RESEARCH DESIGN FOR A PERMANENT EVENT-BASED CASE WEIGHTING SYSTEM FOR THE FEDERAL JUDICIARY

by

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AUTHOR'S NOTE

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Naturally, the responsibility for any errors is mine.

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TABLE OF CONTENTS

TABLE OF FIGURES

I INTRODUCTION

This report, funded by the Federal Judicial Center, contains a research design for a permanent event-based case weighting system, for possible use by the Administrative Office of the U.S. Courts in determining the weighted caseload of each of the 95 federal judicial districts. The design reflects the theoretical and empirical case weighting work that has been done by the Center and others over the past several years. In particular, the findings of the study on the feasibility of case weighting (Dungworth et al, 1978), though not re-iterated here, have played an important role. In addition, the Center's work on the 1969-70 and 1979 District Court Time Studies has been influential.

Other research that was useful was the study of U.S. Attorney's Offices funded in 1979 by the Department of Justice (Dungworth and Hausner, 1979). Though the focus of that work was on attorneys rather than judges, the methodological problems encountered were similar to those faced here. Also consulted, but somewhat less useful due to differences in methodology and/or focus, were several case weighting studies pertaining to State level court systems -- Washington (National Center for State Courts, 1977), California (Administrative Office of the Courts, 1977), Pennsylvania (Administrative Office of the Courts, 1977), and Kentucky (Arthur Young and Company, 1976).

Because this report focuses on event-based case weighting, it has not been deemed necessary to reproduce the ideas and arguments contained in these other works. However, the event-oriented design is indebted to them, and a familiarity with them would provide a much broader perspective on case

weighting in general than given here. Therefore, they are strongly recommended to the reader of this report. Nevertheless, the research design set forth below is self-contained, and understanding of it does not in our view depend upon a knowledge of the contents of any of these earlier works.

The report is organized as follows. In Section II, the general logic of the event based approach to case weighting is discussed. This is intended to provide a conceptual and theoretical frame of reference for the reader not familiar with the ideas involved. Section III expands upon this, by considering in more detail the implications for the case weighting system of different levels of time reporting. Also examined are procedures for updating and revising the weights once the initial system has gone into effect. Section IV contains the specifics of the design. A detailed plan for collection and validation of data is presented. This includes data collection instruments for the judge time survey and for the case information that is needed. The way in which existing information, maintained on data tapes by the Administrative Office, is to be utilized is documented. Flowcharts for processing the data and getting them to the point where they can be used to calculate weights are then provided.

Section V covers the actual calculation of the case weights. There are three different types of event-based weight formulas, each associated with a different level of judge time reporting. The three levels are:

1. Judges report only docketed case events.
2. Judges report all case events, docketed or not.
3. Judges report all time, case related or not.

The recommendation is made in the report that level 3--all judge time--be utilized, but in the event the recommendation is not accepted, the formulas and procedures for calculating weights at the other levels are given in equivalent detail.

Finally, in Section VI, there is a timetable and schedule of task hours. These are based upon level 3 reporting, and therefore, if one of the other levels should be chosen, some savings would be likely. However, these would be small.

II THE LOGIC OF EVENT-BASED CASE WEIGHTS

The basic premise of the event based approach to case weighting is that the judge time needed to process the average case can be estimated from the knowledge of three factors:

1. The types of events that occur in the life of a case.
2. The average number of events of each type that will occur.
3. The average time expended on the activities associated with those events.

The events may be bench related or may take place in chambers. Examples of the former are trials, motions hearings, dispositions hearings, and so on. The latter consists of such things as opinion writing, review of testimony, case related legal research, etc. The general argument is then that if estimates can be made of the number and type of these activities and the time they take, then the total judge time needed for the case can also be produced. This time is the workload or the weight of that type of case.

Getting to the point where these ideas can be translated into actual numbers involves the examination of a relatively large number of cases so that reliable averages for event frequency and times can be calculated. It would not be satisfactory to take one or two cases of a given type, to make estimates based upon the occurrence of events in those two cases, and then to apply these estimates to all cases of that type. If the two cases were not typical the results would be biased accordingly. What is necessary is to get a sufficiently large number of cases of the particular type in order that the variation in frequency and type of events per case can be reliably reflected.

A similar procedure has to be followed with respect to judge time.

Again, there will be variation from case to case, even among cases of the same type, in the amount of judge time expended on any given event. Given a large number of cases, however, the average judge time per event can be reliably estimated, and can therefore become a component in the overall calculation.

The way the calculation is made is as follows. Let us say we are dealing, for purposes of illustration, with criminal cases of one type only. Through analysis of case records and observation of judge time, we determine that cases of this type consist on the average of the events listed in the following table, and the times associated with them.

(1) EVENT	(2) FREQUENCY	(3) AVERAGE JUDGE TIME (HOURS)	(4) TOTAL AVERAGE TIME PER CASE (2) X (3)
Arraignment	1.1	.2	.22
Omnibus Hrg	.3	.7	.21
Plea Hearing	.4	.4	.16
Bench Trial	.4	3.5	1.4
Jury Trial	.2	5.5	1.1
Post-Trial Motion Hrg	.6	.8	.48
Disposition Hrg	1.2	.5	.60
	TOTAL Average Hours per Case		4.17

Note: These figures are not intended to be true estimates of the frequencies or times associated with these particular events, nor are the events necessarily an exhaustive list.

The numbers in the table can be interpreted in the following way. There are slightly more than one arraignment per case (1.1 in the illustration). This is because some multiple defendant cases have separate arraignments for

each defendant. The average arraignment consumes .2 judge hours. We assume for purposes of illustration that judges take these arraignments, though many of them are in fact handled by magistrates. When these two numbers are multiplied together they provide an estimate of the judge time needed for arraignments on the average (.22 hours).

Moving down the list of events, Bench Trials are assumed to occur at a rate of .4 per case, or four times out of ten. Jury trials are assumed to occur two times out of ten (.2 on the average). That both Bench and Jury Trials are listed in the event profile does not mean that both necessarily occur in the average case, though there are instances in which both will occur (Bench Trial followed by Appeal followed by Jury Trial; or Bench Trial for one defendant and Jury Trial for another). When multiplied by the average judge time expended on these events, estimates of 1.4 hours and 1.1 hours are produced for the average case.

As depicted in the table, the procedure is to multiply the average frequency of each type of event by the average judge hours the event is expected to require. This is done for all events and then summed. The result is an estimate of the total judge time needed to process the average case of this particular type. If there are--let us say--one hundred cases of this particular type predicted for the budget period under consideration, we would estimate that one hundred multiplied by the total judge time per case will produce the total number of judge hours needed to process all cases of this type during that budget period.

In a more formal fashion, the procedure can be stated as follows:

$$W_i = \sum_j (T.F)_j$$

Where: W_i = Weight for Case Type (i)

T_j = Average Judge Time Spent on Activity (j) in Cases of Type (i)

F_j = Average Frequency of Activities of Type (j) in Cases of Type (i)

Translating individual weights into a weighted caseload can then be done in the manner currently used by the Administrative Office of the U.S. Courts:

$$WF_i = W_i.N_i$$

Where: WF_i = Weighted Number of Filings for Case Type

N_i = Number of Cases of Type (i) Filed in the Most Recent Fiscal Year

Summing WF_i across all case types for a particular district provides a statement of the total weighted caseload for that district.

This weighted case load differs from that which is produced by either the Clark method or the 1969-70 method since it is in fact an estimate of the total judicial hours that will be spent on case related work in a particular district. The weighted case load produced by these other studies is not a number of hours needed, but is rather a relative number which has little or no intrinsic meaning. That is, if the weighted case load by earlier methods in one district was one thousand, while the weighted case load in another district was two thousand, then the latter would be considered twice as demanding as the former, but the total number of judges needed would not be derivable from the figures. In the event based method, a weighted case load of two thousand would suggest that two thousand judicial hours were needed to process the estimated caseload. Of course, the event based weight could also be used in a manner identical to applications

of the earlier weights, thus producing similar results. In other words, an event based system produced in the fashion described in this illustration would permit both the calculation of absolute judge hours needed, and a statement of relative weighted caseload. The precise manner in which the calculations would be made requires further elaboration, and this is undertaken in Section V of this design. We now proceed to a discussion of two issues of particular importance in an event-based weighting system--the scope of judge time reporting in the initial survey, and the potential for updating and revising the system without repeated surveys.

III SPECIFIC ISSUES

Having provided a description of the logic of event-based case weighting, we now wish to consider three specific issues in more detail. The first of these concerns the scope of the judge time reports; the second focuses upon the need to establish correspondence between case related activities reported by judges and events posted to docket sheets; the third sets forth procedures for updating and revising the weights. For all three issues the discussion is intended to pave the way for the more detailed design documentation in Section IV.

A. THE SCOPE OF JUDGE TIME REPORTS

As in the Clark and 1969-70 approaches to case weighting, the event-based strategy requires a survey of judge activities. For a period of approximately 90 days, judges will be asked to report, in diary fashion, the activities they engage in and the time the activities take. The issue we address here is how extensive the survey should be. We first look at case specific activities and then move to non-case related work.

1. Docketed and Undocketed Case Events

The most immediate problem in the design of an event-based case weighting method is to define the concept 'event'. Judges engage in a variety of activities, each of which has different relevance to the case being processed and, from a statistical reporting point of view, a different status in the court's record-keeping systems. The mandate of the Clerk of the Court to keep a formal docket for each case does not encompass all of the judge's work. Non-bench activities, for instance, are not likely to be included on the docket sheet unless they have a formal bearing on the

case. Nevertheless they require judge time, and constitute a component of the demand placed by a particular case upon the judge.

The crux of the reporting issue is whether or not these undocketed and formally unrecorded activities are relevant to the calculation of a case weight based on events. In this regard, several things should be pointed out.

First, if judge time expended on undocketed activities is excluded from the calculation of the event-based weight, then that weight will not be an estimate of the total judicial time needed to process that case. It will be an estimate of the time needed to handle docketable events, but this will not be sufficient to estimate, for instance, the total number of judgeships needed to handle the caseload of a particular district. Therefore, if undocketed events and activities were excluded from the event-based weight, the statements made earlier about the usefulness of the weight in estimating total judge time would have to be modified. As a result, though the data could be used to calculate a weight similar in meaning and utility to the Clark weight and the 1969-70 weight, they could not be extended beyond that point.

What we recommend, and what we incorporate into this design, is that the total time expended by judges on cases during the study be included in the time reports. Doing this would add little to the cost of the study, and would establish the opportunity of utilizing the time data in a way that--in our view--would lead to significantly different weights. Of course, the capability of producing relative weights will be preserved. On the negative side, the strategy would tend to impose a larger reporting burden on the judges involved in the study. However, we do not believe the increase would be great, and we anticipate that the value of the additional information would more than offset the inconvenience.

2. The Incorporation of Non-Case Time

Another issue that is relevant to the consideration of the number of judgeships needed in a particular district is the amount of non-case-related time in which judges are involved. This includes such things as: administration; keeping current with legal journals and doing research that does not necessarily focus on a specific case; vacations, and so forth. Involvement in these kinds of activities is a necessary part of a judge's role. As a result, if ten thousand judge hours were needed for case related activity in a particular district, it would not be appropriate to allocate 10,000 hours of judge time to that district, and expect the case load to be handled satisfactorily. The other non-case related matters would still have to be taken care of and the demand they made would clearly have to come out of the 10,000 hours. A preferable strategy would be to estimate the non-case related time that on the average is needed per judgeship and to incorporate this into the calculations of judge hours needed in a particular district.

In order to accomplish this, we recommend that non-case time as well as case time be included in the judge time reports. Again, this will mean a somewhat larger reporting burden for judges, but the payoff justifies this cost in our view.

B. ESTABLISHING CORRESPONDENCE BETWEEN CASE RELATED JUDGE ACTIVITIES AND DOCKET SHEET ENTRIES

The success of the event based system is dependent upon the link between the activities and events the judge reports and the frequency of those events in the life of the average case. This link has to be made in two separate ways:

- between the time data and case data for the cases on which the judge works during the study.

- between the type of events and activities in the time data and the events and activities on the docket sheets of terminated cases.

The first link is necessary because it is impossible to be certain from an examination of the time sheets alone whether or not multiple entries for the same type of event in the same case are in fact for one or more events. It is possible for instance, in the case of a motion hearing, for more than one entry to be made by the judge if the hearing begins on one day and is continued to another. The docket sheet entries for this same motion will similarly indicate that it was spread across two calendar dates, and will therefore be possible to add together the two judge time reports in order to establish the correct time expended on this single motion. Had the two judge time reports on the other hand been for two separate motions, this would also have shown up on the docket sheet entries and would have allowed correct allocation of the time reports. If this kind of verification were not done, the average event times would be distorted.

The second link--between the time study data and the frequency of events derived from terminated cases--is of course necessary for the calculation of the case weights. The event based approach requires a knowledge of the average frequency of a particular event as well as the average time.

The consequence of the requirement that these connections be made is that the event and activity structure used in coding the time data has to correspond as closely as possible to that used in coding the case data. Failure to achieve this correspondence means that the basic formula for calculating the weights would produce an inaccurate result. A problem arises here however because not all case related judge activities are posted to docket sheets. Activities in chambers, such as motion-related research, trial preparation, opinion writing and so on, do not in and of themselves

have to be docketed. Therefore, there is no way of counting the frequency of these kinds of activities separate from the time data. In the remainder of this section we discuss how to address the problem.

The activities the judge reports on the time sheet can be divided into three categories for purposes of the questions raised in this section. These are as follows:

1. Case events that are docketed.
2. Case related activities that are not docketed, but which can be attributed to a docketed event.
3. Case activities which are not docketed and can not be attributed to a docketed event.

The first category is straightforward. These consist of all court events such as arraignments, motions, hearings, trials and so on. Since these are all docketed, they can all easily be counted and correspondence between the time reports and the case data can be easily established.

The second group is less straightforward but can nevertheless be handled in a similar fashion. These kinds of activities include such things as motion related research, preparation of jury charges, preparation for trial and so on. These can be viewed as a direct consequence of the docketed event with which they are associated. In the case of motions research for instance, the time reported by the judge on this activity can be attributed to the docketed case event--the motion--which causes the activity to take place. If there has been a hearing on the motion, as well as research conducted by the judge in chambers , then the time reports for these could be added together to obtain the total time expended on that particular motion. When this is done for all motions, an average per motion can be established. The same procedure works for other case related activities that are tied to docketed events, such as preparation of jury

charges, trial preparation, and so on.

The third group is the most problematic since there is no docket event to which the activity can be linked. An illustration of such an activity would be the reviewing of a case file for purposes of refamiliarization with a relatively inactive case. There would be no way to establish frequency of such an activity from either the docket sheet or any other record relating to the case. Consequently, the event based approach to incorporating this activity into the weight would not work in the manner that is used for docketed activities. However, this time can still be included by the following strategy. The sum of such time can be calculated for each case on which time is reported and can be averaged across all cases of the same type. This average can then be incorporated into the weight, by adding it to the average time that is calculated on the basis of the category 1 and 2 events.

Before the addition is made, adjustments have to be made to compensate for the fact that this time is subject to the window problem. That is, the time reported is, in most instances, less than the total time expended on category 3 activities over the life of the case. In the absence of a known average frequency of occurrence, this difficulty cannot be overcome by the event based approach. It is therefore necessary to employ an alternative method. We recommend the approach developed by Gillespie in a commentary on the 1969-70 District Court Time Study. This method involves adjusting the observed time by a factor based on the average life of cases of the particular type combined with the length of the time survey. An analysis of the adjustment was made in the previously cited work--Assessing the Feasibility of Case Weighting as a Method of Determining Judicial Workload.

The method of applying the adjustment factor is described in Section V.

C. UPDATING THE CASE WEIGHTS

An event based case weighting system is like those produced in 1969-70, in that it is a reflection of the workload situation in a circumscribed period of time. The case weights produced by such studies are a description of what took place during the period of observation, and can only be considered a valid prediction of future workload if we make the assumption that the future will be like the period observed. In the short run, this seems to be a reasonable view. We can expect, for instance, that in FY80 the expenditure of judicial time on the federal case load will be comparable to that observed in the FJC time study conducted during the first three months of calendar 1979. The further from the period of observation we move, however, the less confidence we are likely to have about the applicability of the data we have developed.

It would be useful in this situation to have a way of revising and updating case weights in accordance with changes in judicial processing that may have taken place since the original time study observations were made. However, if the only information that is available is the time judges expended on each type of case, then revision of weights is difficult, if not impossible, unless new time study observations are made. The latter, however, are not an attractive proposition since frequent time studies will be likely to aggravate and exhaust the judiciary, and lead to declining utility of case weighting as an aid in judgeship allocations. If, on the other hand, it is possible to identify the factors that determine the amount of judge time that is spent on cases, and to

examine the occurrence of these factors over time, then the likely effect on workload can be estimated, thereby leading to a revision of the weights without placing repeated time-reporting burdens on the judiciary.

The event based methodology of case weighting provides such an opportunity. The argument being made is that the workload of a case is determined by the events and activities in which the judge engages. If, for instance, motions are frequent in one particular type of case, whereas in another type of case they are not, then the former is likely to be a more demanding case type than the latter, other things being equal. In this situation, if the frequency of these motions can be reliably measured, then a change in their occurrence can be used to adjust the estimate of judge time needed for that particular type of case. Change in the estimate can be fairly precise if a reliable average time for the event has been established. Since this is precisely the objective of the event based case weighting strategy, it has the potential of providing an updating procedure that has been absent from earlier case weighting systems.

1. Updating the Frequency of Events

The specifics of the way this would work are as follows. During the period of study, average times for all event types are calculated along with the average frequency of occurrence of those events for each particular type of case. These are the description of the workload situation at the time the study took place. At a subsequent point, the frequency of events can be re-estimated by an examination of docket sheets (as per the procedure outlined in the section below on data base development). Let us say that three years after the event based time study was conducted, Clerks of the Courts are requested to photocopy docket sheets

in the same manner as described in this design, and that these are then processed by computer in order to recalculate the average frequency of events by case type. These averages are then compared to the averages calculated during the original study. A change in the average for a particular event implies a corresponding change in the amount of judge time needed to process that case type. Incorporating these new figures into the calculation of the case weight will lead to a revision that will reflect the changed situation.

The only activities for which this procedure will not work are those that cannot be associated with a docket entry. As discussed in the previous subsection, no frequency of occurrence can be estimated for these, and so no update based on a change in frequency can be produced.

Whether this is a serious or a minor handicap will depend first upon the proportion of total judge time that this category of activity constitutes, and then upon the change in this proportion between the first and second time studies. It is difficult at this point to make confident empirical assessments of either of these questions since no current data exist. However, the proportion could be calculated as soon as the time survey data had been processed. If it turned out to be small, which seems likely, then changes would not in any case have much impact on the overall case weights, unless the changes were extraordinarily large. Consequently, the best strategy for dealing with the problem is in our opinion to assume no change in the frequency of occurrence of activities not associated with any docketed event, and to assess the risk of doing this after completion of the first time study. If the risk is high (either such time is a large proportion of the total, or very large changes are anticipated, or both), then a sample of judges could be polled in order to develop a consensus about the magnitude of the change.

This consensus could then be built into the weight. If, on the other hand, the risk is low, which we think most likely, then the assumption of no change can be allowed to stand.

2. Updating the Judge Time Data

The above is only a partial revision of the case weighting system. There are two primary components: judge time and event frequency. The strategy outlined above focuses on event frequency, but has nothing to say about judge time. The relevant question here is how often measurements of the expenditure of judge time would have to be taken in order for the averages to continue to be reliable. At present this interval is unknown. We suggest that a second time study be conducted five years after the completion of the first. Averages will be calculated in the same manner for the second study as for the first, and the two will be compared. If significant differences are found, suggesting that the work load represented by the events has changed, then a new time study may be warranted at least every five years. If on the other hand changes in the averages are insignificant, then a third time study for updating could be conducted after--let us say--an additional ten years, and the evaluation procedure could be repeated. In other words, the precise intervals between time studies will have to be calculated to a certain extent on a trial and error basis, since there are no reliable comparative statistics to serve as a guide. It seems certain that further time studies will be necessary, but they are likely to be less frequent using an event-based approach than if Clark weights or 1969-70 weights are used.

IV THE SPECIFICS OF THE DESIGN

The previous two sections of this report have focused upon the general methodology of the event-based case weighting process, exploring what we believe to be the advantages of the event-based approach over the Clark method, or the 1969-70 method. In this section we move to the specifics of the research design that must be executed in order for event-based weights to be calculated. We first present an over-view of the major steps of the design, with the intent that this will provide a frame of reference for what follows. These steps are broken down into eight specific tasks. The manner in which the data base is to be produced is then discussed in detail. In Section V, the use of the data for the calculation of case weights will be described.

A. AN OVERVIEW OF THE RESEARCH DESIGN

There are three primary data components in the design. The first is the judge time survey; the second is the case data relating to the specific cases reported by the judges; and the third is case data derived from terminated cases. The first two components are used to produce the average event times for each case type, while the third is used to produce the average event frequencies. These two are then combined to associate average time with average frequency for the same type of events, thus permitting the calculation of case weights by multiplying the average event time by the average event frequency for each event, and then summing across all events for a particular case type. To this is added the adjusted average time per case for activities not associated with any docketed event.

A schematic of the major steps involved in this process is presented

in Figure IV-1. These steps translate into specific tasks in accordance with the following list:

Task I Survey Judges To Obtain Time Data

A. Sample of Judges

B. Pretest of Survey Instrument

C. Collect Data on Event and Activity Times

D. Produce Cleaned, Edited Computer Files for Judge Time Data

Task II Collect Current Case Data For Cases Reported By Judges

A. Identify Cases From Judge Time Reports and Request Copies of Docket Sheets From Clerks

B. Produce Cleaned, Edited Computer Files For Current Cases

Task III Match and Merge Judge Time Data With Current Case Data

Task IV Calculate Average Event Times By Casetype From the Merged Data Produced By Task III

A. Associate Judge Time Reports For Each Activity With the Appropriate Event From the Docket Sheet

B. For Each Event Type, Aggregate the Time Associated With the Event in IV(A) and Divide by the N of Those Events to Obtain the Average Time.

C. For Time Not Associated With a Particular Docketed Event, Aggregate by Activity Type, and then Divide by the Number of Cases to Obtain an Average of Such Time by Case. Adjust These Averages by Application of the Gillespie Adjustment.

Task V Develop Average Event Frequencies

A. Sample Terminated Cases, Proportionately Stratified by District and Case Type, and Request Copies of Docket Sheets From Clerks

B. Produce Cleaned, Edited Computer Files For Terminated Cases

Task VI Calculate Average Frequencies of Events by Case Type

Task VII Produce Case Weights

A. Event Based Weights

B. Clark Weights

C. 1969-70 Weights

D. Compare and Contrast the Weights Produced by the Three Methods

Task VIII Final Report

The steps in the list we have just completed can be keyed to Figure IV-1 by task number. The project consists of three general paths, each corresponding to the development of a particular data base--judge time data, current case data and terminated case data. These paths commence with Task I, Task II, and Task V respectively. Task III draws together the judge time data (I), and corresponding case data (II), in order that average event times by case type can be calculated in Task IV. These average times are then associated with the average event frequencies which were produced by Task VI, and in Task VII are used to calculate the estimated judge hours per case. From this case weights are constructed. Finally, in Task VIII, a report on the process, including case weights and weighted caseloads by district, will be produced.

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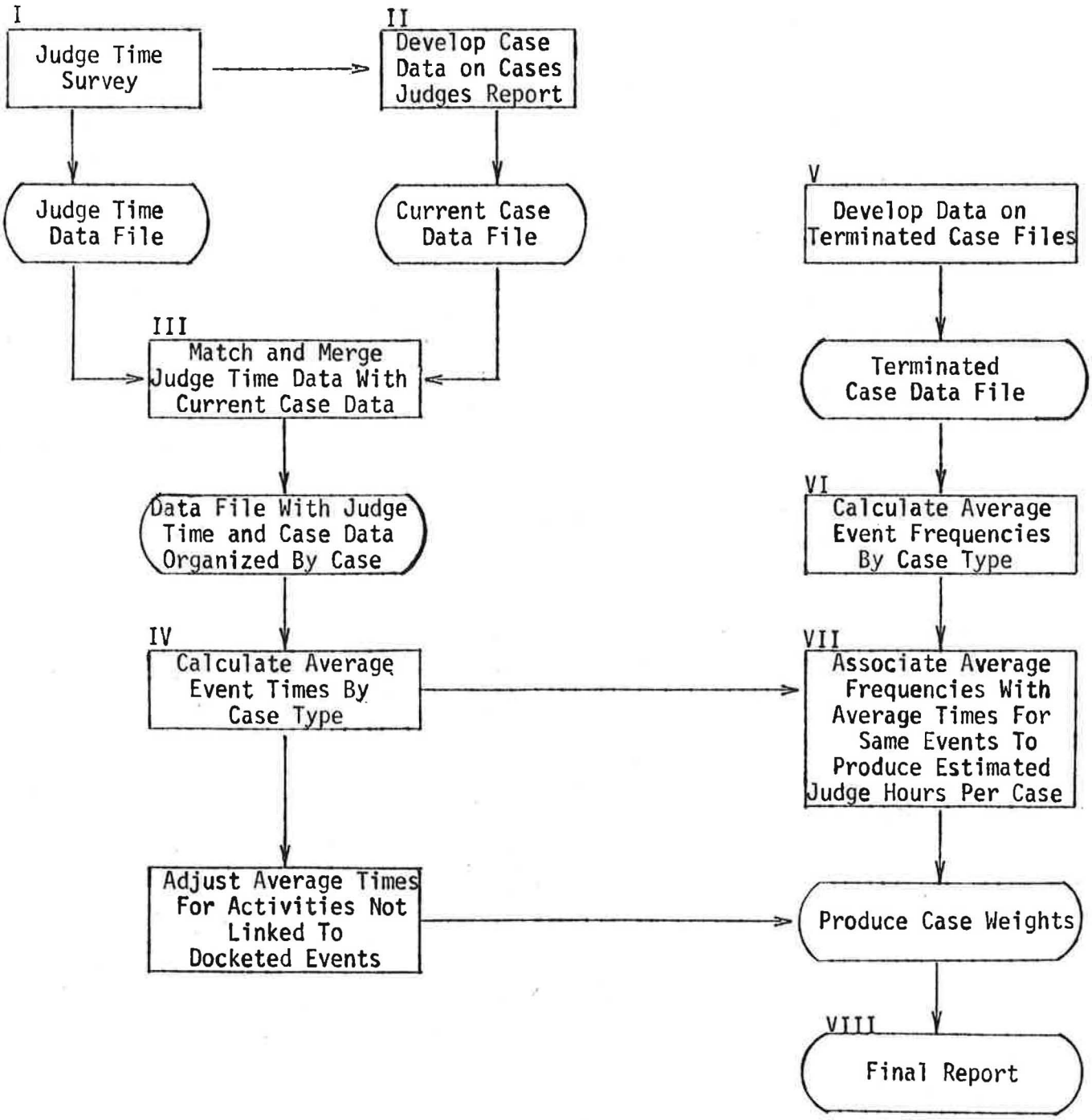
FIGURE IV-1 MAJOR STEPS IN THE CASE WEIGHTING PROCESS



B. DEVELOPMENT OF THE DATA BASE

The discussion is divided into three parts. The first addresses the specific data elements that are to be produced, the sources that can provide them, and how they are to be collected; the second provides a statement of the scope of the data collection phase with respect to the number of judges involved, the number of districts, and how many cases should be included. The third contains a design for processing judge time reports and linking time data with case data.

Before proceeding with the discussion, we want to reiterate some general issues relating to the data collection strategy. Previously we have discussed in some detail the approaches that can be taken to the collection of data for case weighting purposes. We have pointed out that in general there are two strategies. One of these involves the tracking of individual cases from filing to termination, capturing along the way all events and activities that occur and all time that is expended. This approach avoids what has come to be known as the 'window problem', but it requires a study of exceptional length, since each case that is included in the study must be followed to termination, and this can sometimes be a period of several years. For this reason, we judged this approach to be impractical, a view which is consistent with prior studies done by the Federal Judicial Center. Instead, we adopt a fixed period of 90 - 120 days for the study period, with judge time and case events being observed during this period in the manner suggested in the following sections. This is a more manageable strategy than longitudinal case tracking, and offers an opportunity to bring the study to a conclusion within a reasonable period of time.

The fixed period approach does introduce certain complications,

however. One of these is that many of the cases on which judges report time are of necessity still active at the time the data collection phase ends. Therefore, these cases cannot be the basis for the calculation of the average number of events that occur in the complete life of a case. As a consequence, an entirely different set of cases is needed, drawn from those that have terminated by the time the project commences. Average frequency calculations will be based on this set. This increases the volume of data processing that is required, but it introduces no conceptual difficulties as long as we are willing to accept that the period from which the terminated cases are drawn is comparable to the period from which the judge time reports are made. A satisfactory correspondence can be established here by using current termination data from the Administrative Office of the U.S. Courts as the basis for the selection.

Another important difference between a fixed period study of the sort proposed in this design and an open ended study which follows individual cases to termination is that the former is in principal subject to the window problem, whereas the latter is not. That is, for any given case on which judges report time during the study, there is likely to be other time expended before the study began or after it ended. However, the event based approach minimizes the problem resulting from this effect. This is because it is possible, by matching judge time records with specific case information, to identify those events which were completely contained within the study period. It is then possible to put together a picture of the average case by computing a frequency of events from the terminated cases and by applying the average times from the study to the frequencies from the terminated cases. As long as the frequency counts

are accurate, and reliable averages are computed for time expended on them, no adjustments are needed to compensate for the window problem, except--as discussed above in Section III (b)--to time reported on activities that cannot be associated with a docketed case event.

We now proceed to a discussion of the three aspects of the development of the data base.

1. Data Sources

As described above, two kinds of data are needed. The first is the time expended by judges on events and activities, and the second is the number and types of activities associated with each case. In this design, the former is derived from the judges themselves; the latter is derived from either docket sheets or automated records, if available.

a. Judge Time Records. The procedure we recommend for collecting judge time data parallels that used in earlier FJC studies. Judges will be requested to maintain a diary style record of all activities--bench and nonbench, case-related and non-case-related--for a period of at least 90 days. The judges who participate in the study will be supplied preprinted forms on which the record should be made. These forms will require five basic pieces of information. The first is whether the case is civil, criminal, bankruptcy or other; the second is the name of the case; the third is the case number; the fourth is the type of activity or event in which the judge is engaged; and the fifth is the amount of time expended. The preprinted forms will contain identifiers for the judge and the district, and space will be provided for the date on which the report is made. These data elements are the minimum necessary to allow the time reports to be matched with case data from AO records.

Because of the obvious difficulties in reconstructing a day's activities in the detail needed for this design, it will be recommended that judges maintain this record in an ongoing fashion during the working day. This will undoubtedly be a burden, but the validity of the information being recorded will be greatly enhanced.

Forms filled out by the judges will be of variable length. On some days a judge may be in trial for the full working day. There is then likely to be only one entry on the form for that day. On other days, a judge may be involved in large numbers of cases for calendaring or for sentencing, and in these instances the number of entries is likely to be substantial.

Provision will be made on the forms to report non-case related time as well as case related time. Whether in fact non-case related time should be reported is to some degree a matter of jdugement. The reporting burden on judges will be reduced if non-case time does not have to be included. On the other hand, reporting non-case time gives judges an opportunity to more accurately depict the nature of their working day. It also allows a comparison of the distribution of judge time between case related work and other work. For further discussion of this issue, see Sections II and III above, and V below. At the very least, we recommend that the total amount of non-case time be reported, even if it is not broken down into different activities.

A copy of a prototype time form is included as Figure IV-2. Before utilization of the form in the study, evaluation and pretesting are necessary. These will be conducted as part of Task I-B, and will involve two steps. First the forms should be reviewed by individuals familiar with the typical working day of federal judges. The Sub-committee on Statistics would be a

FIGURE IV-2

PROTOTYPE
JUDGE TIME FORM
FOR EVENT BASED CASEWEIGHTS PROJECT

JUDGE (PREPRINTED)

DISTRICT (PREPRINTED)

DATE __/__/__
M M D D Y Y

OFFICE (PREPRINTED)

DOCKET TYPE

1. Criminal
2. Civil
3. Bankruptcy
4. Other

ACTIVITY

CASE RELATED

Court

01. Arraignment
02. Pleas
03. Omnibus Hearing
04. Motion Hearing
05. Pre-Trial Hearing
06. Calendaring
07. Non-Jury Trial
08. Jury Trial
09. Sentencing
10. Other

Chambers

11. Motion Research
12. Pre-Trial Conference
13. Legal Research
    Writing Opinions/Orders
14. Preparation Jury Charges
15. Preparation for Trial
16. Preparation for Hearing
17. Other

NON-CASE RELATED

21. Administration
22. General Legal Research and Writing
23. Ex Officio
24. Other

	DOCKET NUMBER	DOCKET TYPE	SHORT CASE NAME	ACTIVITY	TIME EXPENDED HRS MIN
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
0.					
1.					
2.					
3.					
/					
5.					
6.					

natural group to do this. Second, after this review has taken place and any necessary adjustments have been made, the forms should be pretested by distribution to a number of judges who will not be participants in the time survey, but who are selected either by the Sub-committee or by the Federal Judicial Center for their experience and understanding of the role of the federal judge. We recommend that ten judges be selected for this pretest, and that the test be conducted for at least one week. The test would proceed in exactly the same way as the time survey itself. That is to say the judges will be supplied preprinted forms, and will be requested to fill these out in the same manner as participating judges. They would also be requested to comment upon the forms and to make suggestions for their amendment and improvement. Incorporation of these suggestions should be possible without the necessity of a second test, unless problems with the forms are extensive. We do not anticipate however that this will be so, since this type of form has been used in similar situations in the past without difficulty.

The review of the forms by the Sub-committee, and the subsequent pretest should focus upon three primary questions:

1. Is the list of events and activities on the form a satisfactory representation of the judges working day?

   The events listed on the prototype form have been drawn from docket sheets reviewed prior to the development of this design, but these sheets are from a limited number of sites and may not encompass the scope and terminology of all District Courts. Therefore, adjustments will probably be necessary. Ideally, all the activities in which judges typically engage should correspond to one of the activites on the list. If an activity which occurs frequently is not already included then it should be added. This is especially important for events and activities that are docketed, and activities that--though not docketed themselves--are stimulated by the docketed event. The category 'Other' should be used infrequently because it will be extremely difficult if not impossible to count events in the docket sheets that correspond to judge activities coded 'Other'.

2. Can the form be completed without undue burden on the responding judge?

The review should consider whether the number of events listed on the form are excessive. If so, aggregations can be developed based on the responses of the pre-test judges. For the reasons stated in the discussion of Question 1, aggregations should not be classified as 'Other', but should retain nomenclature which permits counting from docket sheet entries. For example - 'All hearings' would be a possible aggregation for 'Motion hearing', 'Plea hearing', and 'Disposition hearing'. Of course, this is not a recommendation that such an aggregation be made.

In addition, possible improvements in the layout of the form ought to be addressed. The format of Figure IV-2 was used in the 1979 time study of Assistant U.S. Attorneys and was considered very satisfactory, but changes might be advantageous.

3. Can the appropriate links be made between the activities reported by judges and docket sheet entries for the same cases?

To answer this question, docket sheets for cases reported during the pre-test should be photocopied after all posting for the pre-test period has concluded. The sheets should then be coded on the Case Data Form exhibited below as Figure IV-3. The coding scheme for docket entries is derived directly from the list of activities and events on the Judge Time Form. A comparison of the Time Form entries for each case should then be made with the docket sheet entries for the same period with a view to establishing correspondence between them. The important questions are whether the times reported by judges can be matched with events and activities of the same type, and whether the docket entries for events on the list are all reflected in judge time reports. Given the relatively small number of judges in the pre-test, it should be possible to investigate discrepancies individually with the reporting judge, and to make appropriate adjustments in the forms and/or reporting procedures.

The pretest of the prototype Judge Time Form has implications for the Case Data Form which is discussed next. Correspondence between the events that are to be coded on the Case Data Form and those reported by the judges is necessary for the design to be implemented successfully. Therefore, after the pretest of the Time Form has been completed it will be necessary to incorporate the adjustments in the Case Data coding system.

b. Case Information. There are three potential sources of information about cases that could be used in this study. First is the case

files themselves. Though these contain the most complete record of the case, working with them is on the whole not optimal, since they frequently contain sensitive information, and are logistically difficult to organize from a data collection point of view. The second potential source is the docket sheets that are maintained by Clerks of the Court on each civil and criminal case. The third is automated systems, at present limited to COURTRAN II, which is in operation for criminal cases in twelve districts. In developing this design, we have reviewed docket sheets from twelve courts, and have looked at COURTRAN II records from four courts, and have reached the conclusion that the information needed by the design can be supplied from those sources. Therefore, we do not consider that any work with case files will be necessary.

Information is needed on two categories of cases--those on which the judges work during the study and those terminated prior to commencement of the study. The former are used to develop average event times, the latter to develop average event frequencies. The same coding form will be used for both.

The general strategy will be to request courts participating in the study to photocopy docket sheets specified by the study team and to forward these copies for data processing. The alternative to this would be for project staff to travel to each district to do either the copying or coding on site. Neither of these strategies are desirable however. First, they would require substantial expenditure of funds. Second, control over the coding process would be difficult to achieve. Third, the calendar time needed would be considerable, unless many coding teams were used. All of these problems are minimized by the photocopying procedure. When the data forms are received at the coding site (probably Washington), information relating

to events and activities will be extracted from the docket sheets and will be coded numerically for keypunching. Computer based files will then be created.

For the courts using COURTRAN II, the photocopying procedure is not likely to be necessary for criminal cases. Extracts can be made from the COURTRAN II data base maintained by the Federal Judicial Center, after appropriate authorization has been given by the district courts involved, and this will supply all information needed for this design.

A prototype Case Data Form is included as Figure IV-3. As can be seen, it is a two-part form. The top part is a header record, containing identification information with respect to the district and office, the docket number and case name, the judge and the type of case. The bottom half of the form is a variable length section for the recording of event type and data. For those cases that require more space for the recording of events than is present on this form a supplementary sheet will be provided.

The particular events that will be coded on this form will be determined by the review and pretest of the Judge Time Form. A proposed set of events is listed above in Figure IV-2. The coding procedure would be for a Research Aide to process the docket sheet, identifying the events and activities that correspond to the list, and to enter the numeric code for that particular event and the date of its occurrence on the coding form. The biggest single problem in this process is the variation between the districts in the manner in which the events are recorded on the docket sheet. In some districts there is a clear indication that a particular event has been held. In other districts, the practice is to show the scheduling of the events and the results that

PROTOTYPE

CASE DATA FORM
FOR EVENT BASED CASE WEIGHTS PROJECT

DISTRICT _ _ _

OFFICE _

JUDGE OF RECORD (AT LAST ACTION DATE) _____ NAME (PLEASE PRINT) AO _ _ _

DATE FILED _ _/_ _/_ _
M M D D Y Y

DATE TERMINATED _ _/_ _/_ _
M M D D Y Y

DOCKET # _ _ _ _ _ _ _

DOCKET TYPE _

1. CIVIL
2. CRIMINAL
3. BANKRUPTCY
4. OTHER

CASE NAME _ _ _ _ _ _ _ _ _ _

NATURE OF SUIT (OFFENSE)

_____ AO _ _ _

_____
(PLEASE PRINT)

	EVENT RECORD							
	DATE (MM/DD/YY)	CODE	DATE (MM/DD/YY)	CODE	DATE (MM/DD/YY)	CODE	DATE (MM/DD/YY)	CODE
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								

transpired (e.g. a judicial order, or a ruling on a motion), without actually specifying that the event did occur. What would be necessary for forms of this type is for contact to be made with the clerk of the court or the clerk's representative in order to determine local practice with respect to docket sheet entries. We do not anticipate that this will be an insoluble problem, since standardized practices are used within a given district.

This type of problem does not arise with the automated records maintained in COURTRAN II, since every entry is clearly identified as being for something that was held or not.

2. The Scope Of The Study

Primary issues to decide here are the number of judges to include, the number of districts from which case data should be obtained, and the number of individual cases which should be processed. With respect to judges, we recommend a procedure analogous to that used in the 1979 Time Study. All judges would be eligible for selection, with the exception of senior judges, judges appointed during the eighteen months prior to commencement of the study, and those who participated in the 1979 Time Study.

The first two groups are excluded because they tend to have atypical caseloads. Recusals are more common amongst new judges and they are often assigned unpopular cases. Senior judges, on the other hand, usually have the option of choosing their own cases. Participants in the 1979 study are excluded because of a commitment made to them at that time.

The remaining pool of judges will be ordered by seniority within district, and, beginning with a random start, every Nth judge will be chosen, where N is equal to the number in the pool divided by 100. The result of this process will be a sample equal to approximately 20 per cent

of the total number of Federal judges.

The selected list should be reviewed for reasonableness of distribution. It is important that abnormalities be detected and corrected if necessary. One such abnormality for instance would be the exclusion of a district with--let us say--three judges, while two judges were included from a district that had five. In this situation, the sample would be more representative if one of the five were replaced by one of the three with comparable seniority.

With respect to the number of districts, we believe it would be useful to have case information from every district. There are of course multiple offices in some districts, so the total number of contributing locations would be greater than 95. Nevertheless, since the case weighting system is to be representative of the national picture, we consider it desirable to have as broadly based a picture of cases as possible. Since the work involved in getting case information together will be distributed amongst a larger number of offices, this will reduce the burden that falls on any single office.

As was noted earlier in this report, two kinds of data will be needed. First will be from the cases on which the judges report time during the study. The other will be from a subset of cases terminated in the period immediately preceding commencement of the study. As to the number of cases which should be processed in order to obtain these data, we note the experience of the 1979 Judicial Time Study conducted by the Federal Judicial Center. Based on that study we anticipate that in any given 90 day period, 100 judges will report time expended on approximately 20,000 cases. These will be the basis for one portion of the case data that is developed. For the other--the event profiles of cases terminated--we recommend the selection

of 10,000 cases, stratified by district and case type according to the filing proportions from the fiscal year immediately preceding the study.

3. Processing The Data

This section covers the steps to be taken after data forms are completed but before weights are actually calculated. Flowcharts for the work to be done in editing, matching and merging, and verifying the data are presented, along with codebooks for the working computer files that will be needed. The discussion consists of three parts: organizing and editing judge time records; matching and merging judge time records with current case information; and developing profiles of events for each type of case.

a. Organizing and Editing Judge Time Records There are four steps in this phase of the data processing. They are as follows:

(a) Pre-process time forms and organize for keypunching.

(b) After keypunching, reorganize time forms by judge. Then, group machine records by case and verify that the groupings are correct.

(c) Produce an edited machine file of valid groupings and a separate file for unacceptable groupings.

(d) Produce a working file for use in the match and merge program that links judge time data with case data.

This phase should begin as early in the project as possible, and in any case no later than three weeks after commencement of time and activity reporting by judges. It will be critical to process the time forms at a rate which matches their completion and submission by judges, otherwise this phase is likely to become difficult to manage. A flowchart outlining steps to be carried out is presented as Figure IV-4.

The function of the processing that takes place prior to keypunching is to ensure legibility and standardization of format. The 1979 Time Study highlighted the fact that local practice with respect to case number format

FIGURE IV-4

FLOWCHART FOR ORGANIZING AND EDITING JUDGE TIME RECORDS

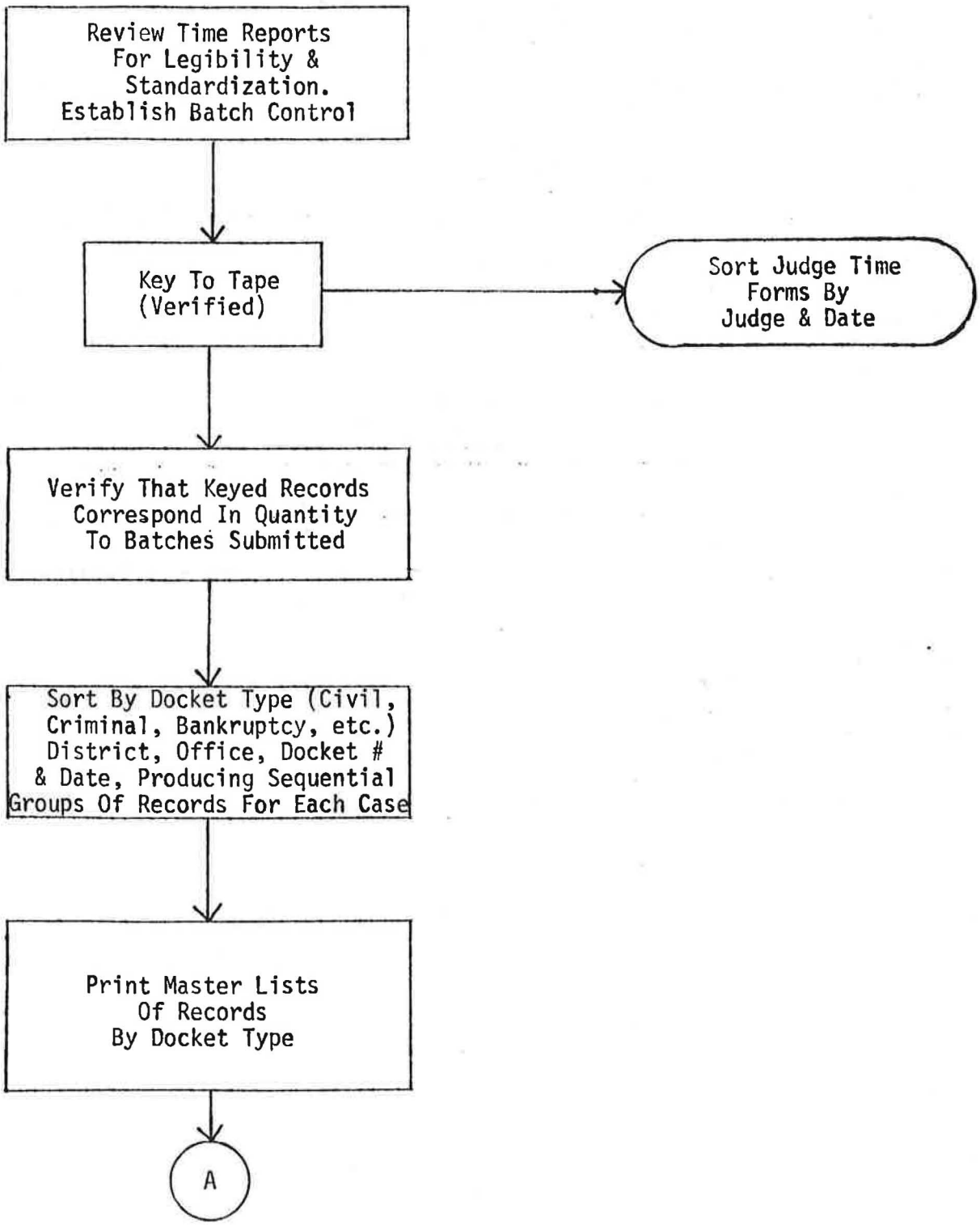


FIGURE IV-4(Contd)

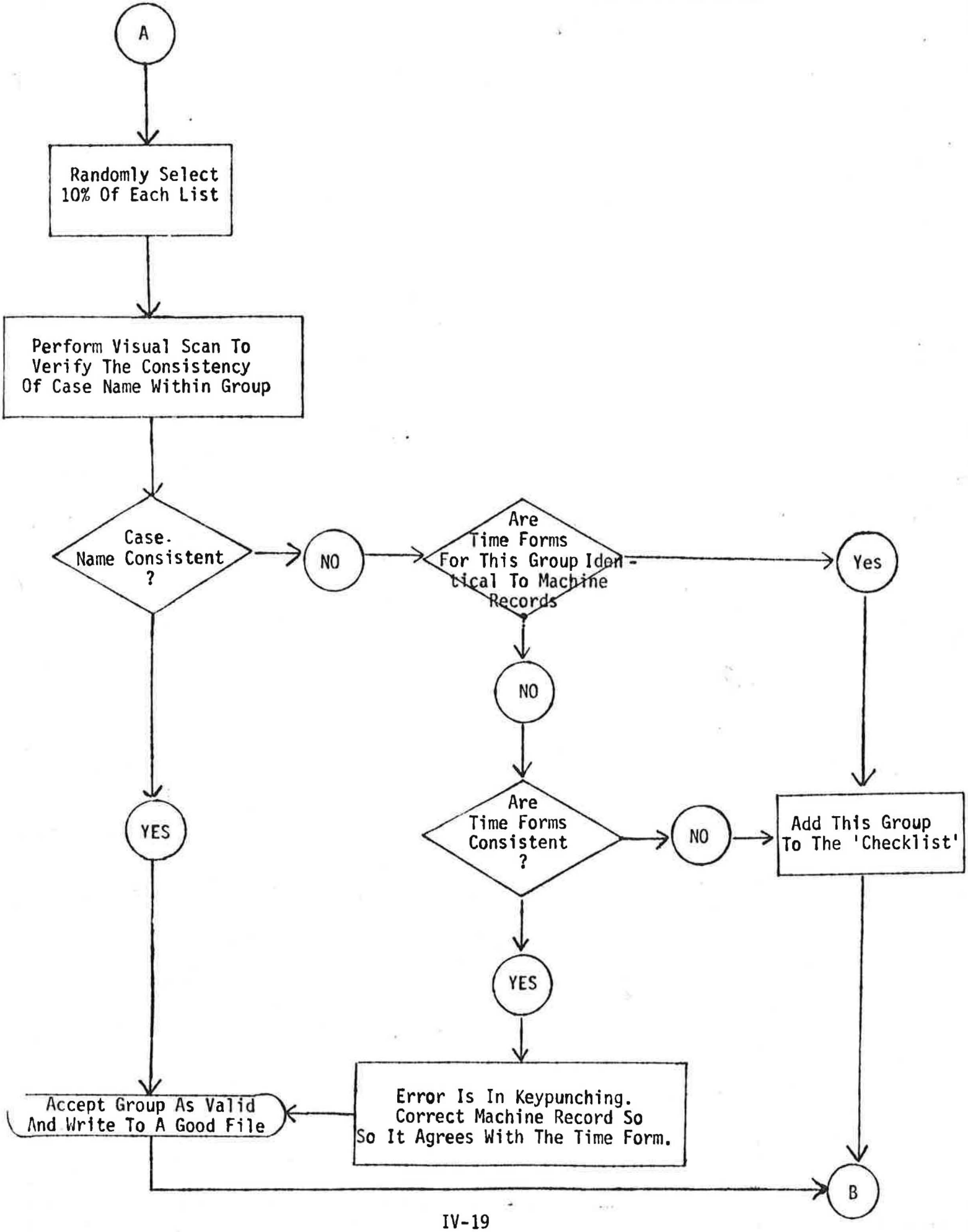
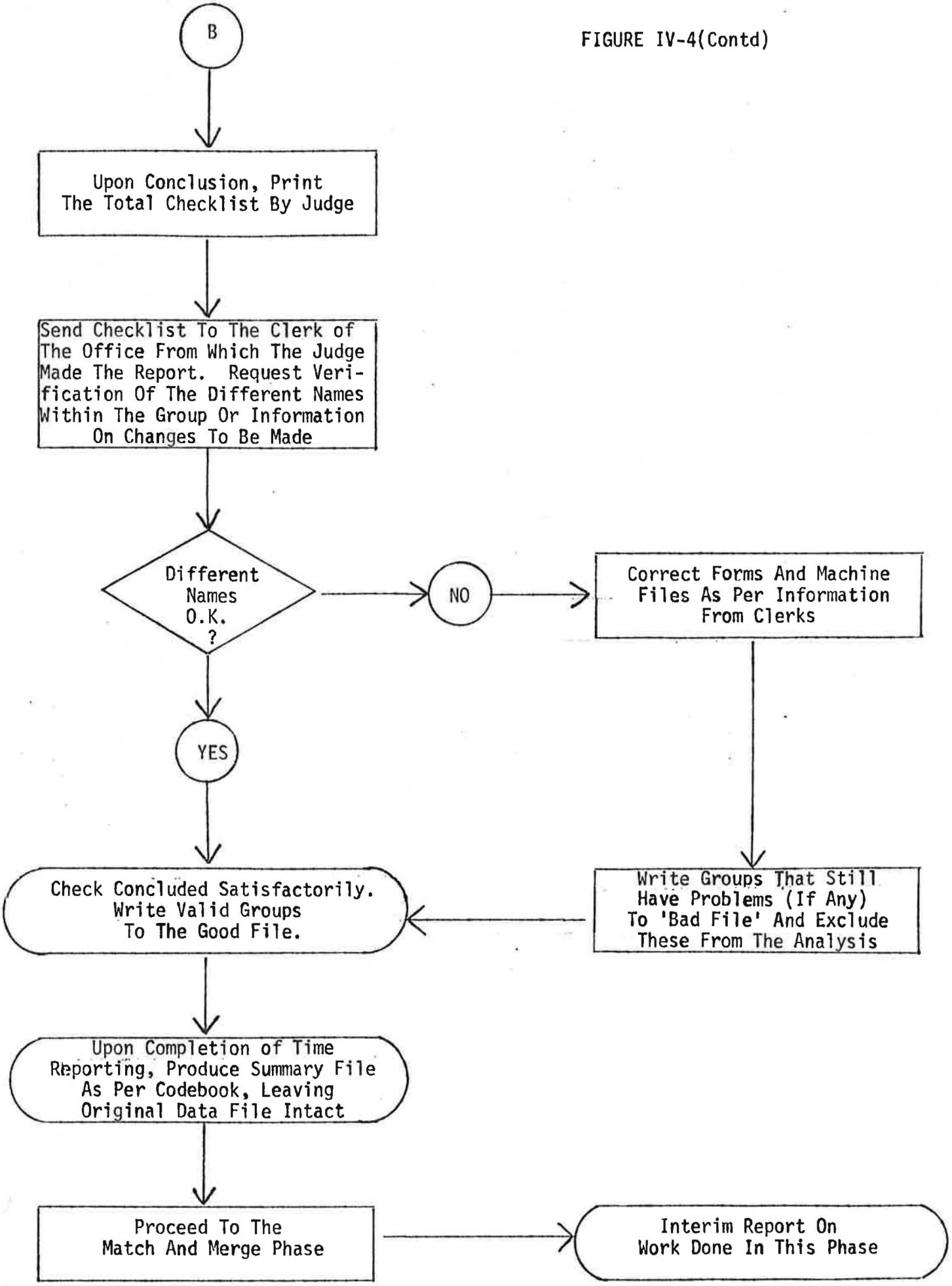


FIGURE IV-4(Contd)



varies substantially from district to district. Alpha characters are frequently added to a case number to indicate an office or a judge within a district. These have to be removed before keypunching because the number has to be matched with a separate record (the case data record) which will not contain them. In general, the case number format should correspond to that used by the Administrative Office of the U.S. Courts--YY-XXXX for civil cases, and YY-XXXXX for criminal and bankruptcy cases. There will be a few older cases with numbers that deviate from this format.

In addition, care must be taken to ensure that multi-district cases are identified. A group of cases filed in separate districts but later combined in one will be given a single MDL (multi-district litigation) case number by the Judicial Panel on Multi-district Litigation. Normally, the district handling the MDL case will report it by the MDL number and not by any of the original case numbers. The latter can be obtained from the MDL Panel. The reason this is necessary is that Administrative Office data tapes do not contain the MDL # and therefore could not be used if for any reason time records have to be matched with the tapes. A master list of MDL numbers and corresponding original case numbers should be maintained. However, it should not be necessary to incorporate the original case numbers into the machine processing phase of this task unless problems arise. The time data, reported by MDL #, is to be matched with case data derived from a docket sheet which is likely to contain the same MDL #, thereby making a machine match feasible. To the extent that this is so, the original case numbers will not be needed for this phase. They will however be needed when weighted caseloads are calculated, since AO records using the original case numbers are to be used to compute the number of filings for each case type. If, let us say, 100 cases of a given type are filed, 75 of which are subsequently com-

P-2 18-30

bined into a single MDL case, the case weight--which will be based on an N of 26 (the 1 MDL case plus the 25 remaining individual cases)--should not be applied to a filing N of 100, but to a filing of 26.

Another major issue that is addressed in this flow chart is how to correctly aggregate reported judge time by case. Since the time survey procedure is for judges to identify each event during the course of a working day and to specify the time spent on it, the total time spent on any given case throughout the 90-day period of the time survey will be spread across a number of different entries. The more active the case, the larger the number of entries. In order to produce the average time for each event it is therefore necessary to add together the separate records of time spent on each event within each case. It is very easy in this situation to incorrectly aggregate time due to accidental misstatement of case numbers by judges, or to coding errors, or keypunching errors. To some extent all of these can be detected by examination of the case name that judges report each time they make an entry on the form. The way to do this is to group the records for each case, and to visually confirm that the case name is the same across all records. If not, then the strategy will be to request clarification from clerks of courts to determine whether or not the differences in name from record to record are in fact errors. In multiple party cases, for instance, the different case names may be correct. After obtaining this information, appropriate adjustments to the data can be made.

b. Match and Merge Judge Time Records With Current Case Information

The second step in processing the data cannot begin until after the Judge Time Recording Period ends, since the case information that is needed has to include all events reported by judges. Therefore, the general strategy will be to use the final time data file as the basis for determining the specific cases in which information is needed. A list of these will be produced for each office from which cases are reported. The clerk of the court will then be requested to photocopy docket sheets for these cases after ascertaining that posting to the sheets has been completed through the last day of judge time reporting for those particular cases.

The copies will be transmitted to the central coding location (probably Washington), for conversion to numeric codes. These will then be keyed, read into machine files, and merged with judge time data. A flowchart outlining the tasks involved in this second step is included as Figure IV-5.

The purpose of matching the case records with the judge time data is twofold. First, it is necessary to establish for each case on which judges report time the nature of the suit or offense. Without this information case weights by case type could not be calculated. The second purpose is to associate reported time with the particular event on which it was expended. It is not possible for instance to tell from the Judge Time Reports alone whether or not separate entries for the same kind of event in the same case are really for separate events. They may simply be for the same event spread over different time periods. In order to accommodate this possibility, it is necessary to establish the number of events of each type that took place during the study for each case on which judges reported time. The reported judge time can then be allocated accordingly. This procedure will establish accurate average event times.

There will be some time however, not associated with a particular docketed event, that will be left over after the averaging procedure is completed. This time will be incorporated into the case weight by calculating an average per case of a given type, rather than by event. The issue is discussed above in Section III and below in Section V. The point to be made here is that it is at this stage in the development of the data base that this unassigned time should be identified.

Perhaps the greatest danger in the matching process is that judge time will be associated with the wrong case. To avoid this, the case name will again be checked, and discrepancies will be investigated first by computer and then, if this fails, by requesting clarification from the appropriate clerk of the court.

In order to perform the matching and merging process satisfactorily, it is advisable to establish working files which are smaller than the total data file. Codebooks for these working files are presented as Figures IV-6 and IV-7. These files, which will stand-in for the larger data files, will be used to conduct the match and merge process, and subsequently the matched file--see Figure IV-8--will be associated with the original judge time data file and the case events. This involves additional data processing steps, but it makes the files much more manageable.

FIGURE IV-5

MATCHING AND MERGING JUDGE TIME RECORDS WITH CASE DATA

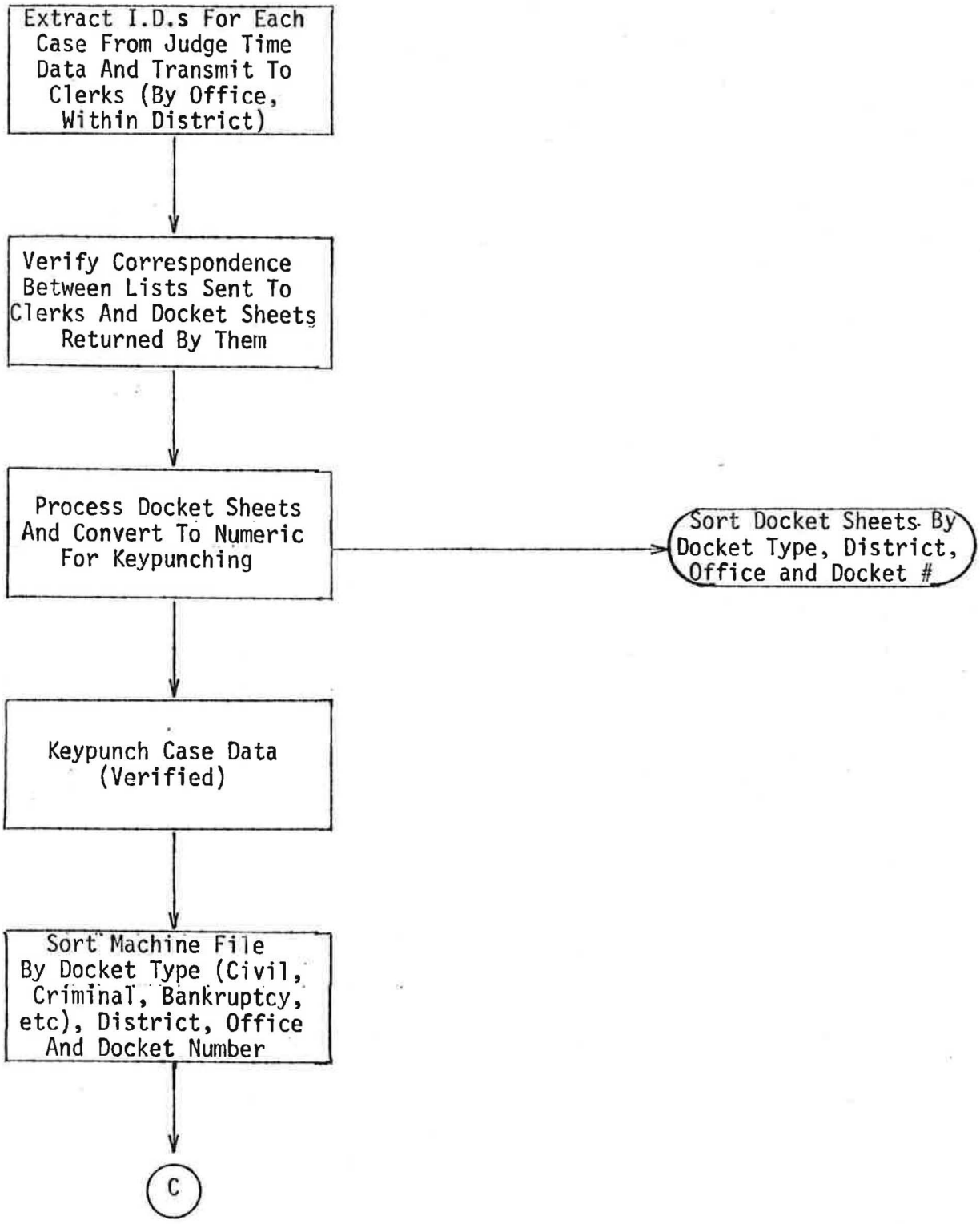


FIGURE IV-5(Contd)

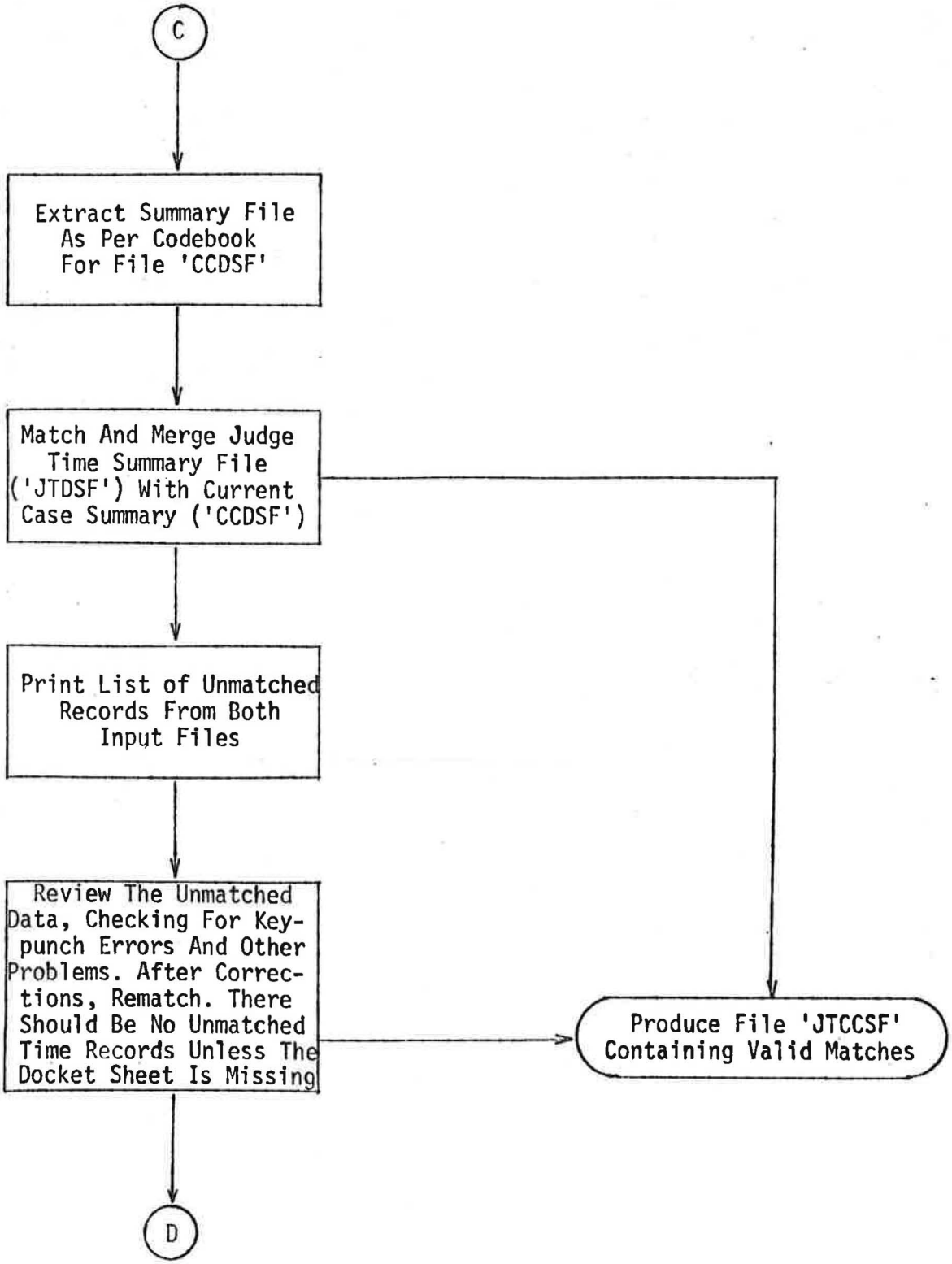


FIGURE IV-6

CODEBOOK FOR JUDGE TIME DATA SUMMARY FILE

		Format	Columns
File I.D.	'JTDSF'	A5	1-5
V1	District	I3	6-8
V2	Office	I2	9-10
V3	Judge I.D.	I4	11-14
V4	Docket Type	I1	15
V5	Docket #	7I1	16-22
V6	Case Name	2A5	23-32
V7	Date of First Time Report	6I1	32-37
V8	Date of Last Time Report	6I1	39-44
V9	Total Number of Time Records For This Case	I2	45-46
V10	Total Time Reported For This Case (Minutes)	I5	47-51

This will be a working file for use in the Match and Merge Program which links time data with case data.

FIGURE IV-8

CODEBOOK FOR MERGED SUMMARY FILE OF
JUDGE TIME DATA AND CURRENT CASE DATA

		Format	Columns
File I.D.	'JTCCSF'	6A1	1-6
V1	District	I3	7-9
V2	Office	I2	10-11
V3	Docket Type	I1	12
V4	Docket Number	7I1	13-19
V5	Case Name	2A5	20-29
V6	Nature of Suit (Offense)	I4	30-33
V7	Judge I.D.	A4	34-37
V8	Filing Date	6I1	38-43
V9	Date of Last Docketed Event	6I1	44-49
V10	Total Number of Events	I3	50-52
V11	Date of First Time Report	6I1	53-58
V12	Date of Last Time Report	6I1	59-64
V13	Total Number of Time Records	I2	65-66
V14	Total Time Reported (Minutes)	I5	67-71

This file is produced by the Match and Merge Program and will be used to calculate summary statistics for the First Interim Report. It can also serve as the basis for calculation of Clark Weights and 1969-70 Weights.

As a working file, it will be used for a variety of editing and checking purposes, and will provide parameters for the analysis of event and time records. To it will be added the time and event records themselves so that average times per docketed event and average times per undocketed activity can be calculated for each type of case.

c. Develop Profiles of Events For Each Type of Case. A critical element in the formula for calculation of event based case weights is the number of events of each type that, on the average, occur in the life of a case. This information cannot be derived from docket sheets for the cases on which judges report time since many of these will still be active at the time the study ends. Consequently, though the event data developed from these cases is satisfactory for use in determining average event time, it is an inadequate basis for calculating average event frequency, unless the project were held at a standstill until these cases terminated. For reasons stated above in Section III, this would be unacceptable. Therefore, we turn to cases that are already terminated when the study begins.

From termination tapes updated on a monthly basis by the Statistical Division of the Administrative Office for U.S. Courts, a random sample of terminated cases, stratified by district and case type will be selected from the 12 month period preceding commencement of the study. The clerk of each court will then be requested to photocopy the docket sheets from that court. These will be returned to the coding site for event coding. Average frequencies of events by type will then be calculated for each type of case. For Districts with COURTRAN II, no photocopying of criminal docket sheets will be necessary--all necessary data can be developed from the COURTRAN II files.

V CALCULATION OF CASE WEIGHTS

Discussion in Sections II and III covered the general logic of the event-based approach to case weighting. We now proceed to a more specific description of the way in which weights and weighted caseloads would be calculated. This requires further elaboration of the implications of the scope of the judge time reporting, and a translation of the three different levels of reporting into weight calculation formulas.

The three levels of which we speak are as follows:

A. Judges report docketed case activities only.
B. Judges report all case activity, docketed or not.
C. Judges report non-case related work as well as case activity.

As will be discussed below, each of these is associated with a different type of weight, even though all three are based to some degree upon the event structure of the case. In general, the more extensive the level of reporting the more complex--but also the more complete--the case weight that can be produced. In this design, we are recommending that judges report at level three--all activities being included in the time reports, whether case related or not. In our view, this preserves the most extensive range of options at a relatively small increase in reporting burden and project cost. However, we wish to illustrate in this section of the discussion the manner in which case weights would be produced if for some reason the most elaborate procedures proved unsatisfactory. In addition, some of the additional information that can be derived from more inclusive weights is discussed.

A. CALCULATING WEIGHTS USING DOCKETED EVENTS ONLY

If judges reported only docketed events, or if only docketed events were used in the weight calculations, the product of the event-based system would be a partial statement of the case related judge time needed for the average case of a particular type. It would not be a measure of the judge hours needed to handle the average case in its entirety however, since time spent on undocketed activities would be excluded. The formula for calculating the unstandardized weight would be as stated previously:

$$UW_i = \sum_j (T.F)_j$$

where, for cases of type (i)

UW_i = Unstandardized Weight

T_j = Average Time for Event (j)

F_j = Average Frequency of Event (j)

The average time for event (j) is derived from the judge time study, whereas the average frequency of event (j) comes from an examination of terminated cases. The weight, UW_i, is unstandardized because it is an estimate of the average number of judge hours needed for cases of type (i). It can be standardized by the following calculation:

$$W_i = \frac{UW_i}{UW_T}$$

where UW_i = Average Number of Judge Hours Estimated for Cases of Type (i)

UW_T = Average Number of Judge Hours Estimated by the Same Event-based Procedure, But Using All Cases

Thus, for any case type that is identical to the system average, W_i will be 1.0. Case types that take twice as much time as the system average will have a weight of 2.0, and so on. In this sense, the standardized

weight, W_i, is directly comparable to the weights produced by the Clark method and the 1969-70 method, which were also standardized.

For comparison purposes, the formula for calculation of the Clark weight is:

$$W_i = \frac{T_i/T_T}{Term_i/Term_T}$$

where T_i = Study Time Reported for Case Type (i)

T_T = All Study Time

$Term_i$ = Number of Type (i) Cases Terminated

$Term_T$ = Number of all Cases Terminated

and that for the 1969-70 weight is:

$$W_i = \frac{T_i/T_T}{N_i/N_T}$$

where T_i = Study Time for Case Type (i)

T_T = All Study Time

N_i = Number of Study Cases of Type (i)

N_T = Number of Study Cases of all Types

None of these three weights tell us much about the total judge hours needed to process a particular type of case--though the first is closest to that concept when unstandardized. Their value lies in the fact that they can all be used to establish a measure of weighted caseload for each district, such that inter-district comparisons can be made. The same calculation procedure is used for all three weighted caseloads:

$$WF_m = \sum_i (W\ N_m)_i$$

where WF_m = Number of Weighted Type (i) Filings for District (m)

W_i = Standardized Case Weight for Type (i)

N_{mi} = Number of Type (i) Filings Expected for District (m)

The product of this calculation is then used to establish a district average number of cases (weighted) per judgeship, and by appropriate aggregations to also establish a national average.

In summary, then, the event-based weight that is calculated on docketed event times only is directly analogous in application to earlier weighting methods. Its advantages lie in the fact that it is based upon an intuitively more satisfactory process, and that it can be updated--as discussed in Section III--without the necessity of additional judge time studies.

B. CALCULATING WEIGHTS USING ALL CASE RELATED TIME

The incorporation of all judge time into the case weight extends the procedure just outlined, and has the advantage that the unstandardized weight is then an estimate of the judge hours needed to process the average case of a particular type. This is more satisfactory in a number of ways.

First, it guards against the introduction of bias into the weighted caseload because of a disproportionate distribution of undocketed activities among different casetypes. It is easy to see for instance that if the total average time spent on each of two case types is 10 hours, but that one of them requires 3 hours of docketed activity, while the other requires 6 hours, then using the Clark approach or the docketed event approach, the weight for the latter would be twice as great as the weight for the former. In fact,

the two weights should be identical. Otherwise, a district with a high proportion of the former would be 'penalized' in the calculation of its weighted caseload.

A second advantage of using all case time is that inter-district comparisons can be made of the actual judge hours expended, on the average, on the same type of case. The fact that such differences are made explicit should aid in the assessment of deviations by particular districts from the national averages. It would be possible for instance to specify the case types in which the deviations occurred, thus allowing an evaluation of whether or not cases in these areas are in fact more demanding for one district than another. It would even be possible to focus upon the event structure of the same case type in different districts, thus highlighting the nature of the difference between the two. This might show, for example, that in one district there are an average of three motions in cases of a particular type, compared with an average of two across the nation. The particular district should then not be subject to an unadjusted national average, since its cases--at least of this type--are more demanding than the national average, other things being equal.

The general point we wish to make here is that the utility of a case weight based upon all case activity far exceeds that of the weight based upon docketed events alone. The calculation formula for the unstandardized weight is an extension of the one described in the previous section:

$$UW_i = \sum_j (T1.F)_j + \sum_k T2_k$$

where for Type (i) Cases

$T1_j$ = Average Time Expended on Docketed Activity (j)

F_j = Average Frequency of Docketed Activity (j)

$T2_k$ = Average Time Expended on Undocketed Case Activity (k) Over The Life of Case Type (i)

The first part of the formula is identical to that presented previously. It aggregates the average times expended on events of different types within a given case type. The second part of the formula brings in the same time spent on undocketed events, which, since they are undocketed, cannot be counted. Therefore, the average times for these activities are calculated per case of a particular type, without regard to activity frequence. However, as was discussed above in Section III(B), the average observed time for undocketed activities is subject to the window effect, and therefore is not an estimate of the time expended over the life of the average case of a given type. Therefore, the observed time has to be adjusted.

This can be accomplished by using the adjustment method developed by R.W. Gillespie in an analysis of the 1969-70 District Court case weights. The adjustment factor is defined as $\frac{D_i + S}{S}$, where S represents the number of days in the study period, and D_i represents the average number of days from filing to disposition for cases of type (i). For an analysis of the procedure, the reader is referred to the original article by Gillespie and to the assessment of the feasibility of case weighting (Dungworth et al, 1978. Chapter III and Appendix B). To adjust the reported time, thus producing an estimate of the time expended over the life of the average case, the factor is applied as follows:

$$T2_k = TR_k \times \frac{D_i + S}{S}$$

where $T2_k$ = As Described Above

TR_k = Average Time Reported on Activity (k) for Cases of type (i)

D_i = Average Life in Days For Cases of Type (i)

S = Length of Time Study in Days

The average life in days of type (i) cases can be produced from the same AO data base on terminated cases that is used to produce the event profiles. All other factors in the adjustment process are derived from the study itself.

The unstandardized weight, UW_i, is--after the adjustment for unobserved time has been made--an estimate of the judge hours needed for the average case of type (i), assuming cases are processed at the same rate and in the same manner as took place during the period of study. Standardization--UW_i/UW_T--permits the calculation of case weights and weighted caseloads that correspond directly to those used presently, with the same range of inter-district caseload comparisons that are now possible.

It should be kept in mind that the unstandardized weight, though an estimate of the judge time needed <u>over the life</u> of the average case, does not indicate the time needed for type (i) cases in a fiscal year. This is because the average life of most types of cases is not 365 days. Therefore, it would not be appropriate to assess the number of judgeships needed by dividing the unweighted standardized caseload (i.e. the estimated time needed to handle all filings from commencement to termination) by the judge work time available in a given year. What is necessary to convert this to a fiscal year estimate is an adjustment that corresponds conceptually to that used to adjust time reported on undocketed case activities. The specifics of the adjustment differ however, because in this instance we wish to estimate the proportion of total time needed over the life of the case that falls within the fiscal year, rather than the proportion of time occurring outside the study period.

From the work done by Gillespie (1974), we know that the proportion

of case life that falls outside the fiscal year can be estimated by the following formula:

$$\left[\frac{D_i^2}{D_i + F}\right] \Big/ D_i = \frac{D_i}{D + F}$$

where D = The Average Life of Case of Type (i) in Days

and F = The Length of the Fiscal Year (365 Days)

Logically, this is of course the reciprocal of the earlier adjustment. The proportion of the life of the case falling within the fiscal year, will be:

$$1 - \frac{D_i}{D_i + F}$$

and this factor is then applied to the unstandardized weight:

$$UW_i \times \left[1 - \frac{D_i}{D_i + F}\right]$$

when this is done--that is, the estimated average judge time needed over the life of the case is multiplied by the proportion--the result is an estimate of the judge time that, on the average, will be needed in a fiscal year. This estimate is then multiplied by the number of anticipated filings to produce the total estimated judge hours needed in the given 12 month period. The fact that the filings will be spread out over the 12 month period, meaning that only a part of the 12 month estimate will be expended on those particular cases, is compensated for by the case load pending at the beginning of the period. The compensation will be most satisfactory when average case life is relatively constant over time, and least satisfactory when average case life is changing rapidly.

C. CALCULATING WEIGHTED CASE-LOADS USING NON-CASE RELATED TIME AS WELL AS ALL CASE RELATED TIME

Judge time is expended on some activities that are not related to specific cases. Administration and ex officio activities are instances of this. The calculation of case weights, by any of the methods discussed to this point, ignores this time. In one sense, this is logical, since the procedure for determining the judgeships needed in any district is inevitably tied to the caseload of that district. As was pointed out earlier, however, such case weights do not in and of themselves provide an estimate of the total judge hours needed to adequately staff a district, because they are not a complete statement of judge workload. If judge time spent on non-case activity could be incorporated into the weighted caseload, then it would be possible to evaluate judgeship allocations in terms of absolute rather than just relative need. This converts the weighted case-load to an estimated total workload, expressed in judge time. The relative picture that is provided by existing weighting methods would still be produced.

The procedure for incorporating non-case time into the weighted case-load is simple, provided judges report it on the time forms. An average of such time expended by all judges in the survey can be computed either by specific activity type or by aggregation. This can be adjusted to a 12 month period by the factor $\frac{365}{S}$, where S is the number of days in the study. The adjusted average can then be built into the unstandardized weighted caseload by multiplying by the number of judges allocated to the particular district. The formula for this calculation is as follows:

Annual Workload = (N of Cases X Unstandardized Adjusted Weight) + (Adjusted Average Non Case Time X N of Judges)

In formal terms, this is as follows:

$$WL_m = \sum_i N_i \left[\sum_j (T1.F)_j + \sum T2_k \right]_i + J_m.T3$$

where WL_m = Workload Estimate for District (m)

J_m = Number of Judges in District (m)

T3 = Average Time Expended per Judge Year on all Non-case Activities

N = N of Type i Cases that are Expected in District (m)

and all other factors are as previously described.

The workload figures produced by this formula are an estimate of the total number of judge hours needed to staff the particular district, assuming that the district operated at the national average. The number of judgeships can be calculated by dividing this estimate by the number of hours each judgeship is expected to contribute. The 1979 Time Study suggests that most judges work more than the customary 2080 hour work year. Whether judges' actual working practices or standard work year figures are used in calculating judgeships is largely a matter of policy, though the choice will have an impact on the number of judgeships estimated by this process. If a standard figure--e.g. 2080 hours--is divided into workoad reports that show a higher than standard working pattern, then the number of judgeships will be inflated accordingly.

VI TIMETABLE AND BUDGET

In this final section of the report we present a timetable for each of the eight tasks--in Figure VI-I, along with an estimated number of hours required by function--in Figure VI-2. We anticipate a period of approximately fifteen months for completion of the project. The primary determinant of the ability to adhere to this schedule is of course the survey of judge time conducted in Task I. This will take one to two months to organize after commencement of the project, and three to four months to execute. Therefore, the task cannot be completed in less than approximately seven months. Furthermore, the collection of current case data--the information relating to the cases judges report--cannot be specified until close to the end of the reporting period, since it is important that as many events as possible be included on the docket sheets that will be reproduced as a part of Task II. Coding and processing of the docket sheets will take an additional two to three months, thus indicating that Tasks I and II together will take an elapsed time of about ten months. Given this condition, it is unreasonable to expect project completion in less than fifteen months, and if there are delays in the commencement or execution of the judge time survey, the project could take longer than that.

In order to provide ongoing information about the state of the project, we recommend an Interim Report on the development of the data base, to be delivered upon completion of Task III. This will be approximately at the end of the eleventh month, but by that time all data development should be finished. In particular, Tasks I, II, III, and V should be reviewed in the Interim Report. At the end of the fourteenth month, we recommend a draft final report for purposes of review and comment. Assuming that these can

be made relatively quickly, it is feasible to anticipate that reactions to reviews can be incorporated into the final report by the end of the fifteenth month. Again, however, the schedule would be lengthened if the turnaround time on these reviews was slow.

With respect to the direct labor hours needed for this project, we have divided project functions into five levels. These are:

Project Director
Data Manager
Programmer/Analyst
Research Aides
Clerical/Secretarial

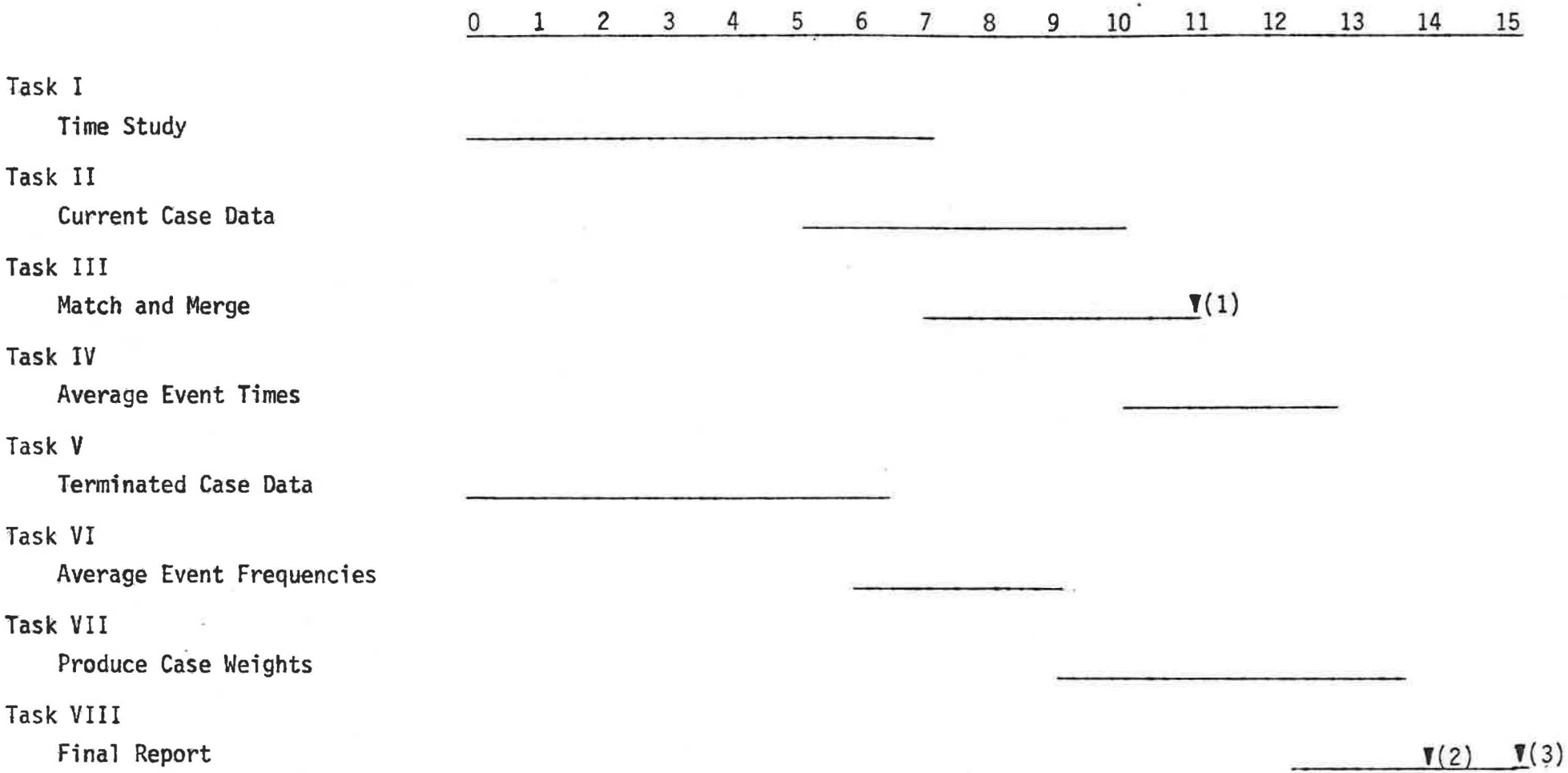
The Project Director will of course have overall management responsibility for the project, and will be involved to some degree in each of the tasks and sub-tasks. The bulk of the Project Director's time will be devoted to the analytic problems faced in Task VII and the report writing contained in Task VIII.

In a project of this nature, where several different data bases are simultaneously developed and maintained, it is critical that the data be managed carefully. This involves the monitoring and indexing of data forms of all types. It also involves the batch control that is necessary to insure that forms sent to keypunching are accurately keyed. Finally, supervision of Research Aides who are actually doing coding of data forms is a part of this function.

The Programmer Analyst, Research Aide, and Clerical/Secretarial functions are largely self-explanatory. Perhaps the most important point to note is that the Research Aides would be responsible, under the supervision of the Data Manager, for the coding of case data forms under Tasks II and V, and for the pre-keypunch processing of judge time forms under Task I.

The breakdown of direct labor hours by task and function is presented in Figure VI-2. A total effort of 5466 hours is envisaged for the project. Based on our prior experience with projects of this nature, we believe this to be a sufficient level of effort to accomplish all eight tasks within the time period proposed.

VI-1 CONTRACT TIMETABLE BY MONTH



Deliverables

(1) Interim Report on Data Base Development (I, II, III and IV)

(2) Draft Final Report

(3) Final Report

VI-2 DIRECT LABOR HOURS BY TASK

	Project Director	Data Manager	Programmer/ Analyst	Research Aides	Clerical/ Secretarial	TOTAL
Task I						
A	10	16	8	---	8	42
B	40	80	40	40	20	220
C	40	160	16	480	40	736
D	40	40	80	40	8	208
Task II						
A	30	20	40	40	20	150
B	30	120	120	600	40	910
Task III	20	40	100	100	20	280
Task IV						
A	20	20	100	40	20	200
B	10	---	20	10	---	40
C	10	---	20	10	---	40
Task V						
A	20	20	40	10	20	110
B	30	120	120	600	40	910
Task VI	10	10	40	40	20	120
Task VII						
A	160	80	160	40	40	480
B	20	10	30	10	10	80
C	20	10	30	10	10	80
D	100	20	40	20	160	340
Task VIII	240	40	40	40	160	520
	850	806	1044	2130	636	5466

REFERENCES

Administrative Office of the California Courts. Weighted Caseload Study, 1977

Administrative Office of the Pennsylvania Courts. Use of the Delphi Study as a Means of Assessing Judicial Manpower Needs: A Selected Survey of Pennsylvania Judges, 1977.

Arthur Young & Company. Commonwealth of Kentucky Weighted Caseload Study, 1976.

Dungworth, Terence et al. Assessing the Feasibility of Case Weighting as a Method of Determining Judicial Workload. The Federal Judicial Center, Washington, D.C.(1978).

Dungworth, Terence and Hausner, Jack. Allocation of Resources to U.S. Attorneys' Offices: A Case Weighting Approach. The Department of Justice, Washington, D.C.(1979).

Federal Judicial Center. The 1969-70 Federal District Court Time Study, 1971.

The 1979 Federal District Court Time Study. Federal Judicial Center, Washington, D.C. (forthcoming)

Gillespie, R.W. "Measuring the Demand for Court Services: A Critique of the Federal District Court Case Weights," Journal of the American Statistical Association 69 (March, 1974):38-43.

National Center for State Courts. State of Washington Weighted Caseload Project: District Courts, 1977.