 2005) estimated that about a third of Hindi films in production in that year were

being financed by 'Non-Traditional Financing Sources' including banks and music companies (in other words, corporate sources), while the other two-thirds continued to be financed through pre-release rights sales to distributors and high interest loans from private financiers.

## 3.3. Genre

Scholars of Indian cinema agree that Indian films are very different from their foreign counterparts. Indian films appear to be a mixture of genres, with elements of romance, action, song and dance routines, family drama and comedy all evident in the same film. These films are known locally as '*masala*' films ( '*masala*' translates to 'spice mixture'. '*Masala*' films are made in all the regional centers of film production. As Pendakur (2003) explains, "*Masala* is an appropriate metaphor to analyze India's popular cinema because it draws attention to the variety of ingredients that make up the basic narrative structure of the popular film" (p. 95).

In addition to the 'masala' metaphor, another well-known description of the type of films made in India is Barnouw and Krishnaswamy's (1980) "big star, eight hit songs, several dances" formula. In their history of Indian film, Barnouw and Krishnaswamy (1980) trace the development of this formula. They note that wartime rationing reduced theater construction leading to a shift in the power structure, with exhibitors and distributors having more bargaining power than producers. Coupled with an inflow of capital into the production sector, they argue that this led to the development of the formula film as demanded by the distributors and the exhibitors. This style of film-making is still popular.

In broad genre terms, Indian films can be divided into popular, commercially oriented films, and niche art house films. The niche art house films are exceedingly popular at film festivals nationally and internationally, but they struggle to find a theatrical audience at home in India. Most of these art house films were able to reach their Indian viewers mainly through

public television (Ghose, 2005). It is the commercial cinema that is popular with the theatrical audiences. In this section I focus on the commercial Indian cinema.

In general, scholars of Indian cinema agree that Indian films are very different from their foreign counterparts. Indian films trace their influences from a variety of forces including the Hindu epics, classical Indian theatre, folk theater, Parsi theater, Hollywood and more recently music television (Gokulsing and Dissanayake, 1998). Gokulsing and Dissanayake (1998) also hold that these six forces have lead to a cinematic style that is characterized by a lack of realism, prevalence of fantasy, exaggerated acting, melodrama, flashy camera use, obtrusive editing, common use of stereotype, centrality of music, songs sung by playback singers and spectacular dance sequences. This is echoed by Gopalan (2002) who notes that, "For the uninitiated, most commentators will list implausible twists and turns in plots, excessive melodrama, loud song and dance sequences, and lengthy narrative as having tremendous mass appeal, but little critical value" (p. 4).

Roy Armes (1987) argues that this unique product developed as a result of local market conditions at the time of the arrival of sound. According to him "The potential Hindi-speaking audience was by far the largest numbering some 140 million, but it remained less than half the total Indian population. It is perhaps for this reason that producers devised the distinctive form of the Indian song and dance film: even if the dialogue was ill comprehended, the music and dance could have a direct impact. Of course musical films were popular everywhere during the early years of sound (especially in Europe which had its own language problems). But only in India did this genre become the *sole* form of cinema…" (Armes, 1987, p. 111, author's italics).

Armes (1987) further holds that this uniqueness of Indian films may have acted as a barrier against imported films. As he observes,  "This development set Indian cinema apart from

what happened elsewhere in world cinema and no doubt accounts in part for the loyalty of Indian audiences  to their own local productions and the increasing difficulties that imported films experienced in reaching a mass audience outside the expensive first-run cinemas in the major colonial cities" (Armes, 1987 p. 111).

The prevalence of song and dance sequences, the high melodrama, the emphasis on the family and the three hour duration[11] are all hallmarks of the Indian cinematic style. Regarding the form of the Indian film Prasad (1998) says, "At its most stable, this form included a version of the romance narrative, a comedy track, an average of six songs per film, as well as a range of familiar character types. Narrative closure usually consisted in the restoration of a threatened moral/social order by the hero. This form was flexible enough to include a wide range of contingent elements, including references to topical issues, and propaganda for the government's social welfare measure (to please the censors)," (Prasad, 1998, p. 31). Dickey (1993) notes that,

> **"The songs and dances in Tamil movies, as in some western musicals, rarely fit into the straightforward flow of the movie story. Outsiders find them to be one of the most striking features of Indian cinema. As the story progresses, the hero and heroine suddenly find themselves singing and dancing in a scene whose location and meaning appear to have nothing to do with the story" (p. 59).**

Gopalan (2002) further highlights the points of difference between Indian and American films when she notes that, "Halting the film at the interval, cutting away for a song and dance sequence, or censoring scenes that are deemed explicitly sexual or overtly violent, popular Indian films rail against the perceived naturalized, internally coherent form of the American studio genres, underscoring the national characteristic of both kinds of cinemas" p. 181.

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[11] Indian films are at least three hours long and have an interval about halfway through for patrons to get a snack, get up to walk around and stretch, or use the restroom.

In genre terms, Indian films appear to be a mixture of genres, with elements of romance, action, song and dance routines, family drama and comedy all evident in the same film. Dickey (1993) has this to say about the mixture of genres in Tamil films,

> **"Over the years several broad types of Tamil movies have appeared. These include socials, historicals and mythologicals to name a few. Other categories can be cited – romance, suspense and comedy – but the basic Tamil 'masala' movie is such a combination of elements that it is largely impossible to categorize movies except in the widest sense. All stories involve romance, social conflict, suspense, and humor" (p. 60).**

She also notes the audience's appreciation of this combination of elements when she says that, "The audience – who expect a variety show – appreciate each segment for its individual merits, and the popularity of any single segment may be enough to ensure the success of the entire movie" (p. 58).

## 3.4. Film policy

We see the direct and indirect hand of film policy in India both at the central (federal) and state government levels. Unlike in the European countries where the national film policy was designed specifically to support the domestic film industry, Indian film policy at the centre was motivated to a great extent by other general issues such as foreign exchange shortages. State governments in India have generally pursued policies which protected cinema in their native languages through taxes and also supported production and exhibition facilities for films produced in their state.

### 3.4.1. Foreign exchange shortage — indirect support to the Indian film industry at the national level

After independence from the British in 1947, the Indian Government put in place various measures designed to combat the shortage of foreign exchange it faced. One of those measures

was a move to limit the foreign exchange that Hollywood companies could repatriate. This was

done in four ways: first, film importers or their trade associations had to sign agreements with

the Government of India; second, film imports were regulated through a quota and were

canalized[12] through a government department; third, film import companies could not repatriate

the entire amount of their revenues — some part of the revenues were held in India in the form

of 'blocked funds' which had to be spent in India and required the Indian government's approval,

and fourth, imported films could not be dubbed into Indian languages (Pendakur, 1985)[13].

Hollywood estimated that revenues worth US\$ 80-300 million dollars were lost because of these

conditions (National Trade Estimate, 1997).

In 1991, the Indian economy was liberalised, and conditions that had been used to limit

the presence of film importers were lifted (Agreement, 1992). Customs duties and censorship[14]

are much lower than the historical efforts to do so. Prior to 1991, India ranked 44th in the list of

Hollywood studio revenues from international markets (Das & Bijoy, 2005). In the decade and a

half after this policy change, India has become the 15th largest market for Hollywood films and

ranks in the top five Asian markets that include Japan, Thailand, South Korea and Singapore

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12 Canalized goods: "India's import policy is administered by means of a negative list. The negative list is divided into three categories: (1) banned or prohibited items (tallow, fat, and oils of animal origin); (2) restricted items which require an import license, including all consumer goods (as defined in the "tariffs" section), such as instant print cameras, distilled spirits, canned soup, vegetable juice, seeds, plants, animals, insecticides, pesticides, electronic items and components, chemicals and pharmaceuticals, and a wide variety of other items; and (3) "canalized" items importable only by government trading monopolies (bulk agricultural commodities) and subject to cabinet approval regarding timing and quantity" (National Trade Estimate, 1997, p. 159)

[13] When the central government introduced measures that directly supported the film industries, it did so with the express aim of promoting artistic cinema which was very different from the popular commercially oriented cinema.

[14] Censor certificates for all films on television are required to be of the universal viewing level, i.e. appropriate for all ages. Censor certificates in India are U – universal viewing and A – adults only, i.e. ages 18 upwards.

(Pillai, 2004). Hollywood studios earned approximately US$ 57.3 million (Rs 250 crores @ Rs 43.6 per US$) in 2004 from India ("Hollywood studios", 2005)

The change in policy that allowed free entry of films from Hollywood clearly increased absolute revenues to Hollywood as indicated by India's upward movement on Hollywood's list of top revenue earners, but in relative terms, Indian films continued to take a dominant share of the Indian film market. The years after 1991 were a time for tremendous growth in India's GDP and it is possible to speculate that while Hollywood studio revenues increased because of the dismantling of trade barriers, revenues to Indian films increased simultaneously, thus continuing the earlier pattern of domestic dominance.

### 3.4.2. Infrastructure — indirect support to the Indian film industry at the state level

State governments support popular cinema produced in the regional language native to the state in both the exhibition and production sectors.  At the exhibition level, entertainment tax is levied on every cinema ticket that is sold. Films produced in the native language typically attract the lowest rate (South Indian Cinema, 2007).  State governments support the production sector through the construction and maintenance of production facilities, including studio lots, editing and sound mixing facilities (Thoraval, 2000). Clearly India's policy both at the centre and the state level favors domestic, mainly regional films.

### 3.4.3. Disdain for films

Looking back to the early days of film production in India we find a disdain for films and the film industry from the social and political elites.  Although Barnouw and Krishnaswamy (1980) note that the earliest shows of the cinematograph "attracted mainly British residents, along with a few Indians "of the educated classes" – especially those who identified their interests with those of the British." (p. 6), films were soon classed with the other performing arts such as theater and dance, which had "lost their standing and become a domain of the degraded

castes, the occupation of prostitutes" (p.13). This social disapproval ran so deep that "For Phalke, all this simply meant that no decent Indian woman would think of acting in a film…he approached several prostitutes but none would consider the prospect" (Barnouw and Krishnaswamy, 1980, p. 13-14). Eventually Phalke cast a man to play the female lead in his film.

Three decades after the cinematograph had arrived in India, in the late 1920s, changes were slowly taking place. In 1927, when the Indian Cinematograph Committee was appointed, it found that "women filmgoers were scarce in the south and in Muslim areas of the north but were increasingly evident in cities" (p.47). Barnouw and Krishnaswamy (1980) note that "In Calcutta, a few ladies "of the better classes" had taken part in films…but some producers drew on women from the "prostitute and dancing girl class, who had apparently lost their early reluctance toward the cinematograph" (p. 49). It was only as late as 1932 that Durga Khote, a high-caste Indian woman debuted in a remake of Phalke's 1913 film (Barnouw and Krishnaswamy, 1980). Ironically, she played the lead role that was played by a man in Phalke's first film.

Guha (2007) notes that none of the Indian leaders of the freedom movement including Gandhi, Nehru and Sardar Patel went to the movies. Gandhi himself documented his views on cinema, he notes that he only went to one film, and calls it a "depressing experience" and "a sheer waste of time" (Collected Works of Mahatma Gandhi, n.d., vol. 95: 380 cited in Jeffrey, 2006). Guha (2007) goes on to note that when these leaders were elected as ministers after the end of British rule, they spoke out against the film industry.

### 3.4.4. The New Indian cinema

Any support to the film industry from the Indian government was indirect, for instance, the shortage of foreign currency reserves led the government to restrict Hollywood's revenues in India, thus indirectly favoring the growth of the Indian film industry. When the central and individual state governments did support film production, it was done through the creation of

infrastructure for film production and exhibition. The Indian Government set up the Film and Television Institute of India, National Film Archive of India, the Film Finance Corporation of India and the Indian Motion Picture Export Association (Armes, 1987). The Film Finance Corporation and the Indian Motion Picture Export Association later merged to form the National Film Development Corporation.

Popular Indian cinema did not receive any direct support from the government, either at the central or state government levels. When film production did receive direct Government support, it led to the creation of the 'New Indian' cinema. Through the National Film Development Corporation (NFDC), the central government has provided funding and even produced films. Support from the NFDC extended only to the "parallel cinema" or "art cinema" category and not to the popular "commercial films". As Armes (1987) notes, "Underlying this new cinema is total hostility towards the commercial industry…" (p.122). The New Indian Cinema was not popular at the box office, as Roy Armes (1987) observes "On the rare occasions when governments have become culturally involved with film (as in India with the National Film Development Corporation), the result is usually the creation of a hybrid product — part indigenous, part westernized — that no longer corresponds to local audience tastes" (p. 41).

### 3.4.5.Indian government support for film production compared to Europe

The extent of the Indian government's support for cinema is better understood when it is contrasted with the situation in European countries. Abert Moran (1996) notes that "The general pattern is evident: national governments across the world in recent times have in varying degrees been involved in promoting and supporting their national production industries." (p. 7). For instance in France as early as the 1950s culture industries became an important part of the public debate resulting in exhibition quotas as well as funds to support films by directors who were successful at the box office (Gimello-Mesplomb, 2006). According to a report by the

Copenhagen Think Tank, EU-wide subsidies totaled 6.5 billion euros from 2002-2005, supporting 3,600 films in all. The European Audiovisual Observatory notes that 600 film support programs exist in the EU as a whole and the top five countries that support film production are France, UK, Germany, Italy, and Spain ( Broche, Chatterjee, Orssich and Tosics, 2007). Against this background, a closer examination of the actual numbers of films supported by the NFDC reveals that in all its years the NFDC only supported about 300 films (NFDC, n.d). From the beginning of sound films in India, over 35,000 films were produced, i.e.,NFDC has supported less than 1% of Indian film production. Thus compared to the direct support for film production in other countries, we can conclude that government support for popular film production in India has been relatively mild and indirect.

### 3.5. *Past research on the economics of the Indian film industry*

As noted before, the economics of the Indian film industry has not attracted research attention in its own right. Various scholars have described the economic forces to provide some background, but these forces have generally escaped analysis. The work of Jain (1960), Oomen and Joseph (1981), Mittal (1995) and Pendakur (1985, 1989, 1990, 1992, 2003) are the exceptions that have focused on economic issues related to the Indian film industry.

Jain's (1960) dissertation published in book form revolves around the Hindi film industry based in Mumbai, its labor practices, censorship, access to film stock and policy so on. Its main contribution is as a document of practices in the Bombay film industry of its time. Oomen and Joseph (1981), in their monograph, examine the cost structure of film production in the Malayalam language film industry (Kerala state). They model the relationship between production cost and theatrical exhibition earnings and conclude that greater theatrical earnings arise, among other things, from higher actor expenditure and marketing expenditure.

Additionally, they observe that in the 1970s Indian films were popular among audiences of Indian origin outside India and were in general unable to appeal to other audiences. They note that Hindi and Tamil films appeared to be popular exports. They observe that in the 1970s theaters in Kerala were mainly in the rural rather than in the urban areas, and that tax evasion was rampant in the cinema theaters.

Mittal's (1995) book deals primarily with the taxation of cinema tickets and the length of the theatrical exhibition window. He estimates that cinema tickets in India were becoming cheaper compared to other consumer products and concludes that cinema ticket prices in India depend on the film, the theater and the class of ticket.

Jain (1960), Oomen and Joseph (1981) and Mittal (1995), all note the difficulties of writing about the economics of Indian films because of the secrecy surrounding cost and revenue data and the absence of official statistics relating to the same.

Pendakur's (1985, 1989, 1990, 1992, 2003) work deals with Indian film policy and the political economy of the relationships that govern the Indian film industry. Pendakur (1985) examines the political economy of the import of Hollywood films into India. He provides a detailed perspective on the film import policies of the Indian government. Pendakur (1990) provides an overview of the Indian film industry and examines the role of the Indian government in creating the New Indian Cinema. Pendakur (1992) examines the development of the new artistic cinema in Karnataka state and identifies the structural and policy positions that stunted the development of this cinema. Pendakur (1989) describes the tensions between television and the film industry in India and highlights the increasing success of television in drawing audiences away from theaters.

## 3.6. The Introduction of television

### 3.6.1. Timing of television introduction

Broadcasting comes under the purview of the central government in India (Chatterji, 1991). Thus the views of early policy-makers at the centre, that television was unaffordable for various reasons played an important role in the late entry of television into India. As Jeffrey (2006) notes "...The austerity of the Gandhian ethos, the conveniently restrictive policies inherited from the imperial rulers, and a fear of enflaming a delicately plural society combined to deprive Indian broadcasting of finance, energy and imagination" (pg 207). While television was introduced on an experimental basis in the capital city of New Delhi in 1959, it spread beyond the capital only in 1972 (Luthra, 1985). The diffusion of television in India did not occur in earnest until the 1980s, nearly three to four decades after the US, UK, France, and Japan. The 1982 Asian Games held in New Delhi are widely considered to be a turning point (like the 1953 coronation in the UK) when Indian television ownership gained momentum (Chatterji, 1991). At this time approximately two million Indian households owned television sets (UNESCO statistics).

### 3.6.2. Government control of broadcasting

The government broadcaster Doordarshan was constrained by government funding. This affected the programming budgets available for purchase of film rights and the development of television programming in the many regional languages. Films had to complete their theatrical tours before they were offered to the broadcaster. In the 1970s and 1980s, the broadcast window typically came after five years of the initial theatrical release (Chatterji, 1991).

Constraints on funding also may have played a role in the lack of development of television programming in the many regional languages. Before 1991, regional language

television program content was as low as 24% of the total weekly broadcast time in most states. As Ninan (1995) noted, "… The craze for expansion of the network has at no stage been accompanied by a matching development of software with the result that much of the country receives television which is in a language that they are not familiar with and which has a distinct Delhi-centered approach. Even till the middle of 1995 all the states had not been fully covered by a regional language service" (p. 30). Chatterjee (1991) cites from a 1985 Audience Research Unit of Doordarshan report that "Regional language programmes get approximately 24%, except in Madras where Tamil gets pride of place with 40%"(pg 151). We can speculate that lack of access to programming in regional languages may have slowed the rate of diffusion of television in its early stages in India.

We get a sense of the kinds of programs offered on Indian television from Doordarshan's transmission schedules for three stations – New Delhi, Hyderabad (Andhra Pradesh state) and Bangalore (Karnataka state). These schedules are included in the appendices 3.1-3. Transmission was restricted to a few hours on weekday evenings and all day on Sunday. Regional language programs constituted a minor share of all the programs transmitted. Programming from New Delhi was mainly in Hindi and occasionally in English. Films were scheduled on weekends. The programming mainly consisted of panel discussions, documentaries, news and folk dances. The national network programming from New Delhi carried Hindi language soap operas and drama programming during primetime.

### 3.6.3. Video

VCRs entered the country in the early 1980s and drew viewers away from the theaters. As Agrawal (1986) reports, "The single most important use of the VCR is for viewing commercial films…regardless of the stated intention for buying a VCR, sooner or later it will be

used for viewing film" (pg 31). This view is supported by other authors such as Ninan (1995).

However, unlike in other countries, home video currently only contributes about 6% to the film

industry's revenues because of the high rate of piracy (FICCI, 2007).

### 3.6.4.Cable in India

In the late eighties, early faceless entrepreneurs popularly referred to as *cablewallahs* or

cable operators laid the infrastructure for cable networks in urban areas. Chatterji (1991) noted

that "Nearly 75 percent of the networks operate in Bombay and the western zone, 12 percent in

the north, 4 percent in the east and 10 percent in the south…" (p. 220). According to an early

study, "A careful analysis of so called cable television systems reveals that they are nothing

more than video distribution systems from a single VCR in multi-storeyed apartments"

(Agrawal, 1986, p. 32). The signal quality of these generic, local channels was poor because

pirated copies of movies were often used. Their schedules were not available in the newspapers

and they appeared to follow the whims of the operators.

A 1989 study commissioned by Doordarshan found that cable television reached 225,000

households in that year (Chatterji, 1991). The early offerings on cable were films. "Since 1991

local cable systems have proliferated in the cities, most of them offering a channel consisting of

only films, three or four a day. Many families however poor pay Rs 30 to Rs 100 a month extra

to receive this additional dose of fantasy" (Ninan, 1995, p. 86). Of these audiences Chatterji

(1991) notes that, "The chief motive for subscribing to a network is to get more entertainment

and entertainment means mainly viewing Hindi feature films" (p. 221). To the Indian film

industry, films on cable were highly unwelcome because of the dual problem of admission

revenue loss in theaters and revenue loss from copyright violation on video (Chatterji, 1991 pg

220).

By the time satellite delivered channels entered India in 1991, the number of television households had increased to 15 million (ITU, 2000). These channels such as STAR TV, Zee TV, Sun TV, etc were owned by well known media corporations and were distributed over the existing cable networks[15]. They carried original entertainment programming such as soap operas, sitcoms, etc., as well as legally contracted movies and advertising meant for the national market. The program schedules of these channels were available in newspapers as well as promoted on the channels themselves. The entrepreneurs who owned the cable infrastructure thus acted as distributors of the big name branded channels, but they continued their unauthorized transmissions of movies alongside.

The generic type of cable television channel consisted of unauthorized movie transmissions by cable operators, and did not result in any additional revenue to the film industry. However, the second variety consisted of brand- name satellite channels distributed over cable, and resulted in rights income to film producers and distributors at market rates (Iyer, 2008). Dedicated movie channels are distributed via cable television in India, and general entertainment channels also continue to screen films as part of their weekend schedules.

In 2006, 112 million Indian households had access to broadcast television, i.e., a penetration rate of 59% of all Indian households and cable television reached 68 million Indian households, or 36% of all Indian households (FICCI, 2007).

**3.6.5. Piracy**

The spread of both video and cable led to widespread piracy of Indian films. Legitimate home video revenues only constitute 6% of revenues to the Indian film industry (FICCI, 2007).

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[15] Due to the mode of transmission in India, cable is popularly referred to as cable and satellite television (C&S television for short). In the early days of cable, original programming on cable channels was received in India via satellite, down linked by MSOs distributed to households via cable, i.e., only the last mile used cable. Cable channels carrying original programming are still called "satellite channels" in India.

As Chatterji (1991) points out, early cable operators showed films in violation of copyright, i.e., pirated versions of films.  Piracy estimates reveal the popularity of domestic films. Indian films have been estimated to constitute 80% of all pirated films in India, while imported films only constitute 20% share (Opportunities, 2007).

### 3.6.6. Indian film industry revenues

Satellite rights are estimated to bring in more revenue to the Indian film industry than home video (Opportunities, 2007).  In southern India which is home to four of India's most productive regional language industries, 70% of a film's revenue is estimated to come from theatrical distribution, 10% each from satellite and overseas rights and 5% each from home video and music rights (South Indian Cinema, 2007). In 2005, overall Indian film industry revenues came from the following sources: domestic box office (78%), overseas box office revenues (8%), home video revenues (6%) and ancillary revenues (8%) (FICCI, 2007)[16].

Satellite and cable networks were willing to pay large amounts for the telecast rights of Indian films[17].  Cable and satellite channels have been known to pay US$ 1 to 3.5 million for cable and satellite rights for the most popular films (Adesara, 2007; Singh 2007). Considering that the budgets of high end Hindi films are in the range of US$ 1.5 to 5.6 million (budget figures from Chadha, 2006) cable and satellite rights provide an important revenue stream for successful films.

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[16] Total revenues from the Indian film industry in 2006 were estimated to be US$1.83 billion (FICCI, 2007).

[17] Additional revenue streams such as cell phone ring tones have also sprung up in the last two decades. The nineteen nineties have also been a time of growth in cell phone penetration, in 2007 there were 233 million cell phone subscribers in India compared to 255 million in the USA, 100 million in Japan, 71 million in the UK, 55 million in France and 97 million in Germany in the same year (ITU, 2007). In the Indian context of musical films, the sale of ringtones based on film music songs provide yet another revenue stream to the Indian film industries.

### 3.6.7. Short gap between broadcast and cable television introduction

A key element observed in the timing of the arrival of cable television is that the gap between the introduction of broadcast television and paid cable television in India has been very short. The long gap of approximately three decades that the other countries faced between the time of introduction of broadcast television (which is an inefficient means of revenue generation for premium content such as films) and cable television was considerably shortened in India. Thus while India lagged in the introduction of broadcast television, cable television came to India after a much shorter gap than the rest of the world. Within a decade of broadcast television spreading beyond the capital city (1972 onwards), cable television had made its initial appearance.

In terms of other distribution technologies, direct-to-home satellite television has been available since 2004 and is still in its early stages of diffusion. According to a report released by the Federation of the Indian Chambers of Commerce, direct-to-home satellite households add up to only 2 million out of the 112 million Indian television households, in percentage terms this is only 1.79% penetration of all households in India. Internet penetration is limited and the majority of connections are dial-up rather than broadband. According to statistics released by the International Telecommunications Union internet access in India was estimated to be 10.72 users per 100 inhabitants and 0.21 broadband subscribers per 100 inhabitants.

### 3.6.8. Changes in exhibition

Spraos' (1962) observation about the rise in cinema ticket prices despite the diffusion of television now extends to India as well, and is seen in the prices of multiplex cinema tickets. The multiplex boom in India started in 1997. Currently there are 325 multiplex screens in India in the urban areas mainly the four metro cities, compared to 12,000 single screen theaters (FICCI, 2007). A recent newspaper report noted that in some places large single screen theaters

which could seat up to 1000 audience members were being torn down to create multiple screen multiplex theaters with seating for 100 each. The prices at single screen cinemas range from US$ 0.50 to US$ 2.25[18], while in multiplexes the range is from US$ 2.25 to US$ 5.6[19]. Sorlin (1996) noted that in Europe, "In the early 1950s, the price of a seat could vary by a factor of one to six, fifteen years later, it varied by a factor of one to twelve".  We find that in India the comparable ratio went from 1: 4.5 to 1:11.25.

### 3.7. Conclusion

In this chapter my aim was to present an overview of the Indian film industry and policy as well as provide some background on the introduction and diffusion of television in India.

There are many factors that are unique to the Indian film industry.  First, Indian film production and its audiences are fragmented by language to a greater extent than any other film producing country. Second, Indian films belong to a cinematic tradition that is distinct from the Hollywood tradition. Third, Indian films have traditionally relied on non-institutional sources of funding that make it impossible for any budget or revenue data to be reported.   Fourth, the indirect nature of government support for the film industry at the national and state level is seen alongside a disdain for popular cinema and support for a New Indian cinema. This is in contrast to the extensive support extended to European film industries by their governments.

The Indian government's linguistic reorganization of states clearly helped Indian film industries access their linguistic markets within specific geographical areas. For an industry that depends mainly on theatrical revenues for survival, the advantages of this agglomeration are

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[18] Rs 20 to Rs 90

[19] Rs 90 to Rs 225 Source: IANS, 2007

immense, since audiences will typically patronize their local cinema theaters, thus having audiences that speak a language concentrated in a specific geographical area allows the film industry to efficiently reach its audiences in the cinema theaters. Similarly, the Indian government's import restrictions have provided an indirect form of support to Indian film industries by eliminating competition from the higher budget Hollywood imports. These restrictions were in place for more than four decades thus allowing the fledgling Indian language film industries adequate time to cultivate their audiences. The disdain for popular cinema that early Indian leaders had meant that the Indian film industry was spared official intervention and therefore generated a product that was in tune with the consumer tastes. These then are positive effects of the Indian government's policy, even though these policies were not expressly designed to aid the film industry.

The introduction of television in India was controlled by the government and broadcast television programming was in accordance with government policy. Regional language programming was limited. The gap between the spread of television and cable in the Indian market was shorter than in the rest of the world. Finally, theatrical exhibition provides the major part of the Indian film industry's revenues while video and television contribute a very small share. In the next chapter, I present the results of an empirical analysis of the relationship between regional market size and film production in Indian languages.

## Chapter 4 ― A regional mosaic: The effect of linguistic diversity on Indian film production

The aim of this chapter is to apply the home market model and the market size framework to empirical data from the various Indian film markets. The first section presents a detailed explanation of the relationships between market size, production investment and number of films produced that are predicted by the home market model. The next section lays out definitions of the measures of the variables used in the empirical analysis. The third section describes the data collected. The fourth section presents time trends, scatter plots and correlations between variables. The fifth section gives the results of the cross sectional and panel estimations obtained by applying the predictions of the home market model to the empirical data from the Indian regional language film markets. The next section is an exploratory examination of production budgets, exports, imports and genre elements seen in Indian language films. The final section presents conclusions and directions for future research.

## 4.1. The home market model of media trade

The home market model of media trade is based on early work done by Hoskins and Mirrus (1988), Wildman and Siwek (1988) and Waterman (1988). Two main assumptions are made. First, all other things being equal, audiences prefer more expensively produced media products. Second, all other things being equal, audiences prefer media products that are culturally close to them. Based on these assumptions and taking into consideration that media products enjoy economies of scale; the home market model shows that media products such as films which are produced in large markets tend to have a greater share of their own markets and export markets.

The two-country specification presented in Jayakar and Waterman (2000) based on Wildman and Siwek (1988) is used here. According to this specification, the market share of producer 'i' belonging to country 'A' is denoted by $S_{iA}$, where $I_i$ is the production investment made by that producer. 'i' takes values $1, \ldots N_A$ where $N_A$ represents the total number of films made in country A. 'd' is the cultural discount factor such that $0<d<1$.

$$S_{iA} = I_i/(\Sigma_i I_i + d\Sigma_j I_j) \qquad\qquad (1)$$

Similarly the market share of producer 'j' belonging to country 'B' is denoted by $S_{jB}$, where $I_j$ is the production investment made by that producer. 'j' takes values $1, \ldots N_B$ where $N_B$ represents the total number of films made in country B.

$$S_{iB} = dI_i/(d\Sigma_i I_i + \Sigma_j I_j) \qquad\qquad (2)$$

If $R_A$ and $R_B$ are the total consumer spending in country A and B respectively, and marginal costs are zero, then profit equations are

$$\pi_i = R_A S_{iA} + R_B S_{iB} - I_i = 0 \qquad\qquad (3)$$

$$\pi_j = R_A S_{jA} + R_B S_{jB} - I_j = 0 \qquad\qquad (4)$$

If cultural discounts are assumed to be equal and investment is symmetrical, then according to Jayakar and Waterman (2000) and Wildman and Siwek (1988), $R_A > R_B$ leads to $I_i > I_j$ and $N_A > N_B$. That is, when consumer spending in country A is greater than consumer spending in country B, 1) production investments (film budgets) in country A will be larger than production investments in country B, and 2) the number of films produced in country A will be higher than the number of films produced in country B.

These two results are examined in the context of India's regional language film markets in this chapter.

### 4.2. Variables and measures

As detailed in the section above, the independent variable in the home market model is consumer spending. The dependent variables are production investment, and number of films produced. Given the constraints on access to financial data related to Indian films discussed in the previous chapter, consumer spending and film budget data are not used in this study. In place of consumer spending, two measures of market size are used here – size of linguistic population, and Gross Domestic State Product [GSDP]. Film production is measured as the number of films that received a censor certificate from the Central Board of Film Certification [CBFC] in a year. The following table lists the variables and their definitions. Anecdotal information about film budgets is discussed in a later section.

| NO. | VARIABLE NAME | DEFINITION |
|-----|---------------|------------|
| Dependent Variable | | |
| 1 | *Regional language film production (*FILMS ) | Annual number of films produced in each language from 1931 to 2005. |
| Independent Variables | | |
| 2 | *Gross State Domestic Product (*GSDP) | Gross State Domestic Product of film producing states from 1960-2005. GSDP is reported in constant 2007 Rupees. |
| 3 | *Number of language speakers* (LANGSPKRS) | The number of language speakers in each Indian language according to the Indian Census from 1931-2005. |

### *4.3. Data collection*

Data for the three measures, i.e., size of the linguistic population, gross state domestic product of the state in which a film industry is based, and the number of films, was compiled from official Indian sources.

Linguistic population data was gathered from the decennial Indian Census for the 75 years from 1931 to 2005. The Indian Census publishes counts of all Indian citizens[20] by mother tongue among other details of the population.

Linguistic populations were chosen using two criteria – size of film production output, and inclusion of the language in the VIIIth schedule of the Indian constitution. 23 Indian languages support 99.5% of all films produced from 1931-2005. 16 of these are scheduled languages. Scheduled languages are spoken by 96.6% of the Indian population (Indian Census 2001 figures) and are included in the VIIIth schedule of the Indian constitution. Appendix (4.1) includes a list of the scheduled languages alongside the most popular languages of film production. Two of the 16 language markets were dropped – Urdu was combined with Hindi because of the close similarity between the two languages[21]. Nepali was excluded because it was unclear if films in this language were produced in India or in Nepal. Data from the remaining 14 languages markets are used here. These 14 languages are Assamese, Bengali, Gujarati, Hindi/Maithili/Urdu, Kannada, Konkani, Malayalam, Manipuri, Marathi, Oriya, Punjabi, Sindhi, Tamil, and Telugu.

Gross State Domestic Product figures are published by the Central Statistical Organization of India which is a unit of the Ministry of Statistics and Programme

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[20] According to 1991 census figures, 19.44% of Indians are bilingual and 7.26% are trilingual.

[21] In fact many Hindi films have song lyrics in Urdu.

Implementation, New Delhi. Data for 45 years from 1961 to 2005 is used here. Of the 16 scheduled languages in which films are produced, four languages – Urdu, Nepali, Sindhi, and Konkani –were dropped. Urdu was combined with Hindi as before. Nepali was dropped for the same reason as before. Sindhi was dropped because it does not have a home state in India and therefore GSDP figures do not exist for the Sindhi speaking population. Konkani was dropped because Konkani speakers are dispersed across state boundaries in small percentages and calculation of GSDP share for such small minorities was deemed unfeasible.

Hindi speakers are dispersed across eight states. These states are Uttar Pradesh (99% Hindi speakers), Bihar (99%), Rajasthan (97%), Madhya Pradesh (96%), Uttaranchal (94%), Chhattisgarh (92%), Himachal Pradesh (91%), Haryana (89%), Delhi (88%) and Jharkhand (74%). An aggregate measure of GSDP of states in which the combined size of Hindi/Maithili/Urdu speaking populations is more than 70% of the state was included in cross sectional models. Thus 13 languages were included in the GSDP measure for cross sectional models.

The aggregate measure for Hindi speaking states was not used in panel models. Data from 12 states was used for the GSDP variable in panel models. The states are Andhra Pradesh, Assam, Gujarat, Karnataka, Kerala, Maharashtra, Manipur, Orissa, Punjab, Rajasthan, Tamil Nadu, and West Bengal. GSDP for all states is reported for 45 years from 1961-2005, except for Kerala and Manipur for which it is reported for 25 years from 1981-2005.

Film production statistics were compiled from two different sources. Data for 75 years from 1931 to 2005 is used in this dissertation. Figures for the years 1931 to 1980 have been sourced from Rajadhyaksha and Willemen's (1995) *Encyclopedia of Indian Films*. They report CBFC statistics for the number of films certified, by the language of production for these years.

Figures for the years 1981 – 2005  were compiled from Annual Reports of the CBFC, Mumbai, India.

## *4.4.Descriptive Data Analysis*

The fifteen language film industries examined in this study are listed based on their total production of films from 1931- 2005, in descending order in Table 4.1 below.

-------Table 4.1 here-----

There is considerable variation in the film output of these industries. The Hindi language film industry is the most prolific of the Indian film industries with average annual production amounting to well over one hundred films each year leading to a total production of  9, 937 films in the seventy-five year period from 1931-2005. It is followed by the Tamil (6,362 films) and Telugu (6,183 films) language film industries.

The descriptive statistics for all the variables are reported here in Table 4.2.  As with film production, the number of language speakers and GSDP data also show a wide range of variation.

---------Table 4.2 here --------

### 4.4.1.Time Trends

From the results of the home market model we would expect that increases in GSDP would show corresponding increases in film production. Time trends in film production and GSDP   were graphed for each individual language market to examine this relationship.  These trends are reported in the following graphs (Figures 4.1-12). For convenience, GSDP in the graphs has been reported in 2007 US $ billions.  In general except for three languages (Gujarati, Malayalam and Rajasthani) the expected pattern was observed, i.e., an upward trend in number of films produced accompanied an upward trend in GSDP.

------------ Figures 4.1-12 here -----------

Similarly, time trends in film production and number of language speakers conform to the expectations of the home market model with the three previously named exceptions. An upward trend in film production accompanied an upward trend in language speakers. The trends over time of film production, and language speakers for each individual language of production are reported in the following graphs (Figures 4.13-26).

-----------------Figures 4.13- 26 here -----

### 4.4.2.Scatter plots

To further examine the relationship between the variables and identify outliers, cross sectional scatter plots were examined. Figure 4.27 shows the relationship between the number of language speakers and films produced in 2005.  The regression line shows a positive relationship as predicted by the home market model. Most markets are clustered at the lower left side of the plot, with the exception of the three largest languages of production – Telugu, Tamil and Hindi – which are set apart from the cluster. Hindi is by far the largest film market as can be seen by the position of the Hindi data point at the top right corner of the plot. Telugu is clearly an outlier with its high production of films despite having a smaller linguistic population than Hindi.

------------------------Figure 4.27 here -----

The positive relationship of the variables persists even when the number of language speakers is logarithmically transformed. Telugu continues to be the outlier. Figure 4.28 shows this scatter plot.

------------------------Figure 4.28 here -----

As predicted by the home market model, the positive relationship between film production and market size is also observed in the regression line with GSDP as the measure of market size.  Figure 4.29 shows this relationship. Telugu continues to be the outlier.  The market

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size of the Hindi language market is represented by the aggregate value of the nine states where Hindi is spoken by more than 70% of the population.  The logarithmic transformation of the GSDP variable shows the same relationship (see Figure 4.30). Telugu continues to be the outlier.

-------Figures 4.29 and 4.30 here ----

Scatter plots were also examined at the panel level. The positive relationship between both market size measures – i.e., language speakers and GSDP  with  film production observed in the cross sectional data is also seen in the panel level scatter plots. The panel level scatter plots show tight clustering at lower levels of GSDP, but a wide dispersion at higher levels of GSDP (Figure 4.31). Taking the natural logarithmic version of GSDP (Figure 4.33) reduces this wide dispersion somewhat, so that it appears in the lower range of GSDP fewer films are made, but beyond a certain point, there is great variation in the number of films that are produced.  There is tight clustering at the lower range of population size and a spread in the higher range (Figure 4.32). Again the spread is somewhat contained by using the logarithmic version of LANGSPKRS (Figure 4.34).

--------Figures 4. 31 -34 here------

### 4.4.3. Correlations

Continuing the descriptive data analysis, correlations between variables are reported in Table 4.3. Both measures of the independent variable and their logarithmic transformations are positively and significantly correlated with the dependent variable as predicted. The correlation between FILMS and GSDP is 0.3096 and is significant at the $p<0.001$ level.  Logarithmic transformation of the LNGSDP variable results in an increase in the value of the correlation coefficient ($r= 0.4155$, $p<0.001$). The correlation between FILMS and LANGSPKRS is also positive and significant (0.6923, $p<0.001$ level) as also the relationship between FILMS and

LNLANGSPKRS (0.6280, significant at the p<0.001 level). In general the language-speakers measure shows a higher correlation with number of films produced than does GSDP.

------ Table 4.3 here ------

## 4.5. Econometric models

In this section I empirically estimate the effect of the two market size measures on film production in Indian regional language film markets over time.

### 4.5.1. Cross sectional models

Cross sectional OLS regression was performed to estimate the effect of GSDP and number of language speakers on film production, using data from the year 2005. The basic model estimated was:

$$\text{FILMS} = \alpha + \beta_1 \, (\text{GSDP}) + \varepsilon \qquad\qquad (1)$$

The model was also estimated with the alternate measure of market size, i.e. language speakers. Logarithmically transformed versions of both variables were also used to estimate the model. The results are presented below in Table 4.4.

------ Table 4.4 here -------

The results support the prediction of the home market model, i.e., larger markets produce more films. Both independent measures – GSDP and LANGSPKRS and their logarithmically transformed versions – had a positive and significant effect on FILMS as predicted.

#### 4.5.1.1.    Language speakers

The models were first estimated using language speakers (LANGSPKRS) as a measure of the independent variable (see Models 1- 4). All 14 languages were included (Model 1), the model was significant (F= 9.84, p<0.01, adj. $R^2$= 0.404), the coefficient of LANGSPKRS was

positive and significant as predicted. Alternate versions of this model were estimated to rule out the effect of outliers. Even when outliers were dropped, both the direction and the significance of the effect remained as predicted. For instance, the earlier identified outlier Telugu was dropped in Model 3 (adjusted $R^2$ = 0.7397, F = 35.10, p<0.001). In another version (Model 2), Hindi was dropped (F= 6.98, p<0.05, adjusted $R^2$ = 0.3325). In Model 4, both Tamil and Telugu were dropped (F = 80.61, p<0.001, adjusted $R^2$ = 0.8786).

The models were then estimated using the logarithmically transformed version of the number of language speakers (LNLANGSPKRS). This measure had a positive and significant effect in all versions of the model as predicted, even when the outliers were dropped from the estimation. The results are reported in Models 5-7. The first version of this model (Model 5) contained all 14 data points (F= 10.14, p <0.01, adjusted $R^2$ = 0.4219). The outlier – Telugu– was dropped in Model 6 (F = 13.61, p<0.01, adjusted $R^2$ = 0.5124). In Model 7, both Telugu and Tamil were dropped (F=12.38, p<0.01, adjusted $R^2$ = 0.5084).

### 4.5.1.2. Gross State Domestic Product

The cross sectional models were next estimated with the GSDP measure of the independent variable. This measure had a positive effect in all versions of the model as predicted, and the effect was significant when all states were included and when the outlier Telugu was dropped. When other data points were dropped, the effect of the independent variable was not significant although it was in the direction predicted (Model 9 – Hindi dropped, Model 11 – Hindi and Telugu dropped, and Model 12 – Hindi, Telugu and Tamil dropped) even when the outliers were dropped from the estimation. The results are reported in Models 8-12.

In Model 8, all data points were included (F = 8.74, p <0.05, adj. $R^2$ = 0.392). This model was significant; the coefficient was significant and positive as predicted. In Model 10, the outlier

Telugu was dropped, the model was significant, as was the coefficient ($F = 27.51$, $p<0.001$, and adjusted $R^2 = 0.7067$). Hindi was dropped in Model 9, this model was not significant, neither was the coefficient, although the direction of the effect was as predicted. When both Hindi and Telugu were dropped (Model 11), the direction of the coefficient was in the direction predicted but neither the model nor the coefficient were significant. When Hindi, Telugu, and Tamil were dropped (Model 12), the direction of the coefficient was in the direction predicted but neither the model nor the coefficient were significant.

The logarithmically transformed version of GSDP was used in the cross sectional estimation and the results are presented in Models 13 and 14. Both models were significant, and the coefficient was significant and positive as predicted in both models. In Model 13, all data points were included ($F=5.19$, $p<0.05$, adjusted $R^2 = 0.2589$). In Model 14, the outlier Telugu was dropped ($F = 6.82$, $p<0.05$, adjusted $R^2 = 0.3461$).

### 4.5.2. Panel Models

The panel version of the model was estimated, i.e.

$$FILMS_{it}= \alpha + \beta_1 (GSDP)_{it} + \varepsilon_{it} \qquad (2)$$

#### 4.5.2.1. Pooled OLS Models

Pooled OLS models were first estimated (Table 5: Models 15-18) and are reported below. All four models show a positive and significant effect for both measures of the independent variable GSDP, LNGSDP, LANGSPKRS and LNLANGSPKRS at the $p<0.001$ level as predicted. White's test was performed to examine the pooled OLS models for the presence of heteroskedasticity. The null hypothesis of homoskedasticity was rejected for all four models because the value of the White statistic was greater than the chi square statistic at the specified degrees of freedom. According to Greene (2002), in the presence of heteroskedasticity the OLS

estimator continues to be the best linear unbiased estimator, but is no longer efficient. To remedy this White's standard estimators are reported since they are more robust.

------Table 4.5 here--------

### 4.5.2.2.    Fixed Group Effect Models

Fixed (group) effect models, i.e., using dummy variables for the states were estimated next and are reported below (Models 19-22). All 4 models and all coefficients were significant at the p<0.001 level.  F tests comparing all four fixed effects models with pooled OLS models were significant, i.e., they did not support the null hypothesis of equality of the errors for all groups, thus indicating that fixed effect models are a better fit for this panel data than pooled OLS models. These models also show higher adjusted $R^2$ for both measures of the independent variable than do pooled OLS models. The fixed effect model containing the LNGSDP variable (Model 20) had a slightly higher adjusted $R^2$ (0.8168) than the model containing the GSDP variable (Model 19, adjusted $R^2$ = 0.8055). Both these models had considerably higher adjusted $R^2$ values than their pooled OLS versions (0.0940, and 0 .1709 respectively). The fixed effect model containing the LANGSPKRS variable had a slightly higher adjusted $R^2$ (0.6900) than the model containing LNKANGSPKRS (0.6854). Both these models had higher adjusted $R^2$ than their pooled OLS versions (0.4788, and 0.3938 respectively).

### 4.5.2.3.    Fixed Time Effect Models

Fixed (time) effect models, i.e., using dummy variables for the years were estimated next and are reported below (Models 23-26). All 4 models and all coefficients were significant at the p<0.001 level. Except for one (Model 25 – LANGSPKRS) F tests comparing the fixed effects models with pooled OLS models were not significant, i.e., they supported the null hypothesis of equality of the errors for all groups, thus indicating that pooled OLS models were a better fit than

the fixed time effect model specification.  For Model 25 the F test was significant at the p<0.01 level.

In general, fixed (time) effect models are considered a better specification for panel data, especially when the data set contains time series data over an extended period of time such as the data in this study, however there is cause for concern over serial correlation. The use of time dummies in the fixed (time) effect models helps to take time effects into account. Thus the fixed (time) effects specification is preferred to the fixed (group) effect specification. In this study, we find that except for one measure (LANGSPKRS), F test statistics for the fixed (time effect) models are not significant, i.e., pooled OLS specification is a better fit than the fixed (time) effect model. For the model with number of language speakers, the fixed (time) effect model provides a better fit than the pooled OLS model.

Both cross sectional and panel models show that the two measures of market size − linguistic population size, and Gross State Domestic Product and number of films − have a significant positive effect on the number of films produced in an Indian language film market. This indicates that larger and wealthier markets support higher film production as predicted by the home market model.   In the next section, three indicators of film quality, 1) production budgets, 2) exports, and 3) imports along with an indicator of film variety,  4) genre elements are examined.

## *4.6. Further evidence for the home market model*

The home market model predicts the effect of market size on production investment (film production budgets), exports, imports and the variety of films produced in a market. The next few sections cast some light on these predictions as they apply to the Indian language film markets.  Section 4.6.1 presents some anecdotal evidence about Indian language film budgets.

An important result of the home market model deals with the market share of films when they are exported to other markets. Films produced in larger markets are expected to take a larger share of export markets than films produced in smaller markets. While data to examine this result is not available for Indian language films, some insights may be obtained by examining Indian language films in other countries. We begin by asking, 'What are the languages of production of Indian films that feature on the popularity charts in other countries?' The home market model would predict a market size effect, i.e., films made in larger language markets are expected to travel better than films made in smaller language markets. Some anecdotal evidence on Indian film exports is examined in section 4.6.2.

As discussed before, Hollywood films only have a 6% share of the Indian film market. Section 4.6.3 presents some preliminary evidence of Hollywood imports in Indian language film markets. According to Jayakar and Waterman (2000) larger markets support greater variety. In their words, "Through entry, higher product variety will also be offered by the producers" (p.157). Section 4.6.4 examines genre elements as an indication of the variety in film production in the various Indian language film markets.

### 4.6.1. Film production budgets

Production investment is a key variable in the home market model. Higher production budgets mean higher production values, i.e., bigger stars, better scripts, more experienced crew members and so on, all of which make the end product more attractive to the audience (see Waterman, 2005). Internationally, Hollywood's budgets lead with an average investment of US$ 30. 7 million per film[22], the top ranked films frequently have budgets in excess of a hundred

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[22] 2007 figures cited in Screen

million dollars[23].  European film budgets are much lower than Hollywood's multimillion dollar extravaganzas. Figures reported in Screen Digest  (2006) show that in Europe's top five film producing countries films have average budgets which are less than a third of Hollywood's average budget (see Table 4.6). For instance the UK has the highest average (US$ 11.6 million) followed by Germany (US$ 8.5 million), France (US$ 7.1 million), Spain ( US$ 4 million) and Italy ( US$ 2.8 million). Japan's average film budgets are in the same league as European budgets at US$ 5.1 million.

-------- Table 4.6 here --------

Compared to these figures, Indian films are relatively inexpensive, with an average budget of only US$ 0.1 million, i.e., 300 times smaller than US budgets.  This figure is an average of film budgets in the individual regional language industries, which vary considerably from each other.  The table (Table 4.7) below gives budget information for eleven language industries. This information was compiled on the basis of press reports from the various Indian language film markets. Alongside budget information, the number of films produced in each language in 2005, average annual production in each language from 1931-2005, number of language speakers, GSDP, and number of theaters are presented for comparison.

The list of film budgets in descending order somewhat follows the order of the number of films produced in each language in 2005, the average annual production in each language from 1931-2005, the number of language speakers, GSDP, and the number of theaters. Films in the largest language market, i.e. Hindi films, are also produced at the largest budgets.  A $ 4-6 million budget is generally considered to be high, and *Devdas,* a Hindi language film made in

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[23] As reported on boxofficereport.com

2002 for US$ 11 million is reported to be the most expensive so far (Frater, 2007). The top

ranked Hindi films had budgets in the range of US$1.5 to $ 5.6 million in 2006.

Tamil and Telugu films came next with budgets in the range of US$ 1.1 to 3.4 million.

Malayalam, Kannada, Bengali and Marathi films followed with budgets in the range of US$ 0.17

to $ 1.8 million. Gujarati, Assamese, Bhojpuri, Manipuri and Konkani films were produced for

budgets under US$ 0.076 million. The few Punjabi films that are produced each year managed

somewhat higher budgets in the range of US$ 0.18 to 1.8 million.  In international terms, these

budgets are quite meager. This ordering is as we would expect and follows the ordering of

linguistic market sizes.

------ Table 4.7 here -----------

Budget information reported in the press gives us a very general idea of the variations in

film production budgets across the various Indian language film industries. In general, the

pattern appears to be that higher budgets are seen in the more prolific Indian language film

industries.

### 4.6.2.Exports

According to the predictions of the home market model, films that are produced in larger

and wealthier markets are expected to be imported to a greater extent than those produced in

smaller markets. Fu's (2006) work shows that Indian films take less of the global import market

share than do films produced in Russia, Italy, France and the US.  The research literature reveals

that scholarly attention has been drawn to Indian films being exhibited in Greece (Eleftheriotis,

2006), Bulgaria, Israel, Rumania, Yugoslavia, Turkey, Egypt (Iordanova, 2006), parts of Africa

including Nigeria (Larkin, 1997) and the USSR (Rajagopalan, 2006). However, Pendakur (1990)

presents statistics from India's National Film Development Corporation which show that export

revenues earned by the Indian film industry in 1988-89 were as low as $ 67,048.35(@16.96 rupees to a dollar).

Given the twin determinants of film exports, i.e., size of production investment and cultural discount, we would expect that Indian films with their comparatively small budgets would be exported to markets where films are made on budgets that are lower than those of Indian films,  and to markets where the cultural discount to Indian language films is low. Pendakur (1990) uses 1988 NFDC statistics to show that Indian films earned export revenues from the Arabian Gulf countries, the USSR, Indonesia, Sri Lanka and Burma among other countries. However identifying the languages of the Indian films on the popularity charts of these countries is close to impossible due to the difficulty in obtaining such data. In this section I examine countries where popularity charts are available and where the cultural discount on Indian films is low. One such group of markets would include markets with Indian Diaspora audiences.  Indian Diaspora audiences are expected to have a lower cultural discount towards Indian films than do audiences who are non-Indian, because of the close cultural ties to the homeland. In this case, the small budgets of Indian films need not be considered an impediment to Diaspora audiences' acceptance of Indian language films.

In 2001, the Indian government estimated that approximately 17 million persons of Indian origin lived in 131 countries outside India (Ministry of External Affairs, New Delhi). Appendix 4.2 gives the details of this overseas Indian population in the top twenty-five most popular countries. These include Myanmar, USA, Malaysia, Saudi Arabia, UK, South Africa, UAE, Canada, Mauritius, Trinidad, Guyana, Fiji, Oman, Singapore, Kuwait, Reunion, Netherlands, Australia, Surinam, Qatar, Bahrain, Kenya, Yemen, Tanzania and Thailand in that order.

Since the marginal cost of reaching out Diaspora populations is negligible for films (compared to the high cost of producing them), Indian language film producers would find it in their interest to cater to such audiences. While the 17 million non-resident Indians appear to pale in comparison to the total Indian population of over a billion, the comparatively wealthy Indian populations in countries such as the US and UK contribute  towards overseas revenues of Indian films which add up to 10% of the total earnings of Indian films.

From our examination of the positive effect of market size on product quality and variety, we can expect that films made in Indian languages with large populations, or that come from states with higher GSDPs will travel better than films that are made in smaller language markets because of their higher quality. Since the Hindi language market is the largest among Indian language markets and produces more films, and more expensive films than other Indian language film markets, we can expect to see more Hindi films rather than any other Indian language films among Indian film exports.

Specific details of Indian films as well as the numbers of Indian language speakers in some of these countries are harder to come by and are limited to those countries which report non-indigenous languages in their census. In this section I conduct a preliminary examination of Indian film exports to four of the twenty-five markets mentioned above – USA, UK, Malaysia and Australia. I compare the population sizes of Indian language-speakers in the US, UK, Malaysia and Australia with the languages of Indian films in those markets. The available data relating to overseas Indian language audiences and the Indian films viewed by them is inadequate for inclusion in the statistical analysis, but is presented here to help get a perspective on Indian film exports, which may later guide more in depth analyses of Indian film exports.

### 4.6.2.1.     USA

According to the US census (2000), there were approximately 1.488 million Indian language speakers in the USA. Indian Government figures estimate that close to 1.678 million persons of Indian origin lived in the USA in 2001. The US census provides a linguistic breakdown and this is presented below in the table (Table 4.8). Hindi and Urdu speakers jointly constitute 39% of the total Indian language speakers in the USA. They are followed by Gujarati (16%), Punjabi (10%) and Bengali (9%) speakers.

-------------------Table 4.8 here -----------

US domestic box office charts were examined for the years 1999 to 2007[24]. The only Indian language films on these charts are Hindi language films. No other Indian language films were reflected on these charts.  There is some evidence from multiplex schedules that Tamil and Telugu language films are being released in the US, but these films are not reflected on the charts. We would expect Gujarati/Punjabi/Bengali films to outdo Telugu and Tamil films in the US, but there appear to be no mentions of these films in the US charts or the theatrical schedules. From this point of view, it would appear that Hindi films are overrepresented on the American movie charts compared to the percentage of Hindi speakers in the population of Indian origin in the US. It would appear that Hindi films attract not just Hindi speakers but also speakers of other Indian languages in the US.

### *4.6.2.2.     UK*

According to the British Census (2001) 1.052 million residents belonged to the Indian ethnic group. Indian Government figures put that number closer to 1.2 million persons. The British Census does not take into account non-indigenous languages spoken in the UK. This

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[24]  Charts from www.boxofficemojo.com ( 2001 to 2007) as well as from EDI Neilsen's database (1999-2002)

limits the availability of the linguistic data relating to Indian language speaking populations in the UK. Some estimates of the number of language speakers of the top 40 languages that are spoken in the capital city of London ranked Punjabi, Gujarati, Hindi/Urdu, Bengali and Tamil as the most popular Indian languages (see Stokey, 2000) and the details are presented below in the table (Table 4.9).

---------------Table 4.9 here-----------

Bengali speakers in the UK are predominantly of Bangladeshi origin, speakers of Tamil are predominantly of Sri Lankan origin and residents of Pakistani origin also speak Punjabi and Urdu. This is to say that while Indian language films are popular among these audiences they also have access to films from their own countries.

British film charts for the six years from 2002-2007[25] were examined for the presence of Indian language films. A total of 192 films in Hindi (161 films), Tamil (18 films), Punjabi (6 films), Telugu (2 films), and Malayalam (1 film) found a place on these charts. The table (Table 4.10) below lists the number of films and each language's share of the total number of Indian films on the British charts in this six-year period.

---------------Table 4.10 here-----------

In terms of revenue, Hindi films took approximately 95% of the revenues earned by Indian films on the UK charts from 2002-2007 (see Table 4.11). Even though non-Hindi films constituted nearly 16% of number of Indian films on the charts in this five year period, they collectively earned less than 5% of the revenue earned by Indian films on the UK charts[26].

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[25] Charts from www.boxofficemojo.com

[26] Indian language films only earned about 2% of total revenues earned by all films on the British charts. Indian press reports do not tend to report this figure, instead preferring to report the positions taken by Indian films on their opening weekend which tend to over state the performance of Indian films in the UK market.

-------Table 4.11 here -------------

As with the US charts we find that Hindi films are prominently represented on the British charts. Based on the Stokey (2000) data and the film chart data, we see that Hindi films are very popular despite the large Punjabi and Gujarati populations in London.

### *4.6.2.3. Australia*

Indian Government estimates put the total number of persons of Indian origin in Australia at 0.19 million. The 2001 Australian census notes that population with self-reported ancestry as Indian to be nearly 0.1566 million. 47,800 were reported to be Hindi speakers and 24,000 were reported to be Tamil speakers. Box office charts for the years 2004-2007 were examined and only Hindi films (52) made it to the charts similar to the US case. It would appear that Hindi films attract not just Hindi speakers but also speakers of other Indian languages in Australia.

### *4.6.2.4. Malaysia*

Schiffman (1995) notes that 85% of the 1.5 million Indians (who constitute 9% of the national population) in Malaysia speak Tamil. Indian government estimates put the total number of persons of Indian origin in Malaysia at 1.665 million in 2001. Box office charts were only available for the two years from 2007-2008. [27] Hindi, Tamil, and Telugu language films made it to the charts (See Table 4.12). Unlike in the USA, UK and Australia, nearly 71% of Indian films in Malaysia are in the Tamil language. Even though Hindi is not listed as a language spoken in Malaysia, 27% of Indian films in Malaysia in 2007/2008 were in the Hindi language.

-------Table 4.12 here-----

In general the patterns predicted by the home market model appear to be supported, i.e. films originating in larger language markets appeared to be exported more than films originating

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[27] Charts from www.boxofficemojo.com

in smaller language markets. Hindi language films were present to a great extent in three of the four markets that were examined, i.e., USA, UK, and Australia. In the US and Australian markets only Hindi films make it to the charts. In the UK they dominated other Indian languages. In Malaysia the majority of the Indian language speakers speak Tamil, but still nearly 27% of Indian films released were in the Hindi language. Certain export markets have a higher density of people speaking one or the other Indian languages, for instance, the UK has a sizeable Punjabi speaking population, and Malaysia has a sizeable Tamil speaking population.  In such markets we would expect to find films in the corresponding languages to have a considerable presence. However, in the UK Hindi films dominate Punjabi films. Punjabi films are made for considerably smaller budgets than are Hindi films and are dominated by Hindi films in the UK despite the fact that a considerable part of the population appears to have knowledge of Punjabi. In Malaysia, Tamil films dominated Hindi films. As I have noted earlier, Tamil films are made at budgets only second to Hindi films and given a population fluent in Tamil they are able to compete against Hindi films as in Malaysia.

### 4.6.3.  Imports

Original English language versions of Hollywood films earn the major share of Hollywood's revenues in India. Language dubbing is used by Hollywood films to penetrate regional Indian film markets. Indian language-dubbed versions significantly contribute to Hollywood's Indian box office revenues. In 2004, language-dubbed versions contributed approximately 35-40% of Hollywood's US$ 39.6 million box office revenues earned in India in that year[28] (Singh, 2005).

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[28] 2004 exchange rate 1 US$ = INR 45.43. Revenues in Indian Rupees Rs 180 crores

In absolute terms, large markets tend to both export and import larger numbers of films that do smaller markets, although in relative terms the value of exports is larger than the value of imports in a larger market (Wildman and Siwek, 1988). Thus we would expect that larger Indian language film markets to show larger absolute numbers of imported films than smaller language markets. The extent of language-dubbing was examined based on figures recorded in the annual reports of the Central Board of Film Certification [CBFC]. CBFC records the language that a film is dubbed into, but does not report the original language of these films (so there is no way to tell if a film dubbed into Telugu was originally in Hindi, Tamil or a Hollywood film). Figures for eight years from 1996-2004 were compiled and are presented in Table 4.13 (figures for 1998 were not reported in the annual report for that year, no reason was given). As discussed earlier, according to the Indian government's policy, imported films were not allowed to be dubbed into Indian languages prior to 1992 (Mukherjee, 2003) .

The pattern of languages that films are dubbed into fits the expectation from past research. Almost all the films (1093 out of 1150 or 95.04%) were dubbed into just three languages – Telugu, Tamil and Hindi. A total of 1,150 films were dubbed into Indian languages in these eight years. The highest number were dubbed into Telugu (447 films in 8 years, i.e., 38.87% of all films dubbed in this time), followed by Tamil (415 films, i.e., 36.09%), and Hindi (231 films, i.e., 20.09%). As we have seen before, these are the top three language film markets in India. While a large number of Hollywood films may be dubbed into Hindi, Tamil and Telugu, in relative terms the domestic films that are produced in these languages outnumber the Hollywood imports.

----------Table 4.13 here--------------------

Dubbing of Hollywood films appears to be based on a combination of three factors –

market size, state-level "trade agreements," and audience preferences. In general, the top three

languages for film production in India (Hindi, Tamil and Telugu), were also the top three

languages for dubbed versions, as seen in the CBFC data.  Press reports support this finding,

indicating that Hollywood films are generally dubbed into  Hindi, Tamil, and Telugu. MGM's

*Casino Royale*, for instance, was dubbed into these three languages when it was released in India

in November 2006 (Ravikumar, 2006).  Sony's *Spiderman 3* was dubbed into Hindi, Tamil,

Telugu, and Bhojpuri[29] ("Spider-Man 3 surpasses Titanic collections in India," 2007). Hindi

versions earned approximately half  of all the revenues earned by language versions of

Hollywood  films, Tamil versions earned 30% and Telugu versions earned 20% (Venkatraman &

Menon, 2005).

The focus on the largest language markets reveals some strategic thinking by distributors

of dubbed Hollywood films in India. While it costs very little to dub a film in India, between

US$ 14,245 and US$ 22,792 in  1996 (@1US$ = INR 35.1) [30], promotion and publicity costs

increase the total cost of releasing a dubbed  film ("Dubbed Hollywood Flicks Cut Into Hindi

Market," 1996),  making it more attractive for Hollywood distributors to pursue the larger

markets.

This brings us to the second factor, i.e., state-level "trade agreements".  "States like

Karnataka, Gujarat, and Bengal don't encourage the dubbed entertainment industry since it

undermines regional cinema in these states," (Ganguly, 2007, p.1). This applies to all dubbed

films, not only films from Hollywood. These "trade agreements" are  protectionist measures

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[29] Number of prints: English 162, Hindi 261, Tamil 78, Telugu 78, Bhojpuri 6, IMAX 3, see ("Spider-Man 3
surpasses Titanic collections in India," 2007)

[30] INR 5-8 lakhs

which are the result of often contentious settlements reached between producers' associations and exhibitors' associations and are sometimes accompanied by the threat of violence. They may occasionally be supported by ordinances passed by the state government, or the result of court cases as in the case of Karnataka. According to (Sharma, 2004), in 1996, the Kannada Film Producers Association (KFPA) managed to get an ordinance passed by the state government of Karnataka to compel exhibitors to show Kannada films for 12 weeks each year in the name of saving the local industry (The exhibitors went to the High Court and managed to get this overturned). The producers also attempted to delay the release of non-Kannada films in Karnataka through protests and rallies. The effectiveness of these tactics, at least in the present time, is revealed in the figures of the CBFC which show that hardly any films are dubbed into Kannada ( 4 films in 8 years, all in 1997, i.e., 0.35% of the films dubbed during this time). Gujarati (2 films, i.e., 0.17%) and Bengali films (7 films i.e., 0. 61%) show similar trends. The long term effectiveness of such "trade agreements" is questionable. Exhibitors in Karnataka already point to falling theater attendance (Sharma, 2004).

A third factor that determines dubbing of Hollywood films into Indian languages is the poor acceptance of dubbed movies. This has been cited as a reason why Hollywood films are not dubbed into Malayalam (Das & Bijoy, 2005). CBFC statistics show that only 23 films, i.e., 2% of films dubbed in the eight-year period were dubbed into Malayalam. As Pendakur (2003) notes, a Hollywood film dubbed into an Indian language is considered to be equivalent to a B-grade Indian language film, i.e., less attractive to Indian theatrical audiences than an A-grade Indian film. Eliza Lewis, a dubbing specialist in Mumbai observes that Hollywood films featuring monsters (the so-called 'creature-features') are generally chosen for dubbing into

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Indian languages rather than dramas or comedies. "No one is interested in watching an American film in which people only talk on the screen," she explains.

The prolific output of the Indian industry may have itself been a protection against Hollywood, according to Armes (1987). He observes that "In order to develop large-scale national film production, a country needs a secure domestic distribution base with well developed exhibition circuits. Without this the possibility of a profitable return on investment in film production does not exist. But the very existence of such a base means that the country is more than ever vulnerable to imports from abroad, unless – like present day India– it can produce on its own the many hundreds of films needed each year to feed such exhibition outlets. With an output of between say, forty and a hundred films a year, it cannot supply all its own needs and therefore cannot set up effective barriers against foreign – especially Hollywood distributed –films" (Armes, 1987, p 41).

Thus we find that although Indian language versions contribute up to 40% of Hollywood studio revenues from India, those earnings are from the three main language markets, i.e., Hindi, Tamil and Telugu markets. Although these are the largest linguistic film markets in India, films are produced here on budgets that are dwarfed by Hollywood's multi-million dollar budgets, thus making dubbed Hollywood films acceptable to audiences in these markets as predicted by the home market model. Smaller markets such as the Gujarati, Bengali and Kannada markets have adopted protectionist measures that ensure that Hollywood films are not dubbed into their languages.

### 4.6.4. Genre elements

In this section, I present a preliminary exploration of the genre elements seen in Indian language films. In broad genre terms, Indian films can be divided into popular commercially

oriented films and niche art house films.  The niche art house films are exceedingly popular at film festivals nationally and internationally, but they struggle to find a theatrical audience at home in India. Most of these art house films were able to reach their Indian viewers mainly through public television (Ghose, 2005). It is the commercial cinema that is popular with the theatrical audiences. In this section I focus on the commercial Indian cinema.

There is some evidence that the size of production investment is related to the genre of films produced. Lu, Waterman and Yan (2005) argued that the availability of cost reducing technology such as computer graphics technology which reduces the need to hire extras for large battle scenes may have the counterintuitive effect of raising production budgets as producers compete to adopt the new technology, and also result in an increase in such "technology-friendly" genres. Based on an empirical examination of genres of the top 20 US films over a period of 38 years, they found evidence that there was an increasing trend of technology friendly genres such as action, adventure, science fiction and horror and a decreasing trend of non-technology friendly genres such as drama and musicals.

As discussed earlier, multiple genre elements are seen in Indian films and include romance, drama, comedy, as well as action sequences  and musical numbers ─ all within the same film. To get an idea of the genre elements in Indian films I examined Indian language films referenced on imdb.com for a three year period from 2003-2005. Imdb.com has been used as a source of genre information in other studies including Lu, Waterman and Yan (2005). In May 2008 the website reported that it carried information for 1,039,447 titles which included 379,871 theatrically released movies as well as numerous TV series, TV episodes, mini-series, made for TV movies and live-action video games.  According to CBFC records a grand total of 35,651 films have been certified in India in the period from 1931 to 2005. Information relating to

approximately 54% of all the Indian films certified from 1931 to 2005 (19,500 films) is available on imdb.com.

According to imdb.com the information about movies on the website is generated from user submissions, both from the industry and from fans, and is checked by the website staff before it is published. Thus this information is not official or representative of all the films produced in any particular way. However given the large proportion of titles referenced on this site it is possible to get a general idea of the nature of the genre elements present in Indian films.

The table below (Table 4.14) gives us a breakdown by language of the Indian language films from the three years (2003-2005) as referenced on imdb.com. In general we find that a higher percentage of films from the more prolific industries are referenced, with the exception of Malayalam, Punjabi, and Kannada movies. Nearly 90% of all Malayalam movies certified from 2003-2005 are referenced on imdb.com making them the most referenced Indian language films on this website for this period. Only 12 Punjabi movies were produced in the three year period under consideration, and of these, 5 films (42%) were referenced on imdb.com. On the other hand very few Kannada movies (3%) are referenced on this website compared to the 265 films in this language that were certified from 2003-2005. No information relating to Gujarati films produced from 2003-2005 is available on imdb.com.

-------------Table 4.14 here ----------

Of the 1,039,447 titles on imdb.com 492,608 titles (47%) carry genre descriptions. A similar pattern as before, i.e. a higher percentage of films from more prolific industries is observed for Indian films that have genre information reported.  49% of Hindi language films certified in these three years had genre information reported, followed by Telugu (19%), Tamil (19%), Bengali (18%), Marathi (11%), Punjabi (8%), Kannada (2%) and Oriya (2%) films. Few

Kannada films feature on imdb. There is no genre information for films from the less prolific

industries such as Gujarati, Assamese, Rajasthani, Manipuri, Konkani and Sindhi.

A total of 24 genre labels are currently in use on imdb. 4 of these labels (Game-Show,

News, Reality-TV, and Talk Show) are exclusive to television shows by definition. Further, the

'Short' (film) category is defined as being applicable to only those films that are under 45

minutes. Excluding these five genre categories leaves us with 19 distinct genre categories. Imdb

provides definitions for each of these categories as a part of its submission guide which  is

reproduced in appendix 4.3.

A total of 17 genre labels have been used by imdb.com in describing Indian language

films. These are: Action, Adventure, Animation, Comedy, Crime, Drama, Family, Fantasy,

History, Horror, Musical[31], Mystery, Romance, Sci-fi, Sport, Thriller, and War. These 17 genres

labels are applied mostly in combination to each film. 2 imdb genres 'Adult' and 'Biography'

have not been used in conjunction with Indian language films.[32] Since Indian films contain

elements of different genres in order to cater to the widest possible audience, the films referenced

on imdb carry multiple genre tags. For instance, the Tamil film *Chandramukhi* released in 2005

centers around a quest to rid a mansion of the ghost of a former inhabitant, a dancer slain by her

royal admirer in a fit of jealousy.  This film carries the Comedy / Fantasy/ Horror /Musical

/Romance tags because of the various elements that it showcases.

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[31] According to Ganti (2004) Indian films have their own genres as well as Indian "renditions of global genres like the action film, gangster film, and romantic comedy" (p.141) and because all of them contain songs, the 'musical' is not a useful genre categorization. She notes that audiences differentiate films on the basis of plots, themes and narrative emphasis.

[32] 2 imdb genres 'Adult' and 'Biography' have not shown up in the Indian language films that I examined. While some films in Indian languages are made for adult audiences, the 'Adults only' or 'A' certification is viewed as a serious threat to theatrical revenues. 'A' films are produced to cater to niche audiences and it is rare for them to receive wide attention.

The table below (4.15) gives us an idea of the genres elements reported for the films in the top 6 languages.  Genre details were reported for a total of 679 films were released in the 2003-2005 period in the Hindi, Telugu, Tamil, Malayalam, Bengali and Marathi languages. These 679 films carried a total of 1251 genre mentions.  Across the board, drama (333 mentions) as a genre element dominates. This is followed by romance (217 mentions), comedy (183 mentions), action (140 mentions), and thriller (119 mentions). War (8), sport (1), sci-fi (2), history (1), and animation (2) were the least popular genre elements. Interestingly the only language that carried these genre elements is Hindi[33]  possibly an indication that the Hindi film industry is able to support diverse genre elements compared to other less prolific language industries.

-----------Table 4.15 here------------

In order to compare elements within each language, the percentage share of each genre element in a language is reported in the table (Table 4.16) below. Over all, drama elements lead with 27% of all genre elements reported. Romance (17%) and comedy (15%) follow.  These three non- technology genre elements together add up to 59% of the total genre elements reported. The two main technology-friendly genre elements were action (11%), and thriller (10%) amounting to 21% of the total number of elements in these six language industries. Other technology friendly genre elements including adventure (2%), fantasy (2%), horror 2%, and war (1%) added up to 7%. Non technology genres included musical (5%), mystery (2%), crime (4%) and family (2%). The following genre elements were not represented at all: history (0%), animation (0%), sci-fi (0%), sport (0%). In all non-technology genres added up to 72% and technology-friendly genres added up to 28% clearly indicating the limitations imposed by small

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[33] With the single exception of one Malayalam film which carried the 'war' genre element.

budgets.  Thus Indian films tend to have more elements of drama, romance and comedy rather than action, adventure or science fiction.

---------Table 4.16 here -------------------

The effect of budgets is seen in genres such as animation, sci-fi and war which appeared a total of 13 times out of the 1251 total elements, and 12 of those 13 times were in Hindi films. In two of the smallest language industries represented here (Bengali and Marathi), there are minimal to no action elements at all and the largest proportion of drama genre mentions compared to the other four languages.

## *4.7.Conclusion*

In this chapter my aim was to apply the results of the home market model to the data obtained from the various Indian language film markets.

Empirical analysis of two measures of market size − linguistic population size, and Gross State Domestic Product − showed a significant positive effect on the number of films produced. Both cross-sectional models and panel models supported this finding. This indicates that larger and wealthier markets supported higher film production. This result supports the predictions of the home market model.

Anecdotal evidence relating to four different areas − film production investment, variety of genre elements, exports and Hollywood imports in India – provides further supplemental evidence for patterns suggested by the home market model.

While Indian films are produced for budgets far below those of American and European films, there is a wide variation within India. Market size appears to influence the size of film budgets as well (Hindi films command the largest budgets), showing further support for the

effects of market size. In general the more prolific industries also commanded higher production budgets.

In terms of exports, Hindi films were most popular with Indian audiences in three of the four international markets considered here, i.e., in the US, UK, and Australia. Malaysia which has a large proportion of Tamil speakers in its Indian population had a higher proportion of Tamil films. Even in Malaysia, Hindi films were present on the charts despite there being hardly any Hindi language speakers. Among Indian populations overseas, Hindi films appear to play an important role, even in countries that do not have too many Hindi language speakers. This result supports the expectation raised by the home market model regarding better export prospects of films produced in larger linguistic markets.

In absolute terms Hollywood imports to India earned nearly 40% of their revenues from the Hindi, Tamil and Telugu film markets. This finding does not run contrary to the home market model's predictions. While a large number of Hollywood films may be dubbed into Hindi, Tamil and Telugu, in relative terms, the Hindi, Tamil and Telugu films outnumber the Hollywood imports.

An examination of the genre elements that are popular in Indian films found that non-technology genres such as drama, romance and comedy elements were more popular than technology-friendly genre elements such as adventure, animation, crime, fantasy, horror and mystery elements. This provides an interesting path for future research in terms of international comparisons of genre and technology friendliness, i.e. how do Indian films compare with films from other countries? We know that films from the US have shown an increasing trend towards the action and adventure genres (see Waterman, 2005) and this has been explained as a move towards more 'technology friendly' genres. It might be premature to conclude that Indian films

tend to focus on genres such as drama, romance and comedy that are less 'costly' than Hollywood's favorite genres such as action and adventure without examining allocations in budgets for crews in various departments. This is a question for future research.

Both empirical and other evidence supports the results of the home market model in Indian language markets. This provides support for the view the view that India is a mosaic of regional language markets rather than a monolithic national market. This also provides some explanation for the low exports of Indian language films to other countries. A monolithic Indian market would have conferred an advantage on Indian film exports. However, the fragmentation of its markets means that Indian language films have access to smaller markets which affect the production investment available to Indian films, thereby reducing their export potential.

In the next chapter I turn my attention to the effects of the arrival of television on the Indian theatrical market and compare it with the experience in US, UK, France, Germany, Italy and Japan.

## *Chapter 5 ─ Effects of the diffusion of television in the six largest national theatrical markets*

Competing technologies such as television play an important role in the film industry's revenues, i.e., they affect consumer spending on films. The direct and immediate effect of television is a decline in theatrical admissions (Waterman, 2005; Sorlin, 1996; Stuart, 1982; Spraos, 1962). However television penetration also brings with it multiple means of segmenting markets and generating revenue streams through transmission of films on various forms of pay cable and broadcast, as well as through sales and rental of films on various video formats such as VHS and DVD. Empirical studies show that revenues from all these streams can eventually stimulate theatrical admissions through the production of larger and more attractive films (Waterman, 2005). As we have seen in the previous chapter, consumer spending is a determining factor of quality and variety of films produced and eventually the position of a country's film industry in the international trade in films as predicted by the home market model.

Television began to spread in India a few decades after the other major film producing countries. Trade sources report that currently, Indian film revenues come mainly from theatrical exhibition. In 2005, Indian film industry revenues came from the domestic box office (78%), overseas box office (8%), home video (6%) and other sources (8%) (FICCI, 2007).  This reliance on theatrical revenues differentiates India from other film producing countries. The research question guiding this chapter is, "How does India compare with other countries in the effects of television diffusion on the film industry?" In this chapter, I empirically examine the country level changes in film production and exhibition that followed the introduction of television in India, USA, Japan, UK, France, and Germany. These markets were chosen because

they collectively earned more than seventy percent of the world's domestic theatrical revenues in 2005 (Screen Digest, 2006).

## 5.1. *Variables and measures*

Ideally this chapter would have used data on revenues from theatrical exhibition, video, pay cable, basic cable, and broadcast sectors to examine the effect of these distribution technologies on film industry revenues. However, time series revenue data in India has not been collected or reported by any agency. Since we don't have revenue figures we use the next best approximation – theatrical admissions data, television penetration data and some supplementary measures such as film production output and the number of theatrical screens. As the first study of its kind that examines the effect of television on India's film industry, this study relies on measures used in studies of television's effect on the film industry in Britain such as Spraos (1962) and the US such as Stuart (1982).

Two measures are used for theatrical admissions data. The first is the aggregate annual number of admissions in a country. This measure gives the broad view of admissions in a country. The second measure is admissions per capita in a country. This is a finer measure of the popularity of film-going, since it adjusts for the size of the total population in a country.

In addition to these two measures of admission, the number of films produced, and the number of screens were also examined. Both these measures are used here as supplementary measures. While the number of films produced provides no information on the quality of the films, it provides some general information about the health of the film industry (the home market model shows that larger markets produce more films). Similarly the number of screens does not tell us about the number of seats that each screen caters to; older single screen theaters were increasingly replaced by multiplexes which increased the number of screens without

increasing the total number of seats (Waterman, 2005). However in conjunction with admissions measures, the number of screens provides some additional insights into the health of the film industry.

The independent variable is television penetration and is measured by weighting the number of television households by the population. This measure adjusts for the population size and shows the extent of penetration of television in each country.

A later section on the empirical models further presents a detailed table of the definitions of variables discussed here.

## 5.2. Data collection

Data for three variables, i.e., annual number of film admissions, number of theater screens, and number of films produced, was collected for the US, UK, France, Germany, Japan and India. Country level statistics were compiled for each of the measures. The length of the series in the dataset varies from country to country.

The secondarydata used in this chapter was compiled from a variety of sources. The main source of data in these series was the UNESCO through its annual statistical year books. This source provided data for the 30 year period from 1955 to 1984. The European Audiovisual Observatory provided information for the 16 year period from 1985 to 2000. Further data was obtained from reports released by European Union media research organizations such as Mediasalles. This was supplemented with data from statistical yearbooks of individual countries.

Historical data was sourced from the records of film industry bodies in these countries. The Motion Picture Association of America (MPAA), the British Film Institute (BFI), the Motion Picture Producers Association of Japan, and the Spitzenorganisation der Filmwirtschaft (SPIO - Germany) were contacted to obtain historical data for the various series from their

reports. Archival issues of the Quigley's Almanac were also consulted for data on film industry data for the US for the years before the arrival of television.

Compiling data related to the number of films produced in India included a personal visit to the Central Board of Film Certification at Mumbai, India to obtain Annual Reports (for the years 1982-2005). Film production statistics for the years 1931-1981 were sourced from Rajadhyaksha and Willemen's (1999) Encyclopedia of Indian Cinema. Data on the number of Indian theater screens was sourced from Pendakur (2003), and Chakravarty (2004).

Data on the number of television households was obtained from the above sources as well as from the International Telecommunications Union. Some recent figures were obtained from the trade journal Screen Digest.  In spite of extensive efforts, there are still a few gaps in the series that remain and these were filled by estimating values as averages of adjacent values. A full list of all sources is included in Appendix 5.1.

## 5.3. Time trends

Time trends were graphed for television households and aggregate film admissions, per capita film admissions, the number of films, and screens in each country.  Examining the data this way allows us to examine the broad patterns of the trends in all countries. Some observations can be made on the basis of these graphs.

### 5.3.1. Aggregate film admissions and television households

Aggregate film admissions and television households in each country were graphed. First, we notice almost immediately that television diffusion in India is at a very different stage than in the US, UK, France, Germany and Japan. While television households have reached a plateau in all these countries, television households in India are still steeply increasing.

Second, we see the precipitous decline in aggregate film admissions along with the increase in television households in all countries except in India. Indian film admissions appear to decline slightly with the arrival of television but seem to persist compared to film admissions in the other countries.

--- Figures 5.1-6 here ------

Trend lines for all countries show similar patterns, i.e., the decline of admissions as the diffusion of television increases. Television was introduced in these countries at different years. To compare patterns closely, film admissions in all countries were graphed together starting with the year that television was introduced in that country. The figure below shows the picture that emerges. It is startlingly evident that aggregate Indian film admissions follow a very different pattern than the US, UK, France, Germany and Japan. Within two decades of the introduction of television, admissions in all these countries were rapidly declining whereas Indian admissions continued to increase well into the third decade of the introduction of television.

---Figure 5.7 here---

### 5.3.2.Per capita film admissions and television households

Per capita film admissions and television penetration were graphed next. For graphing convenience the per capita television household figure was multiplied by 100 since otherwise it was difficult to fit both the trend lines in the same figure. We see that per capita admissions have declined just as precipitously as did aggregate admissions in the US, UK, France, Germany and Japan as television penetration increased. Indian per capita admissions have declined, but not quite as precipitously as in other countries.

-------- Figures 5.8-13 here-----

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As before, time series from all six countries were graphed together to examine if they follow the same pattern in per capita admissions. While per capita admissions show a steep decline in the US and the UK, they show a much more moderate decline in other countries such as France, Germany and Japan. Admissions per capita were never high to begin with in India; in fact they were the lowest compared to all other countries at under five admissions per capita when television arrived in India. After a brief rise they have declined to a little over three admissions per capita. In comparison, American and British admissions fell steeply from their all time peaks of over 45 and 35 admissions per capita to their present value of fewer than five admissions per capita.

----Figure 5.14 here ----

### 5.3.3. Films produced and television households

The annual number of films produced was graphed alongside television households. The six countries fell into two groups. The US, France and India have shown an increase in films produced despite the introduction of television. Both the US and France show an initial fall in film production followed by a later increase, while India has not shown any decrease in film production at all. The other group of countries includes the UK, Germany and Japan. These countries all showed a continuous decline in the number of films produced after the introduction of television. These results are to be interpreted with caution due to the reason explained earlier; number of films produced does not cast any light on the quality of the films produced.

-----Figures 5.15- 20 here---

As before, time series of films produced from all countries were graphed together from the arrival of television. India clearly stands out in the number of films produced which show a continuous increase each year compared to the other countries.

-----Figure 5.21 here---

**5.3.4. Theatrical screens and television households**

Theatrical screens and television households were also graphed for the individual countries. Except for the US and France, all other countries showed a declining trend in theatrical screens. While an increase in theater screens does not mean an increase in admissions capacity, fewer screens mean fewer admissions opportunities.

-----Figures 5.22- 27 here---

When taken together, we see how theatrical screens in all countries except the US have fallen since arrival of television. India also shows a decline in the number of screens that are available. In the US theatrical screens have actually increased after an early decline.

-----Figure 5.28 here---

Overall, the trend lines point to some broad patterns. In the matter of television diffusion, India is at a very different stage than the US, UK, France, Germany and Japan. While television households have reached a plateau in all these countries, television households in India are still growing. Second, aggregate film admissions have steeply fallen in all the other countries except in India. Third, Indian per capita admissions were much lower than per capita admissions in countries such as the US and UK in the early days of television. Currently per capita admissions in all countries are roughly at the same level. Fourth, Indian film production exceeds film production in all other countries. Fifth, except for the US, theatrical screens have declined in all other countries including India.

In the next section, regression models that were estimated to examine the statistical relationships between the variables are presented.

## 5.4.Models and estimation

The aim of this chapter is to examine the effect of competing technologies on the film industry. This is done by examining the effect of the diffusion of television on film admissions, number of films produced and theatrical screens. Following the models by Spraos (1962) and Stuart (1982), the basic model estimated is as below:

$$ADMSNS_{it} = \alpha_{it} + \beta_{1t} \, TVHHPC_{it} + \varepsilon_{it}$$

Two measures are used for admissions, i.e., aggregate admissions, and admissions per capita. Two additional measures such as the number of films produced, and the number of theatrical screens are also used in the estimation.

## 5.5.Variable definitions

The following table lists the variables and their definitions:

| Independent Variable | |
|---|---|
| *Television households penetration* (TVHHPC) | Television households weighted by the population in each country. Used rather than aggregate number of television households to adjust for changes in population. |
| Dependent Variables | |
| *Aggregate annual theatrical admissions* (ADMSNS) | Aggregate annual theatrical admissions in each country |
| *Annual theatrical admissions per capita* (ADMSNSPC) | Per capita annual theatrical admissions in each country (ADMSNS/population) |

| | |
|---|---|
| *Film production* (FILMS) | Annual number of films produced in each country |
| *Number of screens* (SCREENS) | Number of theatrical screens in each country |

## 5.6. Econometric Estimation — Country Models

The models were first estimated for each country individually.

### 5.6.1. US

Aggregate admissions were first examined. The OLS version of the model was first estimated (Model 1). Since the data is from a time series, serial correlation could not be ruled out in the OLS specification. The OLS model assumes that errors are uncorrelated. Thus the presence of serial correlation violates one of the basic assumptions of the OLS model. In the presence of serial correlation, the OLS estimator remains unbiased, but it is no longer efficient. The R- squared values and the t statistics show an increase. Thus serial correlation needs to be identified and adjusted for. The Durbin-Watson statistic is computed to test for serial correlation. The computed value is compared to the value of test statistic at the number of degrees of freedom (no. of independent variables + constant) and for the number of observations (N). The test statistic table reports an upper and lower bound for the test statistic. If the computed value is less than the lower bound, the presence of serial correlation is indicated. If the computed value is greater than the upper bound then there is no evidence of serial correlation. The test is inconclusive if the computed value falls between the lower and upper bounds of the test statistic.

To adjust for serial correlation, the model is re-estimated using the Prais-Winsten method of estimation. This method assumes that the correlation is of the first order, i.e., each error term

is correlated to the error term immediately preceding it. This is considered to be an acceptable assumption for annual data.

For the OLS model (Model 1), the computed value of the Durbin Watson statistic was less than the lower bound of the statistic at the reported degrees of freedom (2) for the number of observations (0.084603 < 1.51, df = 2, N = 60), indicating the presence of serial correlation. To adjust for serial correlation, the model was re-estimated using the Prais-Winsten method of estimation. The results are reported in Model 2. After adjusting for serial correlation, the significant effect for TV penetration on aggregate admissions disappeared and the direction of the effect changed to positive. This model tested inconclusively for the presence of autocorrelation.

The second measure used for estimation was admissions per capita. The OLS model showed a significant negative effect of television penetration on admissions per capita (t = −21.88, p<0.001, adjusted $R^2$ = 0.8901). The Durbin Watson statistic showed that serial correlation could not be ruled out. When serial correlation was accounted for using the Prais Winsten method of estimation, the effect was no longer significant, and the direction changed to positive.

-----Table 5.1 here----

In addition to admissions measures, the number of films and screens were also used in the estimation for some additional insight into the effect of television penetration on the film industry. Television penetration had a positive but non-significant effect on the number of films produced in the OLS specification. The Durbin Watson statistic showed that serial correlation could not be ruled out. When serial correlation was accounted for using the Prais Winsten

method of estimation, the direction of the effect changed to negative, but remained non-significant.

The final measure used was the number of screens. Television penetration had a positive and significant effect on the number of screens (t = 4.04, p<0.001, adjusted $R^2$ = 0.2059) in the OLS model. The Durbin Watson test showed that serial correlation could not be ruled out. To adjust for serial correlation, the Prais-Winsten method of estimation was used. When serial correlation was accounted for, television penetration had a negative and significant effect on the number of screens   (t = −2.4, p<0.05, adjusted $R^2$ = 0.062).

The estimation results show that in the US, television penetration had a significant negative effect on the number of screens. Television penetration had no statistically significant effect on admissions per capita or the number of films produced. The model including aggregate admissions tested inconclusively for the presence of serial correlation.

### 5.6.2. UK

Aggregate admissions were first examined. The OLS version of the model was first estimated (Model 9). Television penetration had a significant negative effect on aggregate admissions in the OLS specification. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation, the model was re-estimated using the Prais-Winsten method of estimation. In the new specification, television penetration continued to have a negative and significant effect on aggregate admissions, however the model continued to show evidence of serial correlation as seen in the low value of the Durbin Watson statistic for the new specification.

The second measure used for estimation was admissions per capita. The OLS model showed a significant negative effect of television penetration on admissions per capita. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial

correlation the Prais Winsten method of estimation was used. Television penetration continued to have a negative and significant effect on admissions per capita, but as in the previous model, the Durbin Watson statistic continued to be low, showing the continued presence of serial correlation.

-----Table 5.2 here----

The two additional measures were number of films produced and the number of screens. The OLS model revealed that television penetration had a significant negative effect on films produced. However the low value of the Durbin Watson statistic revealed the presence of serial correlation. The model was re-estimated using the Prais Winsten method. This model also showed a significant negative effect of television penetration on the number of films produced ($t = -5.2$, $p<0.001$, adjusted $R2 = 0.3137$).

The final measure used was the number of screens. Television penetration had a negative and significant effect on the number of screens in the OLS model. The Durbin Watson test showed that serial correlation could not be ruled out. To adjust for serial correlation, the Prais-Winsten method of estimation was used. Television penetration continued to have a negative and significant effect on the number of screens, but the Durbin Watson statistic continued to be low, showing the evidence of serial correlation.

Unlike in the US, where television penetration had no statistically significant effect on the number of films produced, television penetration had a negative and significant effect on the number of films produced in the UK. Television penetration had no statistically significant effect on the change in per capita admissions. The data for the UK shows serial correlation in models that include the aggregate admissions, admissions per capita and number of screens. The Prais Winsten method of estimation was not adequate to adjust for serial correlation in this dataset.

**5.6.3.France**

Television penetration had a significant negative effect on aggregate admissions in the OLS specification (Model 17). The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation, the model was re-estimated using the Prais-Winsten method of estimation. In the new specification, television penetration continued to have a negative effect on aggregate admissions, but the effect was no longer significant.

The second measure used for estimation was admissions per capita. The OLS model showed a significant negative effect of television penetration on admissions per capita. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation the Prais Winsten method of estimation was used. Television penetration continued to have a negative effect on admissions per capita, but the effect was no longer significant.

-----Table 5.3 here----

The two additional measures were the number of films produced and the number of screens.  The OLS model revealed that television penetration had a positive but non-significant effect on films produced. However the low value of the Durbin Watson statistic revealed the presence of serial correlation. The model was re-estimated using the Prais Winsten method. This model showed a positive but non-significant effect of television penetration on the number of films produced.

The final measure used was the number of screens. Television penetration had a negative and significant effect on the number of screens in the OLS model. The Durbin Watson test showed that serial correlation could not be ruled out. To adjust for serial correlation, the Prais-Winsten method of estimation was used. Television penetration continued to have a negative and

significant effect on the number of screens, but the Durbin Watson statistic continued to be low, showing the evidence of serial correlation.

Television penetration had no statistically significant effect on aggregate admissions or number of films produced in France. Despite using the Prais Winsten method, models involving the number of screens showed the presence of autocorrelation. The model involving admissions per capita tested inconclusively for the presence of autocorrelation.

### 5.6.4. Germany

Aggregate admissions were first examined. The OLS version of the model was first estimated (Model 25). Television penetration had a significant negative effect on aggregate admissions in the OLS specification. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation, the model was re-estimated using the Prais-Winsten method of estimation. In the new specification, television penetration continued to have a negative and significant effect on aggregate admissions. However despite using the Prais-Winsten method of estimation, the problem of serial correlation continued to be present, as seen in the low value of the computed Durbin Watson test statistic.

The second measure used for estimation was admissions per capita. The OLS model showed a significant negative effect of television penetration on admissions per capita. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation the Prais Winsten method of estimation was used. Television penetration continued to have a significant negative effect on admissions per capita, but the low value of the computed Durbin Watson test statistic showed the presence of serial correlation in this specification as well.

-----Table 5.4 here----

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The two additional measures were number of films produced, and the number of screens. The OLS model revealed that television penetration had a significant negative effect on films produced. However the low value of the Durbin Watson statistic revealed the presence of serial correlation. The model was re-estimated using the Prais Winsten method. This model also showed a significant negative effect of television penetration on the number of films produced. However the low value of the computed Durbin Watson test statistic showed the presence of serial correlation in this specification as well.

The final measure used was the number of screens. Television penetration had a negative and significant effect on the number of screens in the OLS model. The Durbin Watson test showed that serial correlation could not be ruled out. To adjust for serial correlation, the Prais-Winsten method of estimation was used. Television penetration continued to have a negative and significant effect on the number of screens, but the Durbin Watson statistic continued to be low, showing the presence of serial correlation.

Despite using the Prais Winsten method, models involving all other variables showed the presence of autocorrelation.

### 5.6.5. Japan

Aggregate admissions were first examined. The OLS version of the model was first estimated (Model 33). Television penetration had a significant negative effect on aggregate admissions in the OLS specification. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation, the model was re-estimated using the Prais-Winsten method of estimation. In the new specification, television penetration continued to have a significant negative effect on aggregate admissions (t = $-12.47$, p<0.001, adjusted $R^2$ = 0.752).

The second measure used for estimation was admissions per capita. The OLS model showed a significant negative effect of television penetration on admissions per capita. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation the Prais Winsten method of estimation was used. Television penetration continued to have a significant negative effect on admissions per capita in the model estimated through this method (t = − 13.16, p<0.001, adjusted R2 = 0.7716).

-----Table 5.5 here----

The two additional measures were number of films produced and the number of screens. The OLS model revealed that television penetration had a significant negative effect on films produced. However the low value of the Durbin Watson statistic revealed the presence of serial correlation. The model was re-estimated using the Prais Winsten method. This model also showed a significant negative effect of television penetration on the number of films produced.

The final measure used was the number of screens. Television penetration had a significant negative effect on the number of screens in the OLS model. The Durbin Watson test showed that serial correlation could not be ruled out. To adjust for serial correlation, the Prais-Winsten method of estimation was used. Television penetration continued to have a significant negative effect on the number of screens, but the Durbin Watson statistic continued to be low, showing evidence of serial correlation.

Television penetration had a significant negative effect on admissions per capita in Japan. This is unlike the US and the UK where television penetration had no statistically significant effect on admissions per capita. Television penetration had a significant negative effect on aggregate admissions in Japan. This is different from France where television penetration had no statistically significant effect on aggregate admissions.

Like in the UK, television penetration had a significant negative effect on films produced in Japan. This is different from the US and France where television penetration had no statistically significant effect on the number of films produced. Despite using the Prais Winsten method, the model including the number of screens showed the presence of autocorrelation.

### 5.6.6.India

Aggregate admissions were first examined. The OLS version of the model was first estimated (Model 41). Television penetration had a negative non-significant effect on aggregate admissions in the OLS specification. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation, the model was re-estimated using the Prais-Winsten method of estimation. In the new specification, the direction of the effect changed, i.e., television penetration had a positive non-significant effect on aggregate admissions. The Durbin Watson statistic for this model tested inconclusive.

The second measure used for estimation was admissions per capita. The OLS model showed a significant negative effect of television penetration on admissions per capita. The Durbin Watson statistic showed that serial correlation could not be ruled out. To adjust for serial correlation the Prais Winsten method of estimation was used. Television penetration continued to have a negative effect on admissions per capita in the model estimated through this method but the effect was no longer significant. The Durbin Watson test for this model was inconclusive.

-----Table 5.6 here----

The two additional measures were number of films produced and the number of screens. The OLS model revealed that television penetration had a significant positive effect on films produced. However the low value of the Durbin Watson statistic revealed the presence of serial correlation. The model was re-estimated using the Prais Winsten method. This specification

showed a negative non-significant effect of television penetration on the number of films produced.

The final measure used was the number of screens. Television penetration had a significant positive effect on the number of screens in the OLS model. The Durbin Watson test showed that serial correlation could not be ruled out. To adjust for serial correlation, the Prais-Winsten method of estimation was used. This specification showed a negative non-significant effect of television penetration on the number of screens.

As in the US and France, television penetration did not have a statistically significant effect on the number of films in India. This is different from the UK and Japan where television penetration had a significant negative effect on films produced.

Television penetration did not have a statistically significant effect on the number of screens in India. The direction of the effect was negative. In the US, television penetration had a statistically significant negative effect on the number of screens. Despite using the Prais Winsten method, the models that included aggregate admissions and admissions per capita tested inconclusive on the Durbin Watson statistic.

## 5.7. Group models

In the section above, individual country models were estimated to examine the effect of television penetration on admissions, number of films, and number of screens, to understand differences among the effects of television penetration in six film producing countries. In this section we examine the differences between India and other countries. This is done in two steps. First, panel models are estimated with all six countries. In the next step, India is dropped from the estimation and the panel models are re-estimated without India. This is done to examine the effect of India as an outlier in the group of film producing countries. As in the previous chapter

OLS models are first estimated followed by  fixed effect (group effect) models and fixed effect (time effect) models.

The F test was used to examine if fixed effects models provided a better fit than pooled OLS models. A significant F statistic indicates the presence of the fixed effect, i.e., it indicates that the constant term is different for the different groups (or time periods if it is a fixed time effect model) and thus the fixed effect model fits the data better than the pooled OLS model (the OLS specification uses a single constant term for all groups/time periods). In this study, time effect models are preferred to group effect models because they control for serial correlation between successive years.

### 5.7.1.Aggregate admissions

Aggregate admissions were first examined. The pooled OLS version of the model including all 6 countries was first estimated (Model 1). Television penetration had a significant negative effect on aggregate admissions in the pooled OLS specification. The model was repeated after dropping India from the estimation with no change in the direction or significance of the effect (Model 2). Fixed (group) effect and fixed (time) effect models were estimated next. The negative and significant effect of television penetration on aggregate admissions was observed in all models.

-----Table 5.7 here----

The F statistic for the group effect specification was significant both when India was included (Model 3) and when it was excluded (Model 4).  The group effect model thus provides a better fit than the pooled OLS model indicating that there is a difference between the various countries.

The fixed time effect model fit the data when India was included. The F statistic was not significant when India was excluded from the model.  The pooled model fit the data better than

the fixed time effect model when India was excluded from the estimation. All models except model 6 showed the presence of heteroskedasticity. In the presence of heteroskedasticity, the estimator continues to be unbiased, but the variance estimates are no longer efficient, to account for this, White's robust standard errors are reported.

The regression results show that despite what we see in the graph of aggregate admissions, statistically, India fits the international pattern when it comes to the significant negative effect of television penetration on aggregate admissions.

### 5.7.2.Admissions per capita

The second measure used for estimation was admissions per capita. As with the previous models all six models showed a significant negative effect of television penetration on admissions per capita. The F statistic for both group effect models was significant showing that the fixed group effect models were a better fit for the data rather than the pooled OLS models. The F statistic for both time effect models was not significant, showing that the pooled OLS models were a better fit for the data than the fixed time effect models.

-----Table 5.8 here----

From these models we see that in India as in other film producing countries as more and more households acquired television sets, per capita admissions declined.

### 5.7.3.Films

All panel models except one showed a significant negative effect of television penetration on the number of films produced. Both fixed group effect models provided a better fit than the pooled OLS models as seen from the significant F tests. The fixed time effect model that excluded India was a better fit than the pooled model. The pooled OLS model that included India was a better fit than the fixed time effect model.

-----Table 5.9 here----

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### 5.7.4. Screens

The final measure used was the number of screens. Television penetration had a significant negative effect on the number of screens in the two fixed (time) effect models.

-----Table 5.10 here----

The F statistic comparing the fixed (time) effect model (including India) and the OLS specification was significant, thus showing that the fixed (time) effect model was a better fit for the data than the OLS specification. The F statistic in the fixed (time) effect model excluding India was not significant, indicating that the pooled OLS model was a better fit than the fixed (time) effect model.

## 5.8. Conclusion

The aim of this chapter was to examine the patterns in Indian film production and theatrical exhibition after the arrival of television to understand the effect of competing technologies on film industry revenues. These patterns were examined in the context of the top five international box office markets, i.e. USA, Japan, UK, France and Germany. Two measures of the annual number of theatrical admissions ─ aggregate admissions, and admissions per capita ─ in addition to the annual number of films produced, and the number of screens, were compared with the diffusion of television in five major film producing countries and India.

Descriptive data show that India's persistent aggregate admissions are more an artifact of the population size rather than more frequent visits to the theaters. At the aggregate level the Indian experience seems to be counter to the general trend in other countries, i.e., persistent theatrical admissions despite the diffusion of television. However, film admissions per capita are not any higher in India than in other countries. As in other countries, as more Indian households

acquired television sets, per capita admissions declined. In this aspect, the Indian experience is quite similar to that of the other countries in this study.

Second, Indian television diffusion is still in the steep part of the famous S shaped diffusion curve. Despite its 112 million television households in 2006, the penetration rate of television in India is only 59% of all Indian households. Similarly, despite aggregate cable television households of 68 million, cable television penetration is limited to 36% of all Indian households. Extending the analysis from Spraos (1962), that relates the rate of decline in theatrical admissions with the stage of television diffusion, to the Indian market, it is possible that the large numbers of Indian households that are lower on the socioeconomic ladder which are not television households yet, are still dependent on the cinema theaters for their audiovisual entertainment, contributing to the persistence of aggregate theatrical admissions and the large share of film industry revenues from theatrical admissions. In this aspect, the Indian film market shows a clear lag compared to the other countries in this study.

As in the US and France, television penetration did not have a statistically significant effect on the number of films in India. This is different from the UK and Japan where television penetration had a significant negative effect on films produced.

Television penetration did not have a statistically significant effect on the number of screens in India. The direction of the effect was negative. In the US, television penetration had a statistically significant negative effect on the number of screens. Despite using the Prais Winsten method, the models that included aggregate admissions and admissions per capita tested inconclusive on the Durbin Watson statistic. This serial correlation is taken into account in the group-wise regressions.

Linear regression methods were used in the empirical analysis in this chapter. However over a long period of time, the relationships between the variables do not remain linear. Non linear models such as log forms that take into consideration this non-linearity would contribute towards a better understanding of the relationship between the variables.

The group wise econometric analysis results show that despite what we see in the graph of aggregate admissions, statistically, India fits the international pattern when it comes to the significant negative effect of television penetration on aggregate admissions. India also fits the international pattern in that television penetration has a significant negative effect on per capita admissions. Other group-wise models showed mixed results.

## *Chapter 6 – Conclusion*

In this chapter I present a summary of the results and discuss their implications for theory and policy. This dissertation uses the theoretical frameworks of the home market model of media trade, and market size and product attributes research in economics. The home market model shows that media products such as films which are produced in large markets tend to be produced on larger budgets. The high quality of their production and cultural proximity to their domestic markets gives them a dominant share of their domestic market. The high quality of production also gives such films a high share in their export markets. Thus the explicit expectation from the home market model is that film markets with high domestic share should also have a high international share. The US is an example of such a market. Hollywood films take an extremely high share of the domestic US market as well as the international market.

However, India displays the curious pattern of a high domestic share but a low international share of the world film market. Indian films are extremely popular in India but earn less than 10% of their revenues from overseas markets. This dissertation sought to explain this pattern by taking into account a unique feature of the Indian film market – linguistic diversity. Indian films are routinely produced in over a dozen languages. Thus India appears to be closer to a multilingual group of film markets like the European Union, rather than a monolithic national film market like most other film producing countries (excepting of course Canada and Belgium). This 'mosaic view' shatters the idea of a large national film market in India and instead reveals many small regional markets, each with its own language of film production. Smaller markets lead to smaller film industry revenues and therefore smaller film production budgets. Films produced on these small budgets cannot be expected to earn high international revenues because

they are unable to compete with the high quality films produced for higher budgets in larger markets.

To test the economic coherence of this argument, market size factors underlying the structure of the Indian language film markets were empirically examined using frameworks from economic theory. A dataset was assembled for linguistic population sizes, gross state domestic products and films produced in various Indian regional languages. The linguistic population data extended over 75 years, and the state product data extended over 45 years. Empirical analysis of the relationship between measures of linguistic market size and film production showed a significant positive relationship in all regression models, i.e., film production is higher in larger language markets when compared to smaller language markets. This result is as predicted by theory. Further this result uniquely supports Wildman and Siwek's (1988) prediction about the importance of *linguistic* market size to the media trade. Most empirical studies in the past have used data from national markets. This study used data from sub-national linguistic markets, and the results are as predicted by Wildman and Siwek (1988).

The market size and product quality framework predicts that larger markets produce higher quality products when product quality arises from fixed costs. This dissertation assembled anecdotal evidence on budgets and exports of Indian films to examine this relationship. Given the Indian film industry's historical lack of access to institutional funding, there has been no financial reporting requirement for film companies in the past. In recent years the Indian government has changed its position on access to institutional financing, but old financing patterns still exist making the best information on budgets and revenues a series of guesses. The anecdotal evidence by and large supported the expectations from economic theory: larger markets had larger film budgets, accepted as a good measure of film quality in the media

economics research literature. Budget sizes varied across the various regional language markets with larger film budgets seen in larger markets. Hindi language speakers are the largest language group in India with approximately 400 million speakers, and as expected, Hindi language films had the largest budgets in India.

In addition to higher quality products, economic theory also predicts that larger markets support a greater variety of products. Empirical evidence from media product research has shown that this result holds for media products. This dissertation studied the variety of film production in the various film industries by examining the genre elements seen in the films. Each Indian film carried a variety of genre elements. Films from larger markets contained more genre elements than films from smaller markets. This supported the expectation from theory. The largest market (the Hindi film market) supported a wider variety of genre elements than did other language film markets. Hindi films contained genre elements from 17 genres. Films from smaller language markets contained fewer genre elements, for instance Bengali films only contained 9 genre elements, and Marathi films contained 7 elements. In general, genre elements such as drama, romance and comedy elements were more popular than other elements.

The investigation into genre elements provides an interesting path for future media trade research on the topic of film genre and production cost, i.e., what is the effect of market size on the types of genre elements seen in films? Do larger markets produce more films of certain genres while smaller markets focus on different genres? We know that films from the US have shown an increasing trend towards the action and adventure genres (see Waterman, 2005) and this has been explained as a move towards more 'technology friendly' genres. While it is certainly premature to conclude that Indian films tend to contain elements from genres such as drama, romance and comedy that are less expensive to produce than Hollywood's favorite

genres such as action and adventure without further research, this dissertation points to some evidence of such patterns.

The home market model predicts that films produced in larger markets will be exported more than films produced in smaller markets. This dissertation examined the extent of exports by Indian regional language markets and found support for the predictions of the home market model. Anecdotal evidence showed that Hindi films were most popular with Diaspora audiences in three international markets i.e., in the US, UK, and Australia. In a fourth market, Malaysia, the Indian Diaspora had a large proportion of Tamil speakers. Thus due to cultural proximity, Malaysian charts had a higher proportion of Tamil films. Even in Malaysia, Hindi films were present on the charts despite there being hardly any Hindi language speakers. None of these international markets showed any sign of exports from smaller language Indian film markets such as Kannada, Marathi, Malayalam, Oriya, Sindhi or Assamese films.

Indian language films in the UK present a good illustration of the home market model. Despite large Gujarati speaking populations, no Gujarati films featured among the Indian films in the UK market. Rather, Hindi films were the dominant Indian films in the UK. In terms of market size and therefore budget size, Hindi films outrank Gujarati films. This result supports the expectation raised by the home market model regarding better export prospects of films produced in larger markets.

These findings carry some significance for future models of media trade that include India. Future research designs will achieve better fitting models if measures from the multiple language industries are included rather than aggregate 'Indian' measures. Additionally, the pattern of Indian exports is yet to be comprehensively mapped and examined to the extent that Hollywood's exports have been examined. The home market model would suggest that Indian

language films might have a competitive advantage over domestic films in smaller markets, especially if they are culturally closer to the audiences than Hollywood films. This is a topic that future research needs to address.

The home market model has previously been tested at the country level, i.e., the unit of analysis. This dissertation adds to the growing literature of empirical studies using the home market model by providing evidence from linguistic markets within a country, thereby demonstrating the robustness of the home market level even at the sub-national or regional level. Future studies should be able to test the model at this level of measurement in other countries that have multiple film industries, i.e., in countries such as Canada and Belgium. This perspective can also be used in trade studies of other media industries such as television and music.

Within Indian language film markets, market size determines film output, budgets, variety of genre elements, and exports as predicted by economic theory. However market size does not explain domestic dominance in Indian film markets; in fact it suggests the opposite, if India is not one large market, but a group of smaller markets, then American films should have even less trouble dominating these smaller Indian markets and should be preferred by Indian film audiences over Indian films. From the home market model point of view the present situation of high domestic share implies that Indian film markets exhibit extreme cultural discounts that lead to a low acceptance of American films. Research documents the fact that Indian movies are unique cultural products with their '*masala*' combination of various genre elements and song and dance sequences which have historically been popular with their domestic audiences. Additionally, piracy estimates certainly attest to the popularity of domestic films. Indian films have been estimated to constitute 80% of all pirated films in India, while imported

films only constitute 20% share. Anecdotal information from dubbing specialists and exhibitors indicates that there is a low acceptance for dubbed Hollywood films.

The linguistic reorganization of states shows the enormous importance that language plays in India. Thus cultural products in the native language enjoy an advantage over not only imported Hollywood films, but even over films produced in other Indian languages. This extreme cultural discount bears further investigation. Future research needs to examine the patterns of flow of films between Indian states. The home market model would predict that films from larger Indian language markets, i.e., Hindi would travel more than films produced in smaller states such as Assam. Empirical evidence from the Indian theatrical market would help to answer such questions to the extent that it can be collected. The results of such analyses can inform policy as well as support the robustness of the home market model at the level of linguistic markets at the sub-national level.

The role of government policy has been relatively mild and indirect on the film industry in India compared to other countries, especially those in Europe. The Indian government's action to control the deficit in foreign exchange limited the presence of imported films in the country. Despite the change in those policies, Indian films continue to dominate the domestic market revealing the strong preference from domestic films. At the regional level, Indian language films receive support from state governments in the form of production infrastructure and preferential entertainment tax rates. Direct support for film production has been very low and limited to the central government's financing of the New Indian Cinema, films of this type form less than 1% of India's total film output since the arrival of sound in cinema.

The first part of the dissertation demonstrated the importance of market size as a determinant of film output, variety of genre elements, and exports in Indian film markets.

Continuing the market size analysis, the second part of the dissertation examined the effect of television on the Indian theatrical market as compared to other major film producing countries. A time series dataset containing television households, film admissions, theatrical screens and number of films produced was assembled for six countries including India, USA, UK, France, Germany and Japan from the introduction of television into each of these markets till 2005. The effect of television diffusion on two measures of film admissions, theatrical screens and number of films produced was estimated at the individual country level as well as for all six countries.

Two patterns were observed about Indian film admissions. At the aggregate level the Indian experience seemed to be counter to the general trend in other countries, i.e., persistent theatrical admissions despite the diffusion of television. However, per capita film admissions in India have declined somewhat and are no higher than in other countries. This implies that India's persistent aggregate admissions are more an artifact of the population size rather than more frequent visits to the theaters. As in other countries, as more Indian households acquired television sets, per capita admissions declined. In this aspect, the Indian experience is quite similar to that of the other countries in this study.

Indian television diffusion is in its early stages, in the steep part of the famous S shaped diffusion curve, compared to other countries. Despite its 112 million television households in 2006, the penetration rate of television in India was only 59% of all Indian households. Similarly, despite 68 million cable television households, cable television penetration was limited to 36% of all Indian households. Research (see Spraos, 1962) has demonstrated that the rate of decline in theatrical admissions varies with the stage of television diffusion in a market, i.e., film admissions fell steeply when television reached working class households which were the heaviest users of the cinema. Applying this insight to the above two findings, i.e., falling per

capita admissions, and low television penetration, it seems plausible to conclude that the large

numbers of Indian households that are lower on the socioeconomic ladder which are not yet

television households and are still dependent on the cinema theaters for their audiovisual

entertainment contribute to the persistence of aggregate theatrical admissions and therefore the

large share of film industry revenues from theatrical admissions. In this aspect, the Indian film

market shows a clear lag compared to the other countries in this study.

The individual country econometric analyses showed that as in the US and France,

television penetration did not have a statistically significant effect on the number of films in

India. This is different from the UK and Japan where television penetration had a significant

negative effect on films produced.

India was similar to the US in that television penetration did not significantly affect the

number of films produced. Television households per capita did not have a statistically

significant effect on the number of screens in India. The direction of the effect was negative. In

the US, television households per capita had a statistically significant negative effect on the

number of screens. Despite using the Prais Winsten methodto account for the presence of serial

correlation, models that included aggregate admissions and admissions per capita tested

inconclusive on the Durbin Watson statistic, indicating the continued presence of serial

correlation. This serial correlation was taken into account in the group-wise regressions through

the use of fixed time effect models.

Results of the group-wise econometric analysis showed that despite India's persistent

aggregate admissions, statistically speaking, India fit the international pattern in the matter of the

significant negative effect of television penetration on aggregate admissions.  India also fit the

international pattern in that television penetration had a significant negative effect on per capita admissions. Other group-wise models showed mixed results.

From a policy point of view, the findings raise important issues for the survival of the many Indian language film industries. Government support has been inadequate in two main areas. First, when it comes to the problem of piracy, international experience has shown that unless various forms of video and pay television return revenues to the film industry, television penetration significantly contributes to the decline of the film industry. As we have seen, the Indian film industry depends heavily on theatrical admissions for its survival (78% of film industry revenues come from theatrical admissions). Video and cable revenues are minimal due to the negative effect of extensive piracy. Piracy of films on video and cable delivers the one-two punch of reduced theatrical admissions as well as reduced video and cable revenues. As we have seen, domestic films are estimated to be pirated to a greater extent in India rather than imported films. If policy does not support the generation of new revenue streams to the film industry, then as television penetration increases, theatrical admissions will decline impacting Indian language film industries' main source of revenue. And while a country with a single film industry will have faced losses in only one cultural arena, India stands to lose cultural production in multiple languages.

Second, there have been delays in the introduction of revenue generating technologies such as direct-to-home broadcasting which provide an efficient source of revenues to the film industry. While corporations were ready to introduce the technology by the mid-1990s, policy imperatives have led to delays for various reasons. As television diffusion increases, revenues from theatrical admissions begin to taper off. Premium services which generate revenues to the

film industry need to be introduced to offset these losses if the film industry is to sustain its

growth.

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# *Tables*

**Table 2.1: Comparison between India and other major film producing countries – some key production and exhibition indicators**

| | India | US | Japan | France | Germany | UK | Italy | Spain |
|---|---|---|---|---|---|---|---|---|
| Domestic films share of the market | 94.00% | 94.00% | 53.20% | 44.80% | 25.10% | 19.00% | 24.80% | 15.30% |
| No. of films produced (2006) | 1,091 | 480 | 417 | 203 | 122 | 134 | 116 | 150 |
| Average budget per film (2006) in US$ millions | 0.1 | 30.7 | 5.1 | 7.1 | 8.5 | 11.6 | 2.8 | 4 |
| Film production investment (2006) in US$ millions | 153.3 | 14,742.00 | 463.4 | 1,444.70 | 1,035.20 | 1,552.90 | 323.2 | 603 |
| No. of screens (2006) | 11,183 | 38,415 | 2,926 | 5,632 | 4,848 | 3,569 | 3,987 | 4,299 |
| No. of screens per million of population (2006) | 10.2 | 128.2 | 23 | 92.5 | 58.7 | 59.2 | 68.6 | 95.4 |
| Admissions (2006) in millions | 3,997.00 | 1,448.50 | 164.28 | 188.67 | 136.68 | 156.55 | 92.11 | 121.65 |
| Ticket price (2006) in US$ | 0.35 | 6.55 | 10.6 | 7.46 | 7.49 | 8.97 | 7.45 | 6.57 |
| Annual film spending per head (2006) in US$ | 1.29 | 31.66 | 13.66 | 23.12 | 12.39 | 23.32 | 11.81 | 17.74 |
| Box-office of local film industry (2006) US$ millions | 1,331.30 | 8,918.50 | 926 | 624.4 | 256.8 | 267.3 | 170 | 122.6 |

Source: Screen Digest, 2007

**Table 3.1: South Indian states – Some key film production and market size indicators**

| Indian state | Andhra Pradesh | Tamil Nadu | Karnataka | Kerala |
|---|---|---|---|---|
| Language | Telugu | Tamil | Kannada | Malayalam |
| No. of films in 2005 | 268 | 136 | 81 | 67 |
| Population (millions) | 66.5 | 55.8 | 44.9 | 29 |
| 2005 Gross State Domestic Product US$ (billions) | 44. 28 | 42.28 | 32.58 | 23.2 |
| No. of theaters (1997) | 2,783 | 2,492 | 1,230 | 1,342 |

Source: Number of films from Annual Report of the Central Board of Film Certification, India (2006); Population from Indian Census; Gross State Domestic Product from Central Statistical Organization – Ministry of Statistics and Program Implementation, India; Number of theaters as reported in Pendakur (2003)

**Table – 4.1 Films produced in Indian languages from 1931-2005**

| Language | Films produced from 1931-2005 |
|---|---|
| 1.  Hindi | 9,937 |
| 2.  Tamil | 6,362 |
| 3.  Telugu | 6,183 |
| 4.  Malayalam | 3,528 |
| 5.  Kannada | 2,798 |
| 6.  Bengali | 2,628 |
| 7.  Marathi | 1,287 |
| 8.  Gujarati | 732 |
| 9.  Oriya | 447 |
| 10. Punjabi | 372 |
| 11. Assamese | 297 |
| 12. Rajasthani | 91 |
| 13. Manipuri | 62 |
| 14. Konkani | 20 |
| 15. Sindhi | 18 |

Source: Compiled from certification statistics of the Central Board of Film Certification, India  [CBFC] reported in Rajadhyaksha and Willemen (1999) for the years 1931-1981 and from annual reports of the CBFC for the years 1982 – 2005.

**Table – 4.2 Descriptive statistics: Number of films produced, Gross State Domestic Product**

**and speakers of Indian languages**

| Variable | N | Mean | Std. Dev. | Min | Max |
|----------|------|----------|-----------|----------|----------|
| FILMS | 484 | 41.48347 | 51.16884 | 0 | 268 |
| GSDP | 484 | 6.94e+11 | 6.82e+11 | 1.60e+10 | 4.40e+12 |
| LNGSDP | 484 | 26.8273 | 1.022812 | 23.49347 | 29.11228 |
| FILMS | 1050 | 33.02 | 50.37642 | 0 | 268 |
| LANGSPKRS | 1050 | 3.82e+07 | 7.00e+07 | 61420 | 5.32e+08 |
| LNLANGSPKRS | 1050 | 16.40714 | 1.682263 | 11.02549 | 20.09187 |

**Table 4.3 Correlations**

| | FILMS | GSDP | LNGSDP | | FILMS | LANGSPKRS | LNLANGSPKRS |
|---|---|---|---|---|---|---|---|
| FILMS | 1 | | | FILMS | 1 | | |
| GSDP | 0.3096*** | 1 | | LANGSPKRS | 0.6923*** | 1 | |
| LNGSDP | 0.4155*** | 0.8147*** | 1 | LNLANGSPKRS | 0.6280*** | 0.6165*** | 1 |
| N= 1050 | | | | N=484 | | | |
| ***significant at the p<0.001 level | | | | | | | |

# Table 4 .4 – Cross Sectional OLS Models

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Dependent Variable: FILMS** | | | | | | | | | | | | | | |
| **Cross Sectional OLS Models (2005 data)** | | | | | | | | | | | | | | |
| **CONSTANT** | 33.6214 | -9.1620 | 18.6605 | 10.9283 | -590.9680 | -506.4545 | -481.5211 | 11.4211 | 8.6416 | -3.3520 | 9.5808 | 8.8652 | -1138.4980 | -988.0650 |
| | 1.58 | -0.31 | 1.63 | 1.38 | -2.85* | -3.33** | -3.20** | 0.4 | 0.21 | -0.21 | 0.44 | 0.6 | -2.14 | -2.47* |
| **LANGSPKRS** | 4.45E-07 | 1.54E-06 | 4.41E-07 | 4.45E-07 | | | | | | | | | | |
| | 3.14** | 2.64* | 5.92*** | 8.98*** | | | | | | | | | | |
| **LNLANGSPKRS** | | | | | 38.29986 | 32.63322 | 30.89834 | | | | | | | |
| | | | | | 3.18** | 3.69** | 3.52** | | | | | | | |
| **GSDP** | | | | | | | | 3.75E-11 | 2.82E-11 | 3.68E-11 | 1.75E-11 | 1.27E-11 | | |
| | | | | | | | | 2.96* | 1.44 | 5.24*** | 1.64 | 1.72 | | |
| **LN GSDP** | | | | | | | | | | | | | 43.7676 | 37.8015 |
| | | | | | | | | | | | | | 2.28* | 2.61* |
| **F** | 9.84** | 6.98* | 35.10*** | 80.61*** | 10.14** | 13.61** | 12.38** | 8.74* | 2.08 | 27.51*** | 2.7 | 2.97 | 5.19* | 6.82* |
| **Adj R²** | 0.4048 | 0.3325 | 0.7397 | 0.8786 | 0.4129 | 0.5124 | 0.5084 | 0.392 | 0.0892 | 0.7067 | 0.1455 | 0.1799 | 0.2589 | 0.3461 |
| **N** | 14 | 13 | 13 | 12 | 14 | 13 | 12 | 13 | 12 | 12 | 11 | 10 | 13 | 12 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

# Table 4. 5 – Panel Data Models

| Dependent Variable: FILMS PANEL MODELS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | POOLED OLS MODELS | | | | FIXED EFFECT (GROUP EFFECT) MODELS | | | | FIXED EFFECT (TIME EFFECT) MODELS | | | |
| | Model 15 | Model 16 | Model 17 | Model 18 | Model 19 | Model 20 | Model 21 | Model 22 | Model 23 | Model 24 | Model 25 | Model 26 |
| Constant | 25.3736 | -516.1607 | 14.0031 | -275.5360 | 110.2469 | -358.8930 | 29.7910 | -385.9477 | 24.8979 | -515.2759 | 15.3747 | -248.134 |
| | 8.03 *** | -9.28*** | 10.95 *** | -23.21 *** | 29.25 *** | -8.50*** | 4.36*** | -12.21*** | 6.63*** | -7.77*** | 12.14*** | -20.11*** |
| GSDP | 2.32E-11 | | | | 1.83E-11 | | | | 2.39E-11 | | | |
| | 7.15*** | | | | 9.89 *** | | | | 5.55*** | | | |
| LN GSDP | | 20.7865 | | | | 17.7901 | | | | 20.7535 | | |
| | | 10.03 *** | | | | 11.52 *** | | | | 8.40*** | | |
| LANGSPKRS | | | 4.98E-07 | | | | 4.14E-07 | | | | 4.62E-07 | |
| | | | 31.06*** | | | | 17.08*** | | | | 28.37*** | |
| LNLANGSPKRS | | | | 18.8062 | | | | 27.0031 | | | | 17.1361 |
| | | | | 26.12 *** | | | | 16.49*** | | | | 22.90*** |
| F | 51.09*** | 100.58*** | 964.67*** | 682.51*** | 167.7*** | 180.44*** | 167.8*** | 164.23*** | 30.77*** | 70.49*** | 804.88*** | 524.42*** |
| Adj $R^2$ | 0.0940 | 0.1709 | 0.4788 | 0.3938 | 0.8055 | 0.8168 | 0.6900 | 0.6854 | 0.0487 | 0.1228 | 0.4961 | 0.4018 |
| N | 484 | 484 | 1050 | 1050 | 484 | 484 | 1050 | 1050 | 484 | 484 | 1050 | |
| i (states) | 12 | 12 | 14 | 14 | 12 | 12 | 14 | 14 | 12 | 12 | 14 | 14 |
| t (years) | 45 | 45 | 75 | 75 | 45 | 45 | 75 | 75 | 45 | 45 | 75 | 75 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

**Table 4.6 – Comparison of Film Production and Market Size: India and the major film producing countries**

| International Market Size and Film Production | | | | |
|---|---|---|---|---|
| Country | No. of films produced (2006)[1] | Population (2006)[2] | 2006 Gross Domestic Product in constant 2000 US$ billions[3] | No. of screens per million of population (2006)[4] | Average budget per film (2006) in US$ millions[5] |
| India | 1,091 | 1,109,811,147 | 706.43 | 10.2 | 0.1 |
| US | 480 | 299,398,000 | 11,314.70 | 128.2 | 30.7 |
| Japan | 417 | 127,756,000 | 5,087.77 | 23 | 5.1 |
| France | 203 | 61,352,573 | 1,468.32 | 92.5 | 7.1 |
| Germany | 122 | 82,376,451 | 2,016.13 | 58.7 | 8.5 |
| UK | 134 | 60,595,742 | 1,673.11 | 59.2 | 11.6 |
| Italy | 116 | 58,941,500 | 1,157.04 | 68.6 | 2.8 |
| Spain | 150 | 44,116,441 | 707.06 | 95.4 | 4 |

Sources:

[1,4,5] Screen Digest - various issues

[2,3] World Development Indicators Online Database

## Table 4.7 – Comparison of Market Size and Film Production and Exhibition Indicators across selected Indian states

**Indian States Market Size and Film Production**

| Indian state | Language | No. of films in 2005[2] | Average annual film production from 1931 to 2005[3] | Population (2005)[4] | 2005 Gross State Domestic Product (in constant 2000 US$ billions)[5] | No. of theaters (1997)[6] | 2007 film production budgets (in current US$ millions)[7] |
|---|---|---|---|---|---|---|---|
| 10 states[1] | Hindi | 245 | 132 | 531,846,917 | 188.64 | 2181 | 1.5 - 5.6* |
| Tamil Nadu | Tamil | 136 | 85 | 64,775,429 | 43.55 | 2,492 | 1.1 - 3.4 |
| Andhra Pradesh | Telugu | 268 | 82 | 80,410,875 | 45.61 | 2,783 | 1.1 - 3.4 |
| Kerala | Malayalam | 67 | 47 | 34,964,935 | 23.89 | 1,342 | 0.7 - 1.8 |
| Karnataka | Kannada | 81 | 37 | 40,753,854 | 33.56 | 1,230 | 0.34 - 0.91 |
| West Bengal | Bengali | 40 | 35 | 90,829,801 | 46.11 | 465 | 0.17 - 0.25 |
| Maharashtra | Marathi | 57 | 17 | 77,449,417 | 82.07 | 1208 | <0.25 |
| Gujarat | Gujarati | 16 | 10 | 50,126,649 | 40.95 | 469 | 0.21# |
| Punjab | Punjabi | 5 | 5 | 31,173,646 | 20.52 | 144 | 0.18 -1.81 |
| Assam | Assamese | 8 | 4 | 14,675,552 | 11.22 | 192 | 0.09 |
| Manipur | Manipuri | 1 | 0.27 | 1,589,200 | 1.2 | 11 | 0.063-0.076 ## |

Sources:

[1] The states are Uttar Pradesh (Hindi/Urdu/Maithili speaking population 99%), Bihar (99%), Rajasthan (97%), Madhya Pradesh (96%), Uttaranchal (94%), Chhattisgarh (92%), Himachal Pradesh (91%), Haryana (89%), Delhi (88%) and Jharkhand (74%)

[2] From the Central Board of Film Certification's Annual Report 2006

[3] Compiled from figures reported in Rajadhyaksha and Willemen's Encyclopedia of Indian Films (1995) fr the years 1931 to 1980, and from Annual Reports of the Central Board of Film Certification for the years from 1981 – 2005

[4] From the Indian Census

[5] From figures reported Central Statistical Organisation of India, a unit of the Ministry of Statistics and Programme Implentation, Government of India

[6] From figures reported in Pendakur (2003)

*2006 figure, #2004 figure, **2008 figure, ## 1998 figure

[7] Compiled using information from the following sources: Hindi (Chadha, 2006); Tamil, Telugu, Malayalam, and Kannada ("South Indian Cinema, 2007); Bengali (Mukherjee and Ganguly, 2007); Marathi (Nivas, 2004; "Marathi Films", 2008 ); Gujarati ("Will Gollywood get its ," 2004), Punjabi ( Wadehra, 2007), Assamese (Rahman, 2008), Bhojpuri ("Regional films", 2008), Manipuri (Yumnam, 2007; Irom, n.d); Konkani (Kumar, 1998)

**Table 4.8 – Indian language speakers in the US**

| Language | Number of speakers | % share of all Indian language speakers in the US |
|---|---|---|
| Hindi | 317,055 | 21% |
| Urdu | 262,900 | 18% |
| Gujarati | 235,990 | 16% |
| Punjabi | 141,740 | 10% |
| Bengali | 128,820 | 9% |
| Telugu | 86,165 | 6% |
| Tamil | 83,965 | 6% |
| India, n.e.c. | 80,240 | 5% |
| Malayalam | 79,855 | 5% |
| Marathi | 35,010 | 2% |
| Kannada | 24,390 | 2% |
| Sindhi | 7,815 | 1% |
| Oriya | 2,365 | 0% |
| Kashmiri | 945 | 0% |
| Assamese | 760 | 0% |
| Rajasthani | 335 | 0% |
| Bihari | 125 | 0% |

Source: US Census, 2000

**Table 4.9 – Estimated numbers of Indian language speakers in London in 1998**

| Language | Estimated Speakers in London (1998) |
|---|---|
| Punjabi | 155,700 |
| Gujarati | 149,600 |
| Hindi/Urdu | 136,500 |
| Bengali + Sylheti | 136,300 |
| Tamil | 19,200 |

Source: Stokey, M. 2000

**Table 4.10 – Share of Indian language films on the British charts**

**(By language, 2002-2007)**

| Language | Films on the British charts 2002-2007 | % of total Indian films on the British charts |
|---|---|---|
| Hindi | 161 | 83.85% |
| Tamil | 18 | 9.38% |
| Punjabi | 6 | 3.13% |
| Eng/Hin | 3 | 1.56% |
| Telugu | 2 | 1.04% |
| Malayalam | 1 | 0.52% |
| **Total** | **192** | **100%** |

Source: Compiled from charts on www.boxofficemojo.com

**Table 4.11 – Revenue Share of Indian films on the British charts**

**(By language, 2002-2007)**

| Language | Revenue of Indian films on the British charts (2002-7) US$ | Revenue Share by Indian language |
|---|---|---|
| Hindi | 90,870,500 | 95.30% |
| Tamil | 1,781,104 | 1.87% |
| Punjabi | 1,274,520 | 1.34% |
| Eng/Hin | 988,977 | 1.04% |
| Telugu | 357,757 | 0.38% |
| Malayalam | 77,480 | 0.08% |
| **Total** | **95,352,644** | **100%** |

Source: Compiled from charts on www.boxofficemojo.com

**Table 4.12 –Share of Indian films on the Malaysian charts (by language 2007-2008)**

| Language | 2007 | 2008 | Share |
|---|---|---|---|
| Hindi | 11 | 2 | 27% |
| Tamil | 22 | 13 | 71% |
| Telugu | 0 | 1 | 2% |
| **Total** | **33** | **16** | **100%** |

Source: Compiled from charts on www.boxofficemojo.com

**Table 4.13– Films dubbed into Indian languages**

| Language | 1996 | 1997 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 8-year Total | Share |
|---|---|---|---|---|---|---|---|---|---|---|
| Telugu | 80 | 57 | 60 | 40 | 83 | 40 | 32 | 55 | 447 | 38.87% |
| Tamil | 60 | 44 | 62 | 46 | 80 | 78 | 29 | 16 | 415 | 36.09% |
| Hindi | 21 | 12 | 22 | 32 | 40 | 40 | 44 | 20 | 231 | 20.09% |
| Malayalam | 5 | 6 | | 3 | 4 | 3 | 1 | 1 | 23 | 2.00% |
| Bengali | | | 1 | | 2 | 1 | 3 | | 7 | 0.61% |
| Assamese | | | | | 1 | | | | 1 | 0.09% |
| Bhojpuri | | | | | 1 | | | | 1 | 0.09% |
| Gujarati | | | | | 1 | 1 | | | 2 | 0.17% |
| Manipuri | | | | | 1 | | | | 1 | 0.09% |
| English | 6 | | 1 | 2 | | 1 | 2 | | 12 | 1.04% |
| French | | | 1 | | | | | | 1 | 0.09% |
| Kannada | | 4 | | | | | | | 4 | 0.35% |
| Marathi | 1 | | | | | 1 | | | 2 | 0.17% |
| Oriya | | | | | | | 1 | 1 | 2 | 0.17% |
| Punjabi | | | | | | | 1 | | 1 | 0.09% |
| **Annual Total** | **173** | **123** | **147** | **123** | **213** | **165** | **113** | **93** | **1150** | **100%** |

Source: Compiled from Annual Reports of the Central Board of Film Certification, Mumbai, India

**Table 4.14– Indian language films (2003-2005) whose genres are reported on**

**www.imdb.com**

| 2003-2005<br>3 year total | No. of films certified by CBFC | No. of Indian language films whose details are available on imdb | % share of Indian language films censored whose details are reported on imdb | No. of Indian language films for which genre information is available on imdb | % share of Indian language films censored whose genres are reported on imdb |
|---|---|---|---|---|---|
| Hindi | 711 | 393 | 55% | 348 | 49% |
| Telugu | 417 | 111 | 27% | 80 | 19% |
| Tamil | 417 | 95 | 23% | 80 | 19% |
| Malayalam | 202 | 182 | 90% | 130 | 64% |
| Bengali | 135 | 25 | 19% | 24 | 18% |
| Marathi | 138 | 15 | 11% | 15 | 11% |
| Punjabi | 12 | 5 | 42% | 1 | 8% |
| Kannada | 265 | 8 | 3% | 6 | 2% |
| Oriya | 50 | 1 | 2% | 1 | 2% |
| Assamese | 34 | 1 | 3% | 0 | 0 |
| Gujarati | 43 | 0 | 0 | 0 | 0 |
| Rajasthani/Manipuri/ Konkani/Sindhi | 0 | 0 | 0 | 0 | 0 |

Source: Compiled from details reported by the Central Board of Film Certification and www. imdb.com

**Table 4.15 – Genre elements in Indian films**

| LANGUAGE | TOTAL FILMS | Action | Adventure | Animation | Comedy | Crime | Drama | Family | Fantasy | History | Horror | Musical | Mystery | Romance | Sci-fi | Sport | Thriller | War | TOTAL GENRE ELEMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HINDI | 348 | 56 | 11 | 2 | 81 | 34 | 156 | 13 | 9 | 1 | 15 | 40 | 14 | 105 | 2 | 1 | 72 | 7 | 619 |
| TELUGU | 79 | 25 | 4 | 0 | 12 | 1 | 33 | 5 | 4 | 0 | 1 | 3 | 3 | 35 | 0 | 0 | 6 | 0 | 132 |
| TAMIL | 84 | 23 | 4 | 0 | 20 | 2 | 32 | 5 | 4 | 0 | 2 | 11 | 3 | 42 | 0 | 0 | 11 | 0 | 159 |
| MALAYALAM | 129 | 35 | 2 | 0 | 64 | 15 | 81 | 4 | 4 | 0 | 5 | 5 | 8 | 33 | 0 | 0 | 27 | 1 | 284 |
| BENGALI | 24 | 1 | 1 | 0 | 0 | 2 | 20 | 2 | 1 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 31 |
| MARATHI | 15 | 0 | 1 | 0 | 6 | 2 | 11 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 26 |
| TOTAL | 679 | 140 | 23 | 2 | 183 | 56 | 333 | 31 | 22 | 1 | 24 | 60 | 29 | 217 | 2 | 1 | 119 | 8 | 1251 |

Source: Compiled from details reported on www.imdb.com. A total of 1251 genre elements were reported for 679 films released in the 2003-2005 period in the Hindi, Telugu, Tamil, Malayalam, Bengali and Marathi languages on imdb.com. Thus an average of 1.84 genre elements was reported per film.

# Table 4.16 – Percentage share of genre elements in Indian films

| LANGUAGE | Action | Adventure | Animation | Comedy | Crime | Drama | Family | Fantasy | History | Horror | Musical | Mystery | Romance | Sci-fi | Sport | Thriller | War |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HINDI | 9.05% | 1.78% | 0.32% | 13.09% | 5.49% | 25.20% | 2.10% | 1.45% | 0.16% | 2.42% | 6.46% | 2.26% | 16.96% | 0.32% | 0.16% | 11.63% | 1.13% |
| TELUGU | 18.94% | 3.03% | 0.00% | 9.09% | 0.76% | 25.00% | 3.79% | 3.03% | 0.00% | 0.76% | 2.27% | 2.27% | 26.52% | 0.00% | 0.00% | 4.55% | 0.00% |
| TAMIL | 14.47% | 2.52% | 0.00% | 12.58% | 1.26% | 20.13% | 3.14% | 2.52% | 0.00% | 1.26% | 6.92% | 1.89% | 26.42% | 0.00% | 0.00% | 6.92% | 0.00% |
| MALAYALAM | 12.32% | 0.70% | 0.00% | 22.54% | 5.28% | 28.52% | 1.41% | 1.41% | 0.00% | 1.76% | 1.76% | 2.82% | 11.62% | 0.00% | 0.00% | 9.51% | 0.35% |
| BENGALI | 3.23% | 3.23% | 0.00% | 0.00% | 6.45% | 64.52% | 6.45% | 3.23% | 0.00% | 0.00% | 3.23% | 3.23% | 6.45% | 0.00% | 0.00% | 0.00% | 0.00% |
| MARATHI | 0.00% | 3.85% | 0.00% | 23.08% | 7.69% | 42.31% | 7.69% | 0.00% | 0.00% | 3.85% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 11.54% | 0.00% |
| Total | 11% | 2% | 0% | 15% | 4% | 27% | 2% | 2% | 0% | 2% | 5% | 2% | 17% | 0% | 0% | 10% | 1% |

Source: Compiled from details reported on www.imdb.com. A total of 1251 genre elements were reported for 679 films released in the 2003-2005 period in the Hindi, Telugu, Tamil, Malayalam, Bengali and Marathi languages on imdb.com. Each cell shows the percentage share of the number of times a genre element was reported in a language. For instance the action genre was reported 56 times out of the 619 genre elements reported for Hindi films. The top left cell for Hindi under Action shows this percentage share i.e., 56/619 = 9.05%

**Table 5.1 US Models**

| | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model |
|---|---|---|---|---|---|---|---|---|
| | | | US MODELS | | | | | |
| | DV: ADMSNS | DV: ADMSNS | DV: ADMSNSPC | DV: ADMSNSPC | DV: FILMS | DV: FILMS | DV: SCREENS | DV: SCREENS |
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
| Constant | 3.19E+09 | 7.46E+08 | 22.23417 | 3.366194 | 313.614 | 1082.204 | 10694.87 | 10675.21 |
| | 23.71*** | 1.95 | 31.33*** | 1.96 | 8.16*** | 2.68* | 4.22*** | 2.78** |
| TVHHPC | -6.02E+09 | 1.00E+09 | -51.71723 | 2.443818 | 88.18529 | -1084.363 | 34060.75 | -22374.73 |
| | -13.43*** | 0.92 | -21.88*** | 0.49 | 0.69 | -1.9 | 4.04*** | -2.40* |
| F | 180.44*** | 0.84 | 478.82*** | 0.24 | 0.48 | 3.62 | 16.3*** | 5.78* |
| Adj $R^2$ | 0.7526 | -0.0028 | 0.8901 | -0.0132 | -0.009 | 0.0432 | 0.2059 | 0.0762 |
| N | 60 | 59 | 60 | 59 | 60 | 59 | 60 | 59 |
| Durbin Watson Statistic d | 0.084603 | 1.609168 | 0.136351 | 1.772699 | 0.137082 | 1.723392 | 0.025063 | 1.653136 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

**Table 5.2 UK Models**

| | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model |
|---|---|---|---|---|---|---|---|---|
| | | | DV: | DV: | | | | |
| | DV: ADMSNS | DV: ADMSNS | ADMSNSPC | ADMSNSPC | DV: FILMS | DV: FILMS | DV: SCREENS | DV: SCREENS |
| | Model 9 | Model 10 | Model 11 | Model 12 | Model 13 | Model 14 | Model 15 | Model 16 |
| Constant | 1.38E+09 | 1.03E+09 | 28.01461 | 19.71425 | 129.3888 | 162.6663 | 4548.234 | 4247.292 |
| | 34.81*** | 4.08*** | 34.18*** | 4.17*** | 17.18*** | 9.11*** | 18.05*** | 10.08*** |
| TVHHPC | -3.46E+09 | -2.54E+09 | -71.4794 | -49.5774 | -187.474 | -283.5456 | -7159.32 | -9903.417 |
| | -27.21 *** | -4.36 *** | -27.15*** | -4.39*** | -7.75*** | -5.20*** | -8.85 *** | -7.45*** |
| F | 740.6*** | 19.01** | 737.25*** | 19.24*** | 60.06*** | 27.06*** | 78.28*** | 55.49*** |
| Adj R$^2$ | 0.9273 | 0.2401 | 0.927 | 0.2424 | 0.5045 | 0.3137 | 0.5713 | 0.4887 |
| N | 59 | 58 | 59 | 58 | 59 | 58 | 59 | 58 |
| Durbin Watson Statistic d | 0.07503 | 0.981058 | 0.072119 | 0.929402 | 0.392464 | 2.113905 | 0.028955 | 0.775432 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

**Table 5.3 France Models**

| | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model |
|---|---|---|---|---|---|---|---|---|
| | DV: ADMSNS | DV: ADMSNS | DV: ADMSNSPC | DV: ADMSNSPC | DV: FILMS | DV: FILMS | DV: SCREENS | DV: SCREENS |
| | Model 17 | Model 18 | Model 19 | Model 20 | Model 21 | Model 22 | Model 23 | Model 24 |
| Constant | 3.57E+08 | 2.77E+08 | 8.0862 | 5.0630 | 76.1558 | -105.6699 | 5539.221 | 12752.21 |
| | 38.25*** | 3.7** | 38.49*** | 3.15** | 6.77*** | -0.8 | 48.52*** | 4.29*** |
| TVHHPC | -5.82E+08 | -3.28E+08 | -15.5244 | -7.0858 | 81.42836 | 644.3949 | -2358.086 | -6469.431 |
| | -17.25*** | -1.74 | -20.45*** | -1.79 | 1.99 | 1.93 | -5.72 *** | -3.14** |
| F | 297.62*** | 3.02 | 418.38*** | 3.22 | 3.97 | 3.74 | 32.69*** | 9.83** |
| Adj $R^2$ | 0.846 | 0.0368 | 0.8854 | 0.0402 | 0.054 | 0.0529 | 0.3698 | 0.1428 |
| N | 55 | 54 | 55 | 54 | 53 | 50 | 55 | 54 |
| Durbin Watson Statistic d | 0.161212 | 1.674992 | 0.135523 | 1.596597 | 0.319776 | 1.715143 | 0.083009 | 0.659888 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

**Table 5.4 Germany Models**

| | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model |
|---|---|---|---|---|---|---|---|---|
| | DV: ADMSNS | DV: ADMSNS | DV: ADMSNSPC | DV: ADMSNSPC | DV: FILMS | DV: FILMS | DV: SCREENS | DV: SCREENS |
| | Model 25 | Model 26 | Model 27 | Model 28 | Model 29 | Model 30 | Model 31 | Model 32 |
| Constant | 5.55E+08 | 7.10E+09 | 7.7807 | 111.8071 | 127.854 | 97.0880 | 5441.142 | 29353.99 |
| | 14.82*** | 0.89 | 14.58*** | 0.73 | 9.42*** | 17.98*** | 19.46*** | 2.72** |
| TVHHPC | -1.19E+09 | -1.90E+09 | -17.3336 | -26.7429 | -208.5676 | -117.0431 | -4274.616 | -12225.2 |
| | -9.07 *** | -4.13*** | -9.26*** | -4.16*** | -4.42 *** | -6.30*** | -4.36 *** | -3.27** |
| F | 82.32 | 17.03*** | 85.77 | 17.32*** | 19.57*** | 39.73*** | 19.01*** | 10.67** |
| Adj $R^2$ | 0.6146 | 0.2465 | 0.6244 | 0.2498 | 0.2708 | 0.4517 | 0.2609 | 0.1647 |
| N | 52 | 50 | 52 | 50 | 51 | 48 | 52 | 50 |
| Durbin Watson Statistic d | 0.039394 | 0.965802 | 0.037741 | 0.943363 | 1.007275 | 0.534641 | 0.048068 | 0.786365 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

**Table 5.5 Japan Models**

| | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model |
|---|---|---|---|---|---|---|---|---|
| | DV: ADMSNS | DV: ADMSNS | DV: ADMSNSPC | DV: ADMSNSPC | DV: FILMS | DV: FILMS | DV: SCREENS | DV: SCREENS |
| | Model 33 | Model 34 | Model 35 | Model 36 | Model 37 | Model 38 | Model 39 | Model 40 |
| Constant | 8.67E+08 | 1.25E+09 | 9.5214 | 13.5109 | 552.6012 | 713.5982 | 6754.405 | 8267.695 |
| | 15.17*** | 15.66*** | 15.5*** | 16.03*** | 13.04*** | 5.24*** | 22.28*** | 10.72*** |
| TVHHPC | -2.63E+09 | -4.11E+09 | -30.5057 | -45.9068 | -790.6044 | -1336.352 | -16192.8 | -20721.03 |
| | -10.62*** | -12.47*** | -11.44*** | -13.16 *** | -4.30*** | -2.5* | -12.31*** | -7.03 *** |
| F | 112.7 | 155.61 | 130.87 | 173.29 | 18.48*** | 6.25* | 151.49*** | 49.39*** |
| Adj $R^2$ | 0.6824 | 0.752 | 0.7141 | 0.7716 | 0.2516 | 0.0933 | 0.7432 | 0.4869 |
| N | 53 | 52 | 53 | 52 | 53 | 52 | 53 | 52 |
| Durbin Watson Statistic d | 0.299363 | 2.022529 | 0.314171 | 2.043848 | 0.246045 | 2.080132 | 0.114655 | 0.971383 |

t statistics reported below coefficient estimates

***Significant at the p<0.001. **Significant at p<0.01. *Significant at p<0.05.

**Table 5.6 India Models**

| | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model | OLS Model | Prais Winsten Model |
|---|---|---|---|---|---|---|---|---|
| | DV: ADMSNS | DV: ADMSNS | DV: ADMSNSPC | DV: ADMSNSPC | DV: FILMS | DV: FILMS | DV: SCREENS | DV: SCREENS |
| | Model 41 | Model 42 | Model 43 | Model 44 | Model 45 | Model 46 | Model 47 | Model 48 |
| Constant | 3.82E+09 | 3.90E+09 | 5.5347 | 5.2550 | 637.401 | 995.1053 | 10500.71 | 12808.68 |
| | 21.69*** | 8.18*** | 30.84*** | 9.88*** | 19.98*** | 5.63*** | 27.35*** | 19.64*** |
| TVHHPC | -3.02E+09 | 2.91E+09 | -30.77319 | -14.43995 | 3774.607 | -206.6985 | 23518.09 | -10650.09 |
| | -0.63 | 0.4 | -6.34 *** | -1.51 | 4.38*** | -0.15 | 2.27* | -1.69 |
| F | 0.4 | 0.16 | 40.2*** | 2.29 | 19.15*** | 0.02 | 5.13* | 2.87 |
| Adj $R^2$ | -0.0169 | -0.0245 | 0.5213 | 0.0355 | 0.3352 | -0.0287 | 0.103 | 0.0507 |
| N | 37 | 36 | 37 | 36 | 37 | 36 | 37 | 36 |
| Durbin Watson Statistic d | 0.289275 | 1.477564 | 0.679483 | 1.435639 | 0.244986 | 1.726552 | 0.059784 | 1.707995 |

t statistics reported below coefficient estimates

***Significant at the p<0.001. **Significant at p<0.01. *Significant at p<0.05.

**Table 5.7**

| | PANEL MODELS | | | | | |
|---|---|---|---|---|---|---|
| | Dependent Variable: ADMSNS | | | | | |
| | POOLED OLS MODELS | | FIXED GROUP EFFECT MODELS | | FIXED TIME EFFECT MODELS | |
| | MODEL 1 All 6 countries | MODEL 2 Without India | MODEL 3 All 6 countries | MODEL 4 Without India | MODEL 5 All 6 countries | MODEL 6 Without India |
| Constant | 2.11E+09 | 1.03E+09 | 1.49E+09 | 1.18E+09 | 3.66E+09 | 1.31E+09 |
| | 19.88*** | 12.47*** | 29.97*** | 27.85*** | 19.78*** | 5.76*** |
| TVHHPC | -5.20E+09 | -1.87E+09 | -2.48E+09 | -2.47E+09 | -1.20E+10 | -2.95E+09 |
| | -13.06*** | -6.40*** | -12.67*** | -16.40*** | -15.36*** | -3.35** |
| F | 170.56*** | 41.00*** | 160.51*** | 269.11*** | 236.00*** | 11.25** |
| Adj $R^2$ | 0.3499 | 0.1258 | 0.8919 | 0.7779 | 0.4359 | -0.0046 |
| N | 316 | 279 | 316 | 279 | 316 | 279 |
| i (COUNTRIES) | 6 | 5 | 6 | 5 | 6 | 5 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

**Table 5.8**

| | POOLED OLS MODELS | | FIXED GROUP EFFECT MODELS | | FIXED TIME EFFECT MODELS | |
|---|---|---|---|---|---|---|
| **PANEL MODELS** | | | | | | |
| **Dependent Variable: ADMSNSPC** | | | | | | |
| | MODEL 7 All 6 countries | MODEL 8 Without India | MODEL 9 All 6 countries | MODEL 10 Without India | MODEL 11 All 6 countries | MODEL 12 Without India |
| Constant | 10.22525 | 13.21102 | 13.43204 | 14.47296 | 8.448716 | 15.54291 |
| | 20.3*** | 22.00*** | 33.83*** | 30.96*** | 8.92*** | 9.97*** |
| TVHHPC | -21.63099 | -30.85413 | -35.80166 | -35.8376 | -13.78054 | -40.06285 |
| | -11.44*** | -14.55*** | -22.96  *** | -21.61*** | -3.43** | -6.61*** |
| F | 130.97*** | 211.75*** | 527.26*** | 467.21*** | 11.78*** | 43.66*** |
| Adj R$^2$ | 0.2921 | 0.4312 | 0.6676 | 0.6685 | 0.2843 | 0.4126 |
| N | 316 | 279 | 316 | 279 | 316 | 279 |
| i (COUNTRIES) | 6 | 5 | 6 | 5 | 6 | 5 |

t statistics reported below coefficient estimates

***Significant at the p<0.001. **Significant at p<0.01. *Significant at p<0.05.

**Table 5.9**

| | POOLED OLS MODELS | | FIXED GROUP EFFECT MODELS | | FIXED TIME EFFECT MODELS | |
|---|---|---|---|---|---|---|
| **PANEL MODELS** | | | | | | |
| Dependent Variable: FILMS | | | | | | |
| | MODEL 19 All 6 countries | MODEL 20 Without India | MODEL 21 All 6 countries | MODEL 22 Without India | MODEL 23 All 6 countries | MODEL 24 Without India |
| Constant | 433.4081 | 248.3838 | 285.4269 | 233.2919 | 601.8905 | -3.502226 |
| | 19.08*** | 11.45*** | 22.51*** | 19.94*** | 13.54*** | -0.07 |
| TVHHPC | -771.1307 | -205.4402 | -117.6585 | -145.952 | -1515.135 | 787.4266 |
| | -9.05*** | -2.68** | -2.36 ** | -3.52** | -8.05*** | 3.99*** |
| F | 81.9*** | 7.2** | 5.58* | 12.39*** | 64.78*** | 15.89*** |
| Adj R$^2$ | 0.2059 | 0.0221 | 0.814 | 0.7267 | 0.1256 | 0.1687 |
| N | 313 | 276 | 313 | 276 | 313 | 276 |
| i (COUNTRIES) | 6 | 5 | 6 | 5 | 6 | 5 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

**Table 5.10**

| | POOLED OLS MODELS | | FIXED GROUP EFFECT MODELS | | FIXED TIME EFFECT MODELS | |
|---|---|---|---|---|---|---|
| **PANEL MODELS** | | | | | | |
| Dependent Variable: SCREENS | | | | | | |
| | MODEL 25 All 6 countries | MODEL 26 Without India | MODEL 27 All 6 countries | MODEL 28 Without India | MODEL 29 All 6 countries | MODEL 30 Without India |
| **Constant** | 7787.382 | 5830.59 | 7614.124 | 7202.183 | 15349.97 | 15781.3 |
| | 9.78*** | 5.6*** | 17.03*** | 13.86*** | 10.89*** | 6.03*** |
| **TVHHPC** | -135.9493 | 5882.584 | 629.6714 | 466.1006 | -33554.76 | -33413.2 |
| | -0.05 | 1.6 | 0.36 | 0.25 | -5.62*** | -3.28** |
| **F** | 0.00 | 2.56 | 0.13 | 0.06 | 31.55*** | 10.77** |
| **Adj R$^2$** | -0.0032 | 0.0056 | 0.7613 | 0.7613 | 0.1026 | 0.0352 |
| **N** | 316 | 279 | 316 | 279 | 316 | 279 |
| **i (COUNTRIES)** | 6 | 5 | 6 | 5 | 6 | 5 |

t statistics reported below coefficient estimates

***Significant at the $p<0.001$. **Significant at $p<0.01$. *Significant at $p<0.05$.

# *Figures*
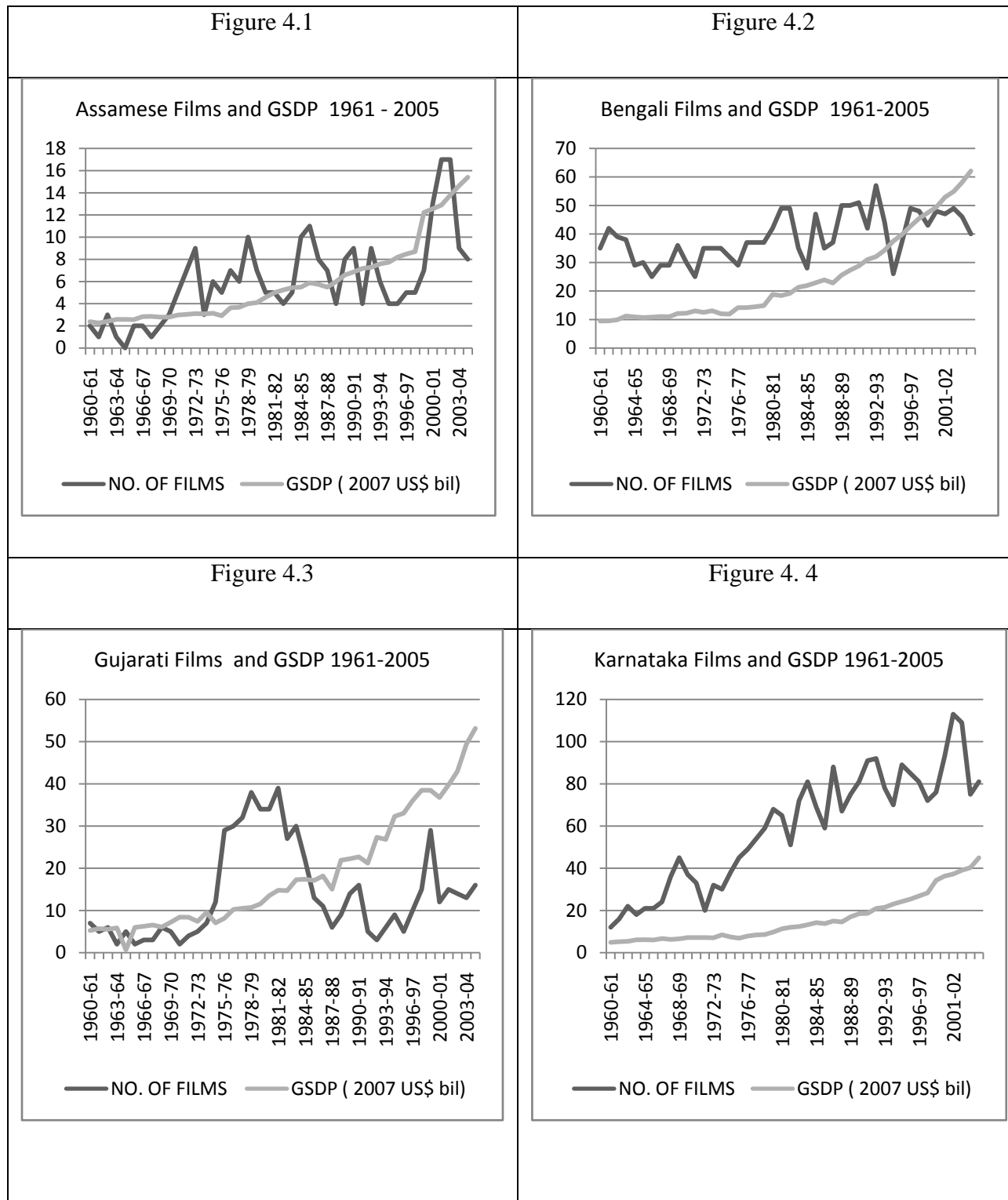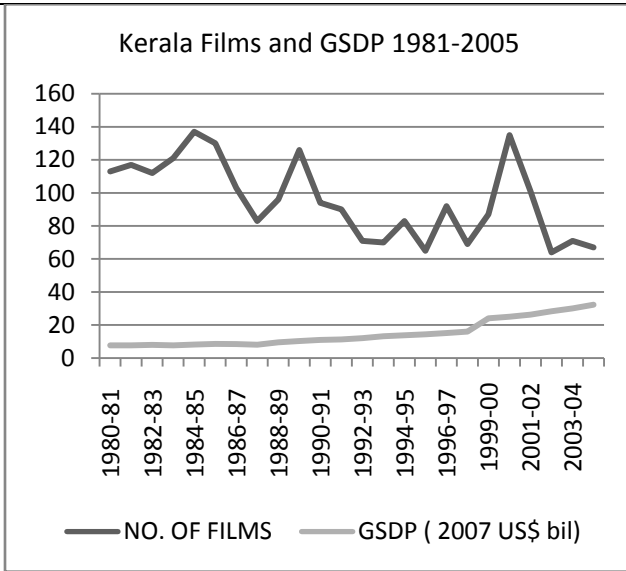## Figures 4.1-12 Film production and GSDP ( 12 Indian states)

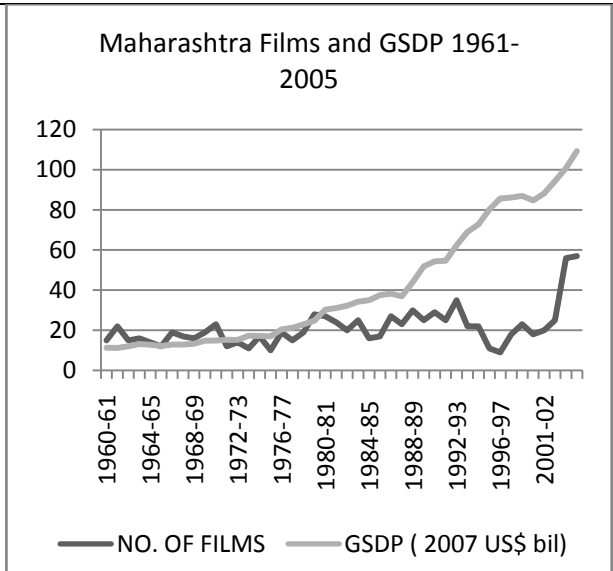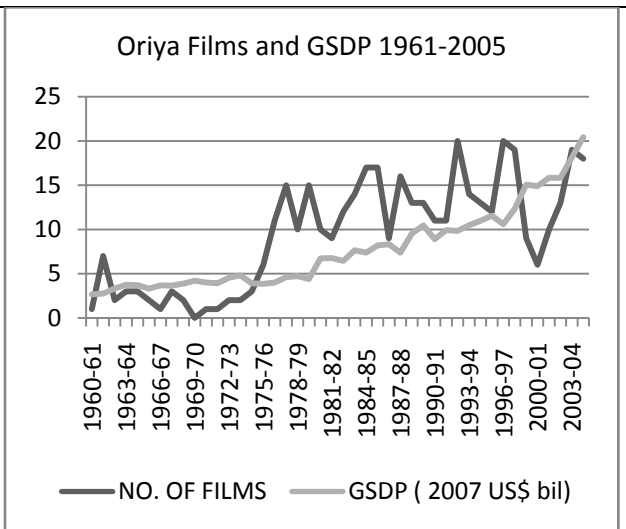| Figure 4.1 | Figure 4.2 |
|---|---|
| Assamese Films and GSDP 1961 - 2005 | Bengali Films and GSDP 1961-2005 |

| Figure 4.3 | Figure 4. 4 |
|---|---|
| Gujarati Films and GSDP 1961-2005 | Karnataka Films and GSDP 1961-2005 |

| Figure 4.5 | Figure 4.6 |
| --- | --- |
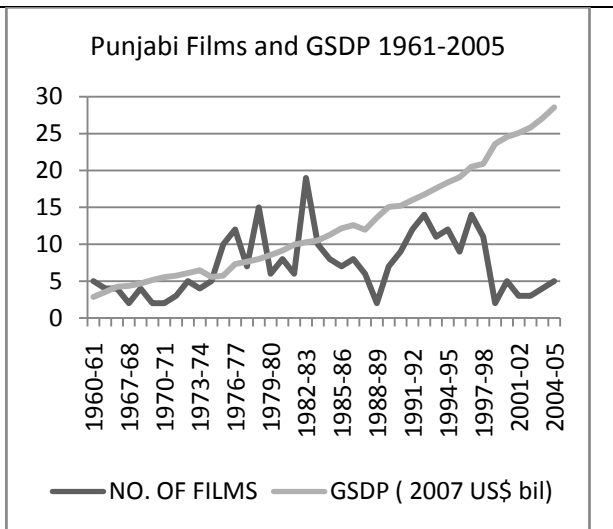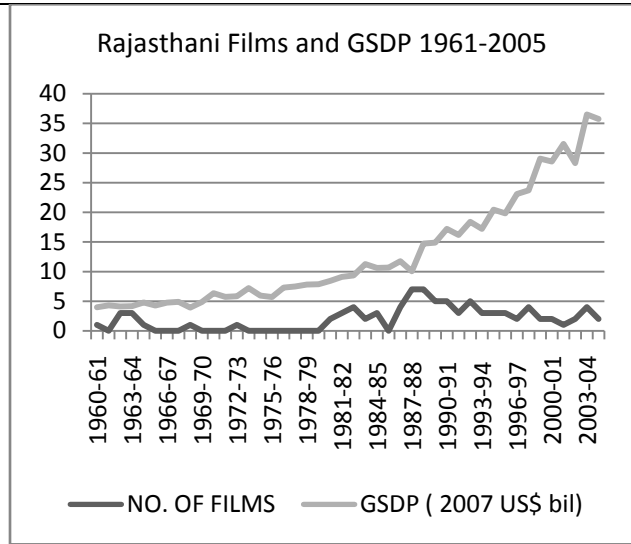
### Kerala Films and GSDP 1981-2005



### Maharashtra Films and GSDP 1961-2005



| Figure 4.7 | Figure 4.8 |
| --- | --- |

### Oriya Films and GSDP 1961-2005



### Punjabi Films and GSDP 1961-2005

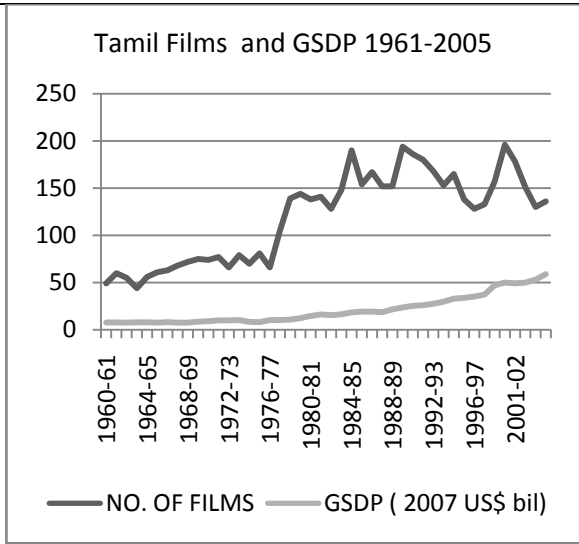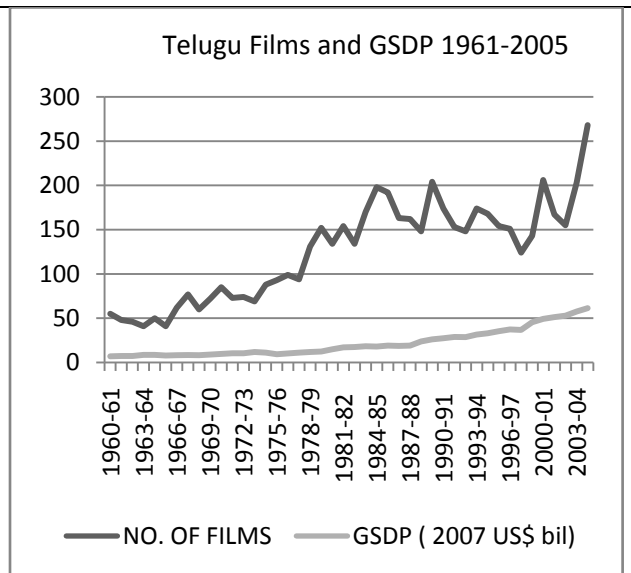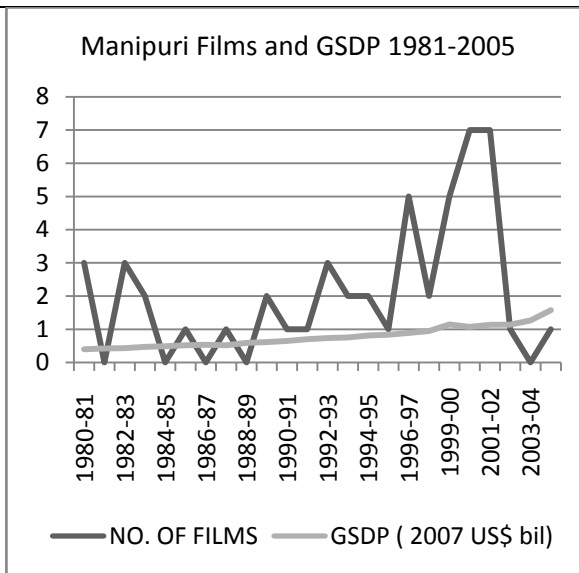| Figure 4.9 | Figure 4.10 |
|---|---|
| **Rajasthani Films and GSDP 1961-2005** | **Tamil Films and GSDP 1961-2005** |
| | |
| Figure 4.11 | Figure 4.12 |
| **Telugu Films and GSDP 1961-2005** | **Manipuri Films and GSDP 1981-2005** |

Data sources: Number of films as reported by the Central Board of Film Certification, India; Gross State Domestic Product (GSDP) as reported by the Central Statistical Organization, Ministry of Statistics and Programme Implementation, India

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**Figures 4.13 - 26 Film production and language Speakers (14 Indian states)**

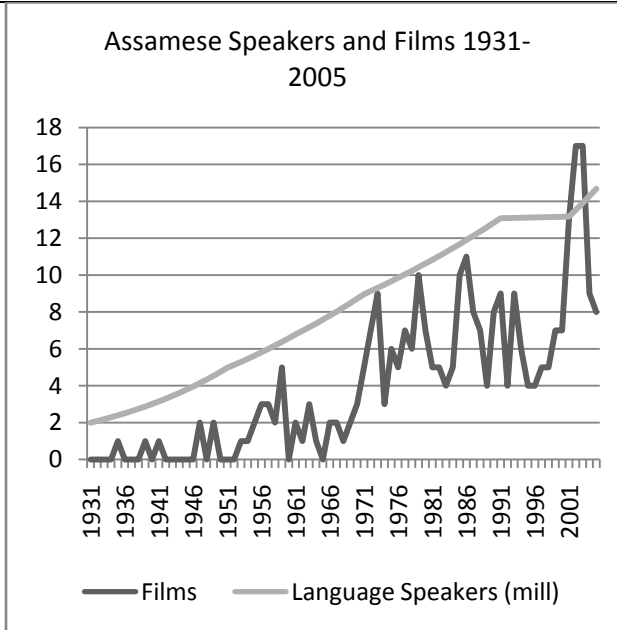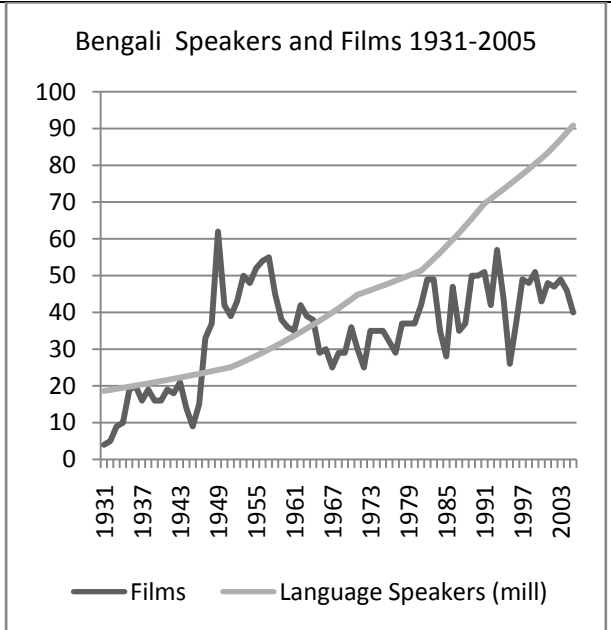| Figure 4.13 | Figure 4.14 |
|---|---|
| Assamese Speakers and Films 1931-2005 | Bengali Speakers and Films 1931-2005 |

| Figure 4.15 | Figure 4.16 |
|---|---|
| Gujarati Speakers and Films 1931-2005 | Hindi/Maithli/Urdu Speakers and Hindi Films 1931- 2005 |

| Figure 4.17 | Figure 4.18 |
|---|---|
| **Kannada Speakers and Films 1931-2005**<br><br>Films — Language Speakers (mill) | **Konkani Speakers and Films 1931-2005**<br><br>Films — Language Speakers (mill) |
| **Figure 4.19** | **Figure 4.20** |
| **Malayalam Speakers and Films 1931-2005**<br><br>Films — Language Speakers (mill) | **Manipuri Speaker and Films 1931-2005**<br><br>Films — Language Speakers (mill) |

| | |
|---|---|
| Figure 4.21 | Figure 4.22 |



Marathi Speakers and Films 1931-2005



Oriya Speakers and Films 1931-2005

| | |
|---|---|
| Figure 4.23 | Figure 4.24 |



Punjabi Speakers and Films 1931-2005



Sindhi Speakers and Films 1931-2005

| Figure 4.25 | Figure 4.26 |
|---|---|

**Tamil Speakers and Films 1931-2005**



Films — Language Speakers (mill)

**Telugu Speakers and Films 1931-2005**



Films — Language Speakers (mill)

Data sources: Number of films as reported by the Central Board of Film Certification, India;
Language speakers as reported by the Indian Census.

**Figures 4.27-30 Language speakers, GSDP and film production scatter plots**
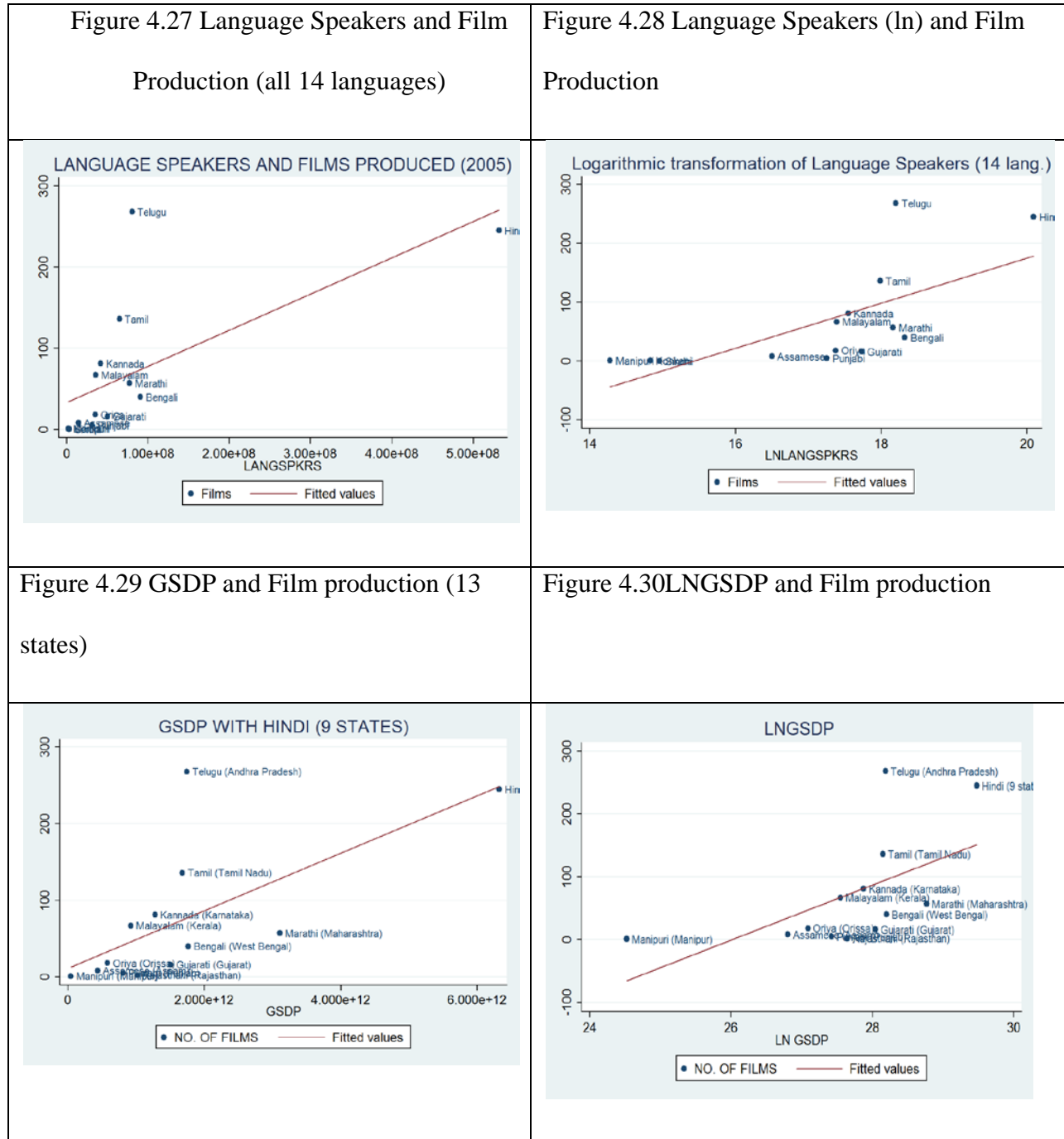
| Figure 4.27 Language Speakers and Film Production (all 14 languages) | Figure 4.28 Language Speakers (ln) and Film Production |
|---|---|
|  |  |
| Figure 4.29 GSDP and Film production (13 states) | Figure 4.30LNGSDP and Film production |
|  |  |

Data sources: Number of films as reported by the Central Board of Film Certification, India; Language speakers as reported by the Indian Census; Gross State Domestic Product (GSDP) as reported by the Central Statistical Organization, Ministry of Statistics and Programme Implementation, India

**Figures 4.31-34 Panel data scatter plots: GSDP, language speakers and film production**
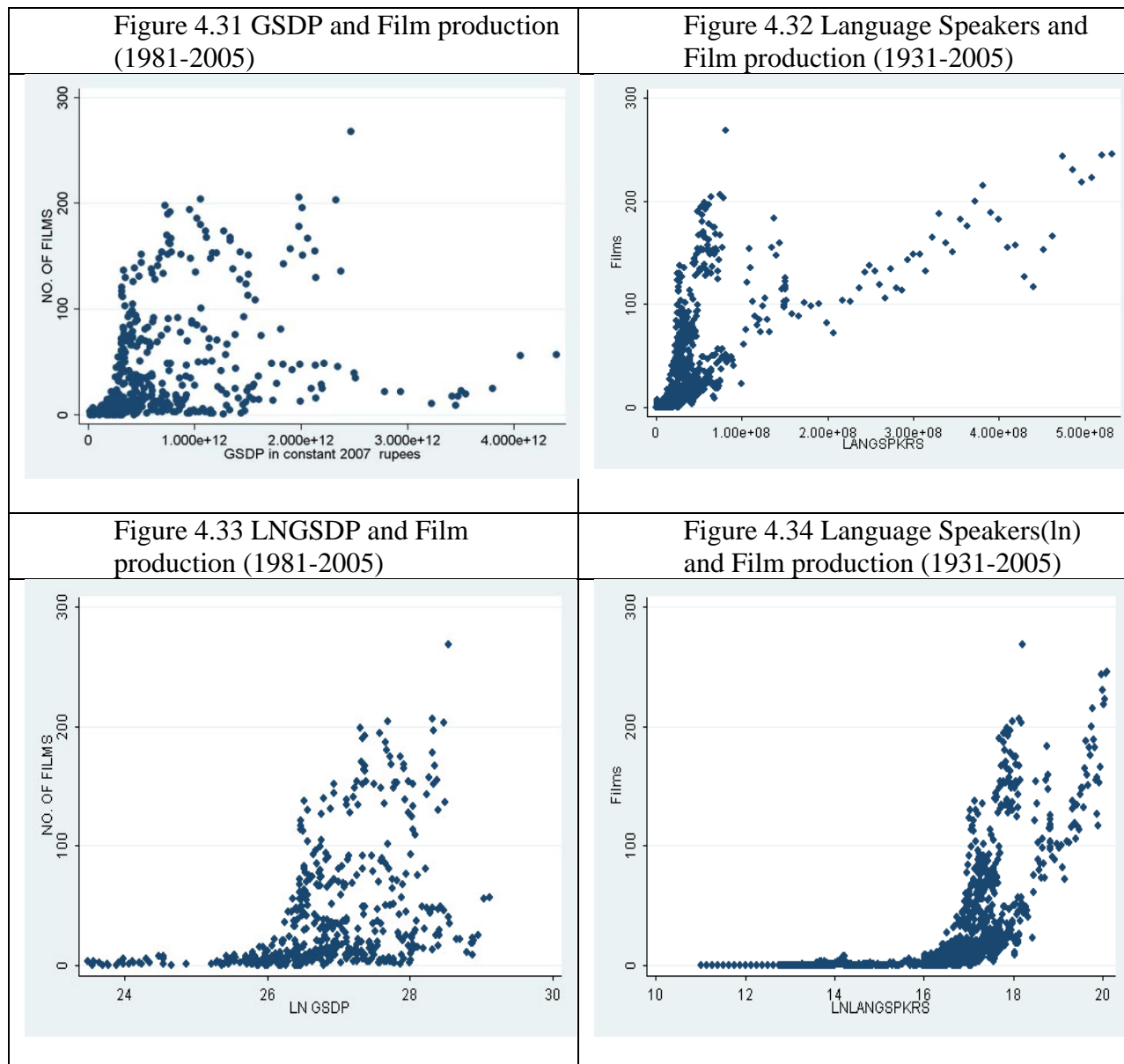
| Figure 4.31 GSDP and Film production (1981-2005) | Figure 4.32 Language Speakers and Film production (1931-2005) |
|---|---|
|  |  |
| Figure 4.33 LNGSDP and Film production (1981-2005) | Figure 4.34 Language Speakers(ln) and Film production (1931-2005) |
|  |  |

Data sources: Number of films as reported by the Central Board of Film Certification, India; Language speakers as reported by the Indian Census; Gross State Domestic Product (GSDP) as reported by the Central Statistical Organization, Ministry of Statistics and Programme Implementation, India
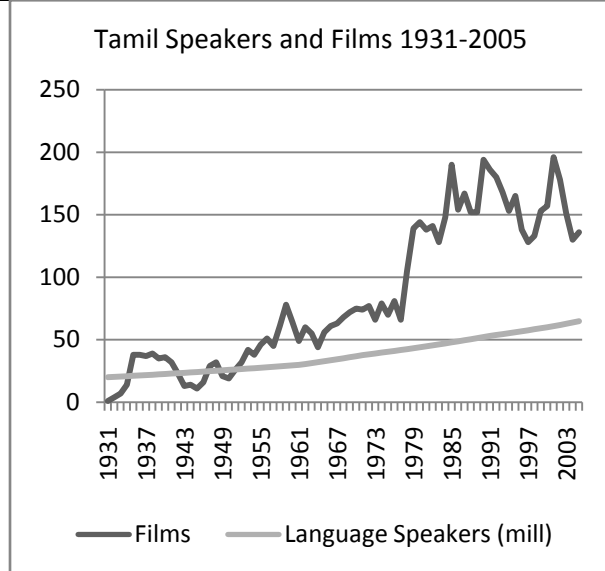
**Figures 5.1-6: Film admissions and TV households: Comparison between India and other**

**major film producing countries**



Data sources: See appendix 5.1 for details

**Figure 5.7**



Film admissions after the introduction of television (US, UK, Japan, Germany, France, India)
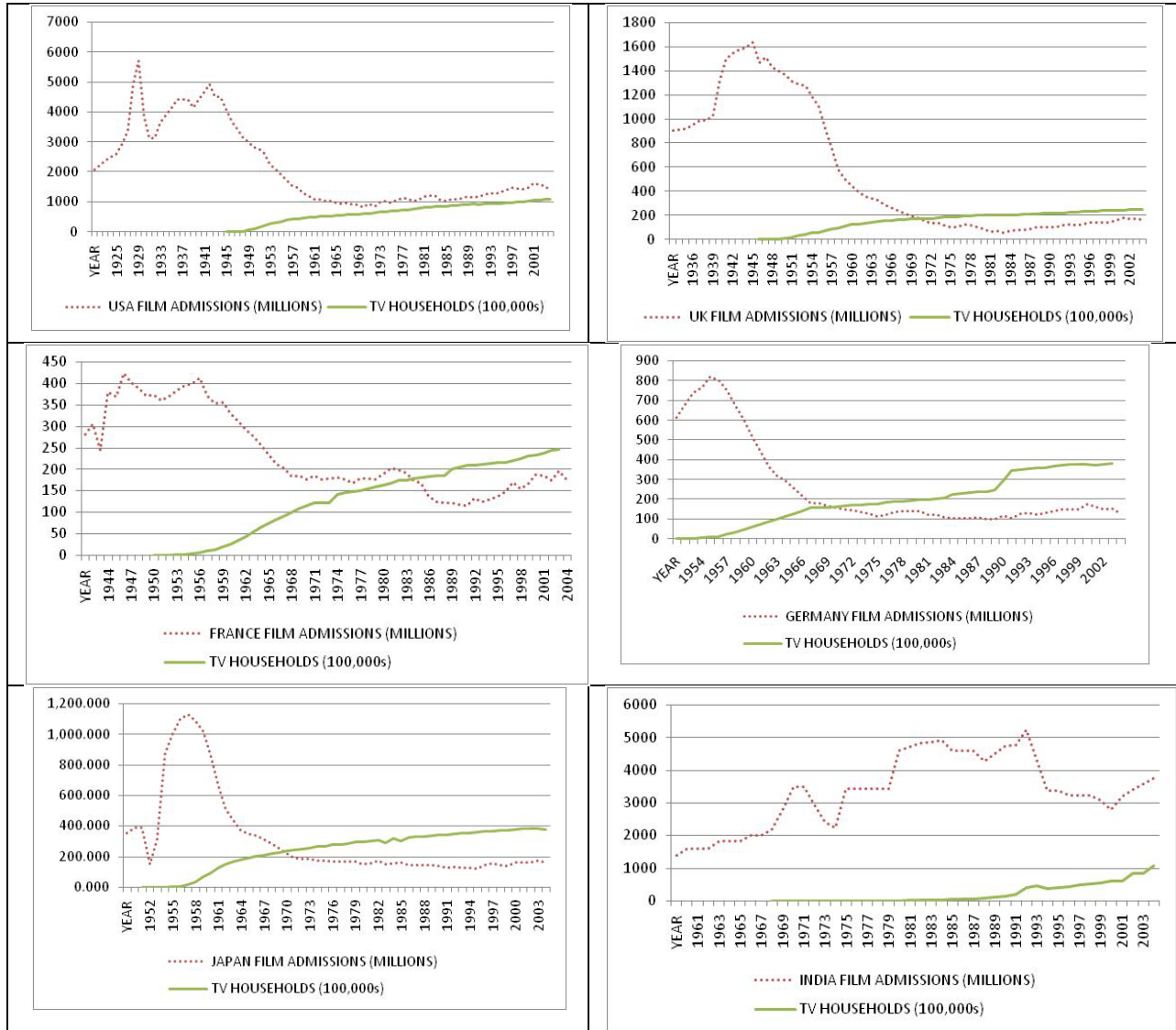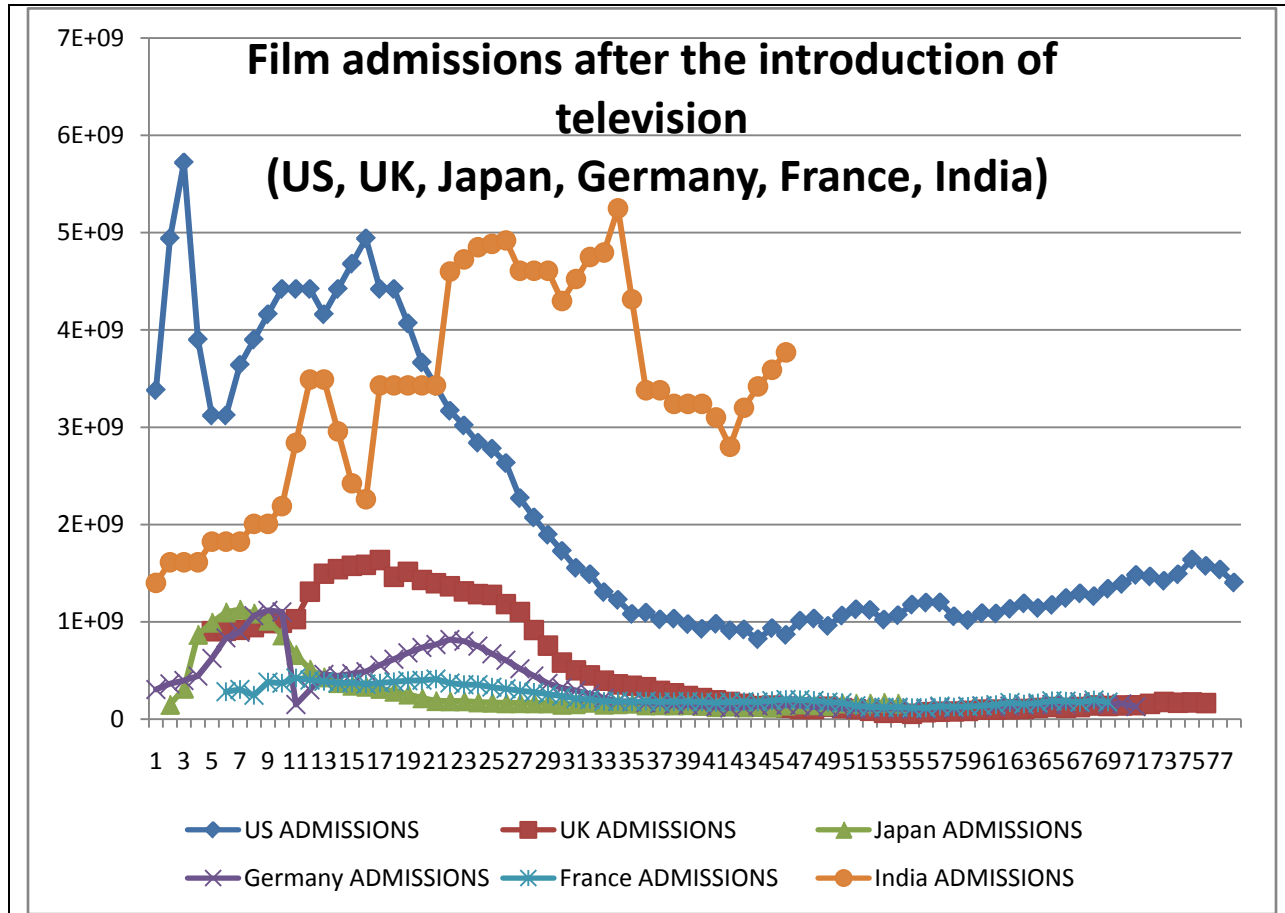
Data sources: See appendix 5.1 for details

**Figures 5.8-13: Per capita film admissions and TV households: Comparison between India and other major film producing countries**



Data sources: See appendix 5.1 for details

**Figure 5.14**



Per capita admissions after the introduction of television (US, UK, Japan, Germany, France, India)
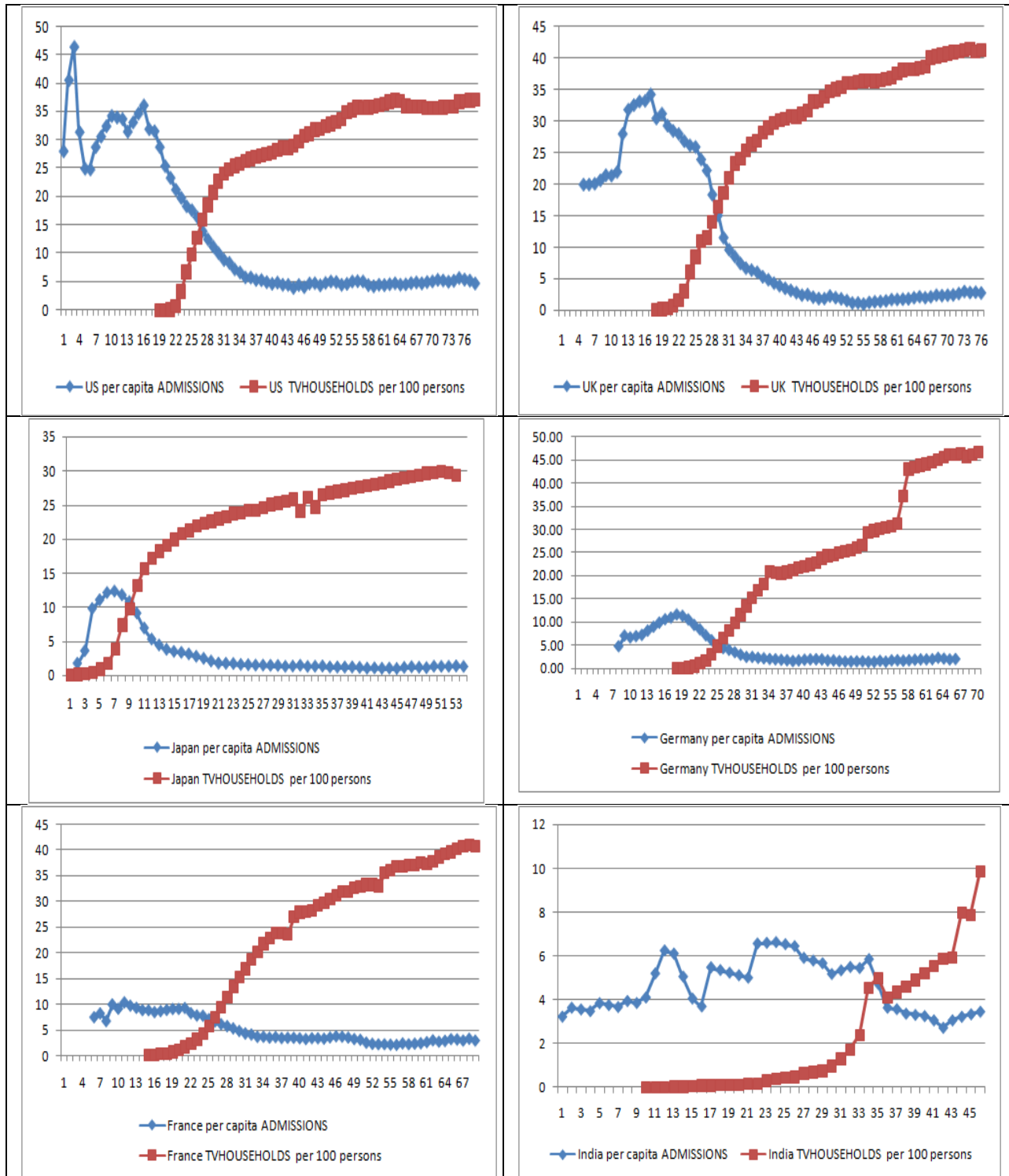
Data sources: See appendix 5.1 for details

**Figures 5.15- 20: Annual no. of films produced and TV households: Comparison between**

**India and other major film producing countries**
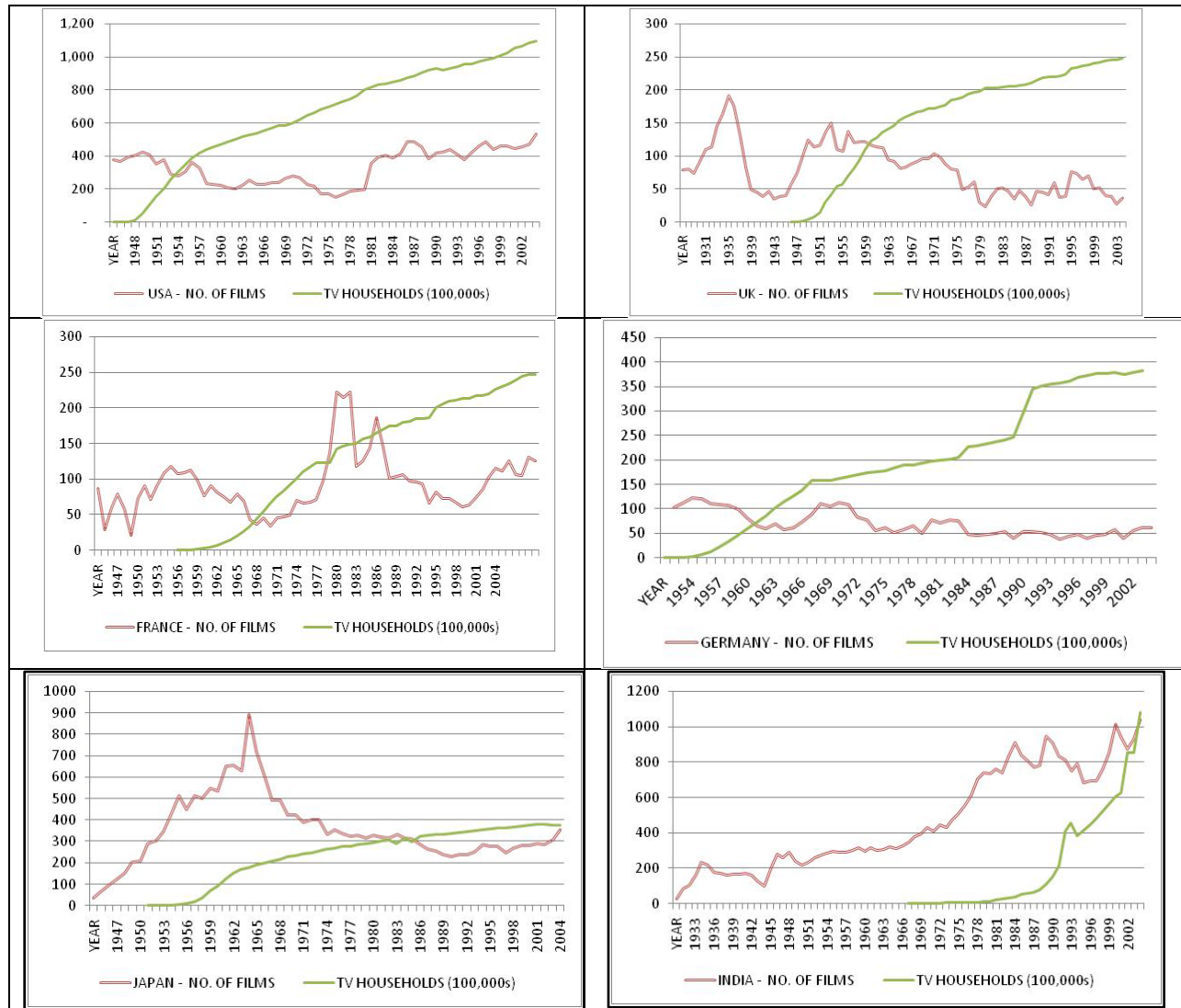


Data sources: See appendix 5.1 for details

Figure 5.21



Data sources: See appendix 5.1 for details

**Figures 5.22- 27: Number of theater screens and TV households: Comparison between India and other major film producing countries**



Data sources: See appendix 5.1 for details

Figure 5.28



Theatrical screens after the introduction of television
(US, UK, Japan, Germany, France, India)
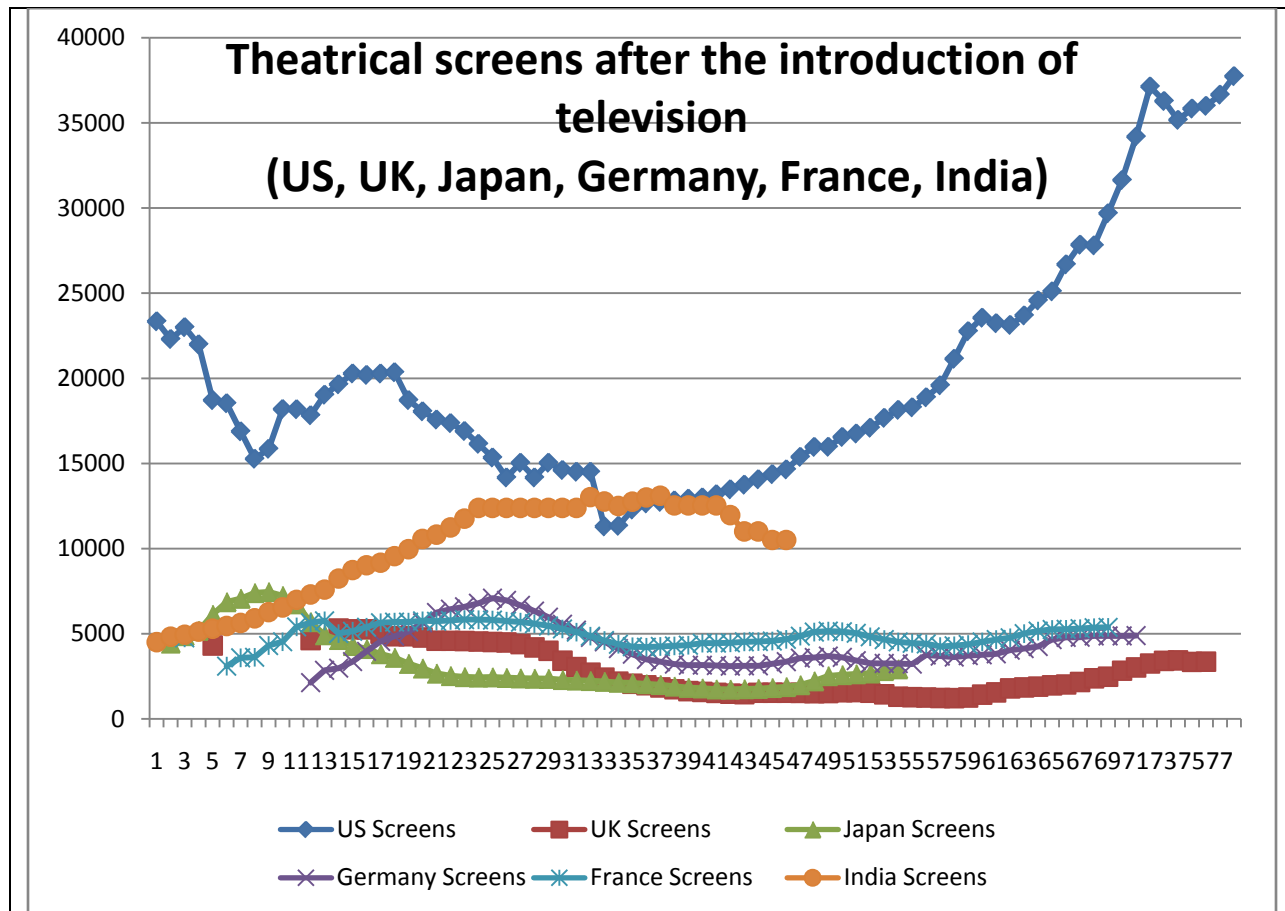
Data sources: See appendix 5.1 for details

# *Appendices*

## Appendix -3.1

Bangalore Doordarshan Program Schedule in 1986

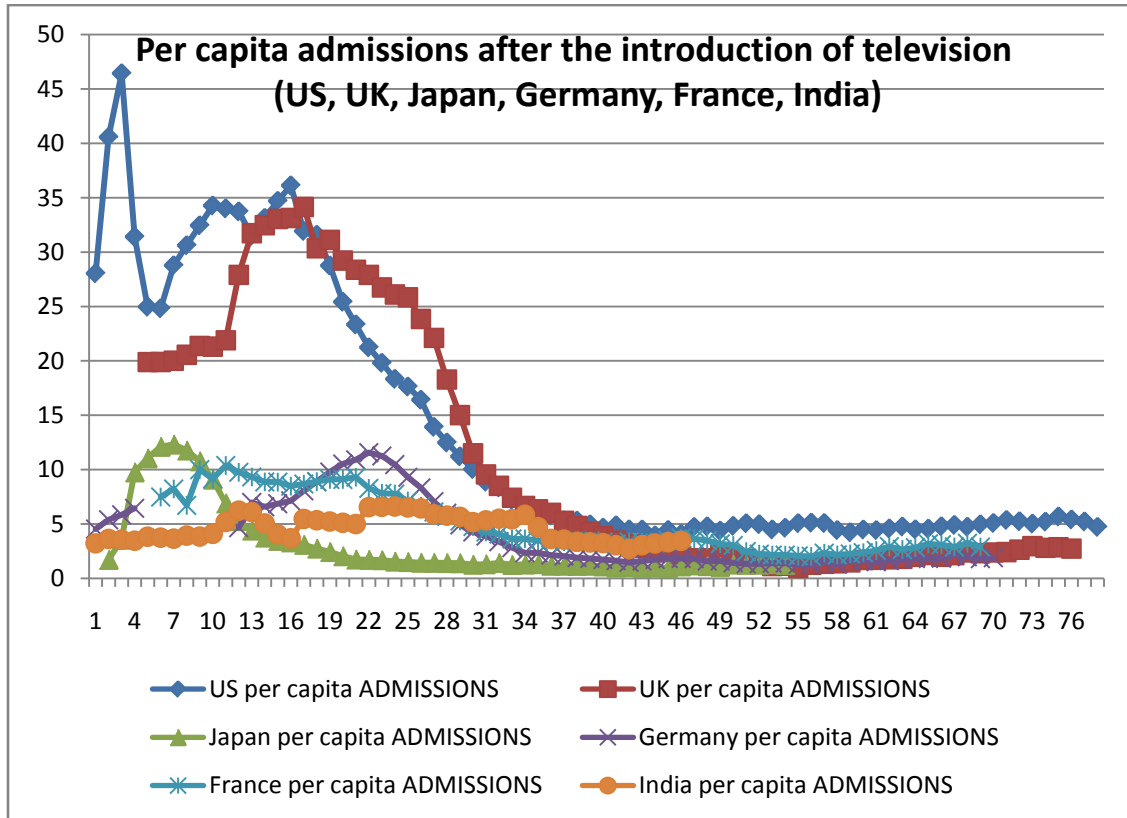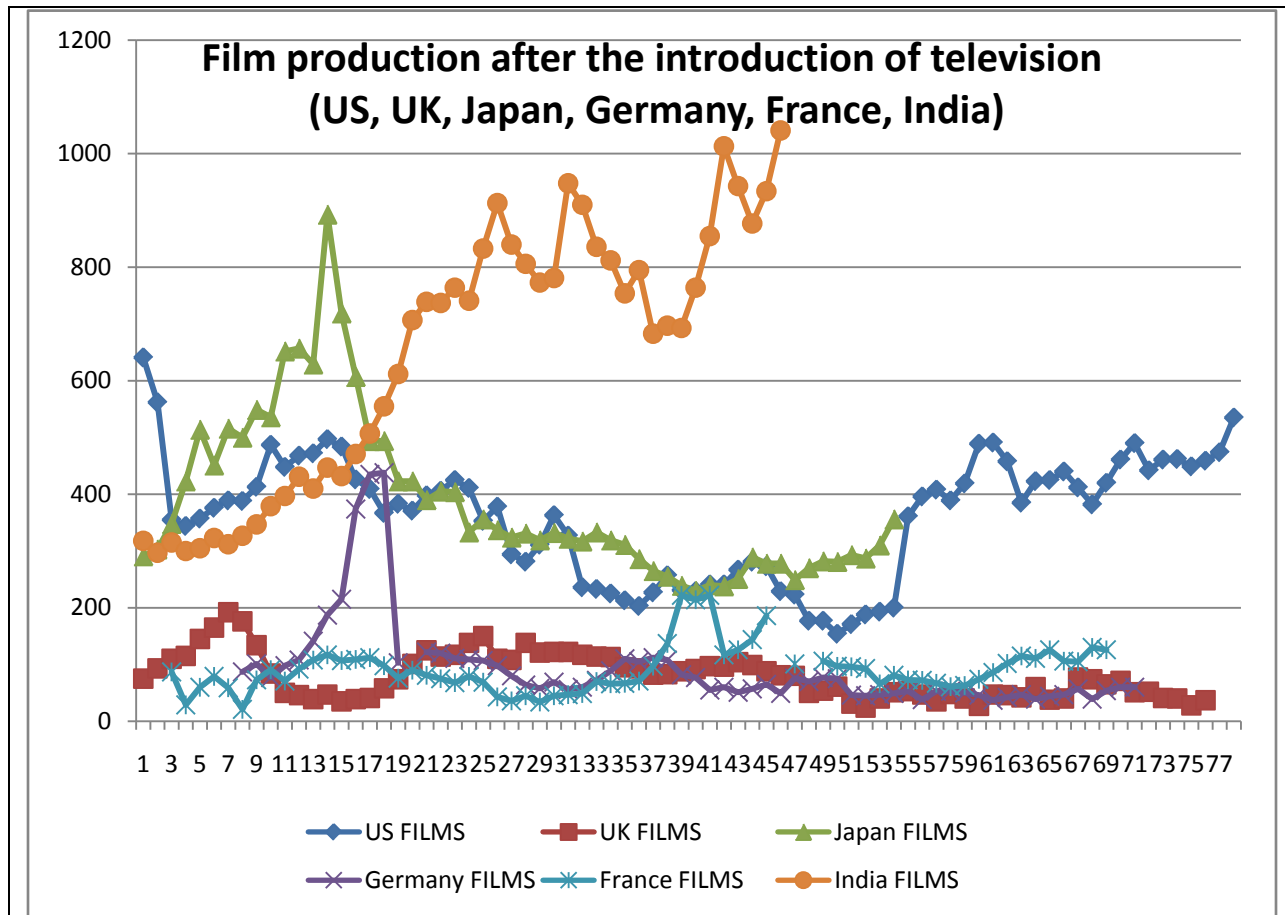| Bangalore | 2-Jun-86 Monday | 3-Jun-86 Tuesday | 4-Jun-86 Wednesday | 5-Jun-86 Thursday | 6-Jun-86 Friday | 7-Jun-86 Saturday | 8-Jun-86 Sunday |
|---|---|---|---|---|---|---|---|
| 9:00 AM | | | | | | | Munnota |
| 9.30 am | | | | | | | Bhajans |
| 9.45 pm | | | | | | | Magic show |
| | | | | | | | Delhi Relay |
| 12.45 pm | | | | UGC relay | | | |
| 1.45 pm | Teachers Training Program in Kannada | Teachers Training Program in Kannada | Teachers Training Program in Kannada | Teachers Training Program in Kannada | Teachers Training Program in Kannada | | |
| 4:00 PM | | | | UGC relay | | | |
| 5:00 PM | | | | | | Hantakana Sanchu - Kannada Feature film *ing Vishnu vardhan | |
| Evening Transmission | | | | | | | |
| 6.00 pm | | | | Delhi Relay | | | |
| 7:00 PM | Namma Nammalli-Sponsored serial | Children's Program | Youth Program | Survival | Sihi Kahi | | |
| 7.30 pm | News in Kannada | News in Kannada | News in Kannada | News in Kannada | News in Kannada | News in Kannada | News in Kannada |
| 7.40 pm | Veena recital | Tamil Chitramanjari | Folk Music | Agricultural program | Health Program | Priya Veekshakare/ 7.50 A talk on Geetha Kulkarni by Kamala Hampana | Delhi Relay |
| 8:00 PM | 8.10 Sorab Rustam Play in Kannada Part 1 | Delhi Relay | Delhi Relay | Kannada Chitramanjari | Delhi Relay | Delhi Relay | |
| 8.40 pm | Delhi Relay | | | Delhi Relay | | | |
| 9:00 PM | | | | | | | |
| 9.30 pm | | | | | | | |
| 9.50 pm | | | | | | | |
| 10.00 pm | | | | | | | |
| 10.20 pm | | | | | | | |
| 10.40 pm | | | | | | | |
| 11.15 PM | | | | | | | |

Source: Deccan Herald, Bangalore.

Kannada language programming is highlighted

**Appendix -3.2**

Hyderabad Doordarshan Program Schedule in 1986

| Hyderabad | 1-Jun-86 Sunday | 2-Jun-86 Monday | 3-Jun-86 Tuesday | 4-Jun-86 Wednesday | 5-Jun-86 Thursday | 6-Jun-86 Friday | 7-Jun-86 Saturday |
|---|---|---|---|---|---|---|---|
| 12.45 pm | Delhi Relay | UGC Programme | | | | | |
| 4.00 pm | | UGC Programme | | | | | |
| 5:00 PM 5.30 pm | | | | | | | Telugu Film "Lanke Bindelu" |
| 6.30 pm | | Bharatanatyam | | | Spl Festival program on Shab-E-Qadar (Holy Night of Ramazan) | Highlights of India-Malaysia Hockey match played at Eluru | |
| 6.45 pm | | Devotional music | Voluntary agency program on Bharateeya Grameena Mahila | Vadya Sangeetam | | | |
| 6.55 pm | | Farmers' Program | Farmers' Program | Farmers' Program | Daya Chudumu Thalli Song/ 7.02 Family Welfare Programme "Kallu Theravandi" | | |
| 7.11 pm | | Kuchipudi | | | | | |
| 7.20 pm | | Programme on Dehydration | 7. 18 pm Adult education Oggu Katha Part II | 7. 18 pm Development program "Sports goods and mobile hospital" | | | |
| 7.30 pm | Vartalu | Vartalu | Vartalu | Vartalu | Vartalu | Vartalu | Vartalu |
| 7.45 pm | Delhi Relay | Nai manzillen (a) Excerpts from Adabi Trust Indo-Pak. Mushaira held in connection with World Iqbal seminar (b) Deccani Song by Ram Dedo | 7.50 pm : Telugu play "Akshintalu" | | Dance Programme | A TV report on the President's AP visit | Feature film continues |
| 8:00 PM | | | | Delhi Relay | 8.05 pm Chitramanjari | Delhi Relay | Delhi Relay |
| 8.20 pm | | TBA | | | | | |
| 8.30 pm | | Light music | | | | | |
| 8.40 pm | | Delhi Relay | Delhi Relay | | Delhi Relay | | |

Source: Deccan Chronicle, Hyderabad

Telugu language programming is highlighted

# Appendix -3.3

## Delhi Doordarshan Program Schedule in 1986

| Delhi | 2-Jun-86 Monday | 3-Jun-86 Tuesday | 4-Jun-86 Wednesday | 5-Jun-86 Thursday | 6-Jun-86 Friday | 7-Jun-86 Saturday | 15-Jun-86 Sunday |
|---|---|---|---|---|---|---|---|
| 9.30 am | | | | | | | Sarabh Sanjhi Gurbani - devotional music |
| 9.45 am | | | | | | | A program on Yoga |
| 10:00 AM | | | | | | | Mickey and Donald |
| 10.25 am | | | | | | | Ek Do Teen Char: Hindi serial |
| 11:00 AM | | | | | | | Secrets of the sea: Serial in English |
| 11.45 am | | | | | | | Pankhon se panjon tak: Serial in Hindi |
| 12.15 pm | | | | | | | Rajani: Serial |
| 12.45 pm | | | UGC relay | | | | Choti Badi Batein: Serial in Hindi |
| 1.15 pm | | | | | | | Khazana: Serial in Hindi |
| 1.45 pm | | | | | | Ghar Bahar: programme for families | Asman Kaise Kaise: Serial in Hindi |
| 2.15 pm | | | | | | Program for Youth in English | 2.10 pm: School Master - feature film in Kannada |
| 2.45 pm | | | | | | Chiman Rao: Serial in Hindi | |
| 3.10 pm | | | | | | 3.15 pm: Khari Khari- serial in Hindi | |
| 4:00 PM | | | UGC relay | | | 3.45 pmSpiderman | World of Sports |
| 5. pm | | | | | | | Azadi ki Kahani - serial in Hindi |
| 5.15 pm | | | | | | | Vikram Aur Betal- serial in Hindi |
| 5.45 pm | | | | | | | Jhanak Jhanak Payal Baaje - Feature film in Hindi |
| **Evening Transmission** | | | | | | | |
| 6:00 PM | Fun with physics | I am 14 - film for children | Children's program in Hindi | Program for rural children | I am 14 - part 2 film for children | I am 14 - concluding part film for children | |
| 6.15 pm | Mahilaon Ke Liye | Khel Khilari - Sports events | Program for rural women | Program on Ayurvedic medicine | Program on Family welfare | 6.20 pm: Jaldeep : children's film in Hindi | |
| 6.35 pm / 6.45 pm | Jaan hai Jahan hai - heart problems (health program) | Hamare adhikar aur hamare kartavya - a program of our constitutional rights and duties - Lok Tantriya Samaj Vyavastha aur Hamare Samvidhan | Program on 20 points | Program of legal hints | Qawwali | | |
| 7:00 PM | Krishi darshan (Ageti Phool Gobhi ki Kheti Murgi palan) | Krishi darshan | Program for rural viewers | Telefun: Sponsored program | Program for rural viewers | 7.10 pm: You and your pets: care of Birds | |
| 7.30 pm | Ghazlen by Anwar | Yuv manch -program for youth in Hindi | Garba | Sugam Sangeet | Bharatanatyam | 7.25 pm: For the forces: air Men ka Chaya | Andhi galiyan: Alcoholics Anonymous- evils of drinking |
| 7.40 pm | Sikke - Play in hindi author: Dalip Singh | | Reply to viewers' letters | Magazine program in hindi | Gyan Deep | 7.55 pm: Jaan Hai Jahan Hai: replies to viewer's letters | Feature film cont'd |
| 8:10 PM | | Bazm: magazine program in Urdu | 8.00 pm : Chitrahaar | 8.05: program of traditional art/8.25: Economics made easy- informative serial | 8.00 pm: Chitrahaar | Saptahiki- Weekly Highlights | |
| 8.40 pm | Samachar: News in Hindi | Samachar: News in Hindi | Samachar: News in Hindi | Samachar: News in Hindi | Samachar: News in Hindi | Samachar: News in Hindi | Samachar: News in Hindi |
| 9:00 PM | Nukkad: serial in Hindi | Buniyaad: Serial in Hindi | Chhote Bade: Hindi Serial | Satyajit Ray Presents | Katha Sagar | 9.05 pm: Buniyaad: Serial in Hindi | Air Hostess - serial in Hindi |
| 9.30 pm | News in English | News in English | News in English | News in English | News in English | News in English | News in English |
| 9.50 pm / 10.00 pm | Sach Ki Parchain- an investigative programme on child labor | Janavani: Shivraj Patil - Minister of State for Science and Technology - answers the questions of members of public | Roving eye: programme on current affairs | Quiz in Hindi | Raag darbari: Hindi serial | More about Uranus:Science program | 10 pm Festival of India in France: Impact and Impressions (including closing ceremony) |
| 10.20 pm | Chhapte Chhapte - serial in Hindi | 10.30 pm: The body in question- serial in english | Ajube: Hindi Serial | Greening the Ganges | Music concert featuring Emani S Shastri | Pirates: Feature film in English | 10.30 pm: Maharashtra ki Lok Dhara |
| 10.50 pm | National program of dance | | 10.45 pm: Premier institutions of India | 10.45 pm: a film on world environment day/ 11.10 pm: National Program of music | | | 10.55 pm: Customs and traditions of India- wedding songs of East Bengal |
| 11.25 PM | News headlines | News headlines | News headlines | | News Headlines | | 11.10-2.38 am , 3.10 am- 6.30 am Direct telecast of World Cup Football match from Mexico |
| 11.40 pm | | | | News headlines | | 11.30 pm: News Headlines | |
| 6.55 pm daily messages regarding missing persons | | | | | | | |

Source: Indian Express, New Delhi

English language programming is highlighted

## Appendix (4.1) Scheduled languages and languages of film production

| No | Scheduled languages | No. of speakers | % of Indian population |
|----|---------------------|-----------------|------------------------|
| 1 | Hindi | 422,048,642 | 41.03% |
| 2 | Bengali | 83,369,769 | 8.10% |
| 3 | Telugu | 74,002,856 | 7.19% |
| 4 | Marathi | 71,936,894 | 6.99% |
| 5 | Tamil | 60,793,814 | 5.91% |
| 6 | Urdu | 51,536,111 | 5.01% |
| 7 | Gujarati | 46,091,617 | 4.48% |
| 8 | Kannada | 37,924,011 | 3.69% |
| 9 | Malayalam | 33,066,392 | 3.21% |
| 10 | Oriya | 33,017,446 | 3.21% |
| 11 | Punjabi | 29,102,477 | 2.83% |
| 12 | Assamese | 13,168,484 | 1.28% |
| 13 | Maithili | 12,179,122 | 1.18% |
| 14 | Santali | 6,469,600 | 0.63% |
| 15 | Kashmiri | 5,527,698 | 0.54% |
| 16 | Nepali | 2,871,749 | 0.28% |
| 17 | Sindhi | 2,535,485 | 0.25% |
| 18 | Konkani | 2,489,015 | 0.24% |
| 19 | Dogri | 2,282,589 | 0.22% |
| 20 | Manipuri | 1,466,705 | 0.14% |
| 21 | Bodo | 1,350,478 | 0.13% |
| 22 | Sanskrit | 14,135 | 0.00% |
| | TOTAL | | 96.55% |
| Source: Indian Census, 2001 | | | |

| Top 23 languages for Indian films | | | |
|-----|-----|-----|-----|
| No | Language | 1931-2005 total film production | % Share |
| 1 | Hindi | 9937 | 27.87% |
| 2 | Tamil | 6362 | 17.85% |
| 3 | Telugu | 6183 | 17.34% |
| 4 | Malayalam | 3528 | 9.90% |
| 5 | Kannada | 2798 | 7.85% |
| 6 | Bengali | 2628 | 7.37% |
| 7 | Marathi | 1287 | 3.61% |
| 8 | Gujarati | 732 | 2.05% |
| 9 | Oriya | 447 | 1.25% |
| 10 | Punjabi | 372 | 1.04% |
| 11 | Assamese | 297 | 0.83% |
| 12 | Bhojpuri | 243 | 0.68% |
| 13 | English | 205 | 0.58% |
| 14 | Nepali | 130 | 0.36% |
| 15 | Rajasthani | 91 | 0.26% |
| 16 | Manipuri | 62 | 0.17% |
| 17 | Haryanvi | 52 | 0.15% |
| 18 | Chattisgarhi | 34 | 0.10% |
| 19 | Tulu | 32 | 0.09% |
| 20 | Urdu | 25 | 0.07% |
| 21 | Garhwali | 21 | 0.06% |
| 22 | Konkani | 20 | 0.06% |
| 23 | Sindhi | 18 | 0.05% |
| | TOTAL | | 99.59% |
| Source: CBFC statistics | | | |

**Appendix – 4.2: Persons of Indian Origin around the world**

( Top 25 countries – reproduced from the Report of the High Level Committee)

| No | Country | Persons of Indian Origin | % Share |
|----|---------|--------------------------|---------|
| 1 | MYANMAR | 2,902,000 | 17.13% |
| 2 | UNITED STATES | 1,678,765 | 9.91% |
| 3 | MALAYSIA | 1,665,000 | 9.83% |
| 4 | SAUDI ARABIA | 1,500,000 | 8.85% |
| 5 | UNITED KINGDOM | 1,200,000 | 7.08% |
| 6 | SOUTH AFRICA | 1,000,000 | 5.90% |
| 7 | UNITED ARAB EMIRATES | 950,000 | 5.61% |
| 8 | CANADA | 851,000 | 5.02% |
| 9 | MAURITIUS | 715,756 | 4.22% |
| 10 | TRINIDAD AND TOBAGO | 500,600 | 2.95% |
| 11 | GUYANA | 395,350 | 2.33% |
| 12 | FIJI | 336,829 | 1.99% |
| 13 | OMAN | 312,000 | 1.84% |
| 14 | SINGAPORE | 307,000 | 1.81% |
| 15 | KUWAIT | 295,000 | 1.74% |
| 16 | RÉUNION | 220,055 | 1.30% |
| 17 | NETHERLANDS | 217,000 | 1.28% |
| 18 | AUSTRALIA | 190,000 | 1.12% |
| 19 | SURINAME | 150,456 | 0.89% |
| 20 | QATAR | 131,000 | 0.77% |
| 21 | BAHRAIN | 130,000 | 0.77% |
| 22 | KENYA | 102,500 | 0.61% |
| 23 | YEMEN | 100,900 | 0.60% |
| 24 | TANZANIA | 90,000 | 0.53% |
| 25 | THAILAND | 85,000 | 0.50% |
| | **TOTAL** | | **94.60%** |

Source: Estimated Size of Overseas Indian Community:
Countrywise. Dec 2001. Report of the High-level committee on the
Indian Diaspora. Ministry of External Affairs, New Delhi. Retrieved
on May 25, 2008 from http://indiandiaspora.nic.in/contents.htm

## Appendix – 4.3: Imdb.com's Genre Definitions

(Reproduced from imdb's submission guidelines)

| | |
|---|---|
| 1. **Action** | Should contain numerous scenes where action is spectacular and usually destructive. **Note**: if a movie contains just one action scene (even if prolonged, e.g., airplane-accident) it does not qualify. Subjective. |
| 2. **Adult** | Reserved for hardcore pornography only. Must be used with the plot keywords 'hardcore' and 'sex'. Objective. |
| 3. **Adventure** | Should contain numerous consecutive and inter-related scenes of characters participating in hazardous or exciting experiences for a specific goal. Not to be confused with Action, and should only sometimes be supplied with it. Subjective. |
| 4. **Animation** | Over 75% of the title's running time should have scenes that are wholly, or part-animated. Any form of animation is acceptable, e.g., hand-drawn, computer-generated, stop-motion, etc. Incidental animated sequences should be indicated with the keywords part-animated or animated-sequence instead. Objective. |
| 5. **Biography** | Primary focus is on the depiction of activities and personality of a real person or persons, for some or all of their lifetime. Events in their life may be reenacted, or described in a documentary style. If re-enacted, they should generally follow reasonably close to the factual record, within the limitations of dramatic necessity. A real person in a fictional setting would not qualify a production for this genre. If the focus is primarily on events, rather than a person, use History instead. |
| 6. **Comedy** | Virtually all scenes should contain characters participating in humorous or comedic experiences. The comedy can be exclusively for the viewer, at the expense of the characters in the title, or be shared with them. There are various types of comedy, some are: spoof, parody, satire, black-comedy. Please submit any qualifying keywords such as those to better describe the humor. **Note**: if most scenes are not compliant with comedic themes, then use the 'comedy' keyword (or other variations) instead, and do not include the title in this genre. Subjective. |
| 7. **Crime** | Should contain numerous consecutive and inter-related scenes of characters participating, aiding, abetting, and/or planning criminal behavior or experiences usually for an illicit goal. Not to be confused with Film-Noir, and only sometimes should be supplied with it. Subjective. |
| 8. **Documentary** | Should contain numerous consecutive scenes of **real** personages and not characters portrayed by actors. This genre demotes other genres (Short, Family, Music, History, Biography and War are ones that can |

| | |
|---|---|
| | co-exist with Documentary) such that they should be supplied as keywords instead. e.g., "making of" shows and tribute/biographical shows are Documentary (even if the encapsulated subjects within fit other genres). A documentary that includes actors re-creating events should include the keyword "reenactment" so that those actors are not treated as "Himself."**Note**: This genre restricts the use of most genres, which should instead be submitted as keywords. Objective. |
| 9.  **Drama** | should contain numerous consecutive scenes of characters portrayed to effect a serious narrative throughout the title. This can be exaggerated upon to produce melodrama. Please submit any such keywords. Subjective. |
| 10. **Family** | should be universally accepted viewing. e.g., aimed specifically for the education and/or entertainment of children or the entire family. **Note**: Usually, but not always, complementary to Animation. Objective. |
| 11. **Film-Noir** | should be shot in black and white, American, and set in contemporary times (relative to shooting date). We take the view that this genre began with Underworld (1927) and ended with Touch of Evil (1958). **Note**: neo-noir should be submitted as a keyword instead of this genre for titles that do not fit all criteria. Objective. |
| 12. **Fantasy** | should contain numerous consecutive scenes of characters portrayed to effect a magical and/or mystical narrative throughout the title. **Note**: not to be confused with Sci-Fi which is not usually based in magic or mysticism. Subjective. |
| 13. **Game-Show** | competition, other than sports, between, usually, non-professional contestants. The competition can include a physical component, but is usually primarily mental or strategic as opposed to athletic. This also includes what are known as "quiz shows." Talent contests staged expressly for the program are considered Game-Shows. |
| 14. **History** | primary focus is on real events of historical significance; in current terms, the sort of thing that might be expected to dominate the front page of a national newspaper for at least a week; for older times, the sort of thing likely to be included in any major history book. While some characters, incidents, and dialog may be fictional, these should be relatively minor points used primarily to bridge gaps in the record. Use of actual persons in an otherwise fictional setting, or of historic events as a backdrop for a fictional story, would not qualify. If the focus is primarily on one person's life and character, rather than events of historical scope, use Biography instead. |
| 15. **Horror** | should contain numerous consecutive scenes of characters effecting a terrifying and/or repugnant narrative throughout the title. **Note**: not to be confused with Thriller which is not usually based in fear or abhorrence. Subjective. |
| 16. **Musical** | should contain several scenes of characters bursting into song aimed at |

| | |
|---|---|
| | the viewer (this excludes songs performed for the enjoyment of other characters that may be viewing) while the rest of the time, usually but not exclusively, portraying a narrative that alludes to another Genre. **Note**: not to be added for titles that are simply music related or have music performances in them; e.g., pop concerts do not apply. Also, classical opera, since it is entirely musical, does not apply and should instead be treated as Music. Objective. |
| 17. **Music** | contains significant music-related elements while not actually being a Musical; this may mean a concert, or a story about a band (either fictional or documentary). Subjective. |
| 18. **Mystery** | should contain numerous inter-related scenes of one or more characters endeavoring to widen their knowledge of anything pertaining to themselves or others. **Note**: Usually, but not always associated with Crime. Subjective. |
| 19. **News** | reports and discussion of current events of public importance or interest. If the events are not current (at the time the title was initially released), use History instead. This generally includes newsreels, newsmagazines, daily news reports, and commentary/discussion programs that focus on news events. |
| 20. **Reality-TV** | features non-professionals in an unscripted, but generally staged or manipulated, situation. May or may not use hidden cameras; generally, but not always, in a non-studio setting. |
| 21. **Romance** | should contain numerous inter-related scenes of a character and their personal life with emphasis on emotional attachment or involvement with other characters, especially those characterized by a high level of purity and devotion. **Note**: Reminder, as with all genres if this does not describe the movie wholly, but only certain scenes or a subplot, then it should be submitted as a keyword instead. Subjective. |
| 22. **Sci-Fi** | numerous scenes, and/or the entire background for the setting of the narrative, should be based on speculative scientific discoveries or developments, environmental changes, space travel, or life on other planets. Subjective. |
| 23. **Short** | any title, specifically a "feature", with a running time of less than 45 minutes i.e., 44 minutes or less. If known please submit the running time if we do not have one on record. **Note**: for TV series and TV movies the limit is reduced to 22 minutes (21 minutes or less) as a "half-hour" show should not be listed a Short feature. Objective. |
| 24. **Sport** | focus is on sports or a sporting event, either fictional or actual. This includes fictional stories focused on a particular sport or event, documentaries about sports, and television broadcasts of actual sporting events. In a fictional film, the sport itself can also be fictional, but it should be the primary focus of the film. |
| 25. **Talk-Show** | discussion or interviews of or with a series of guests or panelists, generally appearing as themselves in a non-fictional setting (though |

| | |
|---|---|
| | fictional programs that mimic the form are also included). (aka "chat show") |
| 26. **Thriller** | should contain numerous sensational scenes or a narrative that is sensational or suspenseful. **Note:** not to be confused with Mystery or Horror, and should only sometimes be accompanied by one (or both). Subjective. |
| 27. **War** | should contain numerous scenes and/or a narrative that pertains to a **real** war (i.e., past or current). **Note:** for titles that portray fictional war, please submit it as a keyword only. Objective. |
| 28. **Western** | should contain numerous scenes and/or a narrative that portrays frontier life in the American West during 1600s-early 1900s. Objective. |

<center>**Appendix 5.1 Sources of statistical series**</center>

<center>**1.      Annual number of films produced**</center>

1955-1984 UNESCO statistical year books

1985-2000 European Audiovisual Observatory statistical year books
Note: For Japan, USA - figures indicate new releases

**France:**
1939-44 from The Film Industry in Six European Countries. 1950. Publication no 597 UNESCO, Paris. P. 111

**Germany:**
1942 -1952 from Spitzenorganisation der Filmwirtschaft (SPIO). (Umbrella Organisation of the German Film Industry) - Statistical Department. Personal Communication dated 09.06.2008
1953 from UNESCO. Film and Cinema Statistics retrieved on June 10, 2008 from unesdoc.unesco.org/images/0013/001359/135940eb.pdf
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1955-1984 UNESCO statistical year books

1985-2000 European Audiovisual Observatory statistical year books
France, India film admissions 1951, 1955 from Quigley's International motion picture almanac 1957

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**India:**
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**Germany:**
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Master of the Arts, Department of Telecommunications, Indiana University, Bloomington, 2005.

Diploma in Social Communications Media, Sophia Shree B K Somani Polytechnic, Mumbai, India, 1993.

Bachelor of Science (Mathematics) from The Women's Christian College, Madras, India, 1992.


**EMPLOYMENT:**

Associate Instructor in the Department of Telecommunications, Indiana University, Bloomington, Fall 2001 to Spring 2005, Fall 2007 to Fall 2008. Assisted professors in grading and supervised discussion sections.

Scheduling and Operations Coordinator – International Marketing, News Television (India) Ltd., New Delhi, July 2000 to January 2001. Assisted the Senior Vice President during the UK launch of the international beam of STAR Plus (an Asian-Hindi language general entertainment satellite TV channel).

Assistant Operations Manager – STAR Plus, News Television (India) Ltd., Mumbai, India, February 1997 to February 2000. Ensured timely export of all television program software from Mumbai to Hong Kong (for transmission).

Operations Assistant – STAR Plus, News Television (India) Ltd., Mumbai, India May 1996 to January 1997. Implemented operational systems for tape traffic related to generating local language (Hindi) versions of popular English series.

Assistant Director, Shyam Benegal Films, Mumbai, India, January 1994 –April 1996. Assisted the director in the production of *Amravati Ki Kathayen* (1994), *Mammo* (1994), *The Making of the Mahatma* (1995) and *Sardari Begum* (1996).

**AWARDS:**

Winner of the Graduate Student Research Paper Competition, 2005, conducted by the Institute for Communication Research, Department of Telecommunications, Indiana University, Bloomington.