Typecasting and Generalism in Firm and Market: Genre-Based Career Concentration in the Feature Film Industry, 1933-1995*

Ezra W. Zuckerman
MIT Sloan School of Management

Forthcoming (2005) in
Research in the Sociology of Organizations, Volume 23: 173-216.

* I greatly appreciate feedback and advice from Matthew Bidwell, Diane Burton, Ken Frank, Bob Gibbons, Marc Rysman, Jesper Sørensen, Olav Sorenson, Eric Van den Steen, Birger Wernerfelt, Mark Weinstein, and especially to the editors of this volume, Candy Jones and Pat Thornton for their guidance. Thanks also to Jennifer Wong for able research assistance. I alone am responsible for any errors found herein.

Typecasting and Generalism in Firm and Market:
Genre-Based Career Concentration in the Feature Film Industry, 1935-1995

Abstract:

This article attempts to bridge and contribute to three related lines of inquiry: the effect of economic organization on cultural diversity; the origins of career specialism; and the contrast between market and firm as alternative modes of governance. In particular, I use the natural experiment engendered by the transformation of Hollywood from the firm-based studio system to the contemporary market system to test the claim that typecasting-driven restrictions on generalist identities in an internal labor market are comparable in their significance to those found in the external labor market (Faulkner 1983; Zuckerman et al., 2003). Results support this claim and thereby suggest that incentives for experimentation by employers in internal labor markets counterbalance the greater control over work assignments enjoyed by independent contractors in the external labor market.

I. Introduction

Market Limits on Generalist Identities

One of the abiding themes in research on cultural industries concerns the manner by which economic organization influences the range of cultural forms produced. For example, there appears to be a marked tendency for (increasing) economies of scale in production or distribution to cause an industry to be dominated by large firms that produce for the "single mass market" (Peterson and Berger 1975: 159) or "market center" (Carroll and Swaminathan 2000: 719) and eschew more specialized tastes. Cultural innovation in such industries depends on the entry of small, innovative firms who target emerging niches. In Peterson and Berger's model, exogenous shocks to the industry (e.g., the switch in the radio industry to specialized formats in the late 1950s [Peterson and Berger 1975: 164-165]) provide such an opportunity; in Carroll's resource portioning theory (Carroll 1985; Carroll and Swaminathan 2000; Péli and Noteboom 1999), such opportunities arise endogenously as the largest firms actively withdraw from small niches that they cannot serve as efficiently as the market center. The challenges faced by large firms may include technical or logistical hurdles in producing or distributing a wide range of products. An additional set of challenges stems from the potential confusion that firms face when they attempt to assume multiple, potentially contradictory, *identities* in the marketplace. This challenge is responsible for the common solution whereby "majors" absorb "independent" firms and then present them as sub-brands or "labels," each with its own identity (e.g., Lopes 1992; Peterson and Berger 1996; Zuckerman and Kim 2003). In other contexts, even this solution may not work as consumers devalue independents simply because they are owned by majors (Carroll and Swaminathan 2000; Swaminathan 2001).

Research on typecasting in the labor market reinforces the lesson that even when economic organization affords significant cultural diversity, limits may be placed on the *variety of identities* that a given actor may successfully assume (see also Phillips and Owens 2004; Polos, Hannan and Carroll 2002**;** Ruef 2000; Zuckerman 1999, 2000). Consider, in particular, the typecasting rule of thumb described by Zuckerman, Kim, Ukanwa, and von Rittmann (2003: 1027; cf., Faulkner 1983): "one screens out candidates that have experience in one area when they apply to jobs in [others]." Zuckerman et al.

(2003) argue that this rule of thumb will be particularly salient when job candidates' skills are hard to evaluate and when credentials and other signals do not provide strong indicators of a candidate's talents. Under such circumstances, employers (or such market intermediaries as headhunters or talent agents) tend to rely heavily on past experience-- i.e., priority is given to candidates who have done (a significant amount of) work of the type that is demanded. Moreover, insofar as different employment categories reflect distinct skills and/or distinct training schedules, it is reasonable for employers (or the market intermediaries who act on their behalf) to assume that, as a first approximation, experience in one category implies a lack of suitability in other categories. Thus, to use the familiar example raised by Zuckerman et al. (2003), it is a standard assumption in the sociological labor market that job candidates whose research has been strictly qualitative in the past are not viable candidates for jobs that require teaching quantitative courses (and vice versa).

As long as candidates' skills are highly specialized (e.g., it is impossible to be skilled in more than one category of work), the described typecasting process does not restrict career opportunities and career identities-- i.e., the sets of jobs for which a candidate is regarded as competent and incompetent by employers and other key audiences-- will be highly specialized too. Restrictions on career identities apply in situations where at least some candidates have the potential to work in multiple categories of work. The challenge is to gain recognition as being competent in each of those areas-- i.e., to assume the identity of a generalist. This is a difficult challenge because, insofar as the quality of work is hard to evaluate, a would-be generalist ("jack of all trades") who *chooses* to work in a wide variety of job categories will closely resemble the candidates who is unskilled in any of the categories ("master of none") and therefore is *compelled* to move from job-type to job-type as a result of failure. Thus, the typecasting process implies that those who have (or have the potential to develop) generalist skills face significant difficulty in gaining recognition for such skills; indeed, they face the threat of being confused with the unskilled, thus becoming "non-entities" in the sense of not being recognized as fit for *any* job, and having a weak attachment to the labor market (Zuckerman et al. 2003). And this implies that labor markets where quality

is difficult to evaluate limit the emergence of generalist identities such that we observe fewer generalists than we would if skills were readily evaluated.

Perhaps Limits Are Even Higher in Firms

Thus, research on typecasting suggests that processes that are basic to labor markets (but are more salient in those that meet the described scope conditions) limit the development of generalist identities because candidates who try to assume such identities are potentially confused with those who have no skills at all. Yet it is reasonable to ask whether this curtailment of generalism is really so significant. Even if typecasting processes in the labor market restrict generalism, it could still be the case that these processes support *more* generalism than do alternative systems for matching workers with jobs. Put differently, while an important baseline for assessing the implications of typecasting in the labor market is the amount of generalism that would be observed if skills could be readily evaluated, another key baseline is the amount of generalism that would be observed under alternative institutional arrangements. Consider in this regard how these processes are affected by the mode of governance-- i.e., whether the careers in question occur largely through the (external labor) market or the (internal labor market of the) firm. And imagine if we were to find that, for the same kind of work, career identities are significantly more specialized when workers are independent contractors in an external labor market than when they are employees in an internal labor market. Such a finding would suggest that the restrictions on generalism imposed by typecasting in the external labor market above pale in comparison to the restrictions that are observed in (cultural and other) industries where workers tend to be long-term employees of firms.

The primary objective of this article is to conduct such a comparison by analyzing how the aggregate level of generalism in the careers of Hollywood feature film actors[2] varies as the industry was transformed from one in which actors were typically employees under long-term contract to one in which actors are independent contractors. This comparison of firm versus market is useful not only because it affords a very different "employment system" (in the sense of a set of practices and institutions for allocating workers to jobs and setting the terms and length of their tenure in those

[2] Here and in the rest of the paper, I use the term "actor" to refer both to male actors and female actresses.

positions; see e.g., Cappelli 1999; Jacoby 2005; Kalleberg and Lincoln 1988; Kochan, McKersie, and Katz 1994; Osterman 1995) against which to evaluate the claim that typecasting in the (external) labor market limits generalist identities, but also because it allows us to make progress on a key but largely unexamined issue in research on comparative economic organization: how firms and markets compare in their efficiency as mechanisms for allocating resources. The large economics literature on the theory of the firm has traditionally assumed that markets and firms ("hierarchies" [Williamson 1975, 1985, 1996]) are different and even fundamentally opposed systems. For instance, Hayek's (1945) influential defense of capitalism articulated the view that free-floating prices facilitate the aggregation and transmission of dispersed information about supply and demand, thereby allowing for a more efficient allocation of effort that can be obtained in a system run by a central planner. And Coase (1937) expressed a similar view in his original formulation of the problem of the theory of the firm, when he described firms as "islands of conscious power" (p.388) that are more apt to "waste resources" (p.395) than markets, which are more efficient at "plac[ing] the factors of production where their value is greatest (pp. 394-5)."

Such a view of the contrast between firm and market seems to imply that there will be less restriction on the emergence of generalist identities in external labor markets. After all, the challenge that occasions typecasting-- i.e., matching candidates with the jobs for which their skills are most appropriate-- is precisely the type of difficult resource-allocation problem that markets should presumably be best-placed to solve. And while typecasting restricts the emergence of generalism in comparison to the level of generalism that could theoretically exist, it is equally true that this process does not support systematic *mismatches* between workers' skills and the jobs they perform. While mismatches in competitive labor markets certainly occur and are sometimes sustained long after they are apparent (e.g., through nepotism), they are unsustainable for the most part. Thus, the constraints imposed by typecasting are quite specific: they restrict the set of matches for those workers who could potentially succeed in many different types of work. In the aggregate, these constraints produce systems that have less generalism than would be observed if skills were more transparent and employers did not have to resort to typecasting. But if it is indeed the case that firms are generally less efficient resource-

allocation mechanisms than markets, generalist identities may be even less likely to emerge in careers that are governed by an internal labor market than in those governed by an external labor market.

Yet there is at least one reason to doubt this implication: little or no empirical research has been conducted that demonstrates the superiority of the market as a mechanism for allocating resources and, in particular, for uncovering (generalist) skills. Following Coase, the literature on the theory of the firm (as developed by Williamson and others; see Freeland 2001; Gibbons 2004 for review) generally approaches the conundrum of the firm not by questioning the assumption that firms are less efficient but by focusing on when the costs of transacting through the market outweigh the efficiency gains it affords. Only recently has research begun to emerge that examines how firms and markets compare in their functioning and in the outcomes they produce. And this research generally suggests that firms and markets feature processes that are more similar than had been assumed (e.g., Bidwell 2005a, 2005b; Eccles and White 1988; Stinchcombe 1990; but see Mullainathan and Scharfstein 2001).

Of course, there are many cases in which firms and markets function quite differently. Indeed, both the present analysis and a companion paper, which analyzes the degree of repeat collaboration in different eras of the U.S. feature-film industry (Zuckerman 2005), examine a context in which the system of governance in a firm-based system was indeed very different from the market-based system that replaced it. Yet it is not apparent how different are the *outcomes* produced by the two systems. That is, at least for a certain range of outcomes, firms and markets may feature very different processes that lead to approximately the same place. Accordingly, I argue below that, when we consider how the situation of the employer and candidate/employee changes as a result of a shift in the employment system from internal to external labor market, and especially when we consider the transformation of Hollywood, there is little reason to expect significant change in generalism despite massive change in the nature of the employment system. That is, I contend that the restrictions on generalism imposed by typecasting in the external labor market are comparable in their significance to those imposed by typecasting in internal labor markets.

This study thus joins a small but growing body of research that shifts attention from firm-boundary ("make vs. buy)") decisions to direct analysis of how firms and markets compare in their functioning and outcomes (e.g., Bidwell 2005a, 2005b; Mullainathan and Scharfstein 2001). One reason why there has been so little empirical research in this vein is that the data requirements for such an analysis are formidable. In particular, we need cases where the same activities are performed alternatively and independently in two systems of governance. For the specific question analyzed here, we need data on career lines for an entire industry over long periods of time across settings for which the only thing that varies is the organization of the industry, from one based on internal labor markets to one based on the external labor market (or vice versa). The transformation of the feature film industry over the course of the twentieth century thus represents an unusually good-- if hardly ideal, for reasons I highlight below-- opportunity to shed light on the issues raised above.

In the next section, I provide a theoretical discussion of two primary differences between internal and external labor markets that seem likely to affect the degree to which they encourage or discourage the emergence of generalist identities. In the following sections, I review the key differences between the Hollywood studio system and the contemporary system and, then, how casting was conducted in the two systems. I then turn to the analytic framework used to compare the level of specialization in the two systems and present the results of the comparison. The final section concludes.

II. Possibilities for Generalism in Firm (Studio) vs. Market

Independent-Contractor Control vs. Employer Experimentation

Beyond the general presumption (bias?) that markets should be more efficient at solving difficult resource-allocation problems,[3] existing theory does not provide a clear, general prediction as to whether career specialization should be greater in internal or in external labor markets. In order to lay the foundations for such theory, I begin by making three assumptions: (a) that the distribution of underlying ability—and, in particular, the potential for generalism-- is the same regardless of the nature of the employment system;

[3] This presumption seems more commonly held by economists than sociologists. Yet even sociologists tend not to argue the opposite—i.e., that managed systems are more efficient than unmanaged ones.

(b) that all workers desire to work in all the job categories for which they have (or have the potential to develop) suitable skills; and (c).that employers use the typecasting rule of thumb, as described above (Zuckerman et al. 2003).

Once these assumptions are made, there appear to be two factors that affect the degree to which generalist identities can develop and which seem to vary based on the employment system in place: (a) the degree of control that workers enjoy over their work assignments; and (b) the degree to which employers are willing to experiment with "off-casting"-- i.e., by trying out someone who has been typecast in category *i* in job category *j*. Some combination of these factors is necessary for a would-be generalist to assume a generalist identity. Since workers with generalist potential want to be generalists, factor (a) looms large: do workers have enough control over their work assignments to obtain work in a new category despite having specialized in another one? And if employers control work assignments, factor (b) becomes important: is there some reason that employers might want to experiment with off-casting? I argue that a review of how these factors vary between internal and external labor markets suggest that while increased worker control over job assignments in external labor markets increases the opportunities for generalism, this is counterbalanced by a decrease in employer incentives to experiment with off-casting.

Independent Contractor Control. Let us first consider factor (a). One of the key differences between firm and market-based employment systems is that, whereas an independent contractor always has the right to refuse a job offer and hold out for offers that are more appealing (perhaps in categories that facilitate a broadening of her career identity), this is less true for employees, who generally accept a wide range of work assignments within a broad "zone of indifference" (Barnard 1938). Indeed, control over assignments is one of the main attractions of being an independent contractor (e.g., Jones and DeFillippi 1996; Kunda, Barley, and Evans 2002). And while employees in internal labor markets sometimes do have considerable control over their work assignments (and can typically quit and take another job if the assignments are unappealing), we will see that this was typically not the case under the Hollywood studio system. It would thus seem to follow that the would-be generalist is less able escape the specialist tag and

become a generalist in an internal labor market, especially one that resembles the studio system.

In forming this expectation, however, it is important to recognize that even if a worker has the ability to turn down job assignments that reinforce a specialist identity, this does not mean that he will succeed in obtaining offers in other categories. After all, if the worker has already been typecast in a given specialty, this implies (by assumption) that employers will tend not to consider him for other categories.[4] Furthermore, note that independent contractors may strategically *choose* to specialize, at least at the outset of their careers, even when they: (a) have the freedom to refuse jobs they do not want; (b) have generalist potential; and (c) dream of becoming regarded as Renaissance Men. Such a choice is a predictable response to the lesson that working in many categories carries the risk of being regarded as unskilled (Zuckerman et al., 2003). Of course, such a choice to specialize reinforces the typecasting process and implies that independent contractors' greater ability to turn down jobs may not be sufficient to produce more generalism.

Thus, another ingredient is necessary to translate the ability to turn down unwanted jobs into a method for overcoming a typecast identity. In particular, the independent contractor must *sacrifice* short-term opportunities in (and the associated income from) jobs that are in her existing specialty and to seek out opportunities that are less attractive or remunerative in the short-term but which develop and signal her skills for and commitment to new categories. Such sacrifices are familiar as the costs of entry into any new career and may involve paying for additional training, doing an unpaid internship, or taking an entry-level job of some sort. As one contemporary casting director suggests (Zuckerman et al. 2003: 1041; italics added):

> If all [actors] are being offered is the same parts over and over again, then it's time to turn them down and maybe take a role in a smaller picture. *It's their career, they have to take control*.

Echoing this sentiment, a contemporary actor describes successful strategies for avoiding typecasting involve "managing your own career [by] thinking beyond the current

[4] In some cases, a worker may have enough market power or financial resources to choose the jobs she wants. For the most part, the typecasting process, applied either to independent contractors as well as employees, implies that the actor with a specialist identity will have difficulty breaking out.

project."[5] Thus, while the control over job assignments enjoyed by an independent contractor scarcely allows her to obtain any job offer she wants, it does afford the opportunity to accept short-term sacrifices, and the risks that are associated with them (after all, she may not succeed in the new category) that are necessary for overcoming the typecasting rule of thumb, at least in the long term. Thus, *insofar as gaining recognition for generalist skills requires workers to have both the desire and ability to solicit assignments that are unattractive in the short-term, and insofar as workers do not have this ability in internal labor markets, we should see less generalism in internal labor markets.*

Employer Experimentation. Yet a consideration of factor (b) suggests a countervailing force that is basic to internal labor markets. To see this, observe first that in an external labor market where, at the extreme employers hire independent contractors for short-term assignments, the employer has little or no incentive to overcome a typecast or engage in "off-casting." As explained by a contemporary casting director (Zuckerman et al. 2003: 1041):

> … no movie wants to be the test ground that an actor/actress uses to learn skills. If I were a business exec in charge of movie investment, I would want to minimize my risks and hire people who could play the roles perfectly.

Why indeed would one ever try an apparent square peg in a round hole when round pegs are available?

One reason might be that one has already purchased square pegs and cannot return them to the store. In this situation, it may be worthwhile to see if the square pegs can be made to fit the round holes before spending additional money to buy some round ones. That is, a key difference between an internal labor market and an external labor market is that employers in the former system make relatively long-term commitments to-- i.e., they sink fixed costs in-- a given staff and that, conditional on having this staff under contract, they often have a strong interest in using it to the fullest.[6] On the margin,

---

[5] Interview conducted on November 14, 2000 with an Oscar winning actor, as part of the research described in Zuckerman et al. (2003).

[6] There appears to be a widespread misconception among social scientists that sunk costs should *never* affect decisions and that such effects always reflect an irrational "sunk cost fallacy" or "escalation of commitment" (see e.g., Arkes and Blumer 1985; Brockner 1992). In fact, this (widespread) bias is for the decision-maker to focus on the sunk costs *directly* and let that affect his decision. However, insofar as the

such an employer has an incentive to experiment with staff members in roles for which they are seemingly inappropriate before he spends extra money to hire new employees or contractors. For instance, while a department chair would prefer to have quantitative sociologists teach quantitative methods, she may ask a qualitative sociologist to teach such a class if there are no quantitative sociologists on staff who are available, and if the qualitative sociologist is not otherwise occupied. By contrast, no such preference exists if there is no such thing as a department and staffing is conducted on a position-by-position basis through a spot market. And the experimentation results from such a preference may, sometimes unintentionally, lead to the development of more generalism. Thus, *insofar as employers seek to obtain maximum utilization of their staffs, this creates a stimulus to engage in experimentation such that we should see more generalism in a system governed by internal labor markets.*

The Argument. To recall, the primary objective of this article is to assess whether the limitations on generalist identities imposed by typecasting in the external labor market are significant when compared with limitations imposed by the internal labor market. The foregoing discussion suggests that there is no theoretical basis for expecting a substantial difference. In particular, I argue that a shift from an employment system based on internal labor markets to one based on external labor markets involves a shift from one potential support for generalist identities—i.e., the freedom enjoyed by the independent contractor to reject unwanted job assignments-- to another-- i.e., the desire by employers to utilize their staffs to capacity. An ideal test of this argument would involve a direct examination of the postulated processes in an effort to see how they contribute to the degree of generalism observed. This ideal cannot be realized with

---

sinking of costs changes the costs of future courses of action (which should be the only concern of a rational, forward-looking actor), it is quite rational for sunk costs to affect resource allocation decisions *indirectly*. For example (Saloner, Shepard, and Podolny 2001: 229), conditional on having built railroad tracks, the price a railroad company will require to operate its trains is much lower than it would be if the tracks could be redeployed for other purposes. Similarly, having obligated itself to pay a faculty member for a year, a department faces no additional cost in using that faculty member for a given class but will incur additional cost if it hires an adjunct to do so. Of course, there may be instances in which a department chair irrationally focuses on sunk costs directly in that they use the faculty member on staff even when the lower cost in using him would have been outweighed by the benefit of using an adjunct who is better suited for the class. Yet it is not necessary to assume such irrationality in order to assert that the sinking of costs in a staff creates an incentive for using staff members over contractors.

available data. Instead, I aim to illuminate these issues by assessing whether the degree of generalism in feature-film careers changes as the U.S. film industry is transformed from a series of internal labor markets to a single external labor market. Before doing so, I first review the relevant history and, in particular, discuss how casting was conducted in the two eras.

II. The Studio System vs. Contemporary Hollywood

The contemporary U.S. ("Hollywood') feature film industry is well known as a market in which little work is conducted within the boundary of a single firm. Under what is variously known as the "package-unit", "independent production" (Staiger 1985), "flexible specialization" (Christopherson 1996; Christopherson and Storper 1989), or "short-term project" (Faulkner and Anderson 1987) system, the pre-production, production, and post-production stages of feature film creation are collaboratively produced by a set of independent contractors. Indeed, while independent production companies sometimes produce multiple films over a series of years, many firms are created to produce a single film and then cease to exist. And those production companies that do produce a series of films typically have almost no employees beyond the administrative staff. Rather, the producer secures capital (perhaps from the "studio" that also will be the distributor) and uses that capital to purchase rights to a screenplay; the services of the "talent" (i.e., director, actors); and the various craft personnel and their equipment (e.g., special-effects specialists; make-up artists); and rights to shoot the film in the desired location. Under this system, films are produced by independent producers who raise financing for the film and contract through the open market to obtain the creative talent. Essentially, the studio plays one main role (distributor) and will often play two additional roles (financier, provider of production space/equipment). Producers are almost always independent companies, though sometimes with multi-picture deals with a studio. And actors are independent contractors who navigate their "boundaryless career" (Arthur and Rousseau 1996) across short-term projects with the help of talent agents and managers (see Jones and DeFillippi 1996 for review).

The contemporary system stands in strong contrast to the "studio system" that dominated the U.S. film industry from the 1920s to about 1950. The key points of

contrast lie in the range of activities that was conducted in-house at the studios and the manner by which these activities were administered by studio management. One such activity was exhibition: prior to the *Paramount* antitrust decision of 1948 that outlawed such vertical integration (as well as anticompetitive bundling practices in selling to unaffiliated theaters), the major studios owned large theater chains and were often described as existing to support such chains. Another key contrast between the two periods is that, "rather than an individual company containing the source of the labor and the materials, the entire industry became the pool for these (Staiger 1985: 330)." During the studio era, the myriad activities involved in pre-production, production, and postproduction stages were largely conducted by studio employees within permanent offices and divisions rather than by independent contractors, as is the rule today.

While the antitrust actions of the 1940s had a large impact on the industry, they seem to have been only partially responsible for the demise of the studio system. As Caves (2000: 94) points out, the British film industry underwent a similar transformation in the same period despite the fact that no antitrust actions were taken against British studios. Thus the key event in the demise of the studio system seems to have been the substantial drop in demand for feature films that began in 1947-1948 with a reduction in available leisure time and a change in post-war adult tastes (Carey 1981: 272-3). This drop in demand was then reinforced by the rapid diffusion of television, which essentially replaced the low-budget 'B' pictures (which the studios could no longer bundle with their 'A' pictures in their sales to theaters). And the most far-reaching effect of these changes was the move to reduce fixed costs by eliminating studio staffs (e.g., Carey 1981; Caves 2000; John, Ravid, and Sunder 2003; Schatz 1988; Weinstein 1998. As Harmetz (1984: 116) vividly relates:

> Like frantic fisherman afraid that the fish they had hooked would swamp the boat, the studios cut loose their contract lists. The result was that in 1952 Clark Gable finished off his MGM salary at $7200 a week for the standard forty weeks. Ten years later, Elizabeth Taylor was paid $1 million for *Cleopatra*.

Thus, the events that are most responsible for the demise of the studio system appear to have indirectly (by creating an incentive to eliminate fixed costs) led to the transformation of the actor from employee to independent contractor.

What had been the nature of this employment relationship? The standard seven-year contract granted to "contract players" in the studio's "stock company" who were being groomed for possible stardom required an actor to remain with the studio for the duration of the contract. The primary attraction to the actor, especially for young performers during the Great Depression, was the prospect of job security coupled with a steady rise in income:[7]

> Assuming the artist did nothing to trigger the escape ("morals") clause [of the standard contract], he or she was guaranteed forty weeks of employment at a fixed salary. If the option was renewed each year, the artist enjoyed an escalating salary. The escalating salary offered more security than they had previously known. That factor, combined with the fact that all studios firmly controlled their artists, was enough to convince these artists to sign away their rights (Reddersen 1983: p.20).

One right "signed away" by these "indentured employees" (Klaprat 1985: 351) was the right to work with another studio if she so chose. While the studio had the option to terminate the contract after each year, the actor enjoyed no such option. In addition, the actor worked under a fixed salary and typically lost the ability to decide on the projects on which she would work.

These contractual constraints are evident in cases of stars who bridled under their restrictions. A well-known example is the case of James ("Jimmy") Cagney, who battled Warner Bros. throughout the 1930s to renegotiate his contracts (see Warren 1983; McDonald 2000: 65-69). These disputes, which involved two walk-outs and a lawsuit that was decided in Cagney's favor, revolved around several related issues: (a) a failure to raise his salary despite verbal assurances that it would be increased if his films were successful; (b) overwork (six films in 1934 despite the fact that his [renegotiated] contract stipulated no more than four films per year); (c) requirements that Cagney make personal appearances on behalf of the studio; and (d) restrictive casting, whereby Cagney was given "tough guy" roles almost exclusively even though he wished to broaden his roles to include other dramatic parts and musicals. Cagney's willingness to take on the

---

[7] For instance, Judy Garland's initial contract with MGM paid $100 per week for the first year, an increase of $100 each year through year five, and then an increase to $750 per week for year 6 and $1000 per week for year 7 (Harmetz 1984: 104). In fact, the contract was rewritten after the fifth year to pay Garland $2000 per week for the next three years. Such renegotiations near the end of an actor's contract reflect attempts to gain access to the rent stream generated by the actor for a longer period of time, albeit with a lower share of that stream.

studio and his relative success in doing so were exceptions to the general rule and reflected his growing star power. Perhaps the strongest weapon by which the studio could gain the compliance of its contract personnel was the contractual clause that allowed them to suspend an actor without pay for insubordination and then to add the suspension time to the end of the contract. A second method of control was the "loan-out" whereby an actor's services were rented to another studio (who typically paid the actor's salary plus an average of seventy-five percent; McDonald 2000: 63) without the actor's consent. While such loan-outs were sometimes agreeable to the actor, they were also used as "the Hollywood equivalent of Siberia (ibid.)" when the project for which the loan-out was made was not expected to succeed (Harmetz 1984: 115).

Note that while actors (and directors and producers [see Zuckerman 2005]) enjoyed relatively less control over their work under the studio system, and there was frequent conflict as a result, this does not mean that the system's constraints were always resented. Indeed, a common attitude seems to have been one expressed by Humphrey Bogart above: the employee as the mid-twentieth century organization man (Whyte 1956) who displays loyalty to an organization and accepts a broad array of assignments within a broad "zone of indifference" (Barnard 1938) because he regards the management as playing the legitimate role of coordinating the various specialized tasks necessary to further a collective effort with which he identifies. The director Frank Capra, who took a pay cut to leave MGM for Columbia and there by gain greater autonomy and the right to write and produce, described the "the directors at MGM [as] 'the crème-da-la-crème' [but also] "organization men, as anonymous as vice presidents at General Motors (quoted in Harmetz 1984:138)." As explained by John Lee Mahin, an MGM screenwriter, "Whatever we were working on was an MGM picture, and we all wanted MGM pictures to be the best (ibid: 12)." William Ludwig, another MGM screenwriter expressed similar sentiment when he related that "There was a sense of pride at [MGM], a sense of community. There were five major studios… and you supported your own (ibid)." Evidence for such loyalty comes also from cases like that of the actress Norma Shearer, who reportedly was offered $200,000 from a rival studio but signed with MGM for $150,000 because she "never wanted to desert the company that had made her a star (Carey 1981: 230)." While it is hard to know how widespread such loyalty to the studio

was, it clearly had significant currency and it created a link between the personnel and the studios that has no parallel today.

A related feature of the studio system that bound actors to the studios for many years was the significant investments in human capital that the studios typically made in the actors that they had under contract. Indeed, young actors were often recruited not for their present ability or appearance but because they were seen as having raw potential that could be groomed for potential stardom by the studio's in-house drama coaches, dentists, hair stylists, costume designers, plastic surgeons, fitness trainers, etc. As Klaprat (1985: 351) writes, "Stars were created, not discovered." Harmetz (1984: 107) elaborates:

> In signing Judy Garland, MGM had bought an extraordinary voice unfortunately attached to a mediocre body and a badly flawed face. In the next seven years, the voice would be trained, the teeth capped, the nose restructured, the thick waist held in by corsets, and the body reshaped as well as possible by diet and massage. In greater or lesser measure, the same thing happened to everyone the studio put under contract. If nothing had to be done to improve Lana Turner's breasts, there was certainly enough to be done by the studio's hairdressers and dramatic coaches.

Such actor-specific investments were typical of the "star system" whereby "budding star and studio would benefit together from the studio's strong incentive to invest.. in promot[ing] the actor's career [during the period of the long-term contract]. In the meantime, the star received a low-risk and rising income while the studio assumed (and pooled) the uncertainties associated with star potential. When the actor's career flourished… the star ceded [temporary] rents to the studio… (Caves 2000: 89 cf., McDonald 2000)." Thus, the studio and actor were mutually bound not just by the studio's greater power in enforcing the terms of a restrictive contract, but by certain attractions that the contract held, at least to novice actors.

III. Casting and Typecasting in the Two Systems

Factor (A): Employee Control over Assignments

In the contemporary system, casting directors are key players in contemporary casting decisions on the employers' side (see Zuckerman et al. 2003: 1037-1042; see also Kungus 1988) and talent agents (or managers) typically represent the actors in what may be described as a "brokerage system of administration" (DiMaggio 1977). The casting

director, who is either an employee of a production company or an independent contractor, is generally charged by the film's director with finding actors to fill the roles in a film. Casting directors inform talent agents of openings and the agents suggest clients that they think are good matches with the available parts. The talent agent's role in this process seems to exacerbate the tendency to use the typecasting rule of thumb. Even if a casting director may be open to "off-casting," talent agents often typecast their clientele because such openness is rare and hard to predict.

Yet while the contemporary system restricts opportunities for broadening an actor's career and breeds alienation as a result, it seems plausible that these effects were far stronger in the studio system. As discussed above, a key difference is that actors have more control over their careers in the contemporary system and thus should be able to escape a restrictive career identity than an actor who has little choice but to do the projects that are given to him by his employer. Indeed, contemporary casting directors often believe that actors are responsible if they are rigidly typecast because they could break out of the typecast if they try hard enough (by turning down typed roles, getting additional training, or working in theater [see Zuckerman et al. 2003]).

But while the contemporary actor may theoretically have the ability to control her career by refusing parts and taking on assignments that are less rewarding in the short-term, such control was largely in the hands of studio management during the studio system. The case of Jimmy Cagney at Warner Bros. recounted above is just one of the many instances in which the studio's desire to develop a consistent screen brand or "persona" that could draw moviegoers to its "star-genre" combinations (Schatz 1988) conflicted with a star's desire to expand his or her range. The following argument (Behlmer 1985: 229-233) between Warner Bros. head Jack Warner and Humphrey Bogart is similarly revealing. The dispute between Bogart and Warner took place in 1944 and concerned Bogart's reluctance to star in the film *Conflict* (1945), in which Bogart returned to playing a gangster after having had break-out success as a sympathetic, romantic lead in *Maltese Falcon* (1941) and *Casablanca* (1942):[8]

[8] Bogart eventually acquiesced and starred in Conflict, which was relatively unsuccessful.

Bogart: Nothing you can say will convince me it is a good picture, or is in good shape, or for me. I consider you a personal friend of mine and do not think you will do all the things you say you will …

Warner: You must remember, Humphrey. It is not Jack Warner that is asking you to do this picture. You are doing this for the company, and the same thing would happen in the steel business …

Bogart: Allow me the privilege of making a decision. I work for Warner Bros. and am willing to die for Warner Bros. When you asked me to appear at the [Hollywood] Bowl on Easter Sunday at 4 a.m., and dance in a musical comedy, I did so. I will do anything, but I cannot do this picture.

Warner: Don't make the mistake that some people have made.

Bogart: What are you doing, threatening me?

Warner: No, I am not threatening you, but if you don't want to play ball I will have think along certain terms contractualwise (sic). We will suspend you and not put you in *Passage to Marseille*…

Warner: This is a potent business, that is why people respect the motion picture industry, and I know you are making an awful error.

Bogart: What are you doing, frightening me?

Other "Warners" stars who battled the studio over casting assignments included Claude Rains (Behlmer 1985: 82), George Raft (ibid.: 116); Edward G. Robinson, and Bette Davis. As Schatz (1988: 139) comments:

> Like Robinson and Cagney, [Bette] Davis was ruthlessly typecast: this ensured her market value but steadily restricted her screen persona. Not only did Warners resist "off-casting" its emerging stars,[9] but Jack Warner also resisted loaning them out, since work for other companies upset Warners' schedule and threatened to dilute the screen personality being refined at Warners…. The stars resented this policy… but in the long run there was little any star could do, since in those years the standard industry practice was to tack on the suspended time to the end of a player's contract… (p.139).

And while Warners was perhaps the most aggressive in enforcing their contractual right to determine a star's casting, other studios followed similar practices. Indeed, typecasting was perhaps even more restrictive at MGM where disputes over typecasting included Greta Garbo's demand for "no more bad women" (Carey 1981: 104); or Joan Crawford's desire to stop starring in "glamour-girl vehicles in which she invariably played either a bored socialite or a shopgirl with upward mobility on her mind (Carey 1981: 237). " More generally, Harmetz (1984: 103) notes that:

[9] See Klaprat (1985) for a slightly different view on the offcasting of Bette Davis by Warner Bros.

> MGM's stars were not used indiscriminately. Scripts were written for them; books were rewritten for them. Their parts were as carefully tailored as their clothes-- and with much the same purpose: to exaggerate strong points, to disguise flaws… Once the actor was a star, the clay was considered permanently fired. Although there were subtle changes (due to aging), there were very few experiments.

Thus, actors had considerably less control over how they were cast under the studio system and it would thus seem to follow that, especially given the studio's desire to have stars with consistent, marketable personae, that the range of career identities was even more restricted under the studio system than under the contemporary system. And if such restrictions applied to stars, it stands to reason that they were at least as binding on less prominent actors since they had even less leverage with their employers.

Factor (B): Employer Interest in Experimentation

Yet the desire for stars with consistent images was not the only factor that influenced studio casting decisions. As discussed above, another important consideration was the need to ensure that all of the studio's actors worked the maximum amount of time specified in their contracts (typically forty weeks). The studio stock company in a given year represented a cost was fixed in that it did not vary with the number of films produced and was largely sunk in that it could not be redeployed for other uses (with the exception of loan-outs to other studios). Having sunk such costs in an actor, the studio faced no additional costs in using her for a given part, but would have to pay extra to hire a new actor or to borrow one from a different studio. As Reddersen (1983: 30) points out:

> .. the primary disadvantage of the stock company was the need to keep its members working. An actor laid off in excess of the time limit in the contract (12 weeks) had to be paid. The more he worked, the greater the cost-efficiency per film.

Accordingly, the studio casting director's job (see also Friedman 1937; Kungus 1988) was not only to fill roles specified by the producer (in the first instance, from the studio stock company rather than from free-lancers on the open market) but to keep track of who was working when so as to minimize the lay-off periods (Reddersen 1983: 151-159). And this desire to get maximum use of the studio's staff potentially conflicted with the desire to maintain consistency in an actor's image. Thus, according to Caves (2000: 89),

"the studio also had to juggle its personnel under contract… , to keep them fully occupied… (such that) a studio might find (the) objective (of building an actor's career) overridden by the goal of keeping its contract players busy."

In this regard, it is interesting to note how Humphrey Bogart initially broke out of his typecast as a gangster. According to Reddersen (1983: 30), this transformation of his career identity derived from Warner Bros.' tendency to "put their whole contract list in every picture whether they fit or not" (MGM casting director Leonard Murphy, quoted in Harmetz 1984: 121-2) so as to get maximum utilization of their staff. This tendency led Warner Bros. to its original discovery that Bogart would be successful as a "shitheel heavy" but it also led him to be cast in *Maltese Falcon* after George Raft turned it down, and thereby to the discovery that he might be successful as a romantic lead.

The desire to utilize the studio stock company to the fullest seems to have been stronger at Warner Bros. than at MGM, which was unique in following a high-quality/high-cost strategy under the model developed by Irving Thalberg. However, even at MGM, it appears that there was extensive experimentation at the beginning of an actor's career. Indeed, while MGM stars may have been considered "permanently fired," a "potential star.. was clay for the molding (Harmetz 1984: 103)." Recall that actors were hired into the stock company less for their skills at the time of hire (as is the case in the contemporary system) but for what they might *become* as a result of the (unrecoverable, specific) investments that the studio made in the actors' appearance and skills. Having sunk such costs, it made sense for MGM and other studios to experiment with their contract list in a variety of roles until they found the roles for which they were most successful. Harmetz (ibid.) gives a sense of this experimentation at MGM and how it related to the studio's casting more generally:

> Robert Taylor was given a singing role in *Broadway Melody* of 1936 in the hope that he might make a leading man for musicals. Taylor's voice made that experiment a failure, but Eleanor Powell's success as a dancer in the same film allowed the studio to shift Joan Crawford to exclusively dramatic roles. Powell could take over all those dancing ladies previously reserved by necessity for Crawford.

Klaprat (1985) describes a similar process whereby after failure with Warners' initial screen personality for Bette Davis-- the blonde bombshell, an experiment during a loan-out to RKO led her to be typecast as a (brunette) man-slaying vamp.

In sum, the two factors identified above as varying between internal and external labor markets and providing countervailing supports for generalism seem quite salient in the shift from the studio system and the contemporary system. On the one hand, actors employed by the studios had much less control over how they were cast. Coupled with the studios' desire to develop consistent screen personalities, this would seem to suggest that career identities should be much more specialized under the studio system. And yet we have seen reason to think that, while the contemporary system does not permit "movies to be testing grounds" for actors to experiment with innovative casting, the inherent logic of having a semi-permanent staff sometimes stimulated such experimentation under the studio system. In certain cases, such experimentation resulted from a deliberate attempt to groom in-house talent and find the types of roles for which they were best suited; in other cases, it occurred as an unintended byproduct of the desire to keep contract personnel fully utilized. Regardless of the degree of intent, such experimentation represented a support for generalist career identities that does not have a parallel in the contemporary system. Thus, a review of casting practices in the studio system and the contemporary system supports my argument that the radically different employment systems characteristic of internal and external labor markets provide roughly the same amount of support for the emergence of generalist career identities. I now proceed to validate this argument.

IV. Analysis

As in Zuckerman (2005), I examine whether the decline over time in the strength of the attachment between studios and actors is associated with a corresponding decline in the degree of specialization in acting careers. Given the argument presented above, we can expect to see substantial decline in the strength of attachment between studios and actors (as actors shift from being long-term employees to being independent contractors) but little change in the degree to which actors specialize by work category. I first describe the analytic framework used to measure the attachment between studios and actors, which constitutes the "independent variable," and then I discuss the measurement of specialization, which constitutes the "dependent variable."

Independent Variable: Timing the Decline of the Studio System

There are two seemingly straightforward options for measuring the decline of the studio system but which are unfortunately not available. The first option would be to rely on a date when the era of the studio system ended and the contemporary period began. But such approach is problematic for two reasons. First, the shift between the two systems seems to have been more gradual than the common depiction of an abrupt change around 1950. For instance, while the *Paramount* decision mandated the divestiture of the studios' theater operations in 1948, the studios' initial responses varied. At one extreme, Warner Bros. moved quickly to comply with the mandate and also engaged in a series of substantial downsizing moves. Yet MGM took the opposite tack. Indeed, after studio chief L.B. Mayer was replaced by Dore Schary in 1951, Schary returned MGM to the central producer system that had previously been abandoned for the somewhat more decentralized unit producer system. It was not until suffering major losses in the early 1950s that MGM "began in earnest" "to phase out its contract personnel" and MGM was separated from the Loews theater chain (Schatz 1988: 462). Moreover, some contract personnel remained on studio staffs into the 1960s. Moreover, just as vestiges of the studio system remained for years after 1950, various trends before 1950 foreshadowed the system's demise. These trends include a change in the tax code and corresponding increase in free lancing; as a November 1940 consent decree that limited anticompetitive bundling practices (Schatz 1988: 298); and Olivia de Havilland's successful 1943 lawsuit against Warner Bros., which invalidated the contractual provision allowing studios to add suspension time to the end of contracts.

The foregoing considerations suggest that one should not rely on a specific year by which to mark the boundary between the two systems. Rather, it seems preferable to analyze empirically the extent to which actors in a given period were employees or independent contractors and to use the periodization that emerges from the data. The main difficulty with such an approach, however, is that data on who was a studio employee and for what length of time (as well as the nature of their contract) are not available, except for a few cases.

Thus as a proxy, I analyze the extent to which actors work repeatedly on films distributed by the same studios. The data for this analysis and those that follow data are

from the Internet Movie Database (IMDB; www.imdb.com), which maintains highly comprehensive information on virtually every feature film ever produced. I restrict attention to English language, non-pornographic, feature-length films.

To clarify the procedure, I discuss how it was computed for the first three-year period under analysis-- 1933 through 1935 or the "1935 period."[10] In the first column of table 1, I display the distribution of the number of films in which an actor was credited with a part during this period. The second column gives the mean concentration score for the tendency for an actor to work with a small number of studios. For the purpose of this analysis, a studio is the film's distributor (of which there is sometimes more than one). During the era of the studio system, the distributor was often the film's producer as well. This concentration score is computed in two steps. First, I calculate a Herfindahl score for an actor's tendency to work with a small set of studios (cf., Zuckerman et al,. 2003):

$$has_a = \sum_s^S \frac{w_{as}}{N_a}^2 , \qquad (1)$$

where a indexes actors, s indexes studios, w_{as} is the number of films in which a for which s was the distributor, and N_a is the total number of films in which a acted. Note that, if an actor never works twice for the same studio, then has_a will equal the reciprocal of N_a.[11] Thus, an indicator of the extent to which actors tend to concentrate their work with particular studios is:

$$fhas_a = has_a - \frac{1}{N_a}. \qquad (2)$$

TABLE 1 ABOUT HERE

As displayed in the second column, the mean concentration score is 0.084 for all actors and 0.137 for those actors who appeared in more than one film-- i.e., those actors who could potentially have significantly high concentration of work with a small number of studios. But how significant is this level of concentration? Even in a system with random assignments of actors to studios, we would expect some actors to display high levels of attachment to particular studios. The question then is whether and to what extent the observed distribution of *fhas* reflects a level of concentration that exceeds that

[10] While the studio system began roughly ten years earlier, I confine analysis to the periods that include only talking pictures.
[11] For instance, if an actor works for ten different studios, has_a will equal 10*(0.1*0.1)=0.1.

which would be expected through random chance. To analyze this question, I use a simulation procedure that: (a) fixes the number of screen credits earned by each actor and the number of films, and screen roles per film, distributed by a given director in each of the three years; (b) constructs 1,000 samples in which the assignment of actor to screen role is random within each of those years (see Zuckerman et al., 2003; cf., Ellison and Glaeser 1997); (c) recalculates $fhas_a$ on such random collaboration patterns for the three-year period, denoted as $fhas(r)_a$; and then compares the distribution of $fhas_a$ with $fhas(r)_a$.

In figure 1, I display the distribution of mean $fhas(r)_a$ or $\overline{fhas(r)}$ for the 1,000 simulations. As we can see, the observed $\overline{fhas}$ of 0.084 was more than three times greater than the mean of the simulated means or $\mu_{\overline{fhas(r)}}$, which was 0.027, and nearly three times greater than the maximum of the simulated means, which was 0.030. Since the distribution of the simulated means approximates a normal distribution, the significance of the difference between the observed concentration score and that found in the simulated data may be expressed through the following Z-score:

$$Zas = \frac{\overline{fhas} - \mu_{\overline{fhas(r)}}}{\sigma_{\overline{fhas(r)}}},$$

This test statistic uses the standard deviation in the simulated data as a baseline against which to compare the deviation between the observed concentration score and the mean from the random simulations. For the 1933-1935 period, *Zas*= 67.15. That is, the observed tendency for actors to repeatedly work for the same studios exceeds the level expected due to random chance by a factor of more than fifty.

FIGURE 1 ABOUT HERE

In addition to expressing the deviation from random work with the same studios at the aggregate level, it is also useful to examine this from the level of the individual actor. Thus, in the third column of table 1, I indicate the tendency for the observed level of concentration, $fhas_a$, to be matched by the level of concentration achieved in the 1,000 simulations $fhas(r)_a$. We see that, on average, the observed level of concentration is greater than 20% of the simulations for those actors who were in two films. This 'low' level of excess concentration is unsurprising: such actors work either with one or two studios (except in rare cases where a film is co-released by multiple studios) and even

random data will produce many cases in which actors work twice with the same studio. Thus, in column four, I present results from one additional random simulation, which is then compared with the first 1,000 random simulations. We see that the mean concentration score is now much lower, both among those who acted in two films and more generally, and yet 6% of the simulations are still not matched in the other 1,000 random simulations. At the same time, this 6% is much lower than the 20% achieved by the observed data. And as the number of movies in which an actor had a credited role increases, the proportion of the 1,000 simulations that reaches the level of the additional random simulation is about 50% (which indicates that the additional simulation represents the middle of the distribution from figure 1) but is about 80% for the observed data, as indicated in column three.

Contrast these results with those presented in table 2, which parallels table 1 but reflects the same analysis conducted on the 1995 period. Note that one key difference between these two differences is that, under the studio system, actors (and directors and producers; see Zuckerman 2005) worked in many more films than they do today. Indeed, the vast majority of actors today appear in a single credited role in their entire feature-film careers (Faulkner and Anderson 1987; Zuckerman et al., 2003). This seems to reflect the fluidity of the boundaries to the contemporary feature-film labor market, which is a sharp departure from an era in which actors tended to either be employees under multi-film contracts or to be outside the market. And it is clear that even fully employed actors in the contemporary system tend to work on many fewer films than did their predecessors in the studio system.

TABLE 2 ABOUT HERE

The results in table 2 also suggest that, while there is still a tendency to work repeatedly with the same studios, this tendency has diminished considerably over time. This is particularly evident for those actors who appeared in more than five films, who have only a slightly higher average level of concentration than is generated by the random data. Overall, the mean of the mean concentration scores for the 1,000 simulations $\mu_{\overline{fhas(r)}}$ was 0.0057, which was just over half the observed $\overline{fhas}$ of 0.1033, and Z_{as}=16.17. So while there remains a significant tendency for actors to concentrate their work with particular studios (perhaps because of relationships with directors or

producers [Zuckerman 2005] or because of their agents' relationships with particular studios), the attachment between actor and studio observed in the 1995 period is several times weaker than in the 1935 period.

In figure 2, I display results from the application of this procedure to the thirteen three-year periods that end each of the half-decades beginning in 1935 (by which time 100% of the feature films were talking pictures) and ending in 1995. Three trend lines are presented: all English-language screen roles; all screen roles in major releases;[12] and all screen roles for top-billing actors. The second and third trend lines are particularly useful for comparing the studio era with the contemporary system because there has been little change either in the set of firms that constitute the major studios (essentially, the replacement of RKO with Disney/Buena Vista) or in the market they target (at least within the U.S.) but their role in the labor market for actors has changed radically.

FIGURE 2 ABOUT HERE

Several patterns in this figure deserve note. First, there is clear evidence of a fraying of the bond between actor and studio that is reflected in the contrast between the 1935 and 1995 periods. In general, the Z-score measures peak in the 1940 period and then fall steadily until a trough in the 1985 period when a slight reversal occurs, especially in the larger market. Note, however, that it is hard to find evidence of a particularly sharp drop around 1950. Rather, this period appears to have been the middle of a long-run decline. In fact, the greatest average percentage period-to-period drops in these trend lines occurred between the 1970 and 1975 periods, when the mean percentage reduction in the Z-scores was 53%.

It is useful to compare these trends in the size of the market. As indicated in figure 3, there was a 2/3 decline in the number of films released in the 1935 period through the 1965 period and then a 137% rise from the 1975 period through the 1995 period (which largely reflects the rise of video and cable as additional "exhibition windows" and the expansion of independent films; see Zuckerman and Kim 2003). The size of the major market saw a somewhat longer decline (79% from the 1935 period through the 1975 period) and a more modest increase more recently (70% increase from

[12] I define the following as major studios: Buena Vista [Disney], Columbia, MGM, Paramount, RKO; Twentieth Century Fox, Universal, or Warner Bros. High-billing actors are those who were listed first through fifth in billing order on any of their films from the three-year period (see Zuckerman et al., 2003).

the 1975 period through the 1995 period). These trends in the size of the market do not seem to correspond with the trends in the Z-scores. In particular, note that: (a) there were large increases in the Z-scores from 1935 to 1940 despite the fact that the market contracted over the same interval; (b) the Z-scores continued to decline after 1965 despite the fact that the market had bottomed-out by this period; and (c) the rise in the Z-scores in the more recent periods is not commensurate with the rise in the size of the market. Indeed, while the number of films released in 1995 was only slightly smaller than it was in 1940, the Z-scores for 1995 were substantially below those for 1940, which appears to represent the height of the studio system. Similarly, while roughly the same number of films was released through major studios in the 1960 and 1995 periods, the Z-scores for major releases were substantially higher in the former period, even though the studio system was by then beyond its twilight years.

FIGURE 3 ABOUT HERE

Dependent Variable: Genre Specialization

The previous analysis provides us with our independent variable-- i.e., the Z-scores for actors' concentration of work with particular studios in a given period. The question before us is whether actors' concentration of work within particular types of acting roles changed across these periods in a manner that can be explained by the decline in the Z-scores for studio concentration.

To address this question, I follow Zuckerman et al. (2003) by analyzing specialization with respect to feature film labor-market categories. In particular, specialism is measured as a function of the tendency for actors to work in films that were in a small set of genres. The genre assignments in IMDB are based on information supplied by film enthusiasts who collectively compile the data on IMDB. Up to five of the seventeen genres listed in tables 3 and 3b are assigned to a given film. The first table gives the allocation of screen credits by genre for the full sample while the second table shows the same distribution for the sub sample that consists of major releases only. Note that while the size of certain genres (e.g., Comedy, Romance, Drama) has been relatively constant through time, there have been substantial shifts over time in certain genres, particularly those that are characteristic of the cinema as distinct from other performing

arts (e.g., substantial decline in Western and Musical; substantial increase in Action, Science Fiction, and Thriller). Note also that there has been a steady rise in the number of genres assigned to a film, as indicated in the rise in the total percent of a film allocated to different genres. This increase could reflect an increase in the dramatic complexity of films or it could just reflect a recency effect, whereby contemporary enthusiasts see today's films as more complex than those of the past. In either case, these changes complicate the present attempt to compare genre specialization in acting careers over time. In particular, it could be that the classificatory coherence of films (cf., DiMaggio 1987; Zuckerman 2004; Zuckerman and Rao 2004), or at least the coherence of the genre classifications made by IMDB contributors, has decreased over time such that our baseline expectation for how much specialization we should expect has declined as well. We will return to this issue below.

TABLES 3A AND 3B ABOUT HERE

Even if we bracket the issues that hinder a historical comparison and treat the periods as having comparable expectations for specialism and generalism, the value of this analysis is limited by two key assumptions that underlie the procedure developed by Zuckerman et al. (2003). The first is that the genre assignments in the IMDB database are reasonably accurate indicators of the genre assignments in use by market participants. The second assumption is that genres, as categories in the product market for films, are also salient as categories in the labor market for films. The latter assumption is clearly a crude one in that there are many acting roles that appear in multiple genres. For instance, while we might not expect to see a Jimmy Cagney gangster role in a film assigned to the Children, Fantasy, or Science Fiction genres, one could imagine such a role in most of the other genres, though there are certain genres in which we would expect such a role to be more prevalent (e.g., Crime rather than Musical). The need to make each of these assumptions undoubtedly introduces noise into our analysis. At the same time, comfort with these assumptions may be derived from the fact that significant specialization in the IMDB genre categories is observed, as demonstrated by Zuckerman et al. (2003: 1044-1048).

This procedure calculates the degree to which actors tend to concentrate their work in a given genre using the following steps. First, for actor *a* in film *f* in year *y*, a

binary variable is calculated that indicates whether the film was assigned to the genre:

$D_{afy} = 1,$ if one of the genres assigned to film f is the genre under consideration

$D_{afy} = 0,$ otherwise

The total number of credits received by the actor in that genre over the three-year period is thus:

$$g_a = \sum_{y}^{3} \sum_{f}^{F} D_{ify}$$

Next, a Herfindahl score is generated over the three years:

$$H_g = \sum_{i} (\frac{g_i}{G})^2$$

where G is the total number of credits in movies that were assigned to that genre over the three-year period. And finally, 1,000 simulations are generated in which actors are randomly matched to films in a given year and measures of g_i and H_g are computed for each simulation. As before, this facilitates a comparison of the observed level of concentration with that found in the simulated data, with the following Z-score:

$$Z_g = \frac{H_g - \mu_{\overline{H(r)_g}}}{\sigma_{\overline{H(r)_g}}},$$

In tables 4a (full sample) and 4b (major releases), I present the results of this analysis conducted on the eleven largest genres over this historical time frame during those periods in which there were enough data to calculate results, first for the full sample and then for the major sub sample.[13] There are several patterns in these results that command attention. First, and most importantly, the main source of variation within each table is not across time but across genre. Thus in the full sample, the mean Z-score ranges from a low of 2.88 (Romance) to a high of 34.25 (Western) across genres and from 4.73 (1985) 15.15 (1945) across time periods. As discussed by Zuckerman et al. (2003: 1046-1048), one of the more interesting contrasts between genres is between Comedy and Drama, which are the two largest genres in every period. While Drama was the basis for significant specialization in some (early) periods, its mean Z-scores for both the full sample (3.24) and the major sub sample (1.85) are substantially lower than that

[13] Results for the top five in billing order were substantially the same.

for Comedy (13.10; 7.88), which seems to reflect the fact that Drama is essentially a catch-all or residual category while Comedy has more clearly delimited boundaries. Another genre that stands out is Western, which recorded by far the most significant Z-scores over this time frame; it peaked in the 1940s with the highest recorded Z-scores (75.73 in the 1945 period in the full sample; 42.03 in the 1940 period in the major sub sample), and it continued to be the basis for significant specialization even in recent periods, when it amounted for a small fraction of screen credits.

TABLES 4A AND 4B ABOUT HERE

Linking Independent and Dependent Variables

The results in tables 5a and 5b reinforce the interpretation that differences between genres, which have been relatively stable across time, account for a substantial proportion of the variation in the Z-scores. The first column in each table is an ordinary least-squares (OLS) regression of Z_g on dummies (equivalent to an ANOVA) for each of the genres except Western, which serves as the reference category. The second column is a weighted least squares (WLS) regression, where genres are weighted based on the proportion of total screen credits they represent in a given year. And we see that these between-genre differences account for almost half of the variance in the first model, both for the full sample (R^2=.478 in column 1 of table 5a) and the major sub sample (R^2=.482 in column 1 of table 5b) and for 60% or more of the variance (R^2=.674 in the full market and R^2=.598 in the major sub sample) when the genres are weighted by size. Thus, *most of the variation in observed career specialization can be explained by genre-specific factors that do not change over time despite radical transformation in the way the industry was governed and the employment systems in which actors worked*.

TABLES 5A AND 5B ABOUT HERE

Yet while the main pattern in the data appears to indicate little change, the demise of the studio system could still have had *some* impact on the degree of specialization observed. Thus, we see in models 3 and 4 of both tables, that the introduction of the Z-score measuring the degree of concentration in actor's work with specific studios in a given period, adds significant explanatory power. In particular, an increase (decrease) of one Z-score unit in aggregate attachment to particular studios (*Zas*) leads to a modest though significant .09 increase (decrease) in the amount of genre-based specialization

observed. This pattern can be observed in tables 4a and 4b, as we see that the mean deviation from the genre-specific means declines from being positive and peaking around 1945 and to being negative throughout most of the period after the decline of the studio system. Thus, while this association pales in comparison to the stability in the genre-specific effects, there does seem to be a general reduction in genre-based specialization and this trend seems to be associated with the decline of the studio system to a modest though significant extent.

Does this association reflect causation? One reason to be skeptical is that so much of the decline in genre-based specialization was due to the decline of the Western genre, and this decline seems more due to changing tastes than it does to the demise of the studio system. Thus, we see in table 4a that, once Western is excluded, there is no longer any identifiable trend in the mean deviations from the genre mean. Similarly, results from models 5 and 6 of table 4a indicate that the effect of studio concentration declines to insignificance once the Western genre is excluded. Results from the same analyses of the major sub sample (tables 4b and 5b) also show a similar reduction in the significance of studio-concentration but the association is still significant. In particular, an increase of one Z-score unit in the tendency for actors to work with particular studios is associated with a rise of as much as .06 (WLS model) in genre-based specialization. *Thus, there appears to be a significant yet small association between aggregate studio attachment and aggregate genre specialization in the major sector*.[14]

Conclusion

In this article, I have sought to bring together three lines of inquiry: (a) on how variation in economic organization shapes cultural variety; (b) on how typecasting limits specialism in (external) labor markets; and (c) on how firms and markets compare in their functioning and outcomes. I do not pretend to have tied these disconnected strands of research into a neat bow, but hope at least to have provided guidance for future research that will conduct efforts at integration. First, the theoretical discussion directs us to two

[14] As noted before, a similar result was found when analysis was restricted to the top-billing actors. I have also conducted a separate analysis of genre-based concentration that follows the same procedure described above for concentration of work with particular studios (and with directors and producers [see Zuckerman 2005]). This analysis shows a decline in genre-based specialization that is of the same magnitude as that shown in the analyses in tables 5a and 5b that include the Western genre.

mechanisms, each characteristic of one of the two employment systems and each providing a distinctive support for the emergence of generalist identities. In particular, the increased control that independent contractors enjoy over the work assignments, and the potential therein for cultivating opportunities for recognition as a generalist is counterbalanced by the incentive to experiment with specialists in new jobs that is experienced by an employer who has made a relatively long-term (and non re-deployable) commitment to a staff. While there is no reason to think that these factors are equally powerful in helping to overcome typecasting, it is equally true that there is no reason to expect one to dominate. Thus, I have argued that the restrictions on generalist identities due to typecasting in the external labor market (see Zuckerman et al. 2003) are comparable in their significance to the restrictions imposed in internal labor markets.

This article provided a first empirical analysis of this issue by examining the extent to which the transformation of a cultural industry from one that is composed largely of a set of internal labor markets to a single external labor market affects the aggregate level of specialism. The replacement of the Hollywood studio system with the contemporary system represents an unusually good context for such an analysis, though this case has significant limitations as well-- in particular, the change in the genre distribution of films and, possibly, how those genres relate to the labor-market categories in use in casting decisions hinders confidence that we can compare the two eras as an apples-to-apples comparison. In addition, while we have seen from histories of Hollywood that the two factors varied across the two systems in the manner expected, the available data do not allow us to conduct a systematic examination of these processes and how they affect opportunities for generalism.

That being said, we can have some confidence in two basic lessons from the analysis. First and foremost, it seems evident that *the fundamental transformation of the industry, which is reflected in a weakening of the bond between actor and studio, did not occasion a similarly fundamental decline in the degree of career specialization*. As reviewed above, the strongest basis for predicting such a decline and a rise in generalist identities was the fact that contemporary actors enjoy a degree of control over the jobs their forebears did not. Today's actors are never in a situation where they *must* take a particular job and indeed, cases that parallel that of Humphrey Bogart or Jimmy Cagney

described above simply do not and cannot occur in today's system.[15] And the fact that actors now have refusal rights on the jobs they take could be taken to imply that limitations on generalism would have been much stronger during the studio system, especially given the studios' strategy of presenting film-goers with predictable, consistent personae from film to film.

Yet the analysis presented above indicates that the decline in specialization was quite modest and that the degree to which actors tended to specialize in a given genre was quite stable over time and in the face of the transformation of the industry. Insofar as typecasting implies an "inefficient" undersupply of generalism (i.e,. workers who could be productive in a wide array of job categories are restricted to one) one might suppose that generalist careers would be more common in the contemporary system because the market is superior to firms at facilitating the allocation of resources to their most efficient uses. But the results presented are consistent with a view that *the mechanisms for allocating resources in firms are sometimes as efficient as those operative in markets even when those mechanisms are fundamentally different.*[16] The key factor in this regard is the sinking of costs in a semi-permanent staff creates a stimulus for experimentation in an internal labor market that has no parallel in an external labor market. Indeed, beyond the film industry, it is useful to consider firms that have management training programs that groom generalist managerial skills by placing them in a variety of industries and/or regions. Such programs create career lines (e.g., a General Electric manager might work in such varied industries as plastics; industrial diamonds; appliances; medical devices; and broadcasting at various points in his career) that are vanishingly rare in the external labor market, where hiring is typically governed by a typecasting process according to which employers (or the executive recruiters who represent them) look first for candidates who have worked in the industry in question.

A direct test of the salience of such a stimulus for generalism must await data that are better suited for such an analysis. At the very least, however, the modest decline in

---

[15] It is noteworthy that both Cagney and Bogart formed independent production companies after their contracts with Warners were up and, while both focused on broadening their career identities, they both failed in this regard (see Reddersen 1983: 115-130; Warren 1983: 158-170)

[16] As reviewed above, one of the themes in emerging research comparing firms and markets is that they function in ways that are more similar than is commonly supposed (see Bidwell 2005a, 2005b). In the current case, it seems clear that firms and markets operate quite differently but the *outcomes* due to these processes are substantially the same.

specialization despite an evident increase in actors' formal control over how they are cast suggests that such a mechanism may be quite important. Thus, the current trend towards careers that cross firm boundaries (e.g., Arthur and Rousseau 1996; Kunda et al., 2002) will not necessarily foster careers that are more apt to cross labor market boundaries (cf., Jones and deFillippi 1996: 93).

References

Arthur, Michael B. and Denise M. Rousseau eds. 1996. *The Boundaryless Career: A New Employment Principle for a New Organizational Era*. New York: Oxford University Press.

Arkes, Hal R., and Catherine Blumer 1985 "The Psychology of Sunk Costs." *Organizational Behavior and Human Decision Processes* 35: 124-140.

Barnard, Chester I. 1938. *The Functions of the Executive*. Cambridge: Harvard University Press.

Behlmer, Rudy. 1985. *Inside Warner Bros. (1935-1951)*. New York: Viking Penguin.

Bidwell, Matthew. 2005a . "Reworking Contingent Work." Unpublished manuscript, INSEAD.

Bidwell, Matthew. 2005b. "What Does Integration Do? A Case Study." Unpublished manuscript, INSEAD.

Brockner, Joel. 1992. "The Escalation of Commitment to a Failing Course of Action: Toward Theoretical Progress." *Academy of Management Review* 17: 39-61.

Cappelli, Peter. 1999. *The New Deal at Work: Managing the Market-Driven Workforce*. Boston : Harvard Business School Press, c1999.

Carey, Gary. 1981. *All the Stars in Heaven: Louis B. Mayer's M-G-M*. New York: E.P. Dutton.

Carroll, Glenn R. 1985. "Concentration and Specialization: Dynamics of Niche Width in Populations of Organizations." *American Journal of Sociology* 90:1262-1283.

Carroll, Glenn R. and Anand Swaminathan. 2000. "Why the Microbrewery Movement? Organizational Dynamics of Resource Partitioning in the American Brewery Industry after Prohibition." *American Journal of Sociology*106: 715-762

Caves, Richard E. 2000. *Creative Industries: Contracts Between Art and Commerce*. Cambridge, Mass.: Harvard University Press.

Christopherson, Susan. 1996. "Flexibility and Adaptation in Industrial Relations: The Exception Case of the U.S. Media Entertainment Industries." Pp. 86-112 in *Under the Stars: Essays on Labor Relations in Arts and Entertainment*. Lois S. Gray and Ronald L. Seeber eds. Ithaca: ILR Press.

Christopherson, Susan and Michael Storper. 1989. "The Effects on Flexible Specialization on Industrial Politics and the Labor Market: The Motion Picture Industry." *Industrial and Labor Relations Review* 42: 331-347.

Coase, Ronald H. 1937. "The Nature of the Firm." *Economica, New Series* 4: 386-405.

DiMaggio, Paul M. 1977. "Market Structures, the Creative Process, and Popular Culture." *Journal of Popular Culture* 11: 436-52.

DiMaggio, Paul M. 1987. "Classification in Art." *American Sociological Review* 52: 440-455.

Eccles, Robert G. and Harrison C. White. 1988. "Price and Authority in Inter-Profit Center Transactions." *American Journal of Sociology* 94: S17-S51.

Ellison, Glenn and Edward L. Glaeser. 1997. "Geographic Concentration in U.S. Manufacturing Industries: A Dartboard Approach." *Journal of Political Economy* 105: 889-1027.

Faulkner, Robert R. 1983. *Music on Demand: Composers and Careers in the Hollywood Film Industry*. New Brunswick, N.J.: Transaction.

Faulkner, Robert R. and Andy B. Anderson. 1987. "Short-Term Projects and Emergent Careers: Evidence from Hollywood." *American Journal of Sociology* 92: 879-909.

Freeland, Robert F. 2001. *The Struggle for Control of the Modern Corporation: Organizational Change at General Motors, 1924-1970*. Cambridge: Cambridge University Press.

Friedman, Phil. 1937. "The Players are Cast." pp. 106-116 in Naumberg, Nancy, ed. *We Make the Movies* New York: W.W. Norton.

Gibbons, Robert. 2004. "Four Formal(izable) Theories of the Firm?" Unpublished manuscript, MIT Sloan School of Management.

Harmetz, Aljean. 1984. *The Making of the Wizard of Oz: Movie Magic and Studio Power in the Prime of MGM—and the Miracle of Production #1060*. New York: Alfred A. Knopf.

Hayek, Friedrich A. 1945. "The Use of Knowledge in Society." *American Economic Review* 35: 519-530.

Jacoby, Sanford. 2005. *The Embedded Corporation: Corporate Governance and Employment Relations in Japan and the United States*. Princeton, N.J. : Princeton University Press.

John, Kose, S. Abraham Ravid, and Jayanthi Sunder. 2003. "The Role of Termination in Employment Contracts: Theory and Evidence from Film Directors' Careers." Working Paper, NYU Stern School of Business.

Jones, Candace and Robert J. DeFillippi 1996. "Back to the Future in Film: Combining Industry and Self-Knowledge to Meet Career Challenges of the 21st century. *Academy of Management Executive* 10: 89-104.

Klaprat, Cathy. 1985. "The Star as Market Strategy: Bette Davis in Another Light." Pp. 351-376 in Tino Balio ed., *The American Film Industry*. Madison, Wis.: University of Wisconsin Press.

Kalleberg, Arne L. and James R. Lincoln. 1988. "The Structure of Earnings Inequality in the United States and Japan." *American Journal of Sociology* 94: S121-S153.

Kochan, Thomas Harry C. Katz and Robert B. McKersie. 1994. *The Transformation of American Industrial Relations*. Ithaca, N.Y. : ILR Press, 1994.

Kunda, Gideon, Stephen R. Barley, and James E. Evans. 2002. "Why Do Contractors Contract? The Experience of Highly Skilled Technical Professionals in a Contingent Labor Market." *Industrial and Labor Relations Review* 55: 234-261.

Kungus, Renata Maria. 1988 *An Analysis of Hollywood Casting Directors* PhD Thesis,San Diego State University.

Lopes, Paul D. 1992. "Innovation and Diversity in the Popular Music Industry, 1969-1990." *American Sociological Review* 57: 56-71.

McDonald, Paul. 2000. *The Star System: Hollywood's Production of Popular Identities*. London: Wallflower.

Mullainathan, Sendhil and David Scharfstein. 2001. "Do Firm Boundaries Matter?" *American Economic Review* 91: 195-199.

Osterman, Paul. 1995. "Work/Family Programs and the Employment Relationship." *Administrative Science Quarterly* 40: 681-700.

Péli, Gabor and Bart Nooteboom. 1999. "Market Partitioning and the Geometry of the Resource Space." *American Journal of Sociology* 104:1132–53.

Peterson, Richard A. and David G. Berger. 1975. "Cycles in Cultural Production: The Case of Popular Music." *American Sociological Review* 40: 158-73.

Peterson, Richard A. and David G. Berger. 1996. "Measuring Industry Concentration, Diversity, and Innovation in Popular Music." *American Sociological Review* 61: 175-178.

Phillips, Damon J. and David A. Owens 2004. “Incumbents, innovation, and competence: The emergence of recorded jazz, 1920 to 1929.” *Poetics* 32: 281-295.

Polos, Lazlo, Michael T. Hannan, and Glenn R. Carroll. 2002. “Foundations of a Theory of Social Forms.” *Industrial and Corporate Change* 11: 85-115.

Reddersen, Robert S. 1983. *Humphrey Bogart at Warner Bros.: A Case Study of the Star System During the Studio Era*. M.A. thesis in Communication, University of North Carolina at Chapel Hill.

Ruef, Martin. 2000. “The Emergence of Organizational Forms: A Community Ecology Approach.” *American Journal of Sociology*106: 658-714.

Saloner, Garth, Andrea Shepard, and Joel Podolny. 2001. *Strategic Management.* New York: John Wiley & Sons.

Schatz, Thomas. 1988. *The Genius of the System: Hollywood Filmmaking in the Studio Era*. New York: Henry Hold & Co.

Staiger, Janet. 1985. “The Package-Unit System: Unit Management after 1955.” Pp. 330-338 in *The Classical Hollywood Cinema: Film Style & Mode of Production to 1960*. New York: Columbia University Press.

Stinchcombe, Arthur L. 1990. *Information and Organizations*. Berkeley, Calif.: University of California Press.

Swaminathan, Anand. 2001. “Resource Partitioning and the Evolution of Specialist Organizations: The Role of Location and Identity in the U.S. Wine Industry.” *Academy of Management Journal* 44: 1169-185.

Warren, Doug with James Cagney. 1983. *James Cagney: The Authorized Biography*. New York: St. Martin’s Press.

Weinstein, M., 1998, “Profit Sharing Contracts in Hollywood: Evolution and Analysis”, *Journal of Legal Studies* 27: 67-112.

Whyte, William H. Jr. 1956. *The Organization Man*. New York: Simon & Schuster.

Williamson, Oliver E. 1975. *Markets and Hierarchies, Analysis and Antitrust Implications: A Study In the Economics of Internal Organization*. New York: Free Press.

Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: Free Press.

Williamson, Oliver E. 1996. *The Mechanisms of Governance*. New York: Oxford University Press.

Zuckerman, Ezra W. 1999. "The Categorical Imperative: Securities Analysts and the Illegitimacy Discount." *American Journal of Sociology* 104: 1398-1438.

Zuckerman, Ezra W. 2000. "Focusing the Corporate Product: Securities Analysts and De-diversification." *Administrative Science Quarterly* 45: 591-619.

Zuckerman, Ezra W. 2004. "Structural Incoherence and Stock Market Activity." *American Sociological Review* 69: 405-432.

Zuckerman, Ezra W. 2005. "Do Firms and Markets Look Different? Repeat Collaboration in the Feature Film Industry, 1935-1995." Working paper, MIT Sloan School of Management.

Zuckerman, Ezra W and Tai-Young Kim. 2003. "The Critical Trade-Off: Identity Assignment and Box-Office Success in the Feature Film Industry." *Industrial and Corporate Change* 12: 27-67.

Zuckerman, Ezra W. and Hayagreeva Rao. 2004. "Shrewd, Crude or Simply Deluded? Comovement and the Internet Stock Phenomenon." *Industrial and Corporate Change* 13: 171-212.

Zuckerman, Ezra W., Tai-Young Kim, Kalinda Ukanwa, and James von Rittmann. 2003. "Robust Identities or Non-Entities? Typecasting in the Feature Film Labor Market." *American Journal of Sociology* 108: 1018-1075.

Table 1:
Distribution and Significance of Actors Work with the Same Studios, All English-Language Releases,1933-1935

		Observed		Additional Random Simulation	
I	II	III	IV	V	VI
N of Films in which Acted	Frequency	$\overline{fhas}$	Mean % of iterations where $fhas(r)_a < fhas_a$	$\overline{fhas}$	Mean % of iterations where $fhas(r)_a < fhas_a$
1	1,860	0.000	0.00%	0.000	0.00%
2	688	0.089	19.8%	0.031	6.1%
3	412	0.129	34.1%	0.034	13.3%
4	308	0.135	46.4%	0.045	21.2%
5	229	0.157	53.8%	0.051	34.6%
6	173	0.140	59.8%	0.048	39.2%
7	153	0.136	62.3%	0.052	42.0%
8	111	0.190	67.0%	0.063	50.8%
9	97	0.152	69.4%	0.049	41.9%
10	110	0.177	74.2%	0.063	54.0%
11	76	0.207	78.2%	0.057	47.7%
12	67	0.192	78.1%	0.058	49.4%
13	67	0.207	80.6%	0.056	47.3%
14	54	0.158	77.7%	0.063	51.9%
15	47	0.156	83.2%	0.062	50.1%
16-20	171	0.158	79.5%	0.059	47.6%
21+	182	0.146	83.4%	0.064	52.1%
All Actors	*4,805*	*Mean=0.084*	*Mean=31.21%*	*Mean=0.028*	*Mean=17.87%*
Actors with 1+ Films	*2,945*	*Mean=0.137*	*Mean=50.92%*	*Mean=0.046*	*Mean=29.16%*

Table 2:
Distribution and Significance of Actors Work with the Same Studios, All English-Language Releases,1993-1995

		Observed		Additional Random Simulation	
I	II	III	IV	V	VI
N of Films in which Acted	Frequency	$\overline{fhas}$	Mean % of iterations where $fhas(r)_a < fhas_a$	$\overline{fhas}$	Mean % of iterations where $fhas(r)_a < fhas_a$
1	15,833	0.000	0.00%	0.000	0.00%
2	3,214	0.028	6.37%	0.011	2.2%
3	1,373	0.041	14.37%	0.023	7.3%
4	660	0.048	23.8%	0.030	14.0%
5	318	0.061	34.49%	0.041	23.0%
6	195	0.061	38.7%	0.048	32.0%
7	120	0.051	41.2%	0.056	38.4%
8	43	0.076	49.3%	0.055	38.4%
9	51	0.096	53.9%	0.048	43.6%
10	26	0.048	35.8%	0.053	43.4%
11+	29	0.066	47.3%	0.047	43.2%
All Actors	*21,912*	*Mean= 0.010*	*Mean= 3.95%*	*Mean=0.006*	*Mean= 2.32%*
Actors with 1+ Films	*6,029*	*Mean=0.038*	*Mean=14.35%*	*Mean=0.020*	*Mean=8.42%*

Table 3a
Share of Screen Credits in all Feature Films, By Genre; 1935 Through 1995 Periods

	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	Average
Action	2.0%	3.3%	2.7%	2.6%	2.6%	3.3%	3.1%	7.4%	14.0%	9.9%	15.3%	17.2%	22.3%	8.1%
Adventure	3.4%	5.9%	4.1%	5.0%	12.0%	6.6%	6.1%	5.0%	5.2%	5.3%	7.5%	5.2%	5.2%	5.9%
Children	0.2%	0.3%	0.1%	0.5%	1.1%	1.4%	1.9%	1.5%	1.8%	1.2%	1.4%	0.9%	1.8%	1.1%
Comedy	23.0%	21.0%	24.7%	21.0%	20.1%	21.2%	35.5%	31.1%	22.9%	32.5%	36.7%	36.7%	31.3%	27.5%
Crime	5.7%	7.8%	4.9%	8.2%	10.3%	10.7%	5.3%	7.3%	14.7%	3.9%	4.9%	6.0%	5.2%	7.3%
Documentary	0.3%	0.1%	0.3%	0.1%	0.1%	0.4%	0.4%	1.1%	1.0%	1.1%	0.9%	1.5%	2.1%	0.7%
Drama	32.8%	26.5%	21.3%	23.9%	27.2%	32.3%	27.0%	34.8%	32.1%	35.7%	32.1%	34.3%	41.0%	30.9%
Fantasy	0.5%	0.3%	0.3%	0.2%	0.1%	0.7%	1.5%	2.4%	1.0%	2.1%	2.8%	2.2%	1.7%	1.2%
Film-Noir	0.1%	0.4%	2.0%	8.9%	4.1%	1.5%	0.0%	0.4%	0.8%	0.0%	0.1%	0.2%	0.3%	1.4%
Horror	1.0%	0.9%	2.4%	0.3%	1.1%	6.5%	8.5%	5.5%	12.5%	9.8%	8.8%	11.2%	6.1%	5.7%
Musical	9.2%	6.6%	15.5%	5.0%	7.4%	3.9%	5.5%	3.9%	4.9%	5.0%	2.2%	1.8%	0.6%	5.5%
Mystery	6.4%	7.4%	7.3%	3.3%	2.7%	2.5%	3.0%	1.7%	4.0%	1.8%	2.6%	2.2%	2.8%	3.7%
Romance	8.4%	5.7%	3.8%	4.5%	5.5%	3.4%	2.3%	2.9%	2.6%	4.5%	8.4%	6.8%	9.7%	5.3%
Science Fiction	0.9%	1.1%	0.2%	0.8%	4.7%	7.1%	4.6%	4.9%	4.7%	8.3%	8.7%	7.1%	6.2%	4.6%
Thriller	1.8%	1.8%	3.2%	2.4%	4.0%	4.5%	5.7%	6.3%	10.4%	8.2%	8.7%	13.0%	18.5%	6.8%
Western	12.1%	17.7%	13.2%	19.1%	17.0%	12.9%	8.4%	9.9%	5.0%	3.1%	0.5%	1.2%	1.8%	9.4%
War	0.7%	1.9%	9.0%	1.4%	5.7%	10.1%	7.3%	6.7%	0.6%	3.6%	2.7%	2.6%	1.8%	4.2%
Total Percent	108%	109%	115%	107%	126%	129%	126%	133%	138%	136%	144%	150%	158%	
Total roles	25,045	27,830	22,277	23,307	15,245	12,695	10,928	13,692	12,665	20,194	24,357	38,370	61,108	

Table 3b
Share of Screen Credits in all Major Releases, By Genre; 1935 Through 1995 Periods

	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	Average
Action	1.4%	3.3%	1.7%	2.4%	3.2%	2.7%	3.1%	6.5%	11.8%	8.5%	16.7%	19.7%	21.6%	7.9%
Adventure	2.2%	6.1%	4.1%	4.7%	15.2%	8.0%	5.6%	4.9%	4.4%	6.6%	8.8%	6.8%	7.7%	6.6%
Children	0.4%	0.4%	0.1%	0.3%	0.2%	1.4%	2.3%	2.1%	3.4%	1.0%	1.9%	0.5%	3.3%	1.3%
Comedy	27.5%	23.6%	30.1%	25.3%	19.7%	20.0%	36.8%	31.1%	24.8%	42.9%	44.5%	45.9%	43.3%	32.0%
Crime	5.1%	8.2%	5.3%	6.8%	6.4%	7.1%	3.8%	6.4%	13.7%	2.9%	3.7%	7.1%	5.4%	6.3%
Documentary	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.1%	0.3%	0.8%	0.1%	0.1%	0.4%	0.2%	0.2%
Drama	37.1%	32.1%	22.4%	25.0%	28.4%	34.9%	27.3%	40.2%	34.2%	35.1%	33.7%	35.7%	42.8%	33.0%
Fantasy	0.7%	0.3%	0.4%	0.2%	0.3%	0.9%	0.6%	2.1%	1.8%	3.7%	3.2%	3.8%	2.7%	1.6%
Film-Noir	0.1%	0.6%	3.0%	12.8%	4.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	1.8%
Horror	0.8%	0.9%	2.4%	0.1%	1.2%	4.1%	6.4%	2.0%	9.1%	3.7%	5.0%	6.6%	3.0%	3.5%
Musical	10.1%	7.5%	19.5%	6.8%	11.6%	5.8%	5.6%	5.9%	9.4%	7.0%	1.9%	1.0%	0.5%	7.1%
Mystery	5.9%	8.2%	7.0%	2.3%	1.5%	2.1%	4.2%	2.9%	5.8%	2.4%	2.9%	2.5%	3.5%	3.9%
Romance	10.0%	6.9%	4.4%	5.1%	6.4%	4.9%	3.5%	3.8%	4.0%	6.3%	11.5%	10.3%	15.5%	7.1%
Science Fiction	0.7%	1.1%	0.1%	0.7%	3.4%	4.9%	1.7%	4.3%	4.6%	8.2%	9.7%	5.0%	5.7%	3.9%
Thriller	1.9%	1.4%	2.7%	2.2%	3.9%	3.7%	6.3%	5.9%	12.3%	7.3%	9.1%	13.2%	14.8%	6.5%
Western	8.6%	12.2%	6.0%	14.9%	18.1%	14.6%	9.4%	11.2%	6.5%	4.4%	1.0%	1.7%	2.4%	8.5%
War	0.6%	1.6%	10.0%	1.5%	6.4%	10.1%	9.6%	6.7%	0.0%	3.4%	3.4%	3.1%	2.3%	4.5%
Total percent	113%	114%	119%	111%	130%	128%	126%	136%	147%	144%	157%	163%	175%	
Total roles	14,476	16,218	13,391	11,820	7,946	6,378	5,116	6,045	5,115	8,406	11,549	12,446	22,497	

Table 4a :
Z-Scores for Concentration in Specific Genres, 1935 Through 1995 Periods

	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	Mean
Action	8.43	2.16	16.04	7.37	-0.04	3.43	5.91	2.75	11.84	6.59	8.55	19.47	27.90	9.26
Adventure	13.63	12.09	11.06	10.41	10.26	4.16	3.60	0.21	3.84	10.64	6.99	3.35	5.48	13.63
Comedy	10.36	13.55	10.85	13.05	14.17	19.91	20.35	11.42	8.14	11.67	12.07	11.63	13.16	13.10
Crime	5.16	5.93	7.86	3.72	5.28	2.19	2.96	2.90	8.34	1.45	1.96	4.75	7.10	4.59
Drama	11.00	12.31	-0.69	-0.56	1.74	3.22	1.40	0.12	3.92	5.81	2.20	6.05	-4.37	3.24
Horror	6.83	5.79	15.25	-0.74	1.54	5.70	10.05	14.81	6.92	4.66	1.16	11.44	7.76	7.01
Musical	5.19	5.26	12.38	7.84	10.07	1.73	3.42	0.87	-1.71	1.23				4.63
Romance	3.55	7.51	-0.45	4.14	2.90	2.84	5.28	-1.32	-0.37	1.26	4.30	1.69	6.09	2.88
Science Fiction					4.76	4.01	-0.53	2.89	0.45	4.11	4.35	3.02	12.30	3.93
Thriller	3.69	1.70	3.46	-0.02	2.07	1.25	5.39	1.44	3.00	3.82	0.96	8.52	15.28	3.89
Western	63.06	72.49	75.73	65.68	40.63	24.67	15.93	22.28	9.74	8.80		2.71	9.27	34.25
Mean	13.09	13.88	15.15	11.09	8.49	6.65	6.71	5.31	4.92	5.46	4.73	7.26	10.00	8.67
Mean (Excl. Western)	7.54	7.37	8.42	5.02	5.28	4.84	5.78	3.61	4.44	5.12	4.73	7.77	10.08	6.15
Weighted Avg.	15.45	21.02	16.17	16.72	13.22	9.93	10.96	7.28	7.80	8.64	7.99	12.91	14.00	15.45
Weighted Avg. (Excl. Western)	8.32	10.38	10.47	9.36	6.78	4.87	6.22	3.07	3.52	4.22	3.11	3.14	3.94	8.32

Table 4b :
Z-Scores for Concentration in Specific Genres for Major Studios, 1935 Through 1995 Periods

	1935	1940	1945	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	Mean
Action	0.97	0.72	3.91	2.41	-0.83	2.72	-0.7	1.77	6.07	6.58	5.07	8.05	11.41	3.70
Adventure	1.53	9.21	4.48	8.66	7.89	2.48	2.92	0.13	0.42	9.58	6.21	-0.36	3.63	4.37
Comedy	8.67	9.20	11.84	8.15	4.52	9.83	11.90	4.74	6.5	9.39	6.31	4.75	6.65	7.88
Crime	1.61	5.77	11.41	2.26	-1.52	0.6	1.18	2.54	4.18	1.78	-0.1	1.55	2.79	2.62
Drama	6.66	4.46	3.41	2.51	3.05	2.21	1.34	0.09	3.41	-1.35	-1.34	1.27	-1.66	1.85
Horror	3.46	5.09	15.18	-0.13	1.91	9.67	5.58	4.07	3.05	1.00	0.90	0.33	-1.56	3.73
Musical	4.13	5.86	14.27	7.19	7.05	1.96	3.54	0.54	-2.76	0.28				4.21
Romance	1.2	5.31	-1.49	0.44	2.39	2.19	4.5	-1.48	0.36	0.84	2.53	0.33	3.27	1.57
Science Fiction					1.55	0.77	0.51	3.85	1.06	4.25	2.64	1.43	0.24	1.81
Thriller	2.6	-2.07	1.47	-2.19	1.01	3.04	4.68	-0.13	0.37	0.95	1.33	2.26	4.89	1.40
Western	36.24	42.03	33.68	33.25	22.41	10.84	9.23	15.5	8.28	6.65	.	2.93	5.41	18.87
Mean	6.71	8.56	9.82	6.26	4.49	4.21	4.06	2.87	2.81	3.63	2.62	2.25	3.51	4.75
Mean (Excl. Western)	3.43	4.84	7.16	3.26	2.70	3.55	3.55	1.61	2.27	3.33	2.62	2.18	3.30	3.37
Weighted Avg.	8.70	10.6	10.34	8.74	7.97	5.40	6.81	3.75	4.75	5.61	4.46	4.78	6.39	8.7
Weighted Avg. (Excl. Western)	8.32	10.38	10.47	9.36	6.78	4.87	6.22	3.07	3.52	4.22	3.11	3.14	3.94	8.32

Table 5a
Multiple Regression of Z-Scores for Genre-Based Specialization; Full Sample, 1935 Period -1995 Period

	All Eleven Genres				Excluding Western	
	[1]	[2]	[3]	[4]	[5]	[6]
	OLS	WLS[17]	OLS	WLS[17]	OLS	WLS[17]
Genre Dummies[18]	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Action	-24.99 (3.73)	-33.63 (3.75)	-24.77 (3.54)	-30.38 (3.64)	5.37 (1.75)	7.74 (2.27)
Adventure	-26.88 (3.73)	-40.04 (4.11)	-26.67 (3.54)	-38.30 (3.91)	3.47 (1.75)	0.91[19] (2.46)
Comedy	-21.15 (3.73)	-34.28 (2.96)	-20.93 (3.54)	-32.24 (2.84)	9.21 (1.75)	6.76 (1.87)
Crime	-29.66 (3.73)	-42.53 (3.86)	-29.45 (3.54)	-40.83 (3.67)	0.70[19] (1.75)	-1.59[19] (2.33)
Drama	-31.01 (3.73)	-44.21 (2.92)	-30.79 (3.54)	-42.21 (2.80)	-0.65[19] (1.75)	-3.18[19] (1.85)
Horror	-27.23 (3.73)	-39.73 (4.14)	-27.02 (3.54)	-36.33 (4.01)	3.12[19] (1.75)	1.68[19] (2.47)
Musical	-29.62 (3.73)	-41.21 (4.29)	-30.11 (3.79)	-41.31 (4.06)	0.59[19] (1.88)	-0.75[19] (2.60)
Romance	-31.37 (3.73)	-43.98 (4.25)	-31.16 (3.54)	-42.38 (4.04)	-1.01[19] (1.75)	-3.06[19] (2.54)
Science Fiction	-30.32 (4.11)	-43.24 (4.54)	-28.26 (3.93)	-39.66 (4.39)	0.42[19] (1.95)	-1.78[19] (2.68)
Thriller	-30.36 (3.73)	-41.32 (3.94)	-30.14 (3.54)	-38.24 (3.80)		
Studio Z-Score (*Zas*)*10^{-1}			0.97 (0.25)	0.98 (0.25)	0.20[19] (0.13)	0.27[19] (0.15)
Constant	34.25 (2.69)	47.41 (2.56)	30.15 (2.77)	41.91 (2.91)	3.09 (1.35)	5.43 (1.71)
N	134	134	134	134	122	122
R^2	.478	.674	.534	.711	.357	.488

[17] In the WLS models, a genre are weighted by the proportion of all genre assignments it represents in a given year.
[18] Western is the reference category in the models 1-4; Thriller is the reference category in models 5 and 6.
[19] *Not* significant at the p<.05 level.

Table 5b
Multiple Regression of Z-Scores for Genre-Based Specialization;
Major Sub Sample, 1935 Period -1995 Period

	All Eleven Genres				Excluding Western	
	[1]	[2]	[3]	[4]	[5]	[6]
	OLS	WLS[20]	OLS	WLS[17]	OLS	WLS[17]
Genre Dummies[21]	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Action	-15.16 (2.07)	-15.95 (2.09)	-15.02 (1.90)	-14.02 (1.87)	2.30[22] (1.21)	4.36 (1.36)
Adventure	-14.50 (2.07)	-17.32 (2.20)	-14.36 (1.90)	-16.48 (1.94)	2.97 (1.21)	2.29[22] (1.43)
Comedy	-10.99 (2.07)	-14.46 (1.64)	-10.85 (1.90)	-13.48 (1.45)	6.48 (1.21)	5.25 (1.11)
Crime	-16.25 (2.07)	-19.39 (2.23)	-16.11 (1.90)	-18.80 (1.96)	1.22[22] (1.21)	0.07[22] (1.44)
Drama	-17.02 (2.07)	-20.55 (1.63)	-16.88 (1.90)	-19.72 (1.44)	0.45[22] (1.21)	-0.94[22] (1.11)
Horror	-15.14 (2.07)	-18.66 (2.69)	-15.00 (1.90)	-16.93 (2.39)	2.33[22] (1.21)	1.53[22] (1.71)
Musical	-14.66 (2.21)	-16.59 (2.17)	-15.04 (2.03)	-17.07 (1.91)	2.57[22] (1.30)	2.17[22] (1.43)
Romance	-17.30 (2.07)	-20.42 (2.15)	-17.16 (1.90)	-19.58 (1.90)	0.17[22] (1.21)	-0.81[22] (1.40)
Science Fiction	-17.06 (2.28)	-20.15 (2.65)	-15.66 (2.11)	-18.01 (2.35)	0.98[22] 1.35	0.30[22] (1.68)
Thriller	-17.47 (2.07)	-20.24 (2.21)	-17.33 (1.90)	-18.43 (1.96)		
Studio Z-Score (*Zas*)*10^{-1}			0.81 (0.17)	0.88 (0.14)	0.37 (0.11)	0.57 (0.10)
Constant	18.87 (1.49)	22.26 (1.46)	16.62 (1.44)	19.35 (1.37)	0.45 (0.90)	1.32 (1.02)
N	134	134	134	134	122	122
R^2	.482	.598	.567	.691	.337	.568

[20] In the WLS models, a genre are weighted by the proportion of all genre assignments it represents in a given year.
[21] Western is the reference category in the models 1-4; Thriller is the reference category in models 5 and 6.
[22] *Not* significant at the p<.05 level.

Figure 2: Z-Scores for Concentration of Actors with Particular Studios, 1935-1995 Periods

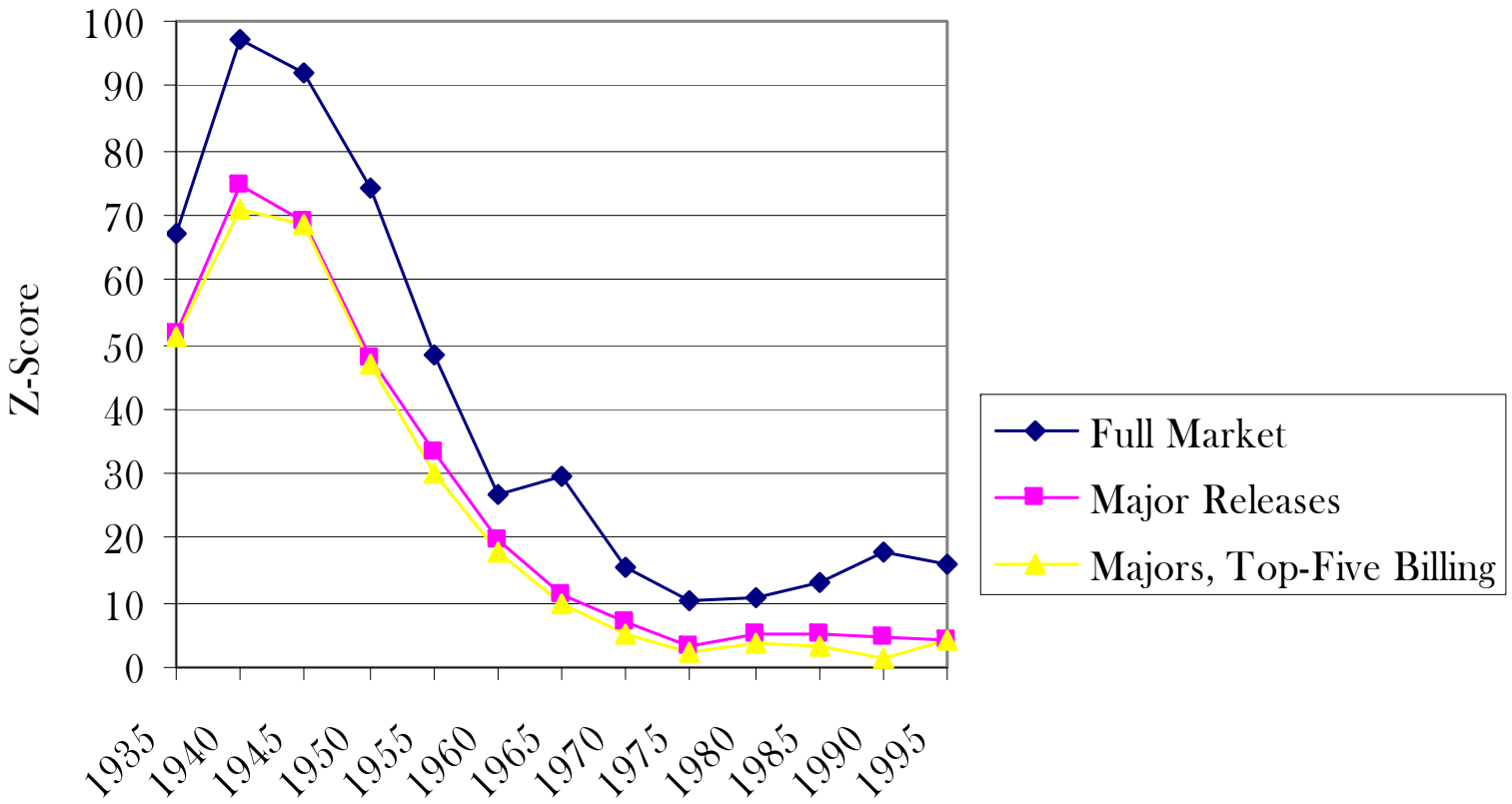
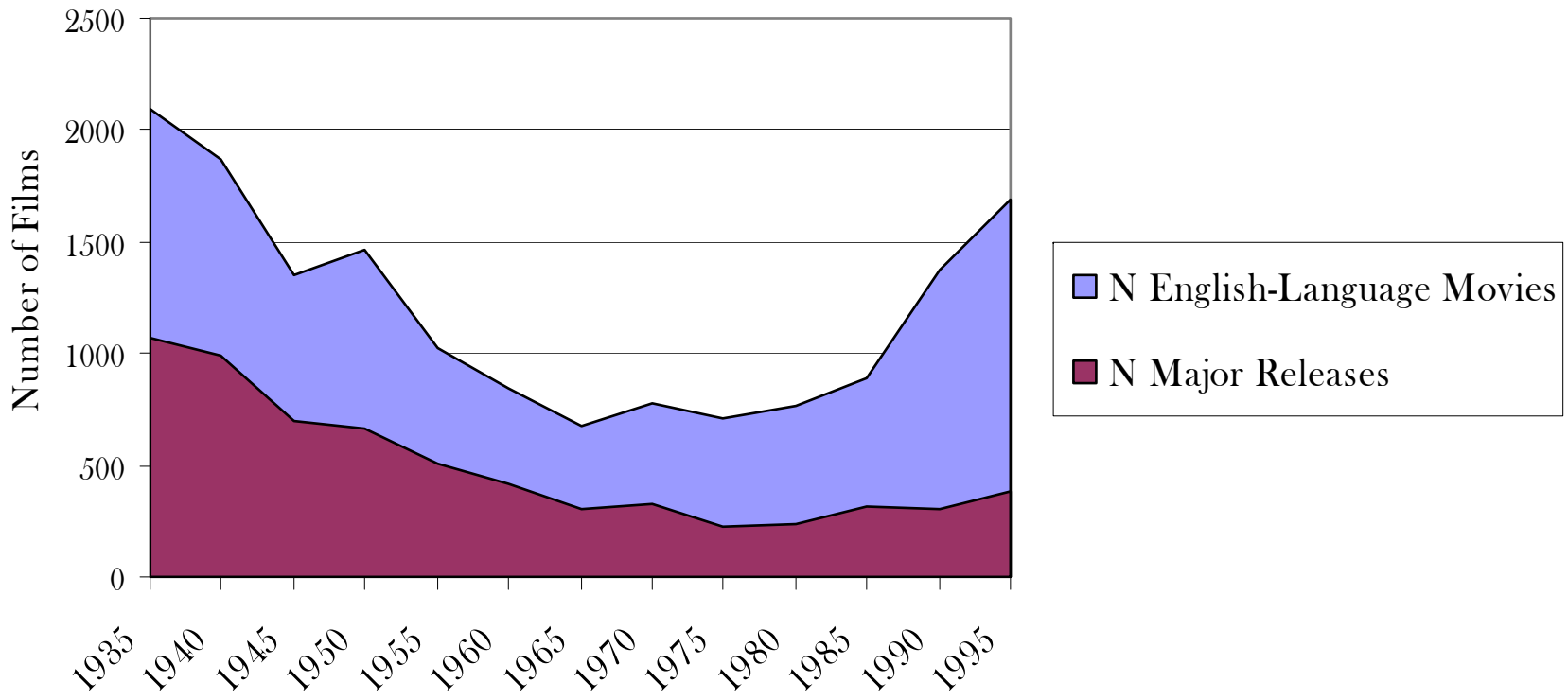
Figure 3: Number of English-Language Films Released, 1935-1995 Periods