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AN ANALYSIS OF STATEWIDE IMPACT
OF ASSEMBLY BILL 3121
IN THE JUVENILE JUSTICE SYSTEM

by

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Volume IV of

Implications of California's 1977 Juvenile Justice Reform Law, 1981

Prepared for National Institute of Juvenile Justice and Delinquency Prevention, Law Enforcement Assistance Administration, U.S. Department of Justice under Grant Nos. 77-JN-99-0012 and 78-JN-AX-0034. Points of view or opinions stated in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.

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I. INTRODUCTION

The perception of an increase in serious crime was one of the major public concerns in the Seventies, and the pressure to "do something" led to all sorts of governmental reactions, from reinstating capital punishment to buying surplus Army helicopters for police. So when studies showed that a significant portion of predatory crime is committed by minors, there was a movement in mid-decade to increase the severity of the sanctions for juvenile crime. Concurrently, there was a growing national awareness that perhaps that part of the justice system designed to deal with problem youths should now concentrate on those who commit serious crimes and should relinquish some control over those children whose behavior was deemed an "offense" solely because of their legal status as minors. In California these two ideological forces came together in one overarching piece of legislation that provided for the harsher treatment for criminal behavior by juveniles, while it met (and in some respects exceeded) a federal mandate for the

deinstitutionalization of status offenders.

The compromise legislation — Assembly Bill 3121 — was debated and passed during the 1976 session, to be implemented on the first day of the next year. With the risk of oversimplifying, it can be characterized as cracking down on the serious juvenile offender while easing up on the non-criminal status offender, urging instead the development of alternative resources outside the juvenile justice system (JJS).

This study addresses the impact of the bill on juvenile justice systems in the 58 counties of California. Of the many provisions of the legislation, it addresses only the deinstitutionalization of status offenders. The larger study from which this one was drawn also looked at the development of alternative resources for dealing with status and delinquent offenders, the prosecution of law-violating juveniles, and the remand of certain juvenile felons to adult court (see Table 1). The development of alternative resources was verbally urged in the bill but not funded, so not surprisingly there was no such development to speak of.

Data for these analyses are taken mainly from computerized records supplied by the Bureau of Criminal Statistics (BCS) for two years prior to and two years after the implementation of AB3121. These consist of individual arrest records sent to the BCS by law enforcement agencies. These are then aggregated by county and month. To complement these offender files, data on the demographic, economic, political, and bureaucratic characteristics of the counties and county justice systems were gathered for the time periods of interest.

Cross-sectional multivariate interrupted time-series analysis will be used to determine the form and magnitude of the impact (if any) of AB3121 on selected juvenile justice system rates, and to identify the role (if any) of the various county characteristics in determining the impact.

II. CONCEPTUAL FRAMEWORK

Mayer and Greenwood (1980:126) suggest a general framework for conceptualizing the interrelationships among social policies, the problems these policies address, and factors which impinge on the effectiveness of the solutions.

Their model requires a statement of the "problem", and in the present case, the problem might be generally stated as juvenile delinquency. If we take government officials as the policymakers in the model, we can discuss some of their options. Among various policy alternatives available to them is harsher enforcement of existing juvenile law (by the executive branch) or more severe juvenile court dispositions (by the judicial branch). AB3121 represents, however, an effort by the legislative branch to change the processing of juvenile offenders. For those who have only disobeyed rules set down for juveniles (status offenders), the lawmakers in 1976 sought to divert them away from formal processing by the juvenile justice system (JJS) and back under the parens patriae umbrella of supervision. In contrast, for those young people who have committed criminal acts, especially serious criminal acts, the legislature intended that henceforth they be treated more like criminals, not merely unruly children.

As stated earlier, this research will focus on the first area: protection of status offenders from harsher features of JJS processing. That is, "secure detention" was deemed by the framers of AB3121 to be appropriate only for delinquent or criminal offenders. We will examine JJS processing before and after implementation of this change, with an eye to its differential impact in the various counties.

Constructing the framework.

Given the problem, construction of a conceptual framework using the Mayer and Greenwood scheme next requires a listing of alternative courses of action, and the objectives of each alternative. These policy objectives (the "dependent variables" of the system) can be facilitated by two classes of intervening variables. The first are implementation variables, which are specific administration strategies adopted for the program. The second are bridging variables, which measure intermediate outcomes that must occur as prerequisites of the policy objectives. Finally, any supplemental policy the lawmakers might formulate to enhance the effectiveness of the program will be included in the model as adjunct variables. These auxiliary actions can be instituted independent of the "alternative courses of action", and so must be distinguished.

AB3121 contains two provisions relevant to this problem. The first prohibits the placement of status offenders in secure facilities; the other encourages the development of alternative facilities for both delinquent and status offenders. The objective, then, of these two policy directives is to change the type of system

response to status offenders. Specifically, the legislation seeks to eliminate status offender (SO) placements in locked facilities while encouraging an increase in the enrollment of SOs in programs that do not include some form of involuntary incarceration.

Success of the major policy objective was strongly required. As Teilmann and Klein (1979) point out, encouragement of a line of action is one thing but an unequivocal mandate is another. The prohibition of secure detention for SOs was clear, and it was followed statewide virtually without exception. The accomplishment of this objective was a function of the dissemination of the meaning of the law to officers in the field and the adherence of those officers to the new law. With no discretion allowed, law enforcement officers legally could not (and so, as professionals, would not) securely detain arrested status offenders any longer.

The intended alternative was to send them to non-secure facilities. To enhance the probability of this outcome, the legislation included a verbal encouragement to the counties to increase their use of alternative facilities. This adjunct policy statement carried neither the weight of the above mandate nor any funding provisions. The lawmakers felt that the money saved by ceasing one activity could be rerouted to the new activity. But without direct funding, implementation of this auxiliary action was unsuccessful. Alternative programs were not developed to any significant degree. (The single exception -- Los Angeles county -- was not as a result of this provision.) Thus, there were few alternative places to put status offenders. In terms of the model

being described, the influence of this adjunct variable proved to be nil.

Other outcomes of the policy.

In the past, many status offenders had been routinely released to the custody of their parents, and most would continue to be after AB3121. But some (especially children who had runaway from home) formerly were sent to juvenile hall, a secure facility. Since police could no longer do this, they were left with essentially three other choices. The first two are called "relabeling", i.e., altering the description of the presenting behavior so that the juvenile can be classified as other than a status offender. This is possible because some cases involve more than simply "status offenses". The juvenile might also be charged with some misdemeanor offense, and thus be treated as a delinquent (and securely detained). Prior to AB3121, police could hold such status offenders without having to file the delinquency charges.

In other situations, a status offender might be redefined as a "dependency" case, permitting greater intervention by the juvenile justice system (including secure detention). Or the parents might make an "involuntary commitment" of the juvenile to a mental health facility once it is discovered that the justice system will not take their unruly children off their hands.

Finally, when presented with a status offender, a police officer might simply choose to do nothing: no arrest. Indeed, some officers believed that legally they could not arrest SOs; other officers

thought that they could arrest them, but not send them to court. While it appears that every misinterpretation erred on the side of restricting police beyond the provisions of the bill, it may be that law enforcement officials felt that it just wasn't worth the effort to process SOs if they were going to be released anyway.

The result was an unintended consequence of AB3121's prohibition of any secure detention of status offenders. Specifically, the existing trend of increasingly excluding SOs from the JJS would be accelerated by specific legislation that restricted law enforcement authority. Detention rates and probation-referral rates were expected to decline, and figures for the state as a whole indicate that they did. Not surprisingly, arrest rates did, too.

The above interpretation rests on several assumptions, including that the number of status offense behaviors by the juvenile members of the population remained constant over the time surveyed. If it dropped, one would expect to find the decline in the status offense arrests that did appear, and there would be no indication of changes in justice system handling of status offenders during these pre-bill years. Another possibility is that age-specific status offense rates remain steady but that the age distribution changes; i.e., one might wonder whether the adolescent segment of the population is getting older as the baby boom dwindles, resulting in the bulk of the juveniles aging into the later, delinquency (vs. status offense) years. This latter proposition can be checked, but there are not the data on status offense rates among juveniles in the general population that would be necessary to test the former proposition.

There were some reports that status offenders themselves reacted to the change in juvenile justice policies, using the system of non-secure facilities at their convenience. For example, teenaged prostitutes were supposedly using the county homes as "crash pads", good for a night's sleep and a shower. Mayer and Greenwood distinguish such "latent consequences" of the successful achievement of a policy objective from "unintended consequences" of policy implementation. Another such latent consequence would be the freeing of beds in secure facilities, enabling a rise in number of secure placements of delinquent offenders.

In the larger project these phenomena have been explored using data from four large Southern California counties. But those case studies leave unanswered some questions about the relationships between these unintended consequences of AB3121 and distinguishing characteristics of California counties. The objectives of the two provisions of the bill were met statewide with virtually complete success for the prohibition of secure detention and with universal failure for the encouragement of alternative facilities. Were all the counties alike in their responses? Unlikely. Where the counties might differ is in the unintended consequences of the bill, e.g., the SO arrest and probation referral rates.

Control variables.

The heuristic device developed by Mayer and Greenwood includes control variables to account for rival hypotheses. While the lack of variation in the original explananda is not very enlightening, if we recast the "unintended" consequences as the phenomena to be explained,

then the same characteristics of the counties that might have varied with AB3121 as explanans of the changes in placements could be plausibly presented to explain variations among counties in the ways they reacted aside from the irrefutable mandate or the unfunded wish.

Basically there are three categories of control variables in their model. We have already discussed an adjunct policy: the unfunded and not surprisingly impotent verbal encouragement to develop alternative programs. Mayer and Greenwood identify two other types they call "constraining variables" -- factors influencing the policy implementation process over which the lawmakers have no control (as opposed to the supplementary program which they chose not to fund). The first group of constraint variables consists of characteristics of the target population which might impact the policy objective. For these provisions of AB3121, status offenders comprise the target population. In each of the counties, then, we will control for the proportion of the population that is young enough to be at risk for status offenses. Some variables that could contribute to the explication of these relationships are simply unavailable or their measurement is prohibitively expensive in terms of time or money (e.g., rate of commission of status offenses by the target population). Others, such as the pre-AB3121 arrest rates for status offenders, will be part of the statistical controls in the time-series analysis. The analyses will be restricted to male adolescents.

The other group of constraining variables are social or physical environmental characteristics. Here we will be interested in socio-economic status, urbanization, political climate, police

professionalization, existing alternatives to secure detention for status offenders, and the sheer size of the county's justice system.

Socio-Economic Status.

Goldman (1953) has compared the differential processing of juvenile justice offenders among four communities. He found that the type of community was associated with how the juvenile justice system responded to offenses. His case descriptions highlighted such features as the type of industry, the occupations of residents, the quality of housing, etc. There were clear differences by socio-economic level, although he could only speculate about the mechanisms operating to influence the police. For example, police in the wealthiest communities were more likely to arrest for minor offenses (but more likely to send a serious case to court) than less wealthy communities. So, before assessing any extraordinary influences, we need to control for the differences in juvenile arrest and referral rates that can be attributed to differences in socio-economic level. Since our unit of analysis is the county, the median income of the county will serve as our socio-economic status measure, to account for further variation that would not be expected to be influenced by the new legislation.

Urbanization.

Besides differences between socio-economic statuses, Goldman (1953) identified variations in juvenile processing that he attributed to the size of the community. For example, in the smallest community, where the police chief knew the residents personally, juvenile arrests

for minor offenses were handled relatively informally by the chief himself. Lenert (1970) suggested that this rural approach may determine in part the degree of compliance with the provision of new legislation. In a study of California counties and their compliance with juvenile court reforms in 1961, he found that minimal or no compliance was rationalized by "a conviction that they were changes primarily meant to serve the needs of the larger counties" (1970:159). To tap this concept, each county's degree of urbanization will be included in the analysis, with the expectation that smaller, rural counties will show smaller changes in "the way things are done" (i.e., arrests and referrals to probation). The total population size will be included, but because it correlates so highly ($r > .99$) with other indicators, such as those for criminal justice expenditures and for the number of sworn law enforcement officers, these latter measures will be expressed per capita.

Political Climate.

An obvious predictor of consequences, given the compromise nature of the bill, is the political sentiments of the voters. Because politically conservative counties will probably be more anxious about retaining control over juvenile offenders of all types, they would be expected to exhibit lesser decreases in the rates of SO arrests and referrals to probation, as compared to more liberal counties in the state. As our indicator we will use the percentage of the registered voters identified as Republican at the time of the 1976 election.

Police Professionalism.

Wilson (1953) describes several varieties of police behavior, each to be expected to respond to AB3121 differently. In the "watchman-style" departments, police concentrate on maintaining public order, and they handle most juvenile offenses informally without arrest. In the "service-style", too, juvenile arrests are avoided, but violations of the law are not overlooked; however, attempts are made to settle matters in the department. Finally, in the "legalistic-style" department all juvenile infractions are taken seriously, with a greater reliance on formal, court-centered proceedings and an emphasis on enforcing the same standards for everyone, juvenile or not.

For status offenses, then, after the implementation of AB3121 we should expect less change among the former two department types because they tend to handle SOs informally anyway. For the legalistic departments, though, compliance with the new law may have required some changes, especially since we have seen much confusion about the meaning of "no secure detention". We suspect that if a legalistic police department cannot deal with a status offender formally by taking him or her into custody, then the probability increases that the officers will not deal with the juvenile at all, and arrests will decline.

We suspect, though, that the rate of arrestees referred to probation might even increase in legalistic departments, because only those whom the police intend to process formally through the system will be likely to be arrested. On the other hand, the other two

styles of departments should exhibit further or no lowering of already low levels of referrals to probation of status offenders.

How do we identify "legalistic" departments from the others? Wilson suggests several characteristics, one of which we will use to indicate this style of formal enforcement of the law: a relatively high number of misdemeanor arrests. Note that degrees of this trait are conceivable; no department, much less an entire county, would be expected to exhibit any one style exclusively.

Alternative resources.

A related issue is the availability of alternative resources. If the police have some other way of dealing with the status offender that does not involve secure detention, it is reasonable to assume that they might opt for arrest plus this alternative disposition rather than total abdication of control over juvenile offenders. We noted earlier the failure of AB3121 to stimulate the development of alternative resources, but such resources have already been in existence for years. The availability of such resources should influence the post-AB3121 likelihood of both arrest and referral to probation -- tending to maintain the former and diminish the latter. As an indicator of the availability of these resources, we will use the number of mental health professionals per thousand people in the county.

Size of the bureaucracy.

In the study of a 1951 California law mentioned earlier, Lemert found that "in counties most removed from the bureaucratic model...the revision of the juvenile court law brought up problems of 'compliance'" (1970:153). Wasby (1973) addressed the direct relationship between the amount of bureaucratization and size, pointing out that smaller police departments cannot afford to assign even one person whose sole responsibility would be to interpret and communicate legal changes. We might expect, then, that the degree to which the arrest and referral rates reflect compliance with the law will be related to the degree of bureaucratization of the police department. In addition to using some "average" size of the department as the indicator, we will include a variation that incorporates the notion of specialization of roles: the proportion of law enforcement employees who are civilians (not sworn officers). This information is available by county. Finally, Wasby (1973:113) suggested that, although smaller departments cannot devote personnel solely to the task of disseminating legislated changes, the problem of transmission may be lessened where there is a possibility of face-to-face communications. To explore this, we will include a curvilinear component, consisting of the absolute deviation from the median department size. Thus, very small departments as well as "highly bureaucratized" departments might both be expected to exhibit fuller compliance. While compliance per se was virtually complete statewide, comprehension was not. The unintended consequences of decreases in status offense arrests and referrals to probation, therefore, should be lesser for counties with good communication

potential.

III. DATA SOURCES

The Bureau of Criminal Statistics (BCS), California Department of Justice, has provided data on arrests for the years 1974-1978, but these Arrest Register data vary in completeness of coverage. Law enforcement agencies in the state gradually adopted the reporting forms necessary for the automated data collection procedures and for the construction of the Arrest Register. Table 2 summarizes for the state the proportionate reporting of arrest data in the Register format for the five years.

For consistency in the analysis, we decided in the larger project to use only those police jurisdictions for which there are data for each year of the analysis. We also decided that the 51% figure was too low; instead, we used only four years (two pre- and two post-AB3121) so that at least 80% of the arrests in each year are available. From these records on individuals, arrests for each county will be aggregated by month, yielding figures for 48 months in 53 counties.

Other indicators were taken from figures and statistics published by various California state offices (see Appendix for a complete list).

IV. METHODOLOGY

Cross-Sectional Research.

Most sociological research is cross-sectional. The observed values of empirical indicators of social phenomena are compared for a given cross-section of the flow of time. Any discovered statistical relationship across subjects is taken to represent the actual relationship among the phenomena. By implication, this is usually assumed to hold for all time, or at least for near history.

An example would be any "X --> Y" relationship of the sort commonly examined in sociological research. The value of the "dependent" variable (Y) is estimated from knowledge of the value of the "independent" variable (X). With two variables, the regression equation ($Y = a + bX$) is usually assumed to take the geometric form of a straight line. With more than one X, the multiple regression equation is not so neatly diagrammed, but the principles are the same -- a mathematical linear model of the empirical relationships.

When the relationships of several variables are such that some variables are sometimes determinants and other times determined (e.g., "A --> B --> C"), then the set of simultaneous equations necessary to describe the structure of the interrelationships are collectively called structural equations. Note, however, that no matter how complicated the hypothesized structure, these equations usually model cross-sectional relationships.

Time Series Analysis.

A time series, on the other hand, is a set of observations of the same phenomenon taken over a period of time, usually at regular intervals. The number of juveniles arrested each month in a jurisdiction is one example of a time series. Note that there is no "predictor" here, just a series of observations.

If we take into account any regular patterns, like upward and downward trends and seasonal cycles, we can develop a mathematical model of the remaining process, in much the same way as a regression line models the relationship between two variables. We want to subtract from the observed time series those components that can be reasonably hypothesized. For example, the periodicity of annual cycles is frequently a sound hypothesis. Another is autocorrelation -- a tendency for the value of one observation to be associated with the value of its immediate predecessor(s). Positive autocorrelation can be likened to inertia; the system cannot change much from one time period to another, so high values tend to be followed by high values. Negative autocorrelation can be thought of as compensation; a high value in one period is balanced by a low value in the next. Depending on the system in question, one or the other can be a plausible hypothesis. In the social sciences, we rarely see negative autocorrelation.

Without ever specifying the causes that "drive" the time series, i.e., that account for the fluctuations, we can often develop a fairly good mathematical model of a time series by adjusting for such things as long-term trends, seasonal variations, and autocorrelation, until

the remaining fluctuations are indistinguishable from random variation or "white noise".

Imagine a plot of observations over time that resembles a fuzzy sine wave. We can say that the equation for a sine wave with such and such parameters adequately describes the time series if the distribution of values around a superimposed sine wave are essentially random. The sine wave then becomes our descriptive and predictive model (but not an explanatory model!). If we assume the system as a whole will remain unchanged for the next n time periods, we can use the model to predict the value of the observation n time periods in the future. Economics and demography are two social sciences that employ such techniques regularly.

The Impact of an Intervention.

A time-series quasi-experiment can be used to assess the impact of an intervention on a social process (Campbell, 1953; Campbell and Stanley, 1955). If we model the time series before and after the hypothesized intervention, and then compare the two models, we can develop evidence of the impact of the intervention on the social processes that generate the phenomenon. The present study, for example, predicts that the impact of AB3121 will take the form of a step down in the number of status offenders arrested. The statistical model for the time series before the implementation of the law should have a higher mean value (and perhaps a different form) than the post-implementation model.

In criminology, time-series quasi-experiments have been used to test and measure the impacts of new traffic laws (Campbell and Ross, 1958; Glass, 1953; Ross, et al., 1970); the impact of decriminalization (Aaronson, et al., 1973; McCleary and Mushenc, 1980); and the impacts of gun control laws (Deutsch and Alt, 1977; Hay and McCleary, 1979; Zimring, 1975). In each of these examples, the social process is operationalized as a time series, and there is a discrete intervention that can be used to divide the time series into pre- and post-intervention segments. Analysis of the time-series quasi-experiment consists then of the statistical comparison of these two segments (McDowall, et al., 1980).

As discussed earlier, at least three different types of impacts can be seen as resulting from a policy intervention: the policy objectives, unintended consequences, and latent consequences. To the extent of the available data, the conditions under which each of the various alternatives occurs will be explored. In some cases, there is no question that an impact exists. This is especially true for the numbers of status offenders placed in secure facilities. While a test of the null hypothesis may seem unnecessary in such cases, a time-series analysis can be used to estimate the magnitude and form of the impact.

Measuring the Impact of the Intervention.

There are two questions addressed in this study. The first is whether there actually was, in each county, the impact intended by the bill, as well as the unintended and latent consequences suggested by

the four-county study. The second question is whether the counties exhibit the similarities of responses that have been suggested.

As Lempert (1955:112) put it, "the problem for the legal impact theorist is how to estimate best what the behavior patterns would have been in a certain jurisdiction had the law in question never existed there" (emphasis added). An estimate is necessary because we can never make the comparison between what happened when the law took effect and what would have happened if it had not been implemented. The estimation's worth depends on the degree of control over "plausible rival hypotheses" (Lempert, 1955: 112). One of the better approaches to such problems is the analysis of an appropriate time series, which can check for all but subtle, gradual changes in behavior. Barring other forces, an abrupt change in the behavior in question can be interpreted as evidence of the impact.

In their oft-cited monograph, Experimental and Quasi Experimental Designs for Research (1955), Campbell and Stanley present eight factors that threaten the internal validity of a research analysis. Of these, time series analysis controls for maturation (1), regression (2), and certain selection (3) and interaction (4) effects (Lempert, 1955: 123). In the present application, as in most legal impact studies, testing effects (5) and mortality (6) should be non-existent, and instrumentation effects (7) should be negligible, though not automatically so (Lempert, 1955:117).

However, as Lempert sees it, the major threats to the validity of legal impact designs are three: history (3); history-selection interaction; and, one peculiar to the sociology of law, the problem of

distinguishing the law as it appears on the books from the 'law in fact'" (Lempert, 1966:113). "A coincidental historical happening can often explain a perceived behavior change just as well as the experimental variable can" (Lempert, 1966:113). He suggests that another jurisdiction be used to control for this kind of effect. The use of many localities in the present study provides this control. It does not rule out the impact of some other state-wide effect, e. g., another California law implemented at the same time. But the work done in the larger study -- interviews with criminal justice personnel, for example -- supports the contention that AB3121 was the major influence on California juvenile justice at that time. Thus, there is only a low probability of history and history-selection interaction as sources of error here.

Lempert's third threat to validity is the contrast between the law as written and the law as implemented. As we saw in the Mayer and Greenwood scheme in Chapter 2, implementation is not a straightforward proposition. But for the components of AB3121 examined in this study, the law seems to have been implemented as written. It is the unintended, contemporaneous behaviors that are of special interest here.

The analysis, then, will consist of the estimation of a noise-plus-intervention model for each county. The impact of AB3121 will be measured for each county by calculating the proportional decline from the pre-AB3121 mean number of status offense arrests. This measure will then be regressed on the county characteristics to test the hypotheses presented

The Sample.

Only counties that are of sufficient size to overcome tendencies toward idiosyncrasy were used. If counties are not of sufficient size, then policy and behavior variations will be too small and can display little influence on the criminal justice system rates. So seven counties were excluded because they had insufficient numbers of arrests to provide variation possibilities and/or incomplete information for the period of interest. Two other counties were omitted from the analyses because it was evident from the plot of the arrest figures that sizeable law enforcement agencies were joining the reporting system at various points throughout the four years (usually in January). As an example, the arrests rates for Santa Barbara County are presented in Figure 3. Notice the jump in the delinquent arrests in 1973.

As mentioned earlier, the time period was chosen because of the availability of data: although there were some data collected for 1974, too many counties were missing data for some of those months, or the figures for those months were so out of line with subsequent figures that it was obviously incomplete reporting. In the end, the sample chosen for the study was comprised of forty-nine counties that had complete and comparable measures of the necessary indicators for forty-eight months.

The Selection of Intervention Points.

Mushenc (1930) has addressed at length the question of whether

the official date of implementation of a policy or a law actually coincides with the onset of impact, and the ramifications this can have for a time series analysis. Plots of the status offense arrest series for each of the counties indicated that for the vast majority, January 1977 was the beginning of a new phase in the series. A few, however, show anticipatory declines: their December 1976 figures were lower than the previous month's figures by a larger margin than the year before or the two years after. An example of such an anticipation is shown in Figure 4.

All counties in the sample experienced a decline in the status offense arrests -- usually an abrupt decline as in Figure 4. Some, however, experienced a more gradual reduction from a higher pre-AB3121 level to an asymptotic post-AB3121 value. This difference in the form of the impact will also be regressed on the county characteristics, to explore for regular patterns that might be used to predict and explain why the different phenomena occur.

V. ANALYSES

Changes in Juvenile Detention Rates.

The policy objectives of AB3121 were met statewide (albeit not as intended). The desired reduction in the secure detention of status offenders was obtained. Table 3 shows for all fifty-eight counties the numbers of the status and delinquent offenders detained in juvenile halls the year before AB3121 took effect (1976) and the year after (1977). The sharp differences for the status offenders contrasts with the absence of change in the number of delinquents detained.

Not only was there an increase (from 5 to 3) in the number of county probation departments which detained none of the status offenders referred to them, but the overall ordering of the departments shifted somewhat. Table 4 displays a matrix of Spearman rank-order correlations. The decrease in the numbers of status offenders sent to juvenile halls varied across counties, resulting in a rank-ordering of counties that differs from the order the year before and from the rankings on numbers of detained delinquents.

Changes in the Youth Population.

The major alternative hypothesis is that the arrests and referrals to probation might decline as a simple function of the numbers of youths in the population. That is, as the end of the "baby boom" makes itself felt in the declining proportions of the population in the ages at risk for juvenile delinquency (roughly 10 to 17 years

old), the arrests will decline, too. A recent drop in California property crime rates has been attributed to just this phenomenon (Bureau of Criminal Statistics, 1933).

If we were to assume a constant offending rate (i.e., a constant number of offenses per 1000 youths ages 10-17) and a non-changing probability of arrest for each offense, then if the number of juveniles goes down, the number of arrest should go down, too. This should hold true for delinquents as well as for status offenders, but since there may be a stratification of seriousness by age (older minors graduating to more serious offenses), older offenders will be examined, too.

Table 5 displays Pearson product-moment correlations for the differences in population segments from 1976 to 1977, and changes in the level of probation detention for that same time. Of the four measures, the change in the number of detained status offenders is the only one to show a non-zero mean (a decline). Note that it does not seem to be associated with changes in the numbers of youths in the 10-17 age bracket, and it is only weakly related to declines in the older age group (18-20 years old). The time series analyses, not to mention the plots of the arrests over time, will do a much better job of describing the changes in the numbers of status offender rates and their co-occurrence with the implementation of AB3121.

Differences in Mean Numbers of Arrests.

Before applying sophisticated statistical techniques such as time

series analysis, it should be instructive to explore crude but inexpensive and simple measures first, then see how much improvement can be obtained by the increase in the sophistication of the technique.

In most real-world applications, the pre-implementation mean value is compared to the post-implementation mean value, and a difference in the right direction is considered evidence of success. In the present case, the mean number of status offense arrests before January 1977 would be compared to a similar statistic for the period after the implementation of AB3121. Table 5 shows these means for forty-nine counties, along with the probability of finding such differences by chance if there really was no difference between the processes operating in the two periods. In all cases, the difference is statistically significant.

Such t-tests should be interpreted carefully. Because of the floor effect (counties cannot arrests fewer than zero juveniles), the two period usually display very different variances. This makes statistical inference a questionable game: more assumptions than just the null hypothesis of no difference are subject to rejection. In addition, nine counties have been eliminated from the analysis because they did not fit the pattern seen in these forty-nine. Seven of these nine simply had very little room for impact of any sort. These were small counties with status offense arrest figures so close to zero before AB3121 that any reduction was not discernable. The other two counties, Humboldt and Santa Barbara, had discontinuous jumps at the beginning of some years, indicating that more reporting agencies were

contributions of these Johnny-come-lately law enforcement agencies might show these two counties to be similar to the rest of the state. However, since the aggregation process was the most expensive and most troublesome of the steps in the manipulation of the raw data, this refinement will be left for another time.

Differences of Slopes.

Another fairly simple approach is a separate regression analysis for the pre- and post implementation series. Block and Miller (1933) have shown that spline regressions (i.e., regression-line segments that are linked over a time series) can provide simple yet accurate descriptions of patterns and changes. An even simpler approach is to relax the restriction that the line segments have to be connected, and just estimate a regression line for the observations before the implementation and one for afterwards. Then the slopes and intercepts of these lines can be examined for changes not only in the level of arrests but also the trends during those periods. For example, suppose a county showed no difference between the pre- and post-AB3121 means. Now, a positive slope before (indicating increasing arrests) and a negative slope after AB3121 (declining arrests) would tell a different story than the t-test of difference of means.

In the present data, however, the form of the impact is not only substantial (though restricted by a floor effect), it is also the same for every county: a decline in the number of status offense arrests. It is the magnitude of the impact that we will try to explain.

Because of this, the interesting but uninformative comparisons of the differences of slopes are not presented. As an illustration, Figure 5 demonstrates a lack of change in the form but a definite change in the level of arrests in Contra Costa County. (For the record, the slopes in this example are different enough to generate a statistically improbable value for t .)

Descriptive ARIMA models.

As argued earlier, when dealing with time series data, the correlations among the residuals of the estimations must be taken into account. Otherwise, results may be deemed "significant" when they are merely statistical error. For each county, then, different autoregressive, integrative, and moving average (ARIMA) components are added to a regression model to adjust for these correlated errors. An impact component can then be included, and the size and abruptness of the impact can be assessed. These measurements will next be regressed on demographic, criminal justice, and other characteristics of the counties to determine if there are any associations between the conditions in a county before the implementation of AB3121 and the bill's impact on the status offense arrest rates in that county.

Table 1. Summary of Four AB3121 Provisions

Pre-AB3121

AB3121 Provision

DEINSTITUTIONALIZATION OF STATUS OFFENDERS

Pre-trial and post-adjudication incarceration for all juveniles were accomplished solely at the discretion of the juvenile court.

Juveniles cannot be incarcerated in secure facilities on the basis of a status offense alone. This applies to pre-trial detention as well as post-adjudication commitments.

PROSECUTION OF DELINQUENT OFFENDERS

The probation officer filed all petitions (with the possible exception of dependency cases when the Welfare Department takes on this function) and appeared at all juvenile hearings. The district attorney could appear on invitation from the court.

The district attorney files all petitions for juveniles accused of law-violating offenses and must appear in all hearing on such matters. The probation officer screens all referrals to the Probation Department, sending cases considered appropriate for court petitioning to the district attorney.

ALTERNATIVE PROGRAM DEVELOPMENT AND REFERRALS

Alternative community services to offenders were neither encouraged nor discouraged in the Welfare and Institutions Code.

Alternative programs for delinquent and status offenders are encouraged, especially in connection with informal probation and post-adjudication dispositions, but no funds are provided by AB3121 for these services.

CERTIFICATION TO ADULT CRIMINAL COURT

At the discretion of the court (but usually at the request of the probation officer), a Certification hearing could be held and a juvenile found "unfit" for juvenile court if he was 16 or 17 years old and was judged unfavorably by the criteria: a) degree of criminal sophistication, b) possibility of rehabilitation during juvenile court's jurisdiction, c) prior delinquency history, d) success of court's previous attempts at rehabilitation, and e) the circumstances and gravity of the alleged offense.

If a juvenile is 16 or 17 years old and accused of one of 11 defined violent offenses, the district attorney has automatic grounds for initiating a "Certification hearing." In this fitness hearing the burden is on the court to demonstrate that the juvenile is "fit" for juvenile court. Otherwise he is to be certified to the (adult) criminal court. The offenses are: murder; arson of an inhabited building; armed robbery; forcible rape; kidnapping for ransom; kidnapping for robbery; kidnapping with bodily harm;

assault with intent to murder or attempted murder; assault with firearm or destructive device; assault likely to produce great bodily injury; and the discharge of a firearm into an inhabited or occupied building. A juvenile can still be found "unfit" on the basis of pre-AB3121 criteria as well.

Table 2. Percent of state arrests reported in Register format.

| <u>Year</u> <u>Reported</u> | <u>Percentage</u> |
|--------------------------------|-------------------|
| 1978 | 96 |
| 1977 | 95 |
| 1976 | 89 |
| 1975 | 80 |
| 1974 | 61 |

Table 3. Differences in Numbers of Status Offenders and Delinquent Offenders Detained at Intake to Probation. Means Across 53 California Counties, 1976 - 1977.

| Arrests for... | 1976 | 1977 | Difference of means | P(t Ho) |
|-----------------|--------|--------|------------------------|---------|
| Status Offenses | | | | |
| mean: | 435.5 | 134.0 | -301.5 | .0001 |
| sd: | 562.6 | 222.2 | | |
| median: | 205.0 | 17.5 | | |
| #zero: | 5 | 3 | | |
| maximum: | 2494 | 1017 | | |
| Delinquencies | | | | |
| mean: | 356.5 | 372.4 | +5.8 | .369 |
| sd: | 1542.5 | 1447.4 | | |
| median: | 272.5 | 272.5 | | |
| #zero: | 3 | 2 | | |
| maximum: | 3777 | 7617 | | |

Table 4. Spearman Rank-Order Correlations* for the Number of Juveniles Detained at Intake to Probation in 53 California Counties, for Status Offenders and Delinquents Offenders, 1976 - 1977.

| | Status Offenders, 1977 | Delinquent Offenders, 1976 | Delinquent Offenders, 1977 |
|----------------------------------|------------------------------|----------------------------------|----------------------------------|
| | ----- | ----- | ----- |
| Status Offenders, 1976 | .842 | .961 | .953 |
| Status Offenders, 1977 | | .829 | .853 |
| Delinquent Offenders, 1976 | | | .933 |

* p = .001 for all coefficients

Table 5. Changes in the Size of Adolescent Segments of the Population (10-17 Years and 18-20 Years), Correlated with Changes in the Numbers of Juveniles Detained at Intake to Probation, for 58 California Counties, 1976 - 1977.

| Pearson r (p) | (A) | (B) | (C) | (D) |
|--|--------|---------------------|---------------|--------------------|
| (A) Change in 10-17 Age Group | 1.00 | -.697 ($<.01$) | .137 (.31) | -.326 (.01) |
| (B) Change in 18-20 Age Group | | | .266 (.04) | .498 ($<.01$) |
| (C) Change in Number of Status Offenders Held in Detention | | | | .155 (.25) |
| (D) Change in Number of Delinquents Held in Detention | | | | |
| Mean | 667.7 | -652.9 | -301.5 | 5.82 |
| Std Deviation | 5559.0 | 3738.0 | 400.9 | 268.7 |
| P(t Ho) | .36 | .19 | .0001 | .87 |

Table 6.
T-Tests of Difference of Means

| | PERIOD | MEAN | STD_DEV | P(T=Ho) |
|--------------|---------------|--------------|-------------|---------|
| ALAMEDA | | | | |
| | Before AB3121 | 156.87500000 | 45.20418651 | .0001 |
| | After AB3121* | 96.83333333 | 10.58358243 | |
| AMADOR | | | | |
| | Before AB3121 | 1.87500000 | 2.70767829 | .0058 |
| | After AB3121 | 0.15666667 | 0.63702206 | |
| BUTTE | | | | |
| | Before AB3121 | 31.12500000 | 10.52119497 | .0001 |
| | After AB3121 | 0.70833333 | 1.08263634 | |
| CALAVERAS | | | | |
| | Before AB3121 | 4.54166667 | 4.11760975 | .0001 |
| | After AB3121 | 0.45833333 | 0.97709270 | |
| COLUSA | | | | |
| | Before AB3121 | 5.58333333 | 2.91796038 | .0001 |
| | After AB3121 | 1.12500000 | 1.56906231 | |
| CONTRA COSTA | | | | |
| | Before AB3121 | 274.04166667 | 38.74945067 | .0001 |
| | After AB3121 | 119.83333333 | 27.12237431 | |
| DEL NORTE | | | | |
| | Before AB3121 | 11.33333333 | 4.94022237 | .0001 |
| | After AB3121 | 0.75000000 | 1.03209369 | |
| EL DORADO | | | | |
| | Before AB3121 | 25.33333333 | 6.76092782 | .0001 |
| | After AB3121 | 14.25000000 | 9.40975442 | |
| FRESNO | | | | |
| | Before AB3121 | 102.75000000 | 23.28696220 | .0001 |
| | After AB3121 | 70.25000000 | 27.57966850 | |
| GLENN | | | | |
| | Before AB3121 | 8.08333333 | 2.30154328 | .0001 |
| | After AB3121 | 1.66666667 | 2.69729796 | |
| IMPERIAL | | | | |
| | Before AB3121 | 43.41666667 | 14.58682153 | .0001 |
| | After AB3121 | 3.20833333 | 2.06374852 | |

* For Alameda, only 1977 post-AB3121 figures are used.

Table 6.
 T-Tests of Difference of Means (con't)

| | PERIOD | MEAN | STD_DEV | P(t Ho) |
|-------------|---------------|--------------|--------------|---------|
| INYO | Before AB3121 | 2.5000000 | 2.94375747 | .0138 |
| | After AB3121 | 0.9750000 | 1.07592225 | |
| KERN | Before AB3121 | 231.83333333 | 73.12903939 | .0001 |
| | After AB3121 | 156.20933333 | 45.55930599 | |
| KINGS | Before AB3121 | 24.7500000 | 6.95482316 | .0001 |
| | After AB3121 | 13.45833333 | 4.80922272 | |
| LAKE | Before AB3121 | 9.1250000 | 5.53496799 | .0001 |
| | After AB3121 | 0.83333333 | 1.09014025 | |
| LASSEN | Before AB3121 | 7.6250000 | 3.98707150 | .0001 |
| | After AB3121 | 0.91666667 | 1.50120724 | |
| LOS ANGELES | Before AB3121 | 1057.7500000 | 181.95848786 | .0001 |
| | After AB3121 | 440.2500000 | 62.12697377 | |
| MADERA | Before AB3121 | 14.6250000 | 5.24041568 | .0001 |
| | After AB3121 | 4.29166667 | 3.32943613 | |
| MARIN | Before AB3121 | 58.7500000 | 15.69616403 | .0001 |
| | After AB3121 | 19.70833333 | 8.89298290 | |
| MARIPOSA | Before AB3121 | 2.66666667 | 2.25863881 | .0001 |
| | After AB3121 | 0.20833333 | 0.65800533 | |
| MENDOCINO | Before AB3121 | 33.3750000 | 9.00633835 | .0001 |
| | After AB3121 | 9.08333333 | 5.61764817 | |
| MERCED | Before AB3121 | 36.66666667 | 9.99855062 | .0001 |
| | After AB3121 | 22.95833333 | 6.80459670 | |
| MONTEREY | Before AB3121 | 100.0000000 | 17.35060455 | .0001 |
| | After AB3121 | 22.3750000 | 8.41743790 | |
| NAPA | Before AB3121 | 35.29166667 | 9.32261937 | .0001 |
| | After AB3121 | 13.1250000 | 10.92787620 | |

Table 6.

T-Tests of Difference of Means (con't)

| PERIOD | MEAN | STD_DEV | P(t Ho) |
|-----------------|--------------|--------------|---------|
| NEVADA | | | |
| Before AB3121 | 7.25000000 | 3.73293217 | .0024 |
| After AB3121 | 4.20833333 | 2.75016469 | |
| ORANGE | | | |
| Before AB3121 | 543.41666667 | 113.98433022 | .0001 |
| After AB3121 | 283.25000000 | 102.27679834 | |
| PLACER | | | |
| Before AB3121 | 32.58333333 | 9.69946958 | .0023 |
| After AB3121 | 23.66666667 | 9.40705871 | |
| RIVERSIDE | | | |
| Before AB3121 | 121.58333333 | 27.65771638 | .0001 |
| After AB3121 | 59.83333333 | 31.54936321 | |
| SACRAMENTO | | | |
| Before AB3121 | 176.25000000 | 52.09710832 | .0001 |
| After AB3121 | 98.50000000 | 34.02428800 | |
| SAN BENITO | | | |
| Before AB3121 | 7.16666667 | 5.06193524 | .0001 |
| After AB3121 | 0.37500000 | 0.87538811 | |
| SAN BERNARDINO | | | |
| Before AB3121 | 257.33333333 | 52.07157838 | .0002 |
| After AB3121 | 192.04166667 | 57.99211278 | |
| SAN DIEGO | | | |
| Before AB3121 | 537.79166667 | 68.43974129 | .0001 |
| After AB3121 | 420.16666667 | 52.18251137 | |
| SAN FRANCISCO | | | |
| Before AB3121 | 89.91666667 | 22.28260516 | .0001 |
| After AB3121 | 60.00000000 | 13.18760947 | |
| SAN JOAQUIN | | | |
| Before AB3121 | 114.37500000 | 20.08203285 | .0001 |
| After AB3121 | 52.45833333 | 13.45517249 | |
| SAN LUIS OBISPO | | | |
| Before AB3121 | 38.75000000 | 12.28732114 | .0001 |
| After AB3121 | 11.58333333 | 5.42872126 | |
| SAN MATEO | | | |
| Before AB3121 | 135.33333333 | 26.06124337 | .0001 |
| After AB3121 | 46.91666667 | 23.33669748 | |
| SANTA CLARA | | | |
| Before AB3121 | 172.70833333 | 32.66893108 | .0001 |
| After AB3121 | 93.29166667 | 51.95272028 | |

Table 6.

T-Tests of Difference of Means (con't)

| PERIOD | MEAN | STD_DEV | P(t Ho) |
|---------------|--------------|-------------|---------|
| SANTA CRUZ | | | |
| Before AB3121 | 36.25000000 | 23.15777642 | .0001 |
| After AB3121 | 2.08333333 | 1.81579224 | |
| SHASTA | | | |
| Before AB3121 | 77.87500000 | 17.25590636 | .0017 |
| After AB3121 | 51.87500000 | 14.00356618 | |
| SISKIYOU | | | |
| Before AB3121 | 15.41666667 | 5.84522597 | .0001 |
| After AB3121 | 3.08333333 | 4.15897841 | |
| SOLANO | | | |
| Before AB3121 | 81.04166667 | 22.11133718 | .0001 |
| After AB3121 | 13.33333333 | 8.86942313 | |
| SONOMA | | | |
| Before AB3121 | 124.00000000 | 24.31138577 | .0001 |
| After AB3121 | 71.04166667 | 26.21562622 | |
| STANISLAUS | | | |
| Before AB3121 | 108.62500000 | 25.31507971 | .0001 |
| After AB3121 | 27.66666667 | 17.56148619 | |
| SUTTER | | | |
| Before AB3121 | 3.33333333 | 2.66485446 | .0001 |
| After AB3121 | 0.04166667 | 0.20412415 | |
| TEHAMA | | | |
| Before AB3121 | 9.70833333 | 4.58237803 | .0030 |
| After AB3121 | 5.87500000 | 3.85962940 | |
| TULARE | | | |
| Before AB3121 | 79.87500000 | 20.32627877 | .0001 |
| After AB3121 | 41.50000000 | 16.78249606 | |
| TUOLUMNE | | | |
| Before AB3121 | 3.50000000 | 3.74165739 | .0018 |
| After AB3121 | 0.75000000 | 1.07339364 | |
| VENTURA | | | |
| Before AB3121 | 111.58333333 | 36.06626349 | .0001 |
| After AB3121 | 18.45833333 | 7.44825142 | |
| YUBA | | | |
| Before AB3121 | 11.87500000 | 5.60521884 | .0004 |
| After AB3121 | 6.25000000 | 4.62742298 | |

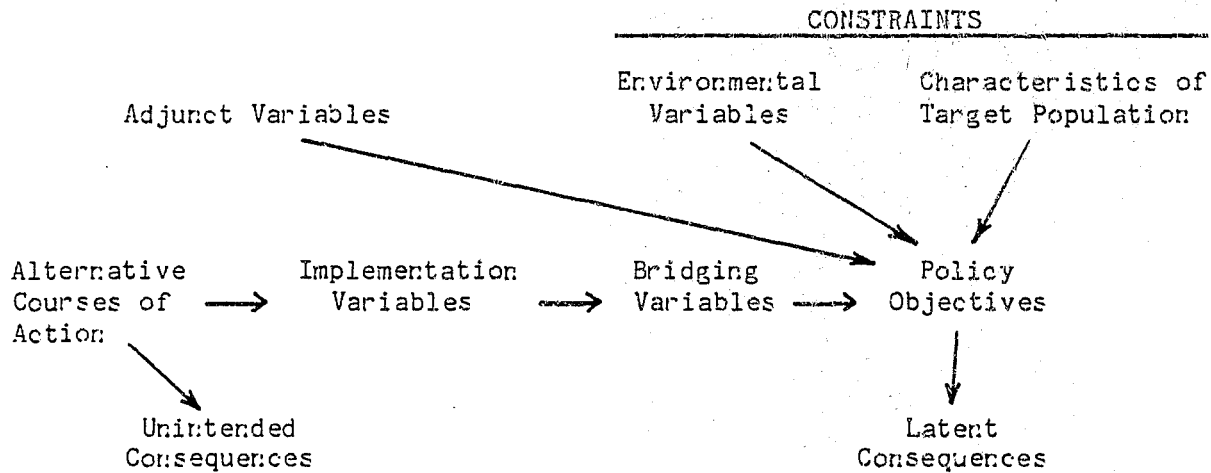


Figure 1. Basic Schematic for the Mayer and Greenwood Model.

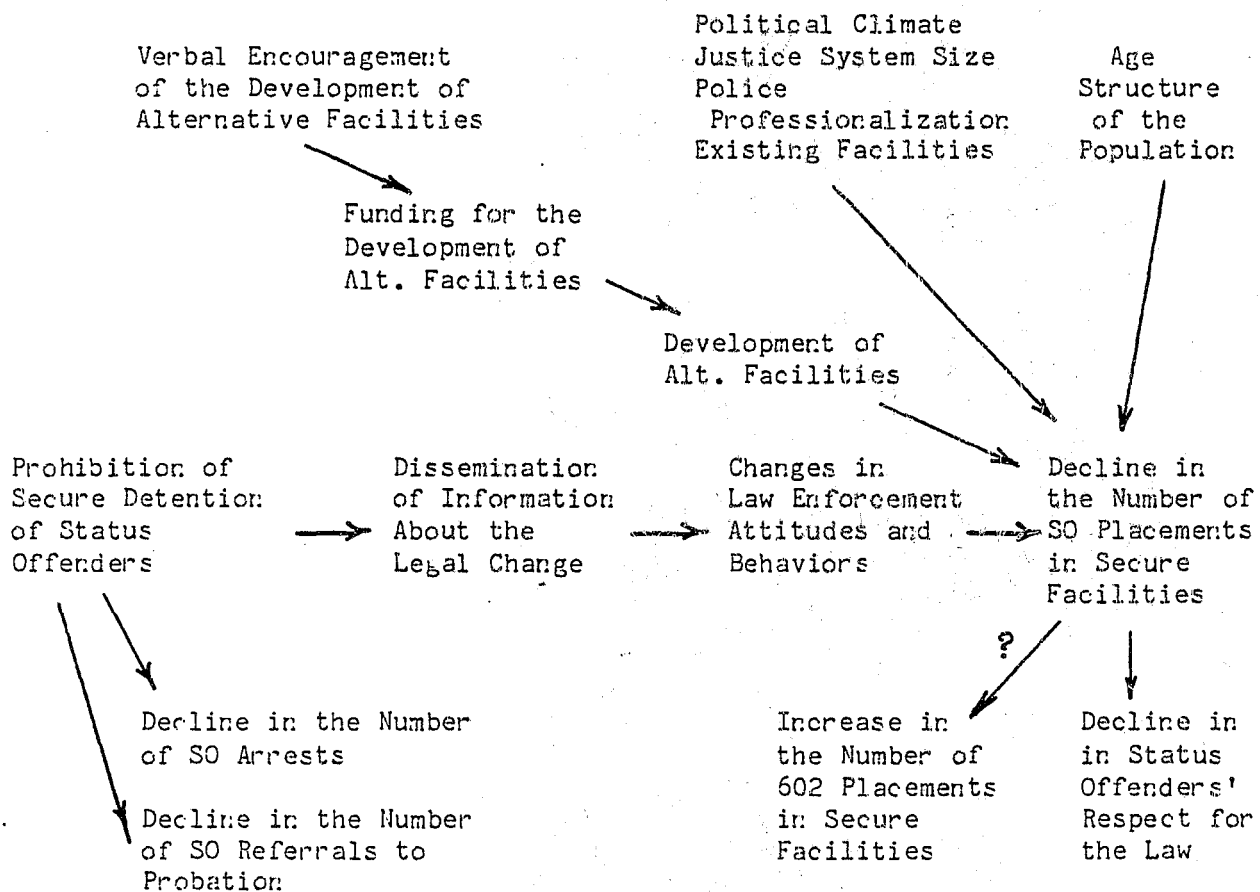
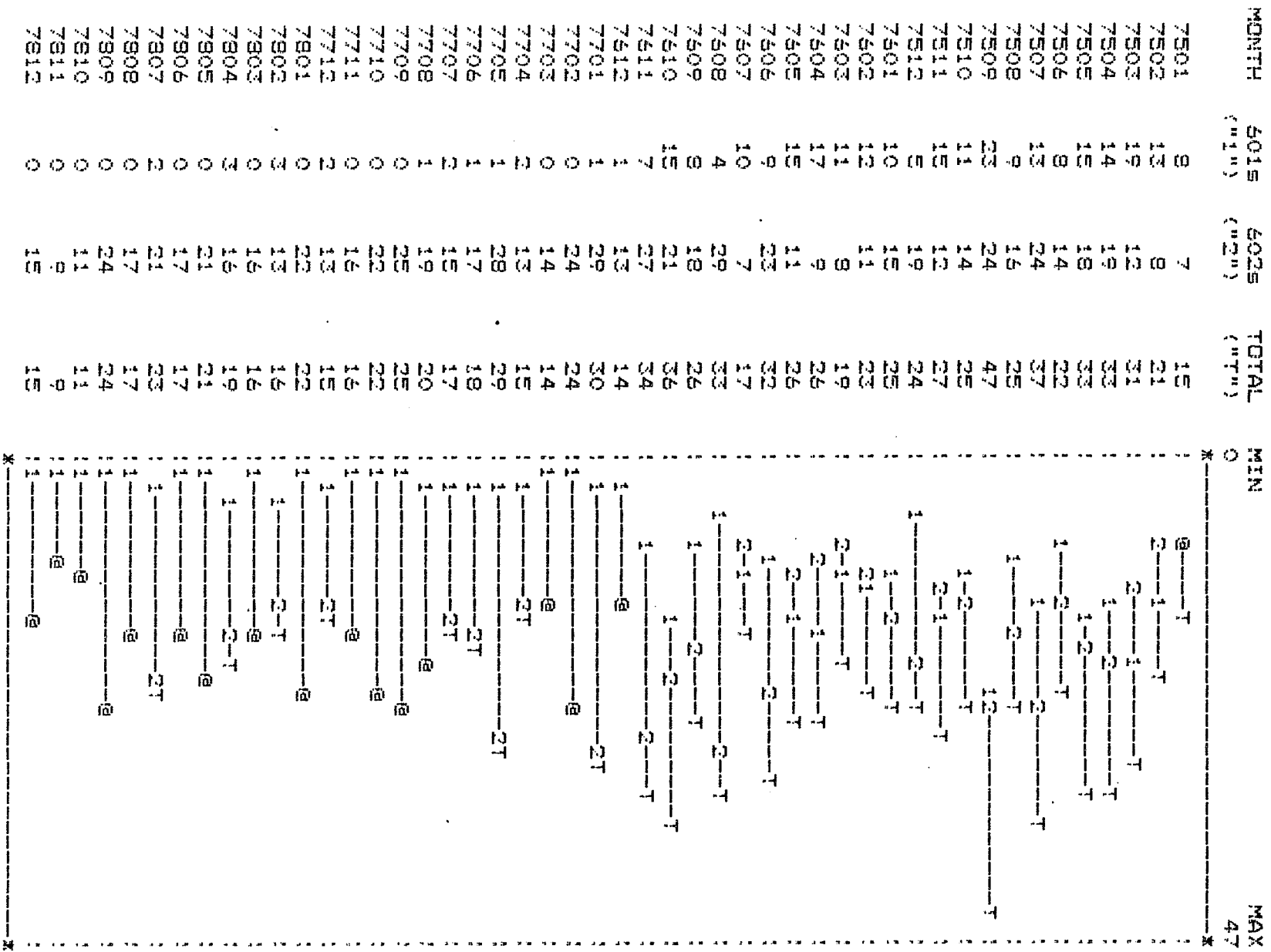


Figure 2. The Mayer and Greenwood Scheme Applied to Certain Provisions of AB3121.

Figure 3. Irregularities in the Time Series for Arrests.
 SANTA BARBARA ARRESTS

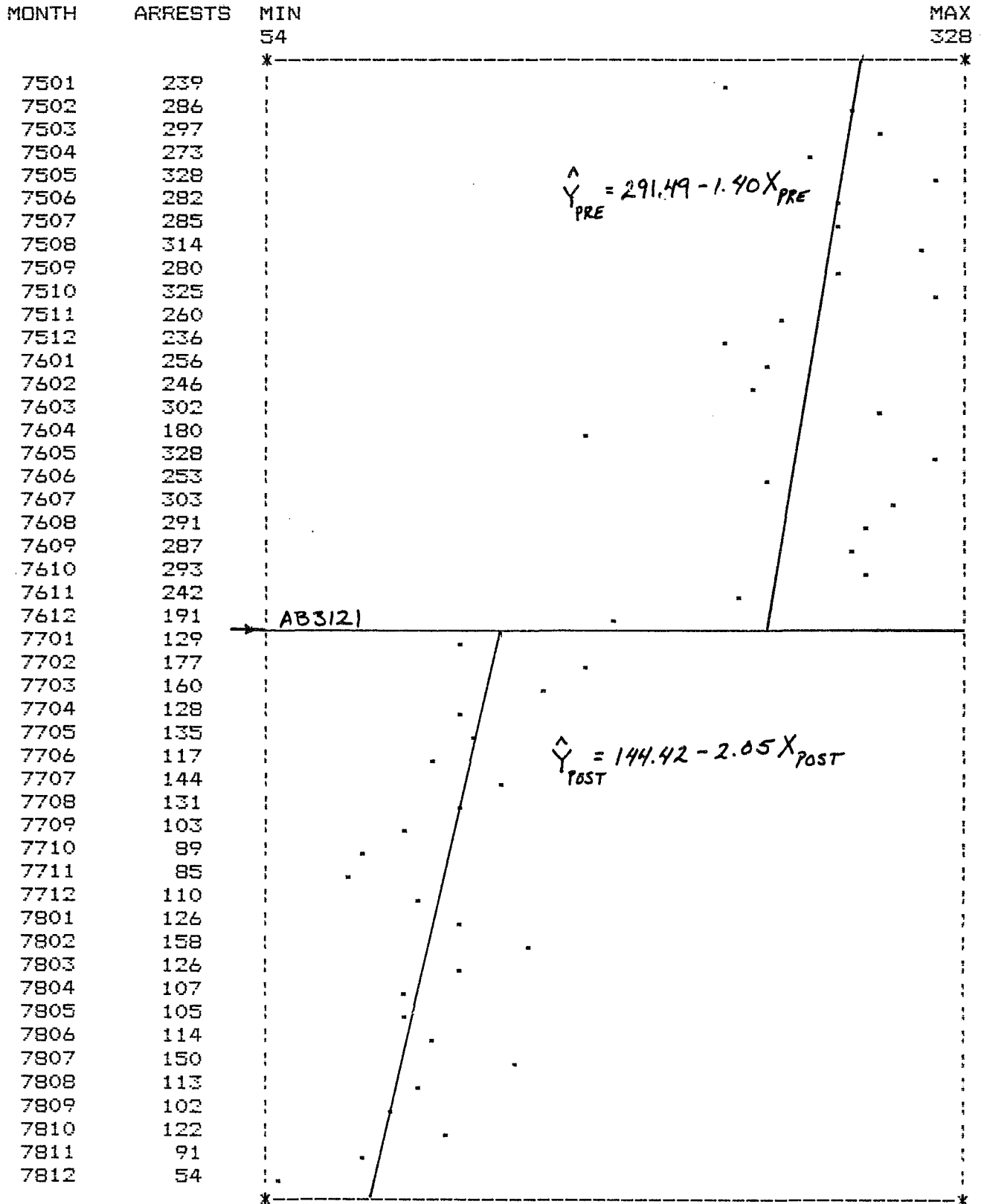
| MONTH | 601s ("1") | 602s ("2") | TOTAL ("T") | MIN 14 | MAX 352 |
|-------|---------------|---------------|----------------|-----------|------------|
| 7501 | 14 | 116 | 130 | 1-2-T | |
| 7502 | 41 | 99 | 140 | 1-2-T | |
| 7503 | 37 | 205 | 242 | 1-2-T | |
| 7504 | 24 | 127 | 151 | 1-2-T | |
| 7505 | 32 | 160 | 192 | 1-2-T | |
| 7506 | 26 | 137 | 163 | 1-2-T | |
| 7507 | 43 | 139 | 182 | 1-2-T | |
| 7508 | 40 | 129 | 169 | 1-2-T | |
| 7509 | 32 | 99 | 131 | 1-2-T | |
| 7510 | 41 | 127 | 168 | 1-2-T | |
| 7511 | 25 | 87 | 112 | 1-2-T | |
| 7512 | 29 | 129 | 158 | 1-2-T | |
| 7501 | 31 | 95 | 126 | 1-2-T | |
| 7502 | 27 | 95 | 122 | 1-2-T | |
| 7503 | 34 | 139 | 173 | 1-2-T | |
| 7504 | 31 | 117 | 148 | 1-2-T | |
| 7505 | 42 | 157 | 199 | 1-2-T | |
| 7506 | 41 | 107 | 148 | 1-2-T | |
| 7507 | 30 | 158 | 188 | 1-2-T | |
| 7508 | 35 | 126 | 161 | 1-2-T | |
| 7509 | 58 | 156 | 214 | 1-2-T | |
| 7510 | 65 | 182 | 247 | 1-2-T | |
| 7511 | 50 | 175 | 225 | 1-2-T | |
| 7512 | 43 | 180 | 223 | 1-2-T | |
| 7701 | 39 | 156 | 195 | 1-2-T | |
| 7702 | 14 | 167 | 181 | 1-2-T | |
| 7703 | 23 | 182 | 205 | 1-2-T | |
| 7704 | 27 | 164 | 191 | 1-2-T | |
| 7705 | 39 | 191 | 230 | 1-2-T | |
| 7706 | 49 | 162 | 211 | 1-2-T | |
| 7707 | 53 | 127 | 180 | 1-2-T | |
| 7708 | 23 | 155 | 178 | 1-2-T | |
| 7709 | 32 | 117 | 149 | 1-2-T | |
| 7710 | 21 | 144 | 165 | 1-2-T | |
| 7711 | 27 | 152 | 179 | 1-2-T | |
| 7712 | 24 | 167 | 191 | 1-2-T | |
| 7801 | 51 | 301 | 352 | 1-2-T | |
| 7802 | 32 | 256 | 289 | 1-2-T | |
| 7803 | 56 | 263 | 319 | 1-2-T | |
| 7804 | 45 | 244 | 289 | 1-2-T | |
| 7805 | 35 | 178 | 213 | 1-2-T | |
| 7806 | 15 | 213 | 228 | 1-2-T | |
| 7807 | 31 | 266 | 297 | 1-2-T | |
| 7808 | 47 | 298 | 345 | 1-2-T | |
| 7809 | 54 | 268 | 322 | 1-2-T | |
| 7810 | 77 | 265 | 342 | 1-2-T | |
| 7811 | 25 | 180 | 205 | 1-2-T | |
| 7812 | 25 | 260 | 285 | 1-2-T | |

Figure 4. Anticipation of the Implementation of AB3121.
DEL NORTE ARRESTS



@ = Overlap of two or more points

Figure 5. Two Regression Lines for Pre- and Post-Intervention Contra Costa County Status Offense Arrests



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