The consumption characteristics of film

John Sedgwick and Michael Pokorny

Film is an example *par excellence* of a product that is vertically differentiated, in that although each film is unique in some respects in relation to other films, they are not of equal attractiveness to audiences, perhaps because each member of an audience is a unique individual, which results in variations of taste over the ensemble of filmgoers.

The industrial economics literature in this area has developed over the past 15 years from the pioneering work of John Sutton, who sought to explain why, in some industries, a continuously expanding market would not cause industrial concentration to decline indefinitely.\(^1\) His answer, simply put, is to be found in the degree to which firms in an industry invest in endogenous sunk costs, such as advertising, and research and development, with the intention of enhancing consumers’ ‘willingness to pay’.\(^2\) Where consumers respond positively to such strategic behaviour there will be a lower bound beyond which industrial concentration will not fall. Indeed, the greater the responsiveness of consumers to this strategic behaviour the more likely it is that there will be an escalation of sunk-cost investment and the ‘higher will be the lower bound to equilibrium levels (of concentration) in the industry’.\(^3\) This paper seeks to show how audiences reacted to the levels of sunk-cost investments in film during the 1930s.

The logic of vertical product differentiation is that where prices are invariant between products, as in the case of cinema admission prices, it is possible for a small number of products (sometimes only one) to appear superior in almost all respects to all others, not for just one consumer, but almost all consumers across a variety of

---

\(^1\) Sutton (1991: 5).
\(^2\) Ibid.: 7-8. These variables are endogenous because they are choice variables for the firm.
circumstances of time and place. In other words, vertical product differentiation with respect to film, and indeed other fashion products, has a strong consumption dimension, requiring filmgoers, as unique sensory beings, to form a common assessment of value in order for ‘hits’ to occur.

This paper seeks to examine this perspective in the context of filmgoing, primarily in Britain and the United States during the 1930s, both at a macro- and a micro-level. As in the U.S., filmgoing was the dominant paid-for leisure activity in Britain during the 1930s. Audiences increased during the decade to be just short of one billion admissions annually in 1938 – just under 20 visits annually per caput – making up approximately two-thirds of admissions to all entertainments (including sport). In a monumental study Simon Rowson generated macro-industry data on the industry, estimating that on average there was one cinema for every 10,600 persons in Britain in 1934 (one seat for every 15 persons) – a statistic that led him to declare: ‘It would be difficult to quote another figure more eloquent of the hold that the cinema now has on the masses of the population... (and that) the modern institution is one of the sociological wonders of the century.’ Audience provision in the U.S. was comparable, but considerably lower in parts of Europe, with one seat for 16 persons in Belgium, 1 for 18 in Sweden, 1 for 20 in France, 1 for 22 in Spain (before the Civil War), 1 for 26 in Italy (somewhat distorted by the fact that 1,400 halls were owned by, and served the purposes of, the Fascist party), 1 for 32 in Portugal, 1 for 33 in

---

3 Sutton (1991: 11). See also Bakker (2005a and b) for an application of this approach in explaining the ascendancy of Hollywood over European producers during the late teens and early 1920s.
4 Browning and Sorrell (1954); Sedgwick (2000: Table 2.1); Stone and Rowe (1966: Table 36)
5 Rowson (1936), p. 76
6 Rowson (1936), p. 71
Switzerland, 1 for 39 in Germany, 1 for 39 in Denmark, 1 for 40 in Norway, 1 for 53 in Holland, and 1 for 60 in Finland.\footnote{Kine Weekly, 26 August 1937.}

Rowson’s study was supplemented by evidence given before a governmental committee of inquiry, chaired by Lord Moyne, in 1936, which had been established to investigate the effectiveness of the 1927 Quota legislation, with a view to renewing protection measures favouring British films.\footnote{Minutes of Evidence (1936). For a discussion of the 1927 Act see Dickinson and Street (1985), Low (1985) and Sedgwick (2000).} The minutes provide a fascinating account of the positions adopted by the various interest groups – producers, distributors, exhibitors, both Hollywood and British – and the conflicts between them. However, neither source provides direct evidence about the actual choices that consumers made about which films they went to see. Thus, although we know that filmgoing was the ‘the essential social habit of the age’\footnote{Taylor (1965: 313).}, through which ‘men and women came to see reality through camera lenses’\footnote{Hobsbawn (1994: 193).}, the general absence of box-office and film business records in Britain means that other means of establishing audience tastes must be found. To this end, one of this paper’s authors, John Sedgwick, has developed an index measure of film popularity called POPSTAT, based upon the programmes of distinct populations of cinemas, as advertised in city/district/town newspapers.\footnote{Sedgwick (2000).} This, when taken together with the weekly box-office returns of first-run cinemas across the North America recorded in the American trade paper Vari\textipa{ety}, provides a substantial dataset from which distinctive patterns of consumption can be identified.\footnote{Sedgwick and Pokorny (2005a).}
Film is an important commodity for the economic historian because audiences in all urban centres in Britain and North America not only went to the cinema in vast numbers, but also were faced with choices about what to see. From three local studies of cinemagoing in Bolton, Brighton and Portsmouth, in Great Britain, it is known that audiences could attend, respectively, one of 18, 18 or 22 cinemas, most of which would be exhibiting distinctive programmes of films. This paper proposes a framework for examining consumer risk, and maintains that uncertainty on the part of the consumer is at the heart of the risks faced by producers in the calculation of, and the investment in, budgets for new film products. However, we can only observe and analyse the consumer decision making process indirectly, and that is via the actual financial performance of films in the market place. Thus film producers must form expectations concerning the financial performance of the film projects in which they invest, and in turn, these expectations are derived directly from perceptions of how these films will be received by consumers. In deciding to view a film, the consumer is entering a risk environment, in that there may be a considerable divergence, in both a positive and negative sense, between the pleasures that the film is expected to deliver \textit{ex ante} and actual pleasures experienced \textit{ex post}. From the producer’s perspective it is the ability to ‘second guess’ these necessarily ill-defined consumer expectations that is the key to successful film production.

The paper is structured as follows. Section 1 examines the consumption characteristics of filmgoing and proposes a framework for understanding consumer choice and risk. This is followed by an analysis of the relation between costs and revenues based upon data from three Hollywood studies, highlighting the endogenous

\footnote{See Sedgwick (2000) for studies of Bolton and Brighton. His study of Portsmouth is awaiting}
nature of aspects of film production costs and the competitive environment in which the studios operated. The penultimate section produces evidence drawn from various datasets concerning the statistical distribution of film revenues as evidence for a particular kind of consumer behaviour. The paper concludes by drawing these theoretical and empirical threads together.

1. The Consumption Characteristics of Film as a Commodity

Film has a number of defining properties as a commodity.\textsuperscript{14} For current purposes, the characteristics of uniqueness and rapidly diminishing marginal utility will suffice. Following Lancaster, each film can be conceived of as a unique bundle of characteristics, although it is difficult to give precise objective form to the range and scope that these might take. The analytical framework becomes even more complex when consumers are introduced as independent agents, since objective characteristics, such as leading stars and/or genre, take on a wealth of different subjective meanings. On the one hand, it is possible to conceive of these bundles as being positioned along a horizontal continuum such that any new release can fit into a space left between two other closely related films. It is also possible to conceive of films at either end of the spectrum as being relatively unrelated and not close substitutes – indeed, perhaps not substitutes at all. This Hotelling-type competitive framework is capable of yielding multiple equilibria, with distinctive taste publics formed around particular preferences along the continuum: for instance, Gracie Fields and Greta Garbo were quite different types of female star, each attracting a distinctive group of fans among British audiences during the 1930s.\textsuperscript{15}

\textsuperscript{14} A full discussion of these can be found in the Introductory chapter in Sedgwick (2000) and Chapter 1 of Sedgwick and Pokorny (2005b).

\textsuperscript{15} See Maltby (1999) for a discussion of ‘taste publics’.
On the other hand, vertically differentiated markets consist of products that can be ranked by audiences by some widely shared qualitative criteria, such that if products were to be sold at the same price the demand for the top ranking product would dominate all remaining products. Here the potential for market concentration is considerable, and particularly so in the field of mass reproducible art forms, such as film and recordings, where supply is designed to respond rapidly to changes in demand. Indeed, such was the anticipated pleasure promised by certain films that not only were regular filmgoers drawn to them in preference to rival products on the market, but also occasional filmgoers were roused to visit the cinema. Such films became the ‘hits’ of the year, generating highly skewed distributions of film revenues in which the mean was markedly greater than the median film revenue.¹⁶

The constraining factor in the tendency towards monopoly is the fact that, once enjoyed, films were not frequently revisited by audiences. In the years before film was given an extended product life – first, through television during the 1950s, and more recently through video recordings and DVD – the major studios expected films to amortise themselves over a 12 to 15 month period, after which they were considered ‘dead’.¹⁷ Hence, whilst a film may have been a dominant attraction in a market for a period, this did not last for very long, as new attractions emerged on a very regular basis. From this it is possible to conjecture that, on a weekly basis, the market shares of producers among a population of cinemas fluctuated wildly, depending on whether or not their releases of the moment were among the principal attractions of that

---
¹⁶ See De Vany (2004); Sedgwick (2002), Sedgwick and Pokorny (2005b) for a discussion of revenue distributions. Excellent discussions of the state of product differentiation theory can be found in Beath and Katsoulacos (1991); and Waterson (1994)
¹⁷ See Sedgwick (2000: 56-57)
week. As far as consumers were concerned it would appear that in a market committed to showing those films that audiences wanted to see, the promise \textit{ex ante} of new unforeseen pleasures exceeded in general the pleasures offered by the repeated viewing of a previously enjoyed film.

Films, thus, are ‘experience’ goods: audiences can form an assessment of the product only when the act of consumption is complete. For any given film release, a potential filmgoer will form an expectation with regard to the pleasure that will be derived from the consumption of the film. Should this expected pleasure exceed the costs of consumption (the direct costs plus the opportunity cost of the time spent in consumption), then the film will enter the consumer’s film consumption set, as a film that warrants further consideration with regard to actual consumption. At any point in time, this consumption set will consist of a range of films that have the potential for actual consumption, and over time this set will evolve as newly released films are added to it, and films that have been consumed or are no longer on release are removed from it. Indeed the costs of consumption can also be interpreted as a sunk cost from the consumer’s perspective in the sense that such costs are unrecoverable in the case of an unsatisfactory film consumption experience, thereby intensifying the risk that is involved in film consumption.

Thus in making the decision to consume a given film, the consumer enters a risk environment, in the sense that while \textit{ex ante} the consumer will have formed a view of the pleasures that might be expected from consumption, \textit{ex post} these expectations might be disappointed or exceeded. For any given film, this can be conceptualised

\footnote{See De Vany (2004), chapter 9.}
in terms of a probability distribution of the difference between the pleasure that the film actually generates, *ex post*, and the pleasure that the film was expected to generate, *ex ante*. Positive values would represent a gain for the consumer, and negative values a loss. The statistical properties of this distribution (mean, variance, skewness, kurtosis) would derive from the consumer’s previous experience of film consumption and the outcomes of these experiences, and the particular characteristics of the film under consideration, in terms of the markers it provides, such as stars, genre, director, etc and the effectiveness of the film’s marketing strategies. This distribution will be dynamic in the sense that its properties will evolve over time in the light of new information regarding the reception of the film.

The decision to consume, then, would be triggered by the probability of the film generating a gain for the consumer. Risk-taking consumers (regular moviegoers) would require a smaller probability of a gain than risk-averse consumers (occasional moviegoers). The process of promoting and marketing the film can therefore be interpreted as an attempt on the part of film distributor to persuade the potential filmgoer that their stock of gains accumulated over time will be added to, thereby increasing the probability of the film generating gains for the population of potential consumers, a process that becomes increasingly critical for higher budget films.

These ideas are depicted in Figure 1. It is assumed that each time the consumer goes to the cinema they expect to be rewarded by high levels of pleasure, and that the reason why the filmgoer chooses film $X$ in preference to films $Y...Z$ is on the basis of those expectations. As has been argued earlier, expectations for the individual are

---

uniquely formed, but within a social context in which large numbers shared the act of cinemagoing. In Figure 1, the point ‘φ’ represents the expectation that the filmgoer has brought, *ex ante*, to the consumption of every film experienced over that person’s personal history. A distribution that was a horizontal line would suggest that film choice was a random action, whereas one that was a vertical line at the point ‘φ’ would indicate a situation in which film choices, once made, always delivered fully the consumer’s expectations – meaning that audiences experienced no surprises.

The hypothetical distribution of the differences between realisation and expectation accumulated over a filmgoer’s life provides a framework for understanding the manner in which films become ‘hits’ or ‘flops’. If a sufficient number of consumers experiences high levels of gain from a particular film, and if that film is at the early stage of its distribution/exhibition history, then we might expect a ‘tipping effect’ to take place, whereby word-of-mouth builds a momentum that is reinforced by subsequent audience cohorts. ‘Flops’ occur in much the same way, but this time engendered by disappointed expectations.

Thus the risk that is inherent in film production can be interpreted as being determined entirely by the risk that is experienced in the film consumption process. Consumers demand ‘surprises’ from producers, which in turn demands continual innovation in film production. Consumers will in general be unable to articulate precisely what it is that they are seeking in the film consumption experience but will ‘know it when they see it’. It is this process of producers having to ‘second guess’ consumer tastes, and understand the manner in which these tastes evolve over time, that delineates the risk environment for producers. The broad strategy adopted by the
major studios in the 1930s was to produce large annual portfolios of films, in the full knowledge that a substantial proportion of these films will make losses. Indeed, in the case of the MGM-RKO-Warner Bros. data set, a third of the films generated losses (ranging from 26.2% for Warners to 44.1% for RKO). The key to profitable filmmaking was that a sufficiently diversified annual portfolio of films was produced, such that the portfolio in aggregate generated profits. Often it was only a relatively small number of (hit) films that generated the season’s profits, and that more than compensated for the loss-making films.

Figure 1: A hypothetical frequency distribution of the difference between the expectation and realisation of the filmgoing experience
2. Films as Sunk Costs

Films as commodities contain both research and development (R&D), and advertising components. The research and development aspect is intrinsic to the make-up of films, while advertising is an extrinsic factor that is integral to their being made known as commodities across territories.

In Hollywood during the 1930s, R&D operated in three tiers. The first was at industry level, in which the technical departments of the studios, often in collaboration, engaged in research, the results of which would spillover to all studios in improving the visible and audible quality of the product.20 The second tier was at studio level. The ‘majors’ invested extensively in permanent outdoor sets: house/shop exteriors, village/town/city streets, harbour quays, mini-jungles, etc. MGM and Warner Bros. had permanent theatre sets, with a stage and fully seated auditorium, and custom-built facilities for all manner of lighting effects and camera movements. Both first and second tiers identify Hollywood as an industrial district.21 Other studios and independent producers could rent all these assets. The third tier was at the level of a particular (big-budget) film, where particular design features, acting styles, special effects etc were deliberately innovatory.22

---

20 The little-known history of this research is encapsulated in the citations for the Scientific or Technical ‘Oscar’ Awards, which started with the ceremony of 1930-31, and continue to this day. 21 Scott (2005). See Broadberry and Marrison (2002) for a recent treatment of industrial districts. 22 For instance, for The Great Ziegfeld (MGM, 1936), a very large revolving turntable stage was constructed – the biggest in the world, according to studio publicity – on which a tall helicoidal stairway was built to accommodate dozens of singers and dancers. The whole was concealed under a massive curtain, railed and threaded so that for the reveal it furred as the inverse of the structure. The whole set was seen again as footage in Ziegfeld Girl (MGM, 1941), with cut-in shots of Judy Garland performing on top of it. For Sweethearts (MGM, 1938, in Technicolor), the turntable supported a hillside path, the curtain disclosing Jeanette MacDonald and Nelson Eddy, who sing their way down as the curtain slowly descends. Slightly modified, the curtain is seen in Lady Be Good (MGM, 1941), its moving folds choreographed as a ‘partner’ in one of Eleanor Powell’s dance routines. Thank you to Bernard Hrusa Marlow for this information.
From this it may be considered that, in the absence of a detailed breakdown of production costs, ballpark production cost data, such as those uncovered by Glancy (1992, 1995) for the MGM and Warner Bros. studios and Jewell (1994) for RKO, contain some element of R&D investment, ranging from very low levels with respect to low-budget films to higher levels for big-budget films. Within the framework of analysis proposed by Sutton, it is therefore to be expected that those films with higher budgets would perform more effectively in the market place: that higher levels of R&D for any single film would enhance the demand for that film. Figure 2 depicts the scatter of distributor rentals against production costs for the 1,796 films (out of a possible 1,861), for which production cost data are available from the three studios for the seasons 1929-30 to 1940-41. The rentals data are derived from both the domestic (North American) and foreign markets, and posit a clear positive relationship, albeit one that is affected by increasing levels of variance as production budgets rise.\textsuperscript{23} All monetary data are expressed in constant 1929 prices, which will also be the case in all subsequent analyses using this dataset.

\textsuperscript{23} Sedgwick and Pokorny (1998), Pokorny and Sedgwick (2005).
Sources: Sedgwick and Pokorny (2005a). The full ledgers have kindly been given to us by Mark Glancy and Richard Jewell, who copied them from archives held at the University of Southern California.

A similar relationship between film revenue and advertising can also be expected, in that audiences would likely take note of advertising, particularly where certain stars/genres were featured. Unfortunately, none of the three ledgers referred to above itemised film advertising, although the MGM and RKO datasets include distribution costs on a film-by-film basis\(^{24}\), of which advertising was likely to have been an important element. In the case of Warner Bros. distribution costs had to be estimated, as neither film profits nor distribution costs were available from the ledgers.\(^{25}\) If we

---

\(^{24}\) In the case of the RKO dataset profits on a film by film basis are available from the ledgers, and hence distribution costs could be deduced. In the case of the MGM data, distribution costs on a film by film basis are provided (and hence film profits could be deduced).

\(^{25}\) We assumed that a film’s distribution cost was related linearly and directly to the film’s production costs and the revenues that it generated. Regressing Distribution Costs on Production Costs and Film Revenues for RKO and MGM – over a total of 1,130 films – produced an \(R^2\) value of 0.968. The
suppose that advertising accounted for a fixed proportion of distribution costs, it is therefore possible to be confident that advertising, along with R&D, had a positive effect upon revenue, albeit in a heteroscedastic manner.

The variance between the revenues generated by films in various production-cost categories, evident in Figure 2, requires explanation. In earlier publications (Sedgwick and Pokorny, 1998; Pokorny and Sedgwick, 2001, 2005), we interpret the standard deviation of revenues between low, middle and big budget films as a measure of risk facing film producers. Clearly, the explanation for the tendency for risk to increase positively with production budgets emanates from film audiences and their reception of films released onto the market. That is, it may be supposed that, just as audiences are drawn to particular films through the expectation of pleasure, so producers commit a certain budget to a film project with an expectation that the completed film will embody certain qualities and, once on release, make a commensurate return. Both consumers and producers thus form, *ex ante*, an imaginary conception of the film product and its likely rewards for them. However, both groups know from experience that they can be disappointed, in that experience does not always live up to expectation.

Insights into the competitive nature of the market for film during the 1930s can be derived from the MGM, RKO and Warner Bros. datasets. Over the period 1929/30 to 1941/42, each of the studios produced, on average, about 47 films per year (44 in the case of MGM, 46 in the case of RKO and 53 in the case of Warner Bros.), with some year to year variation in the number of films produced, but no perceptible trend in coefficient estimates from this regression were then used to estimate the distribution costs for the
numbers. The main distinguishing characteristic between the studios was in the size of average production budgets, with MGM opting for a strategy of high budget production, relative to both RKO and Warner Bros. This can be seen from Figure 3, which shows the average annual production budgets, for each of the three studios, over the data period. Thus, throughout the period MGM maintained and extended its position as a high budget producer (although it reduced its average production budgets at the end of the period), with RKO and Warners producing films with comparable budgets, although Warners expanded its budgets somewhat towards the end of the period.
As might be expected, given the positive relationship between film budgets and revenues in Figure 2, MGM generated markedly higher annual film revenues over the period, as a result of its strategy of high budget production. The aggregate annual film revenues generated by each of the three studios is shown in Figure 4, which confirms MGM’s dominance. However, it is also apparent from Figure 4 that Warners generated significantly higher revenues than RKO, implying superior profitability performance on the part of Warners\(^{26}\) relative to RKO.

\(^{26}\) Warners’ relatively high revenues in the 1929/30 season is a little misleading as it results from Warners acquiring First National in 1929, resulting in 82 films being released in this season, which is the sum of the Warners film releases and First National releases. Thereafter Warners reverted to 40 to 50 releases per season.
While Figure 3 reflects, in broad terms, the filmmaking strategies adopted by the studios, and Figure 4 reflects, in crude terms, the outcomes of those strategies, the ultimate criterion for judging the success of these strategies is not revenues generated but profitability achieved. Thus while it was clearly the case that MGM opted for a strategy of large scale film production, and that such a strategy generated relatively high revenues, it is not apparent from Figures 3 and 4 whether such a strategy resulted in superior profitability performance. And this reflects, ultimately, the dilemma faced by the film producer. A strategy of high budget production was likely to generate higher revenues, but as is clear from Figure 2, these higher revenues were generated with increasing uncertainty as production budgets increased. While higher budgets provided film producers with greater flexibility to produce innovative films that might attract audiences in large numbers, such films had to become increasingly successful.
as budgets increased, in order for profits to be generated. However, the attraction of high budget production is that a small number of successful high budget films can dominate a season’s revenue and profit distributions, thereby providing a form of economies of scale for producers. For example, MGM produced *Mrs Miniver* in the 1941/42 season for a cost of $1.4m. The film generated outstanding revenues of $9.3m, the second highest grossing film over the data period\(^{27}\), and generated a profit of $5.1m.\(^{28}\) In aggregate, the 48 films produced by MGM in the 1941/42 season generated a rate of return of 33.1\%.\(^{29}\) Had *Mrs Miniver* not been produced, the remaining 47 films would have generated an aggregate rate of return of 26.3\%, a still healthy rate of return, but significantly lower than with the inclusion of *Mrs Miniver*. An even more extreme example of the importance of hit films is the RKO film *Top Hat* which in 1935 generated over half the studio’s profits for the season. However, the downside of a strategy of high budget production is that an unsuccessful high budget film can generate substantial losses and therefore have a marked negative impact on the aggregate rate of return generated by the season’s films. For example, *Conquest* was produced by MGM in the 1937/38 season at a cost of $3.3m, but generated revenues of just $2.6m. In fact, in pure revenue terms the film was very successful, there being only another 115 films of the 1,861 films produced over the data period that generated higher revenues. But given the film’s relatively high cost of production it generated a loss of $1.7m. The aggregate rate of return achieved by MGM in the 1937/38 season was 10.6\%, but had *Conquest* not been produced this would have increased to 14.4\%.

\(^{27}\) The highest grossing film was *Snow White*, a film that was distributed by RKO.

\(^{28}\) Calculated as the difference between the revenues generated by the film (the rentals to MGM) and the sum of the production and distribution costs.
Figure 5 shows the aggregate annual rates of return generated by each of the three studios over the data period. The obvious characteristic of these data is their volatility, with marked swings in rate of return performance from year to year. It is also clear that RKO was unambiguously the poorest performing studio of the three. However the more interesting comparison is between MGM and Warners. While it is clear from Figure 4 that MGM dominated in terms of revenue shares, a direct consequence of it high production budget strategy, Figure 5 implies that such a strategy did not result in dominance with regard to annual rate of return performance. Over the entire data period Warners achieved superior rate of return performance in 5 of the 13 years. In aggregate, the 711 films that Warners produced over the period generated a rate of return of 15.5%, which is comparable to the 18.2% achieved by MGM on the 567 films that it produced (RKO achieved a rate of return of just 1.6%)

---

Calculated as the ratio of the aggregate profits generated by the 48 films to the sum of the total
on its 518 films\textsuperscript{30}. Indeed, MGM’s best annual rate of return performance was in the last two years of the period, when average production budgets had been cut back markedly from the budgets of the preceding years (see Figure 3).

The film production strategies of the three studios can be analysed in considerably more detail than presented here. Thus film financial performance can be related to the development of stars and genres, and the manner in which these evolved over time, how production budgets varied over time and across the annual portfolio of films. There were clear differences between the strategies employed by the studios, and how these changed over time, but as is clear from Figure 5, the outcome was of marked year-to-year variability in financial performance, implying that the endogenous aspect of production budgets while positively related to market share was not a riskless process.

**Consumption Behaviour – Evidence.**

Thus, there is good reason to believe that the film industry during the 1930s conformed to Sutton’s depiction of an industry that produced heterogeneous products and experienced high levels of endogenous sunk costs. Given the industrial practice that cinema prices were invariant, regardless of the calibre of film being exhibited, it would be expect that qualitative differences as anticipated by audiences between films screened at the same cinema would generate different levels of attendance, and hence box-office revenue. Furthermore, it might also be expected that films that were popular with audiences in first-run cinemas would continue to be popular with

\textsuperscript{30} The fact that RKO generated positive profits at all is dependent on the nine films starring Fred Astaire and Ginger Rogers made between 1933 and 1937. These nine films contributed 135\% of the studios profits for the decade. See Sedgwick (2000) chs 8-9.
audiences that frequented lower order cinemas, implying that the more popular a film the greater consumer surplus it generated, as supply adjusted to popular demand.

Evidence for this can be found in a number of local sources. In Sedgwick and Pokorny (2005a), we report on the weekly box-office receipts of 104 first-run North American cinemas, including four in Montreal, Canada, for the 25 months from week ending 4 October 1934 to week ending 29 October 1936, published in the trade journal *Variety*. We also compare these results with the proxy revenue estimates generated by the POPSTAT Index methodology, based on the programmes of a sample of 88 London West End and provincial city first-run cinemas for 1935 and 1936. These cinemas were at the apex of a cascade-like system of distribution - built upon price discriminatory principles - in which films were released initially to box-office rich cinemas and then diffused subsequently down through time and space to lower order cinemas.

These two national surveys are supported by three local British surveys for Bolton, Brighton and Portsmouth. In each study the pattern of popularity of films manifests considerable variance. In the case of the two national surveys, the largest cinemas in the sample sets held over the most popular films for a number of weeks before they went on general release. In the three local studies holdovers were less common, but films that were popular returned time and again to the population of local cinemas, filtering down from first to $n^{th}$-run cinemas over a period usually not longer than six months.31

---

31 See Sedgwick (2000) for reports of cinemagoing in Bolton and Brighton
A new dataset – weekly box-office returns of the Regent, Portsmouth, England, for the period 1931 to 1948 – has recently been uncovered and provides further evidence that audiences were selective. Portsmouth is a small city, with a population of just under 250,000 in the mid-1930s. At that time, the city boasted 21 cinemas, classifiable into clearly definable runs. The Regent was a first-run cinema, the largest in Portsmouth, and was part of the largest national chain, Gaumont British – a vertically integrated company that was also the nation’s principal film producer. Figure 6 groups attendances into decile intervals for the eight years 1931 to 1938. The distribution is skewed to the right, but not dramatically so, with the median film attracting 14,588 customers, lying just within the higher limit of the third decile of the distribution. There is clear evidence that a small number of films over the period were extremely popular with the Regent’s clientele. Descriptive statistics are provided in Table 1.

If the pattern of popularity recorded at the Regent cinema is treated as indicative, then a distribution system designed to maximise revenue by ensuring that films were screened wherever there was a demand for them would necessarily generate a more unequal distribution of revenue among a population of cinemas, as long as tastes were common to audiences selecting films from that population. This would happen because the films that were unusually popular at a first-run local cinema, such as the Regent, would also be similarly popular at lower order cinemas within the same population and therefore the aggregation of revenues would exaggerate the skewness of the revenue distribution.

Figure 6: The decile frequency distribution of weekly cinema attendances at the Regent, 1931 to 1938

Source: Admissions ledger for the Regent, held by Portsmouth City Museum and Records Office.

Table 1: Regent Annual Statistics

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of First-Run Features</th>
<th>Gross Attendance</th>
<th>Mean Weekly Attendance</th>
<th>Median Films</th>
<th>Standard Deviation</th>
<th>Coefficient of Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931</td>
<td>52</td>
<td>735,665</td>
<td>14,240</td>
<td>13,703</td>
<td>3,558</td>
<td>0.25</td>
</tr>
<tr>
<td>1932</td>
<td>53</td>
<td>853,136</td>
<td>16,097</td>
<td>15,480</td>
<td>5,087</td>
<td>0.32</td>
</tr>
<tr>
<td>1933</td>
<td>52</td>
<td>805,422</td>
<td>15,489</td>
<td>15,286</td>
<td>4,230</td>
<td>0.27</td>
</tr>
<tr>
<td>1934</td>
<td>52</td>
<td>803,522</td>
<td>15,452</td>
<td>15,245</td>
<td>5,136</td>
<td>0.33</td>
</tr>
<tr>
<td>1935</td>
<td>52</td>
<td>732,520</td>
<td>14,341</td>
<td>14,394</td>
<td>4,088</td>
<td>0.29</td>
</tr>
<tr>
<td>1936</td>
<td>52</td>
<td>841,441</td>
<td>16,368</td>
<td>16,184</td>
<td>4,670</td>
<td>0.29</td>
</tr>
<tr>
<td>1937</td>
<td>52</td>
<td>783,784</td>
<td>15,075</td>
<td>13,934</td>
<td>4,331</td>
<td>0.29</td>
</tr>
<tr>
<td>1938</td>
<td>53</td>
<td>766,691</td>
<td>14,466</td>
<td>13,633</td>
<td>5,534</td>
<td>0.38</td>
</tr>
</tbody>
</table>

Using the POPSTAT methodology, the frequency distribution of POPSTAT index values for Portsmouth Cinemas in 1934 is captured in Figure 7a, showing a more highly skewed distribution than that of the Regent dataset, in which the gini coefficient is calculated as 0.47, compared to 0.16 (for the Regent) and the median film lies just inside the lower limit of the 3rd decile. Very similar statistics emerge from the Bolton and Brighton studies. What is true as a consequence of aggregating from a local cinema to a local population of cinemas is likely to be even more apparent when the aggregation is extended to national studies based on samples of pre-release (showcase) and first-run cinemas. The revenue distribution suggested by
Figure 7b/c is confirmed by the findings in Sedgwick and Pokorny (2005a), where we found, among the 1,213 films screened at least once in the sample of the British cinemas and the 969 films in the North American sample of cinemas, a degree of inequality such that the mean and median revenue values all fell within the first decile of the distribution, generating, in both cases, gini-coefficients greater than 0.5.  

De Vany and Walls (1996) in a study of the North American market between 1988 and 1999 came to a similar observation. This replication of results has led us to suggest that the radically unequal distribution of film revenues may be considered an empirical regularity. (Sedgwick and Pokorny, 2005a)
Figure 7a. Frequency distribution of POPSTAT data for Portsmouth, 1934.

Figure 7b/c. Frequency distribution of Box-Office Ranges for the US and Great Britain, 1934-36, reported with permission in Sedgwick and Pokorny (2005a).

Figure 7d. Frequency Distribution of Film Revenues, MGM, RKO and Warner Bros, 1929/30 to 1941/42
Finally, we can use the MGM-RKO-Warner Bros. data set to derive the revenue distribution of the 1,861 films released between 1929/30 and 1941/42, where the revenues are derived from both domestic and foreign distribution. This distribution is shown in Figure 7d, and emphasises the highly skewed nature of the revenue distribution at this highest level of aggregation.

This evidence suggests strongly that films were indeed vertically differentiated by audiences, with the annual seasons’ ‘hit’ films occupying a near monopoly position in the market for the relatively brief period of their tenure.

4. Conclusion

Those films that prove to be the outstanding attractions of the season are likely to offer audiences in general, higher than expected levels of pleasure, which is somehow communicated to subsequent cohorts of filmgoers. These films constitute the long right-hand tail of the revenue distribution, and for audiences they are vertically differentiated from the bulk of films released onto the market. Such films are likely to contain some element of novelty/innovation, which the producer has invested in the film, although this novelty may also result from serendipity, such as the accidental pairing of two stars in a new genre adaptation. Such films are also likely to be subject to considerable marketing activity, partly connected to the producer’s original conception of, and plan for, the film, and partly as a result of the film’s initial success.

While it is not possible to form focus groups to access audience behaviour during the 1930s, it is now nevertheless possible to form a clear idea of the pattern of film preferences from a number of new datasets that have appeared in the public domain.
during the recent past. The new data allow us to support Sutton’s theoretical
conception of an industry characterised by heterogeneous goods and high levels of
investment in endogenous sunk costs, by demonstrating the degree to which the
market for film was vertically differentiated. The data are drawn from a number of
sources of a local and national nature, depicting filmgoing mainly in Great Britain and
North America during the 1930s and suggest that film production was a risky business
because film consumption was a risky activity. In theorising the latter, a model of a
hypothetical filmgoer’s experience of film is proposed in the form of a theoretical
distribution of the differences between *ex ante* expectation and *ex post* realisation.
Finally, the theory is used to explain how the distribution of film revenues is highly
unequal through a tipping action occasioned through word-of-mouth behaviour of
consumers who have had an unexpectedly pleasurable experience.
Bibliography


Minutes of Evidence taken before the Departmental Committee appointed by the Board of Trade to consider the Position of British Films, chairman: Lord Moyne, (London, HMSO, 1936).


