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NATIONAL COUNCIL ON CRIME AND DELINQUENCY

EXTERNAL REVIEW OF SOUTH CAROLINA'S
DEPARTMENT OF CORRECTIONS
PROJECTION MODEL
AND POLICY SIMULATIONS OF S. 258
AND
THE OMNIBUS CRIMINAL JUSTICE
IMPROVEMENT ACT

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Ref: NIC T/A #86-001

I. Overview of the Technical Assistance Request

Like most states, South Carolina is experiencing severe difficulties managing the growth of its adult prison population. Fueled by a number of demographic and policy related factors, South Carolina's prison population increased from 4,900 in FY 1975 to approximately 10,120 by FY 1985. Current projections by the Department of Corrections (SCDC) show a continuation of this growth to 15,140 by FY 1994 despite an assumption that prison admissions will remain constant during the next eight years.*

This rapid growth in prison population has also resulted in the intervention of the courts to control prison crowding (Nelson versus Leeke). The court has placed firm restrictions on the size of the prison population which have resulted in the implementation of an Emergency Powers Act (EPA). The EPA is used to reduce the length of stay for certain offenders by reducing their sentence in increments of 90 days. The EPA has been triggered three times and is now scheduled to be triggered once again. Eligibility for EPA is determined by SCDC and is limited to those inmates meeting criteria set forth in an April 3, 1985 SCDC memorandum.

Despite the use of EPA and the court's intervention, there has been a recent flurry of legislative proposals (and enactments) which could either aggravate or reduce current prison population projections. In 1985, Senate Bill 258 was enacted with the intent to significantly lengthen sentence lengths for persons convicted of burglary. More recently, the current legislative session has proposed a number of sentencing reforms ranging from the abolition of parole to diversion of offenders with less than one year sentences from prison to local jails.

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* These numbers reflect jurisdictional populations only and not the actual in-house figures.

Given this highly volatile atmosphere, state policymakers are concerned that accurate policy simulations be done by SCDC to inform legislative debate and to ensure that they are fully informed of the fiscal consequences of their actions.

It is within this context that James Austin, Research Director for the National Council on Crime and Delinquency (NCCD), was requested to review both the current SCDC projection methodology and the SCDC policy simulations completed to date. In the following pages the scope of the external review is described as well as the methods used. A summary of specific findings and recommendations to improve the accuracy of SCDC's projections is provided at the close of the report.

II. Nature of Technical Assistance Requested

Dr. Austin was initially contacted by Mr. Richie Tidwell, Director of South Carolina's Public Safety Programs, to conduct a detailed review/critique of the South Carolina Department of Corrections (SCDC) prison populations. Specifically, Mr. Tidwell was interested in a review of the following projections:

1. The overall methodology used to make prison population projections
2. Policy simulation of the 1985 S.258 Burglary Act
3. Policy simulaton of the Omnibus Criminal Justice Improvement Act

Mr. Tidwell then contacted the National Institute of Corrections (NIC) which is a Federal agency within the Department of Justice, to provide funding for Dr. Austin's services. NIC approved of the Technical Assistance request and provided funds to permit an on-site visit by Dr. Austin with SCDC staff and a thorough review of all documentation associated with the various projections.

A two day site visit was scheduled for January 23-24 with meetings with Dr. Lorraine Fowler and Mrs. Meesim Lee of SCDC, and Mr. Tidwell. It was requested by Dr. Austin that the bulk of the on-site work be spent with Mrs. Lee who has the most direct knowledge of the projection model.

Prior to the site visit a number of documents were forwarded to NCCD for review. In November, 1985, SCDC had contracted with Professor Charles Friel of Sam Houston State University to review SCDC's projection methodology. Dr. Friel prepared a written review of the model which was forwarded to NCCD and greatly assisted in the analysis (see Friel, 1985). Background documents on the policy simulation were also provided by SCDC and Mr. Tidwell and prior to the site visit.

III. Description of the On-site Review Methods

Once on-site, the consultant spent the majority of time with Mrs. Lee reviewing each projection selected by Mr. Tidwell for review. Mrs. Lee had prepared a very detailed record of each projection from which one could easily trace her assumptions and statistical calculations. It should be said at the outset that Mrs. Lee's level of documentation is unique to most states reviewed by this consultant. Her calculations are highly accurate. There was no evidence of purposely inflating or deflating key data elements which are applied to the projection model. She is to be commended for her high quality of work and the professionalism that she brings to the projections.

While on-site, an additional interview was conducted (January 23, 1986) with Mr. Frank Saunders, Executive Director of the South Carolina Parole and Pardon Board. This was deemed necessary by Dr. Austin to clarify the Board's current rate of parole denial and to explore the impact of the Board's possible adoption of parole guidelines on the prison population. Parole Board

policy is an extremely sensitive factor employed by the model to make projections. Changes in parole rate will have enormous consequences on the extent of population growth.

An exit meeting was also held with Mr. Tidwell on January 24, 1986 summarizing the major findings and recommendations. Special attention was directed toward immediate adjustments which could be quickly made in the projections to enhance their accuracy. These same recommendations made to Mr. Tidwell are repeated in the summary section of this report.

IV. Major Findings

The remainder of the report summarizes the consultant's findings. This discussion is separated according to the following areas:

1. Review of Current Projection Methodology and Current "Base" Projections

2. Review of S. 288 Burglary Bill Projection

3. Review of Omnibus Criminal Justice Improvement Bill

A. Review of Current Projection Methodology and Base Projections

The SCDC projection model attempts to accurately mimic the flow of inmates being admitted to and released from the prison system. To do this accurately, projections are done separately for (1) the existing "stock" popultion (N = 11,000 plus) and (2) new prison admissions. With regard to the existing population, algebraic equations are used to estimate how much longer the existing inmates will be incarcerated until they are paroled or discharged taking into account accrued goodtime and work credits. New admissions are separately modeled to estimate their entire length of stay. Both the existing and new admission projections are further disaggragated by relevant offense classes. This serves to enhance the overall accuracy of the estimates and to facilitate policy simulations of pending legislation or correctional policy

which often affect only specific offense classes and/or subsequent prison admission (i.e., is not retroactive to the current prison or parole populations.)

One weakness in the design of the SCDC model is the omission of a parole population component. This is important because a significant proportion of new admissions are parole violators with or without new sentences. Professor Friel also noted this deficiency in his review.

Prison population is, of course, the product of two factors: prison admissions and length of stay (LOS). Those familiar with projection models recognize that the most difficult factor to simulate is LOS as it is comprised of a number of complex factors. In the SCDC model LOS is calculated based on the following six factors:

1. Original Sentence Length
2. Work Credits (affects parole eligibility and discharge dates)
3. Goodtime Credits (affects discharge dates only)
4. Parole Grant Rate (By offense class)
5. Wait Time Between Hearings
6. EPA Credits

Separate equations are used to solve for LOS for the current population and new admissions. Again, LOS for the current population actually represents time left till parole or discharge whereas LOS for new admissions represents the expected total length of confinement.

Unlike the complex calculations used to estimate LOS, the number of annual prison admissions are apparently based on correctional staff judgement. SCDC presently believes that admissions will remain constant apparently due to a recent and short-lived leveling off of the new admissions during 1984. More interestingly, SCDC assumes that these admissions will remain flat through 2046.

Overall the model has thus far produced accurate short-term (up to two years) estimates but inaccurate projections thereafter. According to Friel's

report, projections beyond the three year period have error rates in the 8-13 percent range and in no consistent direction.

The consultant believes that the source of this problem clearly lies in the new admissions component of the model. Prison population estimates are heavily driven by the existing population characteristics during the first two years of the projected time period. Thereafter, the new admission component takes hold as the driving force. Partial explanations of the inaccuracy in the long-term estimate could be due to dramatic shifts in criminal justice policy which could not be anticipated at the time of the projection and do not reflect negatively on the model itself. For example, changes in the parole grant rate, work credit allocations, and sentencing patterns may be responsible. However, there are several factors associated with the current base projection which need to be modified.

1. Exclusion of Jail Credits Factor

Similar to most states, jail credits (i.e., time served pretrial in local jails) are applied to an inmate's goodtime release and parole eligibility date calculations. These typically average 30-90 days in most states depending upon local court practices. By not including these credits in the model's equations, a systematic bias is introduced which over-estimates the projected LOS. This only occurs for new admissions but its impact on long-term projections is significant.

For example, assuming a constant rate of 5,500 new court commitments per year and an average 30 days of jail credits being omitted produces a 450 over-estimate for the new admission component. If jail credits average 60 days, the over-estimate approaches 900 over time.

2. <u>Assumption of Constant Rate of New Admissions</u>

A countervailing factor is the current SCDC assumption that admissions will remain constant. This assumption is based on the tenuous observation that admissions were constant for a brief period of time during FY 1983 - FY 1984. However, data provided by SCDC shows a steady albeit slow increase in admissions from FY 1979 - FY 1985.

A more defensible estimate for future admissions would be based on the demographic patterns of the state's at-risk population. New admission estimates should be based on a disaggregated demographic model which may well demonstrate an increase in new admissions. (see Blumstein, 1980 for a description of this approach).

3. <u>Sensitivity of LOS Equations to Data Errors</u>

The formulas used to estimate LOS are based on arithmetic means and are extremely sensitive to relatively small changes in their values. These equations assume normal distributions on key variables like sentence length and work credits, which may not be the case. If the means are either inaccurate or based on skewed distributions, the amount of error in the long-term projections can become quite large especially in connection with weighted averages as used in the SCDC model.

For example, Table 7 (page 43) in Friel's 1985 report compares actual with computed LOS on a chart of 1983 SCDC releases. As noted in the report, the errors are small for the sentences of less than 8 years, but large for the longer sentences. Most alarming is the direction of these errors for the eight year and longer sentences. Friel's report minimizes this problem arguing that it would only impact projections beyond eight years but this is not the case. As shown in Table 7, an eight year sentence with parole, work credits, and goodtime credits accounted for, translates into less than 3

years. If the model also incorporated jail credits and EPA credits, the LOS is further reduced. One would then expect errors in the projections to surface by the third year.

4. Base Projection Does Not Reflect Current EPA and Parole Board polices

The current projections do not include the recent approval of the fourth EPA 90 day sentence reduction. Incorporating this recent development, which SCDC is preparing to do, will naturally reduce current population estimates.

The model also currently assumes a 37 percent grant rate for inmates appearing at all parole board hearings. According to Parole Board officials, the current rate is now less than 30 percent which should be incorporated into the base projections. This change may not have a significant increase on the projections. As sentences are increasingly reduced via EPA an increasing proportion of inmates are not appearing before the Board since their terms actually expire close to (or even before) parole eligibility dates are reached.

Collectively these factors, unless modified, will cause the current SCDC base projection beyond three years to be inaccurate. It's difficult at this time to determine the degree of inaccuracy. Including jail credits and the recently approved fourth EPA trigger will reduce the current estimates. Increases in the admission estimate (if empirically warranted) and slightly lowering of the parole grant rate will serve to increase the numbers. The key item will be a more realistic admissions estimate using a disaggregated demographic model to make these estimates.

Technical problems with the model itself can only be overcome by using a more sophisticted model which has these factors:

- Models the parole population and parole violation admissions (with and without new sentences).

- Utilizes probability distributions in lieu of means incorporates additional factors affecting LOS including removal and restoration of goodtime credits by institutional staff.

- Includes a more accurate sub-model of parole release and goodtime release to choose functions in lieu of the current parole/goodtime release matrix. Such a model would allow for specifications of parole growth rates and wait times by offense class and parole hearing sequence.

B. Review of S.258 Burglary Bill Projections

The current SCDC base projection incorporates the projected impact of S.258 which lengthens prison sentences for certain classes of burglary. S.258 created three degrees of burglary with the following sentences:

First Degree   - 15 years minimum; life maximum
Second Degree - 15 year maximum
Third Degree   - 5 year maximum for the first offense and 10 year maximum
                      for second offense

The key to estimating the impact of S.258 lies in ones assumptions on how many of the projected pool of burglary admissions (the bill is not retroactive) will be affected by the bill compared to how they would be sentenced without S.258. Obviously, much depends on assumptions governing the proportion of burglary offenses expected to fall into the first and second degree categories. First degree burglaries are those crimes committed in a victim's personal residence where the offender is armed with a deadly weapon, causes or threatens physical injury, displays a weapon, or is committed by a person with two or more previous burglary convictions.

To estimate the proportion of prisoners to be affected by S.258, a sample of 151 1984 burglary and housebreaking admissions (including YOA's) were manually coded to determine what proportion would be impacted by S.258. For each sampled case, coders were asked to determine the existence of offense characteristics which could qualify the case for first, second, or third degree classification. Using this approach SCDC found that 30 percent of new

burglary and housebreaking admissions could be sentenced as first degree and 57 percent treated as second degree. Only 13 percent could be sentenced as third degree offenses.

Using these proportions, SCDC then compared the current sentence length with the projected new sentence length as mandated by S. 258. For first degree burglary, if the original sentence was the maximum term under the old burglary statute, then the new sentence was assumed to be life. Otherwise the new sentence is assumed to be 15 years. A similar approach was used for the second degree burglary cases.

In general, the methodology employed was appropriate. However, the consultant disagrees with the analysis for two reasons. First, one is suspicious of the assumption that 30 percent of the burglary admissions would be sentenced as first degree burglaries under S.258. Sentencing enhancement bills like these seldom have the impact as originally expected. The attached tables show the experience of California where its sentencing enhancements for burglary have had minimal impact on sentence length. The experience of California (and other states) is that prosecutors use these bills to exert greater pressure on defendants to plead guilty. Consequently, a more reasonable assumption would be that the bill's provisions would be used selectively by the court and not in all cases.

The other major concern has to do with the quality of SDCD's data base upon which the analysis was performed. A significant proportion (almost half) of the cases classified by SDCD as probable candidates for first degree burglary are now receiving sentences of two years or less. Despite criticisms that the court is overly lenient, the consultant recommends that these cases be re-examined to verify that persons committing burglaries with the threat of violence or carrying out actual violence and a history of burglaries are now receiving sentences of less than two years.

TABLE VIa-1

COMPARISON OF SENTENCES
PRE- AND POST-
SENATE BILL 1236*

(Persons convicted of a single count)

STATISTICAL SUMMARY OF SENTENCES IN MONTHS
FIRST DEGREE BURGLARY
(Penal Code Section 459)
PERSONS RECEIVED IN PRISON DURING Fiscal Year 1981-82

		Quarter received			
		1981		1982	
OFFENSE COMMITTED		July-Sept.	Oct.-Dec.	Jan.-March	Apr.-June
On or before Dec. 31, 1980	Mean	43.13	41.45	42.00	42.55
	Standard Deviation	17.20	17.26	20.42	19.50
	People Received	32	22	20	22
On or after Jan. 1, 1981	Mean	38.17	45.79	37.01	41.01
	Standard Deviation	20.77	21.76	16.57	18.85
	People Received	72	103	95	127
TOTAL	Mean	39.69	45.02	37.88	41.23
	Standard Deviation	19.79	21.04	17.31	18.89
	People Received	104	125	115	149

*Stats. 1980, ch. 42, §1.

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COMPARISON OF SENTENCES
PRE- AND POST-
SENATE BILL 1236*

(Persons convicted of a single count)

STATISTICAL SUMMARY OF SENTENCES IN MONTHS

FIRST DEGREE BURGLARY
(Penal Code Section 459)

PERSONS RECEIVED IN PRISON DURING FISCAL YEAR 1982-83

OFFENSE COMMITTED		Quarter received			
		1982		1983	
		July-Sept.	Oct.-Dec.	Jan.-March	Apr.-June
On or before Dec. 31, 1980	Mean	45.00	42.86	39.60	36.00
	Standard Deviation	16.28	16.77	16.05	13.86
	People Received	12	7	10	4
On or after Jan. 1, 1981	Mean	44.37	38.45	43.56	42.56
	Standard Deviation	20.30	15.71	23.94	21.85
	People Received	109	103	127	181
TOTAL	Mean	44.43	38.89	43.27	42.42
	Standard Deviation	19.88	15.97	23.44	21.71
	People Received	121	112	137	185

*Stats. 1980, ch. 42, §1.

A preferred approach would be to examine January and December burglary admissions to measure the actual effect of S.258 to date. Since six months has passed since adoption of the bill in June, 1985, SCDC should not be experiencing the impact of the law. The more recent burglary admission sample would then be used to determine what proportion of the burglary offenders are being classified as first and second degree cases. If this cannot be done, the consultant would recommend adoption of the assumption that only 50 percent of the SCDC identified cases will have the first and second degree provisions imposed by the court.

The S.258 projection assumes an increased growth of 700 plus inmates by 1994 which the consultant believes could be excessive for the reasons cited above. There will be an increase but probably not at these levels.

C. Review of Omnibus Criminal Justice Improvement Act

The final set of SCDC projections to be reviewed are those associated with the proposed Omnibus Criminal Justice Improvement Act (OCJI). This bill actually consists of eight separate components which serve to either reduce or increase prison population growth. Reductions are achieved by diverting offenders with less than one year sentences to local jails and by modifying current work credit restrictions for EPA placements. Increases are achieved by principally lengthening prison terms and parole wait-times for violent offenders. According to SCDC's current estimates, OCJI will produce a short-term reduction in the projected rate of growth but thereafter produce accelerated increases beginning in 1996.

Each of the eight components or sections were reviewed in detail with Mrs. Lee. Based upon this review the consultant concurs with SCDC's estimates for the following six OCJI sections:

- Section 8: SCDC Admits Only Offenders With Over One Year
  (Decreases Population by 451 Inmates by 1991)

- Section 13:   Lifers Will Not Be Eligible For Earning Work Credits (Negligible Impact)

- Section 16: Inmates Can Earn Work Credits And Good Time Prospectively for EPA Placements (Decreases Population by 353 Inmates Immediately)

- Section 17:   Those Convicted of Murder With Aggravating Circumstances Receive Life Sentences Without Parole (Increases Population by 350 inmates by 2028)

- Section 21:   First Degree Murders Are Not Eligible For Extended Work Release (Neglible Impact)

- Section 23:   Upon Negative Parole Determination, Offenders Convicted of Certain Violent Crimes Will Be Reviewed For Parole Every Two Years (Instead Of One). (Increases Population by 139 Inmates by 2000).

For the remaining two components (Section 20 and Section 22) the consultant agreed with the direction of the impact (i.e., increased population) but not the magnitude for reasons discussed below.

- Section 20:   Offenders Convicted Of Violent Crimes With Firearms Will Receive Additional Five Year Sentences.

SCDC projects that this provision will increase the prison population by over 400 inmates by 1996 and almost 600 by 2003. In making this estimate, SCDC again went through the appropriate steps. A sample of recent admissions (including burglaries which are defined as violent crimes) were drawn to identify which proportion would likely be affected by the new law. According to SCDC, 374 (or less than eight percent) of new court commitments would fit under this section of the law. SCDC then examined their current (or original) sentence lengths and estimated that only 172 (or less than half) would actually have their sentences increased. This is due to the bill's provision which allows the five year add-on to be concurrent with the inmate's current sentence. In 202 of the 374 admissions, the concurrent provision will have no impact as they are already being sentenced to prison terms in excess of ten

years. If the bill were to require consecutive sentences, the impact would be much greater.

From this analysis, it is clear that most of the impact is being driven by offenders now serving prison terms of three years or less whom SCDC assume will be affected by this provision. Remembering the target population of this bill, it seems possible that these data are not accurate (i.e., it seems unlikely that judges are currently giving short prison terms to offenders who have committed a violent crime and used a firearm). The consultant recommends a closer inspection of these sampled short-term violent offenders to verify the accuracy of the offense characteristics, sentence length, and classification of the case.

Secondly, the consultant disagrees with the assumption that the court will exercise this option in all of these identified cases. As with the burglary bill analysis, it is more probable that Section 20 will be used selectively by the court and not universally. Both California and Ohio which adopted similar firearm provisions found that these enhancements were used in less than 25 percent of the cases where use of a firearm was observed. For purposes of South Carolina, the consultant recommends that no more than a 50 percent application of the provision be used for the simulation.

- Section 22: Multiple Offenders Convicted Of Selected Violent
        Offenses Are Ineligible For Parole

This section of the OCJI Act would redefine inmates convicted of murder, CSC I and II, kidnapping, assault and battery with intent to kill, armed robbery, voluntary manslaughter, and burglary in the first and second degree with at least one prior conviction for the above offenses as ineligible for parole. Under ideal circumstances, the basis for the projections would be to (1) identify the number of admissions fitting this profile; (2) determine the number already not being paroled under current parole board policy; and

(3) compare new time to serves for the remaining offenders who historically have been paroled but will be ineligible in the future. This latter group are the offenders who will serve longer prison terms and hence drive the population up over time.

SCDC's approach was to take a recent sample (November, 1984 - February, 1985) of prison admissions for which offense, sentence length, and prior convictions were available on the data system. Using the criteria set forth in the bill, 255 annual admissions were estimated to be affected by the law. Of these 255 admissions, 30 were already ineligible for parole due to life or death sentences or, interestingly enough, sentences of one year or less. The fact that 23 of these 30 excluded cases were found to have sentence lengths of one year or less again raises questions regarding the validity of the data base.

Nevertheless, having identified these cases, an additional 40 cases were excluded based on the judgement that they would not have been paroled irrespective of the new law. (I am not sure how this was estimated). The remaining 185 cases were then considered to be those for which parole would no longer be available. New time to serve estimates were then calculated for these cases assuming they would be released according to the good time release ratio (.5526 of the original sentence).

In general, this method is a reasonable approximation of the preferred approach. The only difference is that SCDC was unable to precisely measure the current rate of parole for these offenders. To do this would require offense specific parole rates from the Parole Board which are not available. Data from an exit sample would not be accurate as they may not reflect current Parole Board policy.

The major concerns are similar to the ones raised for Section 20. Some of the cases with extremely short sentences may not be valid cases and the court is not likely to apply this restriction to all of the cases identified by SCDC as eleigible. The consultant again recommends a rechecking of the short sentences and using the assumption that only half of these identified cases eligible for the parole restriction will have it imposed.

V. Summary of Consultant's Recommendations

A. Current Base Projection

1. Include pretrial jail credits in the new admission component of the model

2. Adjust the new admissions assumption using a disaggregated demographic method.

3. Incorporate the effects of the recently approved EPA trigger.

4. Adjust the parole grant rate to reflect current Parole Board policy.

5. On a long-term basis, the SCDC model should be upgraded to permit a more refined estimation procedure for parole grants plus, a capacity to model the parole population and parole violators returned to prison.

B. Burglary Bill (S.258) Projection

1. Verify the accuracy of the sample data base especially for the accuracy of cases classified as first and second degree burglaries now serving short sentences.

2. Analyze December and January burglary admissions to determine impact of S.258 to date. Apply these results to the projection.

3. If unable to complete recommendation 2, assume that 50 percent of the cases eligible for first and second degree burglary classification will receive such a dispostion.

C. Omnibus Criminal Justice Improvement Act (Sections 20 and 22 only)

1. Verify the accuracy of the sample data bases to verify the accuracy of cases classified as ineligible for parole and/or receiving five year concurrent sentencing enhancements.

2. Assume that only 50 percent of the cases eligible for each provision will receive such a disposition.

With the exception of the prison admission and adjustment in parole grant rates, all of these recommendations will exert a downward pressure on the original SCDC projections.

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