

January 2001

# MOTION PICTURES

## Legislation Affecting Payments for Reuse Likely to Have Small Impact on Industry



G A O

Accountability \* Integrity \* Reliability



United States General Accounting Office  
Washington, DC 20548

January 31, 2001

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The Honorable Patrick Leahy  
Ranking Member  
Committee on the Judiciary  
United States Senate

The Honorable Howard Coble  
Chairman  
The Honorable Howard L. Berman  
Ranking Minority Member  
Subcommittee on Courts and Intellectual Property  
Committee on the Judiciary  
House of Representatives

Each year motion picture producers and distributors pay hundreds of millions of dollars in residuals—additional compensation for the reuse of motion pictures in such media as television and video—to the members of actors', directors', and writers' unions. In 1998, the unions alerted the Congress that millions of dollars in residuals were going unpaid because some producers, who had entered into contracts with the unions agreeing to pay residuals, had not transferred this obligation to distributors when selling the motion picture rights for reuse. In response to this concern, the Congress enacted legislation, effective October 28, 1998<sup>1</sup>, making distributors of motion pictures subject to the obligation to pay residuals if the distributor should have known that the motion picture was produced under a union contract.

Pursuant to a legislative mandate for a GAO report 2 years after the act, we are reporting on (1) the extent to which residuals owed had not been paid prior to the legislation and (2) the impact of the legislation on the motion picture industry. Appendix I provides a description of the scope and methodology used in this report. Appendix II provides details of our econometric model of the relationship between various film characteristics, such as production budgets and paid residuals. Using data

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<sup>1</sup>Contained in Section 406 of the Digital Millennium Copyright Act (P.L.105-304).

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on the 1,573 films under contract with an actors' union from 1993 through August 2000, we estimated the magnitude of unpaid residuals.

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## Results in Brief

Our analysis of motion picture industry data found that, in the 3 years leading up to the 1998 legislation, at most, about 2 percent (or an estimated \$35.2 million) of the total of over \$1.7 billion in residuals owed went unpaid. The unpaid residuals accrued when production companies did not require distributors to assume the obligation to pay residuals upon reuse of the film. In our review of films made under contract with an actors' union between 1996 and 1998, we found 771 films for which residuals had not been paid or obligations assumed. About 87 percent (or 668) of these films fell into the category of low-budget films—films with production costs under \$2 million. Because these low-budget films typically generate little in the way of earnings on which residuals are based, the amount of lost residuals is relatively small.

Our analysis indicates that the legislation's impact on the motion picture industry will be limited. While there is no observable impact to date, the legislation could most likely affect the profitability of low-budget films. The payment of previously unpaid residuals could increase the production and distribution costs of low-budget films, thereby diminishing the profits. However, even if the legislation caused some low-budget films to become unprofitable, gross revenues in the motion picture industry would fall by less than 2 percent, precipitating a similar reduction in industry employment and income because these films' earnings constitute a small portion of overall industry revenues. Although the legislation's impact on the overall motion picture industry may be small, certain individuals working on low-budget films, such as producers, union actors, writers, and directors, could experience substantial losses, according to industry representatives.

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## Background

Legislation requiring the transfer of contract obligations with motion picture rights grew out of concerns that actors', directors', and writers' unions raised before congressional committees. These unions, called guilds, represent many of the writers, actors, and directors employed in the motion picture industry. In 1999, the Screen Actors Guild had over 97,000 members; the Directors Guild of America, about 11,500 members; and the Writers Guild of America, west, Inc., about 8,100 members.

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American motion pictures are produced by either one of seven major studios or one of a number of independent production companies.<sup>2</sup> The major studios typically finance, produce, and distribute their own pictures, and own substantial libraries of previously produced films. In contrast, independent producers often obtain financing from third-party sources, such as private lenders, and contract independent film distributors to release their films. According to the American Film Marketing Association, which represents independent producers, distributors, and lenders, the major studios generated about 36 percent of the 430 motion pictures that the American film industry released to theaters in 1999, while independent producers accounted for the remaining 64 percent.

The contracts that film producers sign with the guilds include provisions that establish minimum salaries and working conditions for guild members. These contracts also require producers to pay residuals for use of the motion picture beyond its initial theatrical release. Residuals generally correspond to a percentage of the producer's or distributor's gross receipts from the reuse of a film in secondary markets, such as video and television. To put total residuals payments in the context of industry earnings, films generated revenues of \$10.6 billion from theatrical box-office receipts and concessions, video sales and rentals generated \$21.2 billion, and cable television generated an additional \$36.7 billion in 1999.<sup>3</sup> Residuals paid to members of the three guilds during 1999 totaled \$681 million, or less than 1 percent of the industry's total revenues.

The contracts also require producers to have the distributor assume the obligation to pay residuals for reuse upon selling film rights to a distributor. According to the guilds, they became aware of the scope of the problem of unpaid residuals when some small, independent production companies went out of business after selling the rights to independent distributors without transferring the obligation to pay residuals. Unable to

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<sup>2</sup>According to the Motion Picture Association of America, the seven major studios are Metro-Goldwyn-Mayer, Inc.; Paramount Pictures Corporation; Sony Pictures Entertainment, Inc.; Twentieth-Century Fox Film Corp.; Universal Studios, Inc.; Walt Disney Company; and Warner Bros.

<sup>3</sup>Other industry revenues come from movies shown on free and pay television and merchandising of movie-related goods, but we were unable to obtain amounts.

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enforce the collection of unpaid residuals, which they estimated to be worth tens of millions of dollars,<sup>4</sup> the guilds approached the Congress.

In response, the Congress drafted a legislative remedy that was included in the Digital Millennium Copyright Act. After incorporating changes that addressed some concerns of the American Film Marketing Association, the Congress passed legislation, effective October 28, 1998,<sup>5</sup> requiring a distributor, or other party obtaining motion picture rights, in most cases, to assume the obligation to pay residuals for motion pictures produced under a guild contract. The Congress also required GAO to report on the extent of the problem and its impact.

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## Unpaid Residuals Represent a Small Portion of Owed Residuals

At most, about 2 percent of the residuals owed prior to the legislation went unpaid because the obligation to pay them was not transferred to the distributors. Of the more than \$1.7 billion in residuals owed in the years 1996 through 1998 by the three guilds, we estimate that unpaid residuals accounted for, at most, \$35.2 million. The problem of nonpayment of residuals was largely attributable to small independent producers of low-budget films.

To estimate the amount of unpaid residuals owed prior to the legislation, we developed an econometric model of the relationship between generated residuals, domestic box-office earnings, film budgets, and contractual provisions existing between producers and unions. (See app. II for details of our residuals estimation model.) Using data for films that paid residuals, we estimated the impact that box-office revenues, budgets, and contract type had on the amount of residuals generated. We then used the results of the model to forecast what residuals the nonpaying films would be expected to generate. We adjusted this estimate to reflect the fact that not all nonpaying films were actually released—some productions were never completed, while others never found a market outlet.<sup>6</sup> According to our model, at most, \$35.2 million (or 2 percent) of the \$1.7 billion owed in residuals over 3 years had not been paid. Although our analysis of films released from 1996 through 1998 captures the bulk of the

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<sup>4</sup>The guilds based this estimate on their review of bankruptcy records of those owning film libraries for which assumption agreements had not been signed.

<sup>5</sup>Codified in 28 U.S.C. Section 4001.

<sup>6</sup>In a random sample of 250 films, we found that 29 percent of the films had no record of any secondary market earnings.

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unpaid residuals, it does not include unpaid residuals from older films included in libraries that sometimes change hands without passing on assumption agreements. According to guild officials, the amount of residuals for most films drops off significantly 5 years after release. Thus, the sale of older films in a library would not result in a substantial loss of residuals in any given year.

The problem of unpaid residuals was confined largely to low-budget films. Of the 771 films not paying residuals from 1996 through 1998, 441 (or 57 percent) had budgets of less than \$2 million and 227 (or 29 percent) had budgets under \$0.5 million. In contrast, about half of all films made—those produced by members of the Motion Picture Association of America—had average budgets of \$51.9 million in 1999. Films that paid residuals typically had much larger budgets than nonpaying films, and these larger budgets generally achieved higher earnings in secondary markets. Our econometric analysis also indicates that larger budgets are associated with greater residuals generated in secondary markets.

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## Legislation Likely to Have Small Impact on Movie Industry

Our analysis indicates that, at most, the 1998 legislation will have a small impact on the motion picture industry—primarily in the low-budget film sector of the industry. To date, there is no observable impact on this sector. Even if there were a negative impact on the industry, it would be confined to the sector of the industry that owed, but did not pay, residuals prior to the legislation, and this overall impact would be small. Specifically, gross revenues in the motion picture industry, if affected at all, would decrease by less than 2 percent, creating a similar reduction in industry employment and income. Although the legislation's impact on the overall industry would be small, the impact on the specific segments of the industry most affected—producers of low-budget films and those union actors, writers, and directors who work on such films—could be significant.

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## No Observable Impact to Date

There has been no observable impact on the industry to date of the 1998 legislation. Any impact would be most likely to appear in the low-budget sector of the film industry because this sector accounted for the bulk of the problems surrounding unpaid residuals prior to the legislation. Representatives of the American Film Marketing Association stated that some independent producers might not be profitable if they have to pay residuals, and independent producers produce most of the low-budget films. However, the low-budget sector of the industry has not shrunk since the legislation was passed. In fact, the share of low-budget films in the

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total number of films under contract has actually increased slightly—from 56 to 57 percent of all films—in the first 18 months following the enactment of the legislation. The absence of an observable effect on the low-budget sector suggests that the legislation may not have a significant impact.

The ultimate impact of the legislation, however, may depend on how the courts interpret it. Although 2 years have passed, the guilds stated that this is not enough time for the legislation to have been tested in the courts. The process before litigation is lengthy. It begins with signing the contract to produce a film; continues through production, theatrical release, and secondary market releases; and ends with the unions identifying the responsible parties and then taking action against them. The guilds said it typically takes 18 months to 2 years from the start of film production to when residuals come due. In the meantime, the legislation contains several ambiguities. For example, representatives of the American Film Marketing Association questioned whether the legislation applied to films transferred to foreign distributors—which they believe to be the major source of the problem. Also, the guilds are uncertain whether the legislation applies to subsequent transfers of obligations, such as film libraries resold after the legislation.

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### Impact on Overall Industry Revenue Would Be Small Even if Some Low-Budget Films Became Unprofitable

Even if some low-budget films became unprofitable, the impact on overall industry revenue would be small. This legislation might cause some low-budget films to become unprofitable to make under guild contracts because the requirement to pay residuals would effectively raise the costs of producing these films. This could in turn reduce guild member employment and future residuals income as some of these producers seek alternatives to making films under guild contracts—for example, making films in foreign countries or perhaps not producing films at all.

The impact on the industry, if any, would be small, because the potentially impacted films—those similar to films not paying residuals prior to the legislation—account for a very small percentage of total industry revenues gained from domestic box-office and secondary markets. These types of films—chiefly low-budget films—account for a small proportion of those industry revenues. For example, the domestic box-office earnings of all nonpaying films under union contract from 1993 through 1998 accounted for less than 1 percent of total domestic box-office earnings for all films under union contract during this period. These nonpaying films were far less likely to have any box-office earnings; and when they did, they typically earned far less than other films. Only 74 of 1,112 nonpaying films

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had domestic box-office earnings, and of these the box office averaged \$2.8 million. In contrast, 928 out of 1,573 films for which residuals had been paid had domestic box-office earnings averaging \$28 million.

Similarly, nonpaying films earned only a small fraction of total secondary earnings in the years preceding the legislation. As previously discussed, we estimated that unpaid residuals amounted to, at most, 2 percent of total residuals owed. Since secondary earnings are proportional to residuals owed, nonpaying films earn, at most, 2 percent of secondary earnings. When the small proportions of box-office and secondary earnings generated by nonpaying films are taken into account, the total share of this group of films in the industry is significantly less than 2 percent. Therefore, even under the extremely unlikely scenario that all nonpaying films could not be made under the terms of the legislation, the overall reduction in the size of the industry would be less than 2 percent.

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### Impact on Specific Segments of the Industry May Be Significant

If the legislation is effective in enabling the guilds to collect residuals that otherwise would not have been paid, union members who worked on those films will clearly benefit. As mentioned previously, the amount of residuals that were unpaid prior to the legislation is small relative to total residuals collected. However, for guild members working primarily on low-budget films, this amount may have a significant impact on their income. The guilds said that residuals constituted a significant part of a union member's income, with some members relying on residuals to support them during periods of unemployment.

On the other hand, according to representatives of the American Film Marketing Association, if some low-budget films became less profitable, some independent producers might find it more difficult to obtain financing. Thus, some films that would otherwise have been made under union contract would either not be made or be made under different conditions, such as going overseas or using nonunion employees. In this case, residuals would not be paid to the unions, and guild workers typically employed in these films would lose these employment opportunities.

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### Agency Comments

We discussed our findings with guild and association representatives of the primary parties affected by the legislation, and they agreed with the overall message and methodology. Where appropriate, we incorporated their comments for technical accuracy. As the legislation required, we also

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consulted with the U.S. Copyright Office, providing periodic briefings on our planned work, status, and findings.

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We performed our work from April through December 2000 in accordance with generally accepted government auditing standards. We are sending copies of this report to Marybeth Peters, Register of Copyrights, U.S. Copyright Office, Library of Congress, and to William Daniels, President, Screen Actors Guild; Jean Prewitt, President, American Film Marketing Association; Jack Shea, President, Directors Guild of America, Inc.; and John Wells, President, Writers Guild of America, west, Inc.

If you or your staff have any questions about this report, please contact me at (202) 512-3841. Key contributors to this report were Robin Nazzaro, Frank Rusco, Anne McCaffrey, Sandy Joseph, Bert Japikse, and Jonathan McMurray.



Jim Wells  
Director, Natural Resources  
and Environment

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# Appendix I: Scope and Methodology

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To get an understanding of the transfer provision and our mandate, we reviewed the legislation and its history. We also reviewed a Congressional Research Service report on the act. Moreover, we contacted former congressional staff involved in the legislation. As required by the legislation, we also consulted with the U.S. Copyright Office, Library of Congress. We also contacted the Department of Commerce regarding its review of the movement of U.S. motion picture productions to foreign countries.

To better understand the motion picture industry and develop our methodology for the two objectives, we contacted the numerous parties that the U.S. Copyright Office cited as having participated in the legislation. We interviewed representatives, and in some cases the legal counsel, of the American Film Marketing Association; the Screen Actors Guild; the Directors Guild of America, Inc.; the Writers Guild of America, west, Inc.; Time Warner Inc.; Viacom; the Motion Picture Association of America; and a financial institution. These organizations represent various segments of the motion picture industry affected by the legislation. We also discussed our methodology, analyses, and results with academic experts in the motion picture industry.

We obtained and reviewed numerous documents and information from the motion picture industry. For example, we obtained and reviewed background information on the guilds and associations, including their web pages and literature. We also reviewed the guilds' collective bargaining agreements, modified low-budget agreements, and assumption agreements, focusing on provisions related to residuals. In addition, we reviewed selected audit reports of bankruptcies that involved unpaid residuals on film libraries, claims files, and arbitration records and decisions. We also obtained publicly available and generally accepted information on motion pictures and reviewed books on making and financing films. Moreover, we reviewed specific residuals and other data that the guilds provided. We did not assess the reliability of the data. However, the data are what the guilds rely on for their purposes or are widely used by outside experts. Furthermore, we used credible corroborating evidence, when available, with which to test the data. Appendix II contains detailed information on these data and the econometric models we used to assess the extent of the residuals problem and the legislative impact.

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# Appendix II: GAO's Residuals Estimation Model

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This appendix describes our methodology for estimating the amount of residuals that were owed but not paid prior to the enactment of the copyright legislation. In particular, we discuss (1) the conceptual development of the model used to estimate residuals owed, (2) the data used for the estimation, (3) the estimation results of the model, and (4) the final estimates of residuals owed by nonpaying films.

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## The Conceptual Model

The amount of residuals owed is determined by the amount of a film's earnings in secondary markets. To know precisely how much in residuals is owed but not paid would require knowing the exact amount generated in secondary markets by films that did not pay residuals. However, this information is not available—for films that did not pay residuals, no earnings were reported to the unions nor did the unions have a systematic and accurate way to acquire this information. Therefore, we developed an econometric model to estimate the extent of the unpaid residuals problem.

To estimate the amount owed by films that neither paid residuals nor reported secondary market earnings, we first examined films for which residuals were paid. For paying films, we estimated how various factors such as domestic box-office earnings, budget, and contract type affected how much in residuals was actually paid. We chose budget and domestic box-office earnings as explanatory variables because these are the best available proxies for a film's characteristics. For example, the budget is a proxy for the quality of acting, directing, and writing talent, and box-office revenues indicate the degree of market appeal of the film. Contract type may cover other intangible characteristics of films—for example, whether a film aims for an identified audience rather than for the general public. We expect films with box-office releases to generate greater secondary market earnings than films that go straight to secondary markets without box-office releases. Similarly, we expect that higher box-office revenues lead to greater secondary market earnings and thereby greater residuals payments. Larger budgets are also expected to lead to greater earnings and residuals payments. After estimating the model using paying films, we then applied the results to the films that did not pay to forecast how much they owed.

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## The Data

We obtained data on every film under union contract from 1993 through August 2000 from the screen actors' union. We divided the films into two groups, according to whether or not residuals were paid. For films on which residuals were paid, our database contained the amounts collected in each year for each secondary market. We collected domestic box-office

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earnings data from several other sources for those films that had theatrical releases.

We were able to get budget figures only for films that paid residuals, making this variable useless to predict residuals owed by nonpayers. Therefore, we chose contract type as a proxy for budget size. There are three types of contracts in the films we examined. "Theatrical" (TH) contracts are the standard collective bargaining contract between the unions and major studios, and most of the films that eventually make it into the theaters are made under this type of contract. There are no budget limitations for TH films. More than half of all films are made under either "Limited Exhibition" (LE) or "Low Budget" (LB) contracts. These latter two contracts have budget limitations—LE films must have budgets under \$500,000 and LB films under \$2 million. The LE and LB contracts also allow producers to pay "below union scale" to actors and have several other features that differ from the TH contract.

We chose the years 1993 through 1995 to estimate the model because we wanted to capture the bulk of the films' residuals payments, which required having 5 years worth of payments history after the year of the film's release. Using the union's data, we constructed a present discounted value of residuals paid in the year of each film's release plus the first 5 years following the year of release.<sup>1</sup> This discounted value of residuals paid is the dependent variable in our model.

To determine the precise specification of the model, we examined the data set comprising all films that paid residuals from 1993 through 1998 and looked specifically at the interaction between the contract types as proxies for budget size and box-office revenue. Tabulations for these variables are presented in table 1.

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<sup>1</sup>For example, for a film released in 1994, we summed the residuals paid in 1994, with the present discounted value of residuals paid in each of the 5 years, 1995-1999. We used the 1994 3-year Treasury bill rate as the discount rate because it was the rate that was closest in maturity to the 5 years of residuals we were summing. For consistency, we discounted each film to 1994, whether the film was released in 1993, 1994, or 1995. We also put box-office revenue data into 1994 dollars using the same discount rate.

**Table 1: Number of Films by Contract Type and Box-Office Release**

Contract type	Box-office earnings?		Total
	Yes	No	
Limited exhibition (LE)	8	9	17
Low-budget (LB)	108	424	532
Theatrical (TH)	812	212	1,024
<b>Total</b>	<b>928</b>	<b>645</b>	<b>1,573</b>

Source: GAO analysis of Screen Actors Guild data.

Table 1 shows that among films that paid residuals, TH films are more likely to have box-office earnings than are either LE or LB films. Specifically, only about 47 percent of LE films had box-office earnings compared to about 20 percent for LB films and about 79 percent for TH films. Table 1 also shows that there are very few LE films in the data set for which residuals were paid. On the basis of the observed differences among contract types, we chose a specification that would allow for differences in the intercept and slope of the residuals equation with respect to box-office revenue and contract type. Because of the small number of LE films in the data set, we chose to treat LB and LE films as a single category.<sup>2</sup> In the regression model below, LB indicates either LB or LE. When we restricted the data to films released from 1993 through 1995, there were 471 observations in the data set.

## The Estimation Results

Using the data for paying films described in the previous section, we estimated the following model using ordinary least squares:

$$RES = \alpha + \beta_1 BOX + \beta_2 HASBOX + \beta_3 LBNOBOX + \beta_4 LBHASBOX + \beta_5 LBBOX + \varepsilon$$

The variable definitions are as follows:

RES is the present discounted value of residuals paid for a film, in 1994 constant dollars. We included all residuals collected in the year of release, plus the 5 years following the year of release.

<sup>2</sup>When we restricted the data to only 1993 through 1995 in order to capture the bulk of residuals paid by these films, we only found three LE films that had paid residuals. Such small numbers of observations would be insufficient to generate statistically significant distinctions between LE and other contract types. Therefore, we combined LE and LB films into one category for the purposes of estimation.

Appendix II: GAO's Residuals Estimation Model

BOX is box-office revenues in 1994 constant dollars.

HASBOX is an indicator variable for box-office revenues and is equal to 1 if the film had box office revenues and zero otherwise.

LBNobox is an indicator for LB films with no box-office revenues.

LBHASBOX is an indicator for LB films that had box-office revenues.

LBBOX is the interactive term for BOX and LBHASBOX and equals BOX if LBHASBOX equals 1 and is equal to zero otherwise.

The terms  $\alpha$  and  $\beta_1$  are the parameters to be estimated and  $\epsilon_i$  is an error term, assumed to have mean zero and finite variance.

The results of the regression are shown in tables 2 and 3.

**Table 2: Regression Results for Residuals Payments (RES)**

	<b>Coefficients</b>	<b>Standard error</b>	<b>t Statistic</b>	<b>P-value</b>
Intercept	109351.5159	52133.2674	2.097538124	0.036485236
BOX	0.01365632	0.000365003	37.41429809	2.4499E-142
HASBOX	137959.4262	55212.53656	2.498697484	0.01280909
LBNobox	-87160.09932	58172.36486	-1.498307651	0.134731863
LBHASBOX	-242013.4191	59143.61871	-4.091961641	5.0424E-05
LBBOX	0.014189617	0.017170332	0.826403219	0.408999224

Notes: Adjusted R2 = .81  
N = 471

Source: GAO analysis of Screen Actors Guild data.

**Table 3: Analysis of Variance**

	<b>Degrees of freedom</b>	<b>SS</b>	<b>MS</b>	<b>F</b>	<b>Significance F</b>
Regression	5	1.34199E+14	2.68398E+13	395.0109452	8.0321E-165
Residual	465	3.15953E+13	67946939256		
<b>Total</b>	<b>470</b>	<b>1.65794E+14</b>			

Source: GAO analysis of Screen Actors Guild data.

The results presented in tables 2 and 3 indicate that the box-office and contract type variables explain a great deal of the variation in residuals payments. As expected, higher residuals payments are associated with higher box-office revenues and budgets (or contract type as proxy). Specifically, the marginal effect of an additional dollar of box-office revenue is to raise residuals payments by about 1.4 cents—perhaps more

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for LB films, although the estimated coefficient for LBBOX is not statistically significant. Similarly, as expected, LB films have smaller intercepts than TH films for both cases of films with and without box-office revenues.

We also ran regressions using variation around the median rather than the mean as a check of the robustness of the standard Ordinary Least Squares estimates. There was no change in the significance of any of the variables and only very slight changes in the magnitudes, indicating that the original results were not being driven by a few extreme values. We also estimated the model using "robust standard errors" and again found no change in significance levels.<sup>3</sup>

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## Using the Model Results to Forecast Unpaid Residuals

We used the results of this regression to forecast the expected residuals owed for films that did not pay residuals, under the assumption that the paying and nonpaying films come from the same distribution. To do this, we multiplied the estimated coefficients from the regression by the relevant variable values for the nonpaying films and added up the results. This gave us the amount owed to the actors' union, which we multiplied by a factor of 1.875 to estimate the total owed to the three unions (actors', directors', and writers' unions).<sup>4</sup> The results of these calculations for all films under union contract from 1996 through 1998 indicated that unpaid residuals were as much as \$53.9 million dollars, or about 3 percent of all residuals owed in the 3 years leading up to the legislation. However, the assumption that paying and nonpaying films are identical except for the act of paying is inappropriate and tends to bias the estimate of unpaid residuals upwards. Specifically, nonpaying films differ from paying films in ways not captured by the regression. For example, some films in the data set were never released or never found any buyers. These films have no secondary market earnings and therefore owe no residuals. Running them through the model would treat them exactly the same as a film that was released and had secondary market earnings (but no box-office earnings). Thus the estimate of \$53.9 million is too high. Another difference is that LE films make up about 30 percent of all nonpaying films compared to only 1 percent of paying films. LE films seldom have box-office releases and have

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<sup>3</sup>See White, Halbert J. (1980), "Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity," *Econometrica*, 48:4, May, 817-838.

<sup>4</sup>This factor reflects the fact that total residuals collected by the directors' and writers' unions equal 0.875 of the residuals collected by the actors' union.

significantly lower budgets than either TH or LB films, and yet in the simple estimation of owed residuals, we treat LE films the same as LB films. This treatment will also bias the estimate upwards.

To correct for the upward bias of the estimate of residuals owed and to identify the differences in the paying and nonpaying populations, we drew a random sample of 250 films under screen actors' union contract from 1993 through 1995. We then asked the directors' union to use its secondary market activity database to identify which of the films had secondary market earnings. There are two ways for a film to show up as having secondary market activity. It can either have paid residuals to the actors' or directors' union, or it can show up in the secondary market activity database maintained by the directors' union. Of the 250 films in the sample, 72 films (or about 29 percent) appear to have never generated any secondary market activity. Table 4 shows the break down of films in the sample, with and without market activity by contract type.<sup>5</sup>

**Table 4: Number of Films by Contract Type and Market Earnings Drawn From Sample Data**

Contract type	Secondary market earnings?		Total
	Yes	No	
Limited exhibition (LE)	4	21	25
Low-budget (LB)	52	39	91
Theatrical (TH)	121	12	133
<b>Total</b>	<b>177</b>	<b>72</b>	<b>249</b>

Source: GAO analysis of Directors Guild data.

Table 4 indicates that LE films are the least likely of the three contract types to have secondary earnings. Specifically, only about 16 percent of LE films have any market activity compared to about 57 percent for LB and

<sup>5</sup>We removed one film from the sample when we found an Internet movie database listing its expected release date in 2001. Because this film has yet to be released, we cannot determine whether it will generate any secondary earnings in the future.

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about 91 percent for TH films. When these weights are applied to the forecasted residuals owed, the estimated total amount unpaid in the 3 years leading to the legislation falls to about \$35.2 million, or about 2 percent, of \$1,707 million in total residuals owed.<sup>6</sup>

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<sup>6</sup>The \$35.2 million is arrived at by weighting LE films by 0.16, LB by 0.57, and TH by 0.91.

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