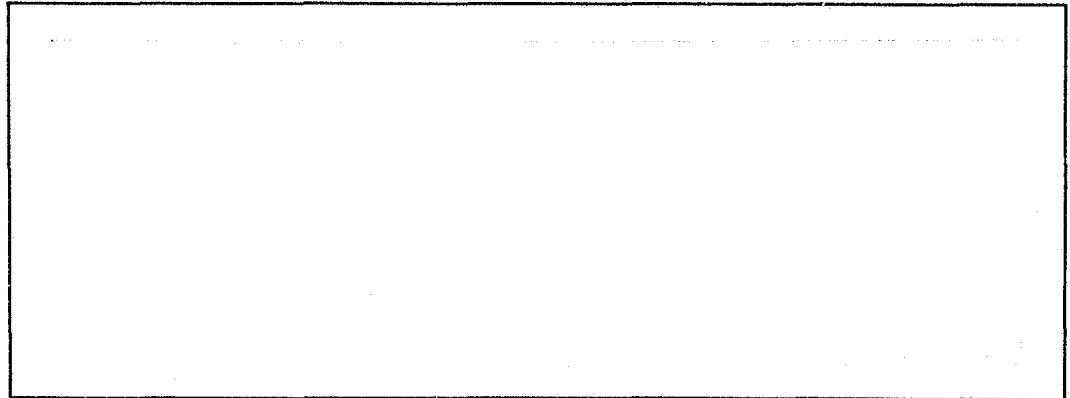


# Bureau of Justice Statistics Discussion Paper



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## Factors Behind State Appellate Caseload Growth

by

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## ABSTRACT

Appellate caseloads have grown at an explosive pace, more than doubling in the past decade. This study explores many of the reasons for that growth, using econometric analysis to estimate the impact of factors that affect criminal and civil appellate volume. It helps to provide short term predictions concerning appellate caseload trends and it informs State decision makers about whether changes in the courts will affect the volume of appeals.

Some of the questions addressed are: When filings rise at the trial court level, what is the impact on civil and criminal appeals? What is the impact of adding trial judgeships? Do prevailing economic conditions effect caseloads? What affect do prison commitments and crime rates have on criminal appeals?

The analysis also explores changes in court structure and procedure: Does the creation or expansion of intermediate courts attract more appeals? What is the effect of appellate court backlog on the number of filings? Similary, what happens to appeals when appellate procedures are simplified or trial court rules of procedure are revamped? Does a new criminal code increase the volume of crimnal appeals? Are civil appeals reduced when the legislature increases the interest rate that appellants pay on judgments pending appeal? Do appellate court settlement conference programs attract more filings?

FACTORS BEHIND  
STATE APPELLATE CASELOAD GROWTH

March 1985

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# FACTORS BEHIND STATE APPELLATE CASELOAD GROWTH

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## 1. INTRODUCTION

Appellate caseloads have grown at an explosive pace, more than doubling in the past decade.<sup>1</sup> The present study explores many of the reasons for that growth, using econometric analysis to estimate the impact of factors that effect criminal and civil appellate volume. It helps to provide short term predictions concerning appellate caseload trends, and it informs state decision makers about whether changes in the courts will effect the volume of appeals.

Some of the questions addressed are: When filings rise at the trial court level, what is the impact on civil and criminal appeals? What is the impact of adding trial judgeships? Do prevailing economic conditions effect caseloads? What effect do prison commitments and crime rates have on criminal appeals?

The analysis also explores changes in court structure and procedure. Does the creation or expansion of intermediate courts attract more appeals? What is the effect of appellate court backlog on the number of filings? Similarly, what happens to appeals when appellate procedures are simplified or trial court rules of procedure are revamped? Does a new criminal code increase the volume of criminal appeals? Are civil appeals reduced when the legislature increases the interest rate that appellants pay on judgments pending appeal? Do appellate court settlement conference programs attract more filings?

The next section of the report explains in considerable detail just what is meant by an appeal and how the appellate statistics were obtained. The third section describes the statistical technique used to analyze the data, a fixed effects regression model. The fourth and fifth

sections describe the independent variables in the analysis and explain the results of the regression. The variables are divided into two categories, background variables in section four and experimental variables in section five. The former are possible precursors of appeals, such as economic conditions, crime rates, and trial court caseloads. The experimental variables are aspects of court structure and procedure that, when changed, may cause appellate volume to rise or decline. The sixth section, which is the key section of the report, summarizes the findings and estimates the impact of future changes. The last section presents the results of alternate regression techniques to test the robustness of the results obtained.

## 2. COUNTING APPEALS

Before analyzing the appellate filing data it is necessary to explain just what is meant by an appeal and how the appellate statistics were obtained. The purpose was to compile appellate filing statistics that are comparable from state to state and from year to year within states, while including only cases that represent substantial work for the courts and weeding out lesser matters. An appeal, therefore, is defined as an appellate court case directly reviewing a trial court or administrative agency decision. Further refinement of this definition requires considerable exploration of appellate court structure, caseload composition, and operations.<sup>2</sup>

### a. Courts included

Appellate filings, for the purpose of this study, encompass all appellate courts in a state. If the state has an intermediate court (35



did in 1984), the caseload measure includes initial appeals filed in either the supreme court or the intermediate court. Only initial appeals are counted. The caseload measure excludes appeals that are filed in one appellate court after having been filed in another. For example, it does not include supreme court reviews of intermediate court decisions, regardless of whether they are petitions for review or mandatory appeals. Nor does it include cases transferred to one appellate court after being filed in, but not decided by, another appellate court. (In several states the supreme courts balance caseloads by transferring cases to the intermediate courts. Also, cases filed in the wrong court generally are transferred automatically to the correct court.) Transfers are particularly numerous when intermediate courts are first created; failure to delete them from filing statistics greatly exaggerates the impact of intermediate courts on caseload volume. The appellate filing statistics do not include appeals to general jurisdiction trial courts from lower divisions in the court or from limited jurisdiction courts. In New Jersey and New York, however, the appellate divisions of the trial courts are regular intermediate courts manned by full-time appellate judges.

b. Types of cases

The great variety of case types hinders comparisons of appellate caseloads. We have tried to use a uniform measure: regular appeals from trial courts and administrative agencies, excluding discretionary writs and original jurisdiction cases. The filings include all mandatory appeals from trial court and agency rulings, regardless of subject matter. The distinction between criminal and civil appeals is generally

clear-cut, although a few exceptions, such as juvenile delinquency cases, are discussed below. Filings include appeals filed and later dismissed, which generally comprise a sizeable portion of civil cases.

Discretionary appeals are excluded. Most appellate courts, even at the intermediate level, have discretionary jurisdiction in limited areas (generally interlocutory appeals or appeals involving small sums). The courts review these cases quickly and decide whether to dismiss them summarily or schedule them for a full "merits" decision. Typically, only a small portion (roughly ten percent) of discretionary writs are granted. Discretionary cases are not counted even if full review is granted, but this was not possible for several courts that count writs granted as regular filings; such cases, however, comprise only a very small percentage of total initial appeals in these courts. For a few courts, discretionary writs are counted as filings because they are not stated separately in the court statistics reports, but again only if they comprise a small portion of the total caseload. Virginia Supreme Court appeals are counted as regular appeals, even though almost all are technically discretionary, because the briefing and argument procedures are very similar to those used elsewhere in regular appeals.

Original jurisdiction writs filed directly are excluded if filed initially in the appellate court. These cases, like petitions for review, generally involve much less work than regular appeals because the great majority are dismissed summarily. On the other hand, prisoner petitions are generally counted as criminal appeals if filed as mandatory appeals in the appellate court. Sentence appeals to appellate courts are included only if filed in the same manner as ordinary criminal appeals.

Sentence appeals in Maine, which go to a separate division of the Supreme Judicial Court, and automatic review of certain sentences in Colorado are excluded.

Civil appeals include appeals from administrative agencies, whether direct filings or appeals from trial court reviews of agency decisions. Agency appeal routes vary greatly among the states. An appellate court probably receives more agency cases if it, rather than the trial court, receives initial appeals from state agencies. Nevertheless, even in states where almost all agency appeals go directly to the appellate courts, they constitute less than a quarter of the civil appeals. Agency appeal statistics were not available in 10 of the 33 states in the basic civil analyses (discussed below). In the remaining 23 states there was little change in the results when agency appeals were excluded from civil appeals.

Other rules for counting appeals are as follows: - (a) Juvenile delinquency appeals are counted as civil appeals whenever possible because most courts place them in their civil appeals statistics. Less than two percent of appeals are juvenile delinquency cases. (b) Habeas corpus writs are counted as criminal cases. (c) Cross appeals, reinstated appeals, and rehearing petitions are not counted separately from the original appeals except in a few states where this was not possible. In general, any motion or new filing in a case already docketed is not counted as an appeal. (d) Cases consolidated after having been filed are counted as separate appeals. Cases consolidated beforehand are counted as one appeal. (e) Requests for advisory opinions and certified questions from the federal courts are not counted as

appeals whenever possible. These comprise less than one percent of the caseload of almost all courts that receive them. Certified questions from trial courts, however, are counted if they are mandatory appeals. (f) Whenever possible, bar and judicial discipline cases, which also form a very small part of the appellate caseload, are not counted as appeals.

Departures from these rules were made occasionally when available statistics did not permit the categorizations described, but the departures involved small percentages of the total appeals in a given court. The rules for counting appeals are always the same within a given state, following the principle that statistics should be as comparable as possible from year to year, but moderate differences between states are tolerated.

c. Court year

Most appellate courts present statistics for calendar years, but 16 of the 38 states studied use a fiscal year (see Table 1). Moreover, eight courts changed their statistical year during the period of the study. Statistics are for the year in which the fiscal year ends. (An exception is Maryland. Its fiscal year ends in February--the only fiscal year ending before midyear--but is counted for the prior year ending December 31.) The independent variables compiled for the research are in terms of the individual state's fiscal year, except that the demographic variables such as prison commitments and personal income are according to calendar year.

d. When cases are counted

A major problem is that courts count cases at different points in the progress of an appeal. Filing statistics are affected greatly by when

appeals are "docketed", that is, entered into the court's records (typically a docket book or a computer record). The earlier cases are docketed, the greater the number of filings. Most courts docket cases early in an appeal when the notice of appeal arrives. The appellant sends the notice of appeal directly to the appellate court, or it is filed with the trial court clerk who must send a copy within a few days to the appellate court. In other states, though, the appeal is not docketed until the record arrives, several weeks or months after the notice of appeal is filed with the trial court. During this time the court reporter prepares the transcript of testimony, and the trial court clerk compiles the papers in the case file and transmits them with the transcript to the appellate court. The appellate court first learns of the case when the record arrives.

Fifteen of the 38 states in the study count civil appeals when the record arrives. The Kentucky appellate courts count appeals when the appellant's brief arrives, but for the last five years Kentucky is considered to have counted cases when the notice of appeal arrived because cases dismissed when no briefs were submitted are now counted as filings. Appellate courts in five other states changed their methods of counting appeals during the period under study. Table 1 lists the docketing procedure used in each state and shows which states changed their procedures.

The docketing procedure affects the statistics because many cases, especially civil cases, are dropped during the early stages of appeal. Courts that count cases when the record is filed necessarily exclude appeals that are dropped before the record can be prepared; hence they

Table 1 Appellate Case Counting Procedures

<u>State</u>	<u>Year used for Appellate Statistics</u>	<u>When Case is Counted+</u>	<u>State</u>	<u>Year used for Appellate Statistics</u>	<u>When Case is Counted+</u>
Alabama	FY 9/30	NOA	Mississippi <sup>10</sup>	Calendar	Rec.
Alaska <sup>1</sup>	FY 6/30	NOA	Missouri	FY 6/30	NOA
Arizona <sup>2</sup>	Calendar	Rec.	Montana	Calendar	Rec.
California	FY 6/30	Rec.	Nebraska	FY 8/31	NOA
Colorado	FY 6/30	Rec.	Nevada	Calendar	Rec.
Connecticut <sup>3</sup>	FY 6/30	NOA	New Hampshire <sup>11</sup>	FY 6/30	NOA
Delaware	FY 6/30	NOA	New Jersey	FY 8/31	NOA
Dist. Col.	Calendar	NOA	New Mexico <sup>12</sup>	FY 6/30	NOA
Hawaii	FY 6/30	Rec.	Oklahoma <sup>13</sup>	FY 6/30	NOA
Idaho	Calendar	NOA	Oregon	Calendar	NOA
Illinois <sup>4</sup>	Calendar	NOA	Rhode Island	FY 9/30	Rec.
Iowa <sup>5</sup>	Calendar	NOA	Tennessee	Calendar	Rec.
Kansas <sup>6</sup>	Calendar	NOA	Texas <sup>14</sup>	Calendar	Rec.
Kentucky <sup>7</sup>	Calendar	NOA	Utah	Calendar	NOA
Louisiana <sup>8</sup>	Calendar	Rec.	Vermont	FY 6/30	NOA
Maine <sup>9</sup>	Calendar	NOA	Virginia <sup>15</sup>	Calendar	Rec.
Maryland	FY 2/28	Rec.	Washington	Calendar	NOA
Massachusetts	Calendar	Rec.	Wyoming	Calendar	Rec.
Michigan	Calendar	NOA			
Minnesota	Calendar	NOA			

1. Calendar before 1980
2. Criminal cases are counted at the NOA.
3. Change from Rec. in Sept. 1975.
4. Change from Rec. in July 1979.
5. Change from Rec. in Jan. 1973.
6. FY 6/30 before 1979.
7. FY 6/30 before 1971; Cases counted when briefs arrive before 1979.
8. FY 6/30 before 1975.
9. Change from Rec. in Sept. 1980.
10. FY 6/30 before 1974.
11. FY 7/31 before 1979; change from Rec. in July 1979.
12. Calendar before 1980.
13. Calendar before 1981; criminal cases are counted when the record arrives.
14. When briefs arrive in criminal cases until September 1981.
15. Counted when the petition to appeal arrives, which is usually after the record is filed.

+NOA means the case is counted soon after the notice of appeal is filed.  
 Rec. means that the case is filed when the record is received.

tend to report lower filing statistics. In the statistical analysis of caseload trends a dummy variable was used to indicate, by year, whether a court docketed cases when the notice of appeal is filed. When courts changed docketing procedures, therefore, the effect of the change was indicated by the dummy variable.

A further problem is that changing from docketing at a later stage to docketing when the notice of appeal arrives (no court changed the other way) causes a great influx of filings. Cases are counted under both the old and new systems for the several months required to complete the filing of earlier appeals. Even more dramatic, the rules may be changed to require that all appeals in which the record is not yet filed be docketed immediately when the new docketing procedure goes into effect. Therefore, appellate statistics during the change of docketing procedures are inflated considerably. Statistics for such years were adjusted, as discussed below.

e. Source of filing statistics

The appellate court statistics (as well as the trial court statistics used as an independent variable) were gathered in the first instance from state court system annual reports, which are available for almost all states. The appellate statistics in these reports come from the appellate court clerks' offices. Whenever the information in the annual reports was incomplete, unpublished reports were requested from the clerk. The appellate filing data for six states, Alaska, Connecticut, Massachusetts, Nebraska, New Hampshire, and Virginia were obtained partly or completely by counting cases in the docket books.

The statistics gathered were then checked against those compiled in numerous secondary sources. These included prior surveys of appellate statistics<sup>3</sup> as well as many sources specific to individual states, such as discussions of court caseloads in criminal justice plans, law review articles, and unpublished reports. Finally, the appellate court clerks were interviewed concerning the details of the case counting methods and caseload composition.

f. Estimations

The statistics were occasionally estimated when the published statistics are misleading or when statistics were not available.<sup>4</sup> Almost all estimations are made for one of three reasons: (a) Appellate filing data was adjusted in six states for years when docketing procedure change, generally by taking the average of the filings in the prior and following years. Similarly, adjustments were made for years when the time limit for filing the notice of appeal changed. Reducing the time from trial decision to filing the notice of appeal increases the volume of appellate filings because appellants usually file near the end of the time limit. Likewise, appellate statistics understate the volume of appeals whenever the time for filing the notice of appeal is lengthened. (b) Jurisdictional changes can affect a court's caseload and render filing trends misleading. Jurisdictional statutes in each state were searched for changes, and the findings were double checked in interviews with appellate court clerks. With few exceptions, it was possible to adjust the filing statistics to compensate for the changes, usually by excluding categories of cases (typically agency appeals or appeals from limited jurisdiction trial courts) that were added to a court's



jurisdiction. (c) Adjustments were made for missing data in six percent of the appellate filing statistics. The adjustments were almost always made on the basis of partial data available. Estimates were made most commonly when separate civil and criminal appeal statistics were not available, but statistics for total appeals were. The proportion of criminal and civil appeals in other years was applied to the total filing figures for the year in question to approximate the civil/criminal breakdown. Filings also were estimated by using information about subparts of the caseload which, judging from data for other years, are closely related to caseload components needed to compute total criminal or civil caseload.

### 3. ANALYSIS MODEL

The purpose of this report is to explore factors that may fuel or stem the growth of criminal and civil appeals. Information about the impact of some factors aids short term forecasts of caseload trends, and information about others is useful when deciding whether to modify court operations. Two distinct types of factors are considered. The first are background variables that represent the source of appeals. A hypothesis tested, for example, is that more crime and more criminal filings in the trial courts may well lead to more criminal appeals. On the civil side, major background variables include trial court filings and real personal income. The number of judgeships in general jurisdiction trial courts is an important background variable for both criminal and civil appeals.

The other factors explored are features of court structure and procedure that may attract or deter appellate filings. The importance of

these variables is based on the assumption that people generally balance costs and benefits when deciding which course of action to take. This assumption applies more to civil cases, where delay, interest costs, costs of preparing briefs and records, and the availability of settlement mechanisms run by the appellate court might well be factors considered when deciding whether to appeal. On the other hand, criminal appellants are generally indigents, and appeals are essentially without cost because the state must provide counsel. Hence, many convicted defendants probably appeal even though they have little chance of winning. Because growth in appellate volume is the result of individual decisions by litigants, the dependent variable is expressed as appeals per million population, and the background variables are similarly expressed when appropriate.

The many factors are explored by using a standard econometric regression analysis that differentiates the impacts of the variables and measures effects unique to individual states. The specific statistical model is a pooled time series and cross section analysis with fixed effects added. The fixed effects model, which is an analysis of covariance, creates a dummy variable for each state, and the coefficient associated with this variable is an estimate of the influence of the specific factors ("fixed effects") unique to a state.<sup>5</sup> The fixed effects are highly significant here, and their omission would cause the estimates of the parameters in the model to be biased since the impact of the latter would be confounded with factors peculiar to individual states.

Pooling time series and cross section data provides a powerful type of quasi-experimental design.<sup>6</sup> It adjusts for the background variables

when studying the impact of the "experimental" variables, the changes in court structure and operations, on appellate caseloads.

The analysis was done on the Statistical Analysis System, using the "Proc Reg" Regression Program. The regression was checked for outlier, collinearity, autocorrelation, and heteroskedasticity problems. The outlier analysis led to the deletion of Alaska for the criminal analysis the District of Columbia for both the criminal and civil analysis. No heteroskedasticity or collinearity problems were uncovered, but autocorrelation existed in all analyses and was corrected.<sup>7</sup>

#### 4. BACKGROUND VARIABLES

This section describes the background variables entered into the analysis, and the next section will describe the experimental variables. The importance of the background variables, again, is that the volume of appeals must depend greatly on the potential number of cases that can be appealed. The following paragraphs will describe first the background variables for the criminal appeals analysis and then the civil appeals analysis, although several variables are the same for each.

##### a. Background Variables for the Criminal Appeals Analysis

1) FBI Crime Index. The initial variable in the chain of events that can lead to a criminal appeal is the amount of crime. This is measured here by the FBI Total Crime Index, which includes violent and property crime, and is available since 1971 for the states in the analysis.

Crime supplies the raw material for appeals, although there are many steps--apprehension, trial court indictment, conviction, and

sentencing--between the initial act and the appeal. In effect, any relationship in the analysis between the FBI Crime Index and the number of appeals probably represents inadequate information concerning the intervening steps, rather than a separate impact from the amount of crime. The Crime Index for one year prior to the court year studied is related to criminal appeals more closely than statistics for earlier years or the same year. The Violent Crime Index is slightly less related to appeals than the broader Crime Index.

2) Trial Court Criminal Filings. The next stage represented by an independent variable--that is, the next stage for which statistics are available--is trial court filings. These are defined as determination of probable cause in felony cases and, in several states, major misdemeanor cases.<sup>8</sup> The trial filing statistics for the year before the appellate statistics are most closely related to appeals, although the correspondence is far from perfect because the time from trial court filing to trial and then to appellate court docketing is often considerably less than or more than a year. Compared to the crime rate, trial filings represent a vastly reduced number of cases that are potential appeals; in practice, though, the regression shows that the filings are far less closely related to appellate volume than the crime rate. The reasons for this finding are not clear. Very likely, the portion of filings that result in dispositions, such as dismissals and guilty pleas, that do not lead to appeals varies substantially from year to year.

3) Trials. As a general rule, criminal appeals are filed only by defendants who were tried and convicted; few guilty pleas are appealed

Table 2. Variables in the Criminal Appeals Analysis

	<u>Mean</u>	Standard Deviation
A) Background Variables		
1) Crime rate (FBI Total Crime Index, prior year, per million population)	49,595.07	13,455.22
2) Judgeships in general jurisdiction trial courts (per million population)	28.31	10.53
3) Prison commitments (per million population)	641.37	273.33
4) Trial courts criminal filings (prior year per million population)	4,162.93	1,748.75
B) Experimental Variables (continuous)		
1) Intermediate court (percentage of criminal appeals filed in an intermediate court)	41.53	46.16
2) Backlog (pending cases divided by dispositions)	1.00	.47
C) Experimental Variables (dichotomous)		
1) Docketing time (see Table 1. 0 = notice of appeal)	.47	.50
2) Whether the original record or narrative condensing is used (0 = narrative)	.90	.30
3) Whether the record must be printed, or can be photocopied (0 = printed)	.93	.25
4) Whether the briefs must be printed, or can be photocopied (0 = printed)	.93	.26
5) New appellate rules of procedure (0 = new rules)	.74	.44
6) New criminal code (0 = new code)	.79	.41
7) New trial court criminal rules of procedure (0 = new rules)	.79	.40
D) Dependant Variable - Criminal appeals per million population	165.37	92.62

in most states and there are rarely more than a handful of prosecution appeals.<sup>9</sup> Hence, one would expect statistics on the number of trials to be closely related to appeals. Based on the limited number of states for which criminal trial data are available, however, this is not the case. Trials have been increasing at a slower rate than the number of appeals, and trial statistics are not significantly related to appeals in the regression analysis. The reasons for this unexpected result are not clear. Perhaps an increasingly large percentage of defendants tried are appealing because, for example, sentences are becoming longer or because a higher proportion of defendants are convicted. A second possible explanation is that more appeals come from other than trial judgments--from guilty pleas, rulings on preliminary motions (such as motions to suppress evidence), and post-conviction hearing orders. Little information is available on this point. Equally likely, however, the quality of trial statistics may be so poor in some states that they do not reflect the number of trials.<sup>10</sup> Whatever the reason for the weak relationship between criminal trials and appeals, the number of trials was deleted from the analysis because it did not contribute to the explanation of appellate volume and because statistics on the number of trials are missing for several states.

4) Trial Judgeships. The number of general jurisdiction trial judgeships<sup>11</sup> was entered as a variable because several appellate clerks interviewed said that their caseloads increased when the trial courts were enlarged.<sup>12</sup> More trial judges mean more cases decided and, thus, more cases eligible for appeal. This assumes, of course, that the trial court had a backlog of cases awaiting attention by the new judges. The

trial judge variable, therefore, can be seen as a partial surrogate measure of the output of trial courts; it is used in the absence of reliable statistics on the number of trials or the number of convictions. New trial judgeships, it should be added, might also lead to more appeals because new judges might make more errors that lead to appeals. In any event, information about the impact of adding trial judgeships can help appellate courts forecast the effects of such additions.

5) Prison Commitments. Prison commitment is the next stage in the criminal litigation process for which comparable nationwide data are available.<sup>13</sup> As will be seen, the regression analysis shows a moderate relationship between prison commitments and criminal appeals. Convicted defendants, it is assumed, are far more likely to appeal if they receive prison sentences--that is, sentences longer than one year--because they gain more by winning an appeal. Defendants have little to gain if winning does not reduce their imprisonment time. When a sentence is shorter than the time required for an appellate decision, a defendant in jail pending appeal can get little relief by appealing. Defendants sentenced to prison, as a result, comprise the great majority of potential criminal appellants.

This analysis is incomplete on several accounts, however. Some defendants receiving short jail sentences, or even probation, may appeal to remove the convictions from their records. When a defendant is on bail pending appeal, no matter how long the appellate process takes, victory on appeal can affect the time spent incarcerated. Moreover, some defendants given bail may appeal simply to delay their entry into jail.

Unfortunately, there is little information about how many defendants are on bail pending appeal. Even the appellate court clerks interviewed usually had little knowledge of this issue; most, however, said they believed that defendants are seldom on bail pending appeal, although in a few states up to a third or a half may be on bail. Regardless of these issues, it is important to note that the relationship between convictions and appeals is watered down greatly because the overwhelming majority of prisoners in most states pleaded guilty and rarely appeal.

b. Background Variables for the Civil Appeals Analysis

Most of the background variables in the civil appeals analysis differ from those in the criminal analysis. Two exceptions are the number of trials and the number of trial court judges. Most of the previous discussion concerning these variables applies to civil appeals also. The number of trials is not a useful variable because the data are probably poor and because appeals can be taken from non-trial dispositions, such as judgments on the pleadings. The number of trial court judgeships, on the other hand, is again important partly because it is a surrogate measure of trial court output in the absence of statistics on that topic. The three other background variables for the analysis of civil appeals are:

1) Trial court civil filings. Trial court civil filings are defined as complaints filed in ordinary civil litigation (mainly tort and contract cases) and divorce cases. These statistics were obtained from state court annual reports and occasionally directly from state court administrators. State trial court filing statistics are not as accurate



as appellate statistics, mainly because they are compilations of numerous reports, typically one from each county court. But filing statistics, according to the state court administrative staff, tend to be much more accurate than other trial court statistics, especially disposition statistics, because they are easily obtained by counting docket entries. The statistics used are the number of complaints filed, rather than trial readiness motions which are considered filings in a few states. The trial filing statistics are available for 33 of the 38 states with appellate data (the five states with appellate data, but not trial filing data, are Michigan, Minnesota, Mississippi, Montana, and Nevada).

Trial filings, for the purpose of this study, are major civil cases in general jurisdiction courts; types of cases that almost never reach the appellate court are deleted. Hence, small claims, probate, adoption, child support, civil commitment, and juvenile cases are not included. The civil filings included are (besides divorce) the "ordinary" civil cases such as torts, contracts, and injunctions, although these cases comprise only a small portion of the trial court filings. Divorce cases were included in the filing statistics even though they are appealed less frequently than ordinary civil litigation, because divorce statistics are combined with ordinary civil statistics in several states. As a practical matter, however, including divorce cases has little effect on the analysis of appellate caseloads, for the results when using ordinary civil plus divorce are similar to the results when using ordinary civil only. The trial court civil filings most related to civil appeals are those from the year preceding the appeals, although filings two years earlier are related almost as strongly. That is, on the average, the

Table 3. Variables in the Civil Appeals Analysis

	<u>Mean</u>	<u>Standard Deviation</u>
A) Background Variables		
1) Economic conditions (per capita real personal income, four years prior)	3,572.50	575.91
2) Trial court civil filings (prior year, per million population)	17,229.71	6,528.96
3) Judgeships in general jurisdiction trial courts (per million population)	28.46	11.37
4) Trial court dollar jurisdiction limit (two years prior)	2,165.71	2,149.96
B) Experimental Variables (continuous)		
1) Intermediate court (percentage of civil appeals filed in an intermediate court)	49.43	44.37
2) Backlog (pending cases divided by dispositions)	1.00	.45
3) Interest differential (interest rate on treasury bills less the interest rate on judgments pending appeal)	-2.66	26.83
C) Experimental Variables (dichotomous)		
1) Use of prehearing settlement conferences (0 = PHSC not held)	.88	.33
2) Docketing time (see Table 1. 0 = notice of appeal)	.47	.50
3) Whether the original record or narrative condensing is used (0 = narrative)	.87	.33
4) Whether the record must be printed, or can be photocopied (0 = printed)	.90	.29
5) Whether the briefs must be printed, or can be photocopied (0 = printed)	.89	.31
6) New appellate court rules of procedure (0 = new rules)	.76	.43
7) New trial court civil rules of procedure (0 = new rules)	.89	.32
D) Dependent Variable - civil appeals per million population	281.32	137.69

time from trial court filing to appellate docketing is approximately one or two years, but this time probably varies greatly between jurisdictions.

Trial court filings are related to appeals for the obvious reason that most appeals must have originated as trial filings (exceptions to this rule includes appeals from administrative agencies and civil case types, such as probate and juvenile, not included in the trial court caseload measure). But one cannot assume a strong relationship between trial court filings and appellate court filings because few trial court filings actually reach the decision stage and become eligible for appeal. In the end, however, the trial court filings proved to be among the most important variables in the regression analysis of civil appeals.

2) Trial Court Dollar Jurisdiction Limit. The dollar jurisdiction limit is the monetary amount in controversy that defines the extent of the state's limited jurisdiction courts (or small claims division of a single unified trial court). The dollar limits, located through statutory research, were adjusted for inflation. Because cases in limited jurisdiction or small claims courts are generally appealed within the trial court system before going to the appellate courts, a higher dollar limit means fewer appellate court filings. On the other hand, one would expect such jurisdictional changes to be reflected in the trial court filing statistics, and that variable should absorb the relationship between dollar limits and appeal. That apparently is what happens, for the size of the dollar limits was not significantly related to appeals unless the trial filing variable was removed.

3) Personal income. Real personal income is used as a measure of economic activity, a fuel that can create disputes and hence possibly

appeals. The more economic activity, the greater the probability of disputes. More construction, for example, provides more opportunities for construction contract disputes. More and longer vacation trips mean more chances for automobile accidents. The time lag between these events and resulting appeals is substantial; analysis of the relationship between civil appeals filed and real personal income in various years preceding the appeals showed that the strongest positive relationship was with real income four years earlier.

c. The Impact of Background Variables on Criminal Appeals.

The results of the regression analysis are shown in Tables 4 and 5.<sup>14</sup> They give two indicators of the importance of variables: the T ratio tests the null hypothesis that there is no connection between the independent variable and the volume of appeals, and the standardized estimate (or beta weight) shows the comparative importance of variables in explaining appellate volume. The final column in Tables 4 and 5 give the number of additional appeals expected for an increase of one unit of each independent variable.

In the criminal appeals analysis (Table 4), the predominant background variables are the crime rate (in the previous year) and the number of trial court judges. Also significant, but with a relatively low standardized estimate, is the number of prison commitments.

Interestingly, the trial court filings show little relationship to criminal appeals. A possible reason for this finding is that non-appealable dispositions, such as dismissals or guilty pleas, may comprise greatly varying portions of the total caseload.

Table 4. Regression Analysis of Factors Affecting Criminal Appeals

A)	Background Variables	T Ratio	Stan- dardized Estimate	Parameter Estimate
1)	Crime rate (FBI Total Crime index, prior year, per million population)	5.75 <sup>a</sup>	.42	.0021
2)	Judgeships in general jurisdiction Trial Courts (per million population)	3.77 <sup>a</sup>	.68	4.56
3)	Prison commitments (per million population)	3.04 <sup>b</sup>	.15	.042
4)	Trial court criminal filings (prior year, per million population)+	1.62	.12	.0070
B) Experimental Variables (continuous)				
1)	Intermediate court (percentage of criminal appeals filed in an intermediate court)	1.79	.14	.28
2)	Backlog (pending cases divided by dispositions)+	1.62	.07	9.94
C) Experimental Variables (dichotomous)				
1)	Docketing time (see Table 1. 0 = notice of appeal)	-2.20 <sup>c</sup>	-.16	-20.14
2)	Whether the original record or narrative condensing is used (0 = narrative)	-1.12	-.04	-8.38
3)	Whether the record must be printed, or can be photocopied (0 = printed)	.89	.04	9.81
4)	Whether the briefs must be printed, or can be photocopied (0 = printed)	1.22	.06	13.47
5)	New appellate rules of procedure (0 = new rules)	-.07	.00	-.24
6)	New criminal code (0 = new code)	-.24	-.01	-.92
7)	New trial court criminal rules of procedure (0 = new rules)	1.04	.03	4.18

a--Significant to the .001 level, b--to the .01 level, c--to the .05 level.  
The remaining variables are not significant to the .10 level.

+The statistics for trial court filings and the backlog ratio are only available for 27 states; these results are from a separate regression that include only these states.

Table 5. Regression Analysis of Factors Affecting Civil Appeals

	T Ratio	Stan- dardized Estimate	Parameter Estimate
A) Background Variables			
1) Economic conditions (per capita real personal income, four years prior)	6.67 <sup>a</sup>	.68	.065
2) Trial court civil filings (prior year, per million population)	5.36 <sup>a</sup>	.39	.0071
3) Judgeships in general jurisdiction trial courts (per million population)	2.94 <sup>b</sup>	.40	4.24
4) Trial court dollar jurisdiction limit (two year prior)	-1.42	-.04	-.0034
B) Experimental Variables (continuous)			
1) Intermediate court (percentage of civil appeals filed in an intermediate court)	-.67	-.03	-.13
2) Backlog (pending cases divided by dispositions)+	3.32 <sup>a</sup>	.09	19.47
3) Interest differential (interest rate on treasury bills less the interest rate on judgments pending appeal)	.83	.01	.06
C) Experimental Variables (dichotomous)			
1) Use of prehearing settlement conferences (0 = PHSC not held)	5.26 <sup>a</sup>	.10	32.60
2) Docketing time (see Table 1. 0 = notice of appeal)	-5.22 <sup>a</sup>	-.21	-47.53
3) Whether the original record or narrative condensing is used (0 = narrative)	.82	.01	1.91
4) Whether the record must be printed, or can be photocopied (0 = printed)	2.13 <sup>c</sup>	.05	17.37
5) Whether the briefs must be printed, or can be photocopied (0 = printed)	1.14	.03	9.89
6) New appellate court rules of procedure (0 = new rules)	.13	.00	.51
7) New trial court civil rules of procedure (0 = new rules)	.72	.01	4.27

a--Significant to the .001 level, b--to the .01 level, c--to the .05 level.  
The remaining variables are not significant to the .10 level.

+The backlog ratio is available for only 29 states; these results are from a separate regression that includes only these states.

d. The Impact of Background Variables on Civil Appeals

The analysis of civil appeals shows three dominant background factors: real personal income, trial court civil filings, and trial court judgeships (see Table 5). The trial court filings are lagged one year because trial courts generally take a year or two to decide civil cases. There is no obvious reason for the greater association between trial and appellate filings in civil cases than in criminal cases. The number of trial judges, however, is important in both, apparently as an indirect measure of trial court output.

A major finding is the importance of economic factors on civil filings. This impact was suggested from a historical study of appellate courts: appellate filings began to decrease about three or four years after major recessions began.<sup>15</sup> In the present analysis, the greatest impact of economic conditions, represented by real personal income per capita, is four years later (lags of two and three years also showed substantial impacts). The effect of economic condition on appeals is clearly through civil trial filings. A separate analysis shows that personal income has an extremely large impact on civil filings two years later. As discussed earlier, a likely reason for this relationship is that better economic conditions lead to more interactions among citizens and, hence, to more chances for disputes and law suits later.

5) COURT FEATURES THAT AFFECT APPELLATE VOLUME

A major goal of the research was to study the effect on appellate volume of particular changes made in court structure and procedure. Their effects can be measured by entering them into the statistical

model, and by comparing the situations within a state before and after the changes were made. Some factors are measured continuously, so that subtle variations between years can be studied. Most of the experimental factors, however, are expressed as dichotomous (dummy) variables having values of zero and one, which change relatively infrequently. The analysis evaluates the impact of these discrete changes by comparing caseloads before and after the changes. Throughout, the analysis takes into account the important background variables just discussed, as well as the overall differences in appellate volume between states. In the following paragraphs the experimental variables applicable to both types of appeals are discussed first, followed by those applicable only to civil appeals.

a) Intermediate courts

Opponents of intermediate courts often claim that these courts increase the volume of filings. Tables 4 and 5, however, show only a small impact on criminal appeals (which is not statistically significant) and no impact on civil appeals. The use of intermediate courts is measured by the percentage of initial appeals that go to those courts (rather than to supreme courts); this takes into consideration the great variety of dual appellate systems, and it incorporates both the creation of new intermediate courts<sup>16</sup> and the jurisdictional expansion of existing ones.<sup>17</sup>

b) Appellate Court Backlog

Whether delay affects appellate volume is the topic of many conflicting arguments. For example, criminal appeals might decrease because a defendant in prison with a two year sentence gains little by



appealing to a court with a two year backlog. On the other hand, defendants on bail might appeal more often to a backlogged court to delay entry into prison. In most states, as was discussed earlier, few defendants are on bail pending appeal. As for civil appeals, long delays may encourage appeals by defendants wishing to postpone payment of adverse judgments in the trial court; conversely, other potential appellants may be repelled by the length of time it would take to get relief.

Delay was measured by a "backlog ratio," which is the number of cases pending at year's end divided by the number of dispositions that year. This variable showed a positive relationship to civil appeals, but the impact is moderate. It also showed a slight, but not statistically significant, relationship to criminal appeals. That is, more delay attracts only a few more appeals. Quite likely, the various ways delay affects incentives to appeal largely cancel each other out.

c) New Rules and Criminal Codes

The research explored the impact of new trial court rules of procedure and new criminal codes. One might expect major overhauls of the law governing litigation to create interpretation problems and, thus, more issues to appeal. However, there was no evidence of this; the analysis showed that these new laws lead to few if any additional appeals during the years following the changes.<sup>18</sup>

d) Appellate Briefs and Records

For several decades, appellate courts have been modernizing appellate procedure by eliminating expensive procedural requirements. Photocopied briefs are now permitted instead of printed briefs in almost all courts.

Similarly, the requirement for printed record has been abolished. Finally, almost all states now permit the parties to submit the trial court record and transcript in original form, instead of rewriting them into a narrative version, a laborous task for lawyers. Some observers thought that such changes would attract appeals by making them less expensive and time consuming. With one exception, however, the regression analysis shows no significant impact on the volume of civil or criminal appeals.<sup>19</sup> The exception is a slight increase in civil appeals when the requirement for printed records is eliminated.

e) Interest Rate Differential

A party losing a civil suit at the trial level can delay paying an adverse judgment by appealing. The interest paid on the judgment pending appeal, which is determined by statute in most states, is often less than prevailing interest rates because legislatures do not increase the rates as fast as interest rates increase generally. When the rate on judgments is comparatively low, there may be more economic incentive to appeal. Nevertheless, the research found virtually no relationship between civil appeal volume and the difference between the statutory interest rates and rates for three-month Treasury Bills.

f) Appellate Court Prehearing Settlement Conferences

In these conferences, judges or appellate court staff try to persuade attorneys to settle cases and, thus, relieve the court. This procedure has been used in a third of the states studied. Some commentators contend that any settlements resulting from the conferences may be outnumbered by new appeals from parties seeking to take advantage of the settlement opportunities. The research supports this contention: the

volume of civil appeals rises moderately when settlement conferences are used.

6. SUMMARY FOR POLICY MAKERS: FUTURE APPELLATE VOLUME

These findings cannot provide exact forecasts of overall appellate volume, but they can help predict the impact of specific changes. Extrapolation from past trends is difficult because growth varies greatly from year to year. Also, associated trends such as crime statistics and trial court filings show wide variations and, thus, provide a risky basis for extrapolation.

The analysis of factors that may affect appeals can help judges and state decision makers by showing that certain decisions or occurrences probably will increase, reduce, or not affect appellate volume. Table 6 shows the impact of variables that are substantially related to appeals. Two measures of impact are given, depending on whether the variable is continuous or dichotomous. (Continuous variables, like caseload figures, have fine gradations. Dichotomous, or dummy, variables have only two values, such as whether briefs must be printed.) The measure for continuous variables is the elasticity,<sup>20</sup> the percentage change in appellate filings resulting from a one percentage change in the variable. Hence, an elasticity of .8 means that a 10 percent change in the independent variable leads to an 8 percent change in appeals. Since this statistical measure is not feasible for dichotomous variables, the measure of impact used is the parameter estimate. This is the number of additional (or fewer) appeals expected for each million persons in the state when the dichotomous variable changes values. As in all

Table 6 Predicted Impact of Changes

A) Criminal Appeals		
1) Continuous Variables (elasticities)		
FBI Total Crime Index		.62 ± .21
Trial Court Judgeships		.78 ± .41
Prison Commitments		.16 ± .10
2) Dichotomous Variables (parameter estimate)		
Docketing Time (see Table 1)		-20 ± 18
B) Civil Appeals		
1) Continuous Variables (elasticities)		
Real Personal Income		.83 ± .24
Trial Court Filings		.44 ± .16
Trial Court Judgeships		.43 ± .29
Backlog		.07 ± .04
2) Dichotomous Variables (parameter estimates)		
Prehearing Settlement Conferences		33 ± 12
Record Duplication		17 ± 16
Docketing Time (see Table 1)		-48 ± 18

(This table corresponds to Tables 4 and 5. The parameter estimate is the number of appeals per million population that result when the factor changes. The elasticity is the percent change in appeals that results from a one percent change in the factor, evaluated at the means of the variables; more exactly, it is the parameter estimate times the mean of the independent variable and divided by the mean of the dependent variable. The range given is the 95 percent confidence interval.)

statistical analyses, the results are approximations. Table 6, therefore, gives a confidence range for each elasticity and parameter estimate; statistically, there is a 95 percent chance that the actual results fall within the range indicated.

A clear conclusion is that more trial judges generally lead to more appeals. In fact, using the elasticity figures in Table 6, it can be predicted that a 10 percent increase in trial judgeships will mean some 4 to 12 percent more in criminal appeals and 1 to 7 percent more civil appeals.

In a similar manner, one can estimate that a 10 percent increase in a state's FBI Total Crime Index will most likely mean some 4 to 8 percent more criminal appeals a year later.

A one percent increase in a state's real personal income should warn judges that there will be a similar increase in appeals about four years later. A separate analysis shows an elasticity of about one for the impact of the economy on civil trial filings two years later; hence, economic conditions have a tremendous impact on civil caseloads generally.

Ten percent more trial court civil filings will probably mean 3 to 6 percent more civil appeals in the next year. Reducing backlogs will probably reduce civil appeals, but the relief would be minor -- less than one percent fewer appeals for each 10 percent reduction in backlog. Finally, the analysis shows that settlement conferences in civil cases attract some 20 to 45 civil appeals per million population, which is roughly a 5 to 10 percent increase in the average state.

It is important to know that some changes previously thought to increase or decrease appeals actually have little or no discernable

impact. This is true of most of the factors studied, including creation or expansion of intermediate courts, the amount of backlog, modernization of appellate procedure, and interest rate on appeal. Courts and state governments can make such changes without fear--or in some cases, without hope--that they will substantially affect appellate volume.

## 7. OTHER POSSIBLE METHODS OF ANALYSIS

The method of analysis used in the prior sections is a fixed effects regression model, entering dummy variables for each state and using per capita variables. Selecting this model involved three major choices: 1) using a fixed effects model instead of a random effects model, 2) using per capita data instead of unadjusted, non per capita data, and 3) using only state dummies, rather than both year dummies and state dummies. This section describes the reasons for these choices and describes the results that would be obtained under the alternative procedure.

### a) Random and Fixed Effects Model

There are two commonly accepted econometric models for analyzing pooled time series, cross section data such as the data in the present study. The fixed effects model, used here, combines the time series data from the several states into one regression, but ignores within year across state variations. The random effects model, on the other hand, uses both within and between state variations, but it is based on the assumption that the residuals in the analysis are not correlated with any of the independent variables.<sup>21</sup> We used the fixed effects model because we have no basis upon which we can be assured that that assumption holds. Also, by using cross state comparisons, the random effects model may lead to problems of causal interpretation. An example

of this, pertaining to intermediate courts, will be discussed presently. Furthermore, correction for autocorrelation in the random effects model is much more difficult than in the fixed effects model. Because of these problems, we felt that any difference between the fixed and random effects model would have to be resolved in favor of the former.

In practice, however, the results under the two models are very similar. Tables 7 and 8 give the result of the random effects analyses of criminal and civil appeals, comparable to the fixed effects analyses in Tables 4 and 5. The actual samples are slightly different because the random effects analysis requires that there be data for each state in the year studied; hence years with partial data are used in the fixed effects, but not the random effect analysis. On the other hand, the procedures used to correct for autocorrelation required that the first year be deleted from the fixed effects analysis.

As shown at the bottom of Tables 7 and 8, the variance component for cross-section is far greater than that for time series. This means that the random effects analysis is largely a cross-state analysis (while the fixed effect analysis is a within state time series analysis).

Nevertheless, the results of the two analyses are very much the same, as can be seen by comparing Tables 4, 6, and 7 for criminal appeals and Tables 5, 6, and 8 for civil appeals. The same variables are significant in both analyses, except that in four situations variables that are not significant in the fixed effect analysis are significant in the random effects analysis: the intermediate court variables in both criminal

Table 7. Regression Analysis of Factors Affecting Criminal Appeals - Random Effects Model

	Parameter Estimate	T Ratio	Elasticity
A) Background Variables			
1) Crime rate (FBI Total Crime Index, prior year, per million population)	.0022	5.71 <sup>a</sup>	.65
2) Judgeships in general jurisdiction trial courts (per million population)	1.87	2.68 <sup>b</sup>	.32
3) Prison commitments (per million population)	.060	4.43 <sup>a</sup>	.23
4) Trial court criminal filings (prior year)	N/A	N/A	--
B) Experimental Variables (continuous)			
1) Intermediate court (percentage of criminal appeals filed in an intermediate court)	.40	3.28 <sup>b</sup>	.10
2) Backlog (pending cases divided by dispositions)	N/A	N/A	--
C) Experimental Variables (dichotomous)			
1) Docketing time (see Table 1. 0 = notice of appeal)	-24.95	-2.47 <sup>c</sup>	--
2) Whether the original record or narrative condensing is used (0 = narrative)	-4.35	-.51	--
3) Whether the record must be printed, or can be photocopied (0 = printed)	22.79	1.77	--
4) Whether the briefs must be printed, or can be photocopied (0 = printed)	13.90	1.11	--
5) New appellate rules of procedure (0 = new rules)	3.88	.87	--
6) New criminal code (0 = new rules)	1.39	.30	--
7) New trial court criminal rules of procedure (0 = new rules)	18.76	3.84 <sup>a</sup>	--

a--Significant to the .001 level, b--to the .01 level, c--to the .05 level. The remaining variables are not significant to the .05 level. (396 sample size - 36 states over 11 years; 383 degrees of freedom. The variance component for cross-sections is 2,919, and for time series 49.)



Table 8. Regression Analysis of Factors Affecting Civil Appeals - Random Effects Model

A)	Background Variables	Parameter Estimate	T Ratio	Elasticity
1)	Economic conditions (per capita real personal income, four years prior)	.054	5.10 <sup>a</sup>	.67
2)	Trial court civil filings, (prior year, per million population)	.0052	3.93 <sup>a</sup>	.31
3)	Judgeships in general jurisdiction trial courts, (per million population)	2.54	2.31 <sup>c</sup>	.25
4)	Trial court dollar jurisdiction limit (two years prior)	-.0077	-2.97 <sup>b</sup>	-.06
B)	Experimental Variables (continuous)			
1)	Intermediate court (percentage of civil appeals filed in an intermediate court)	.365	2.17 <sup>c</sup>	.06
2)	Backlog (pending cases divided by dispositions)	N/A	N/A	--
3)	Interest differential (interest rate on treasury bills less the interest rate on judgments pending appeal)	.093	.71	--
C)	Experimental Variables (dichotomous)			
1)	Use of prehearing settlement Conferences (0 = PHSC not held)	35.7	4.12 <sup>a</sup>	--
2)	Docketing time (see Table 1. 0 = notice of appeal)	-86.1	-7.52 <sup>a</sup>	--
3)	Whether the original record or narrative condensing is used (0 = narrative)	12.0	1.10	--
4)	Whether the record must be printed, or can be photocopied (0 = printed)	37.3	2.96 <sup>b</sup>	--
5)	Whether the briefs must be printed, or can be photocopied (0 = printed)	5.9	.53	--
6)	New appellate court rules of procedure (0 = new rules)	10.0	1.88	--
7)	New trial court civil rules of procedure (0 = new rules)	7.9	.98	--

a--Significant to the .001 level, b--to the .01 level, c--to the .05 level. The remaining variables are not significant to the .05 level. (352 sample size--32 states over 11 years; 336 degrees of freedom. The variance component for cross-sections is 10,501, and for time series is 139).

and civil appeals, the trial court procedure rules in the criminal analysis, and trial court jurisdiction amount in the civil analysis. The intermediate court variable is significant in the random effects analysis probably because the causal direction can work both ways there. That is, higher caseloads can lead to intermediate courts (as well as intermediate courts leading to higher caseloads). When comparing states, it is likely that some states have intermediate courts because they have higher caseloads than those that do not. This causal connection would operate in addition to the only possible causal direction in the time series analysis (and, thus, in the fixed effects analysis): that intermediate courts cause more filings (legislation creating intermediate courts is passed before the year in which the existence of the intermediate court is associated with filings). The other two variables that become important in the random effects analysis - trial court rules in the criminal analysis and trial court monetary limit in the civil appeals analysis - are important in the fixed effects analysis before correction for autocorrelation (T ratios of 3.2 and 4.2 respectively). Perhaps the lack of such correction affects the fixed effects analysis, even though the time series component is small. (These two variables and the intermediate court variable in the criminal analysis are the only three variables that lose significance after correction for autocorrelation in the fixed effects model.)

Among the variables that are significant in both types of analysis, the magnitude of the relationship is also similar. This is best shown by comparing the parameter estimates and elasticities in Table 6 with those in Tables 7 and 8. The largest difference is that the impact of trial

judgeships is substantially less in the random effects model. That is, the year to year impact on appeals of increasing trial judgeships is greater than the association between appeals and trial judges when one compares states.

c) Year Dummies

When using the fixed effects model, a researcher has the option of entering dummy variables for each year as independent variables. These dummies represent possible unknown factors that affect all states each year (like the state dummies represent unknown factors that effect appeals in a given state). The year dummies were not used because they were not significant when entered, except for two or three years when they were marginally significant. When entered they reduced the parameter estimates of almost all variables, but the impact was slight.

d) Analysis Without Per Capita Variables

The analysis used per capita variables because that is the general procedure when the hypothesized relationship between variables is based on theories about the actions of individuals. That is, in the present situation, the growth of appeals is the result of decisions by numerous individual litigents. Nevertheless, there is still some controversy about the issue; so results without per capita data were obtained.

These analyses, presented in Tables 9 and 10, are generally similar to the per capita analyses. The regression techniques used are identical, except that population is entered as an independent variable in the analysis without per capita data. In the criminal appeal analysis (Tables 4, 6, and 9) the results are very similar with respect to the background variables (note that the parameter estimates cannot be

Table 9. Regression Analysis of Factors Affecting Criminal Appeals - Without Per Capita Data

	T Ratio	Parameter Estimate	Standardized Estimate	Elasticity
A) Background Variables				
1) Crime rate (FBI Total Crime Index, prior year, per million population)	5.11 <sup>a</sup>	.0017	.49	.50
2) Judgeships in general jurisdiction trial courts (per million population)	4.13 <sup>a</sup>	4.80	.71	.73
3) Prison commitments (per million population)	2.04 <sup>c</sup>	.024	.09	.09
4) Trial Court Criminal filings (prior year per million population)+	1.87	.0080	.14	--
5) Population (in thousands)	.68	.050	.23	--
B) Experimental Variables (continuous)				
1) Intermediate Court (percentage of criminal appeals filed in an intermediate court)	2.47 <sup>c</sup>	1.53	.08	.09
2) Backlog (pending cases divided by dispositions)+	2.14 <sup>c</sup>	67.33	.03	.11
C) Experimental Variables (dichotomous)				
1) Docketing time (see Table 1. 0 = notice of appeal)	4.80 <sup>a</sup>	-197.44	-.15	--
2) Whether the original record or narrative condensing is used (0 = narrative)	-1.30	-42.81	-.02	--
3) Whether the record must be printed, or can be photocopied (0 = printed)	.60	28.60	.01	--
4) Whether the briefs must be printed, or can be photocopied (0 = printed)	2.13 <sup>c</sup>	102.92	.04	--
5) New appellate rules of procedure (0 = new rules)	.14	2.13	.00	--
6) New criminal code (0 = new code)	-1.77	-28.69	-.02	--
7) New trial court criminal rules of procedure (0 = new rules)	1.33	23.06	.01	--

a--Significant to the .001 level, b--to the .01 level, c--to the .05 level.  
The remaining variables are not significant to the .05 level.

+The statistics for trial court filings and the backlog ratio are only available for 27 states; these results are from a separate regression that include only these states.

Table 10. Regression Analysis of Factors Affecting Civil Appeals - Without Per Capita Data

	T Ratio	Param- eter Estimate	Standard- dized Estimate	Elasticit
A) Background Variables				
1) Economic conditions (real personal income, millions of dollars, four years prior)	4.46 <sup>a</sup>	.044	.99	.67
2) Trial court civil filings (prior year)	8.41 <sup>a</sup>	.0064	.58	.46
3) Judgeships in general jurisdiction trial courts	6.58 <sup>a</sup>	6.76	1.00	.81
4) Trial court dollar jurisdiction limit (two years prior)	-.02	.00	.00	--
5) Population (thousands)	-2.48 <sup>c</sup>	-.16	-.97	--
B) Experimental Variables (continuous)				
1) Intermediate court (percentage of civil appeals filed in an intermediate court)	-.88	-.55	-.02	--
2) Backlog (pending cases divided by dispositions)+	1.83	45.15	.02	--
3) Interest differential (interest rate on treasury bills less the interest rate on judgments pending appeal)	.19	.04	.02	--
C) Experimental Variables (dichotomous)				
1) Use of prehearing settlement Conferences (0 = PHSC not held)	2.13 <sup>c</sup>	39.35	.02	--
2) Docketing time (see Table 1. 0 = notice of appeal)	-5.15 <sup>a</sup>	-156.58	.10	--
3) Whether the original record or narrative condensing is used (0 = narrative)	3.90 <sup>a</sup>	113.66	.05	--
4) Whether the record must be printed, or can be photocopied (0 = printed)	.28	7.49	.00	--
5) Whether the briefs must be printed, or can be photocopied, (0 = printed)	2.49 <sup>c</sup>	71.75	.03	--
6) New appellate court rules of procedure (0 = new rules)	1.97 <sup>c</sup>	26.93	.02	--
7) New trial court civil rules of procedure (0 = new rules)	-.86	16.56	.01	--

a--Significant to the .001 level, b--to the .01 level, c--to the .05 level.

The remaining variables are not significant to the .05 level.

+The backlog is available for only 29 states; these results are from a separate regression that includes only these states.

compared, but the other measures can). The intermediate court variable is slightly significant in the analysis without per capita data ( $T = 2.47$ ) while it is not, but nearly, significant ( $T = 1.79$ ) in the per capita analysis. The results with respect to the dichotomous variables are also similar; the one difference is that abolishing the requirement for printed briefs has a slightly significant impact in the analysis without per capita data ( $T = 2.13$ ) while it is not significant in the per capita analysis.

On the civil side also, the background variables are quite similar, except that the trial judgeships loom more important without per capita adjustments. Among the continuous experimental variables, the backlog ratio is significant in Table 5, with per capita variables, but not quite significant in Table 10, without per capita variables. The greatest differences occur in the dichotomous variables. Printed records were slightly significant in the per capita analysis, but not in the analysis without per capita data. Three variables, on the other hand, were significant in the latter but not the first: use of the original record, printing briefs, and new appellate rules. Use of the original record is highly significant.

The probable reason for these differences is that the analysis without per capita data is dominated by several large states. Leaving out the three states with the highest caseloads substantially reduces, but does not eliminate, the differences between the per capita and non per capita analyses.

## FOOTNOTES

1. Bureau of Justice Statistics Bulletin, The Growth of Appeals, 1973-83 Trends (1985).
2. A more detailed explanation of the sources and composition of the appellate data can be found in Marvell, et al. State Appellate Caseload Growth: Documentary Appendix (National Center for State Courts, 1985).
3. Examples are National Center for State Courts, State Court Caseload Statistics 1980 (1984), and Kramer, Comparative Outline of Basic Appellate Court Structure and Procedures in the United States (1983).
4. Specific information about the adjustments made in each state is given in Marvell, et al., supra note 2, at Part XIII.
5. For a description of this model see: Mundlak, "On the Pooling of Time Series and Cross Section Data," 46 Econometrica 69 (1978).
6. Campbell and Stanley, Experimental and Quasi-Experimental Designs for Research 55-57 (1967); Cook and Campbell, Quasi Experimentation, Design and Analysis Issues for Field Settings 214-18 (1979).

7. The autocorrelation correction is done as follows. The residuals from the fixed effects regression are regressed on themselves lagged one period, for each state. The estimated regression coefficient is the estimate of the first order autocorrelation coefficient. The data are then adjusted, by state, according to that state's estimated autocorrelation coefficient, to yield generalized first differences:  $X(t) - \rho X(t-1)$  where  $X(t)$  refers to any variable in a given state in year  $t$ ,  $X(t-1)$  is the corresponding lagged value of that variable, and  $\rho$  is the state-specific autocorrelation coefficient. The fixed effect regression is then recomputed on the generalized first differences, yielding efficient estimates compared to estimating techniques in which autocorrelation is ignored.

8. The trial court statistics were obtained from state court annual reports, and from telephone interviews which were conducted with the state court administrative office staff responsible for preparing the statistics. The trial filing statistics were generally said to be fairly accurate because they only involve counting docket entries (if said to be inaccurate, they were not used); a major problem is that the trial court statistics are compilations of numerous reports, typically one from each county, making consistency difficult. See Marvell, et al., supra note 2 at Parts II and VI, for a detailed description of the sources and content of trial court filings.

9. The appellate court clerks were interviewed and they uniformly said that only about one or two percent of the criminal appeals are brought by the prosecution.



10. The court administrative office staff generally considered the statistics on trials, both jury and non-jury, far more suspect than filing statistics. The major reasons are that it is difficult to establish a uniform definition for trials, and that judges and clerks, especially in past years, are tempted to inflate the number of trials in their courts because it can be a measure of the amount of work done. See Marvell et al., supra note 2, at Part VI; Adams, "Statistical Auditing: Do the Numbers Speak for Themselves?" 8 State Court Journal 16 (Fall 1984).

11. The source and content of the trial judgeship data are explained in Marvell and Dempsey, "Growth in State Judgeships, 1970-1984," 68 Judicature 274 (1985).

12. A few court personnel also suggested that the number of attorneys affects appellate volume, but we were not able to gather adequate data on the number of attorneys to explore this contention.

13. The statistics on prison commitments were obtained from the Bureau of Justice Statistics. They consist of court commitments and returned parolees and escapes. Court commitments only, in a separate analysis for years after 1973, did not have a stronger relationship with appeals than the commitment variable including returned escapees and parolees.

14. The regression analyses include only states and years for which data were available for all variables in the model. The sample size is 384 for criminal appeals, and 380 for civil appeals. (Due to the large number of variables, including state dummy variables, the degrees of freedom are considerably lower, 336 for the criminal analysis and 332 for the civil analysis.) The criminal and civil analyses included the states listed in Table 1 as having criminal and civil appellate filing data, with several deletions. Outlier analysis led to the deletion of the District of Columbia in both analyses, and Alaska in the criminal analysis. In the civil analysis, Michigan, Minnesota, Mississippi, Montana, and Nevada were excluded because civil trial filing data were not located. Appellate filing data were obtained back to 1973 for all states, and back to 1970 for most. The criminal analysis, however, did not include years before 1972 because comparable prison commitment and FBI crime rate data are not available. Corrections for auto correlation required that the earliest year in each state be deleted. The latest year for each state is 1983 or fiscal year 1984.

15. Marvell, "Appellate Court Caseloads: Historical Trends," 4 Appellate Ct. Ad. Rev. 3 (1983); See also Kagan, et al., "The Business of State Supreme Courts, 1870-1970," 30 Stan. L. Rev. 121 (1977).

16. New intermediate courts were created in eight states studied in the analysis: Connecticut, Hawaii, Idaho, Iowa, Kansas, Kentucky, Massachusetts, and Minnesota.

17. Intermediate court jurisdiction was greatly expanded in seven states: Arizona, Colorado, Louisiana, Maryland, Oregon, Tennessee, and Texas.

18. These changes are coded as dummy variable for four years after the changes.

19. These findings, especially for civil appeals, are less stable than others in the research. See Part 7.

20. See Pindyck and Rubinfeld, Economic Models and Economic Forecasts 91 (1981).

21. Maddala, Econometrics, 326-331 (1977).