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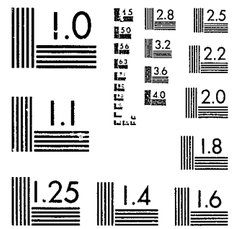

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CUTBACK MANAGEMENT: An Empirical Approach

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Introduction.

The services delivered by state and local government increased dramatically during the decade of the 70's. In fact, the growth rate in this area far surpassed the growth of the federal government. The demand for services at the local level was at least to some degree a reflection of the increased real incomes which took place during the 60's. Further, a large portion of the tax revenues were going to support expenditures at the federal level primarily for the Viet Nam war. At the conclusion of the war, there was a pronounced shift in federal policy with respect to revenue sharing and such programs as CETA(Comprehensive Employment Training Act) all of helped expand the level of government services at the local level without correspondingly raising taxes. The "peace dividend" was paid in this fashion. All in all there were "real" increases in expenditures accounting for inflation.

After the 1975 recession, from which some areas never recovered as evidenced by the level of indebtedness to the federal unemployment compensation fund, the economy began to be battered by inflation. While that inflation was caused in large part by the increases in the price of imported oil, those increases quickly washed through every sector in the economy. Inflation of the "double digit" variety became a daily fact of life. The net impact of this inflation is that real incomes have not risen for nearly 8 years. To some degree we were able to control this by changing our consumption patterns but in a very real way this is also a lowering in the standard of living.

With the election of Ronald Reagan, a conservative tide swept the country. The clear mandate was to cut federal government spending by reducing programs, by transferring responsibilities back to the states, and by eliminating categorical grants. This in fact has already taken place. There are

major cuts in revenue sharing, CETA has been largely eradicated, anti-recession funding has stopped, and the tax cut has been put in place.

The likely reaction of taxpayer's when asked to support tax increases to fund existing programs is predictable in a time when unemployment continues at 8% and real incomes have just begun to stabilize. Still there will be pressure to maintain the current levels of service despite the lower real incomes of state and local governments. The fact that the previous source of funding, federal personal and corporate income taxes, automatically grew rapidly with inflation in sharp contrast to property and sales taxes will continue to place pressure on state and local governments. Therefore, we expect increased emphasis on improving public sector productivity as a technique to reduce costs. This will not be easy since government services are typically labor intensive. The Research and Policy Committee of the Committee for Economic Development points out that improving productivity will not only be slow but will also be difficult.

Despite these difficulties "cut-back management" will be a scale developed by public administrators who survive in the 80's. This paper will suggest an approach to that administrator, a conceptual framework which can guide him. In addition, we will take the analysis out of the theoretical arena and develop an empirical approach in the field of prosecution.

Inputs and Outputs.

Productivity is one of the hottest "buzzwords" in both the private and public sectors. Either we are concerned about our productivity compared to the Japanese or someone is concerned about the productivity of government workers when compared to the private sector. In its simplest form productivity is the

output per man-hour. This is commonly expressed in dollar terms to allow the aggregation of many types of output. This is not difficult to measure in the private sector since the value of the product is determined in the market place. In the public sector the notion becomes much more complex.

The starting point is to determine what an agency's output really is. Just to determine it and to begin to make some crude measurements is an excellent place to start. Having determined what we are trying to produce we then must develop some idea of quality. For our purposes then, output is the number of units of output of a given quality within a fixed period of time. Moving to the prosecutor's office we can see the importance of each part of this definition. A case might be the basic unit or more specifically output is the disposition of a case. The quality of this disposition might be characterized according to whether a conviction was achieved or more subtally what penalty was achieved. Finally, it should be clear that a unit of output of identical quality are not the same if one stays in the system twice as long.

There is no question that some government services are easier to measure than others. It is easier to determine the quantity of water of a fixed quality that is pumped each hour. Similarly, the number of tons of garbage picked up without complaint is measurable. In the past many administrators have resisted stating what there outputs were and more importantly to measure them directly or indirectly.

This problem is even more complex within the criminal justice system since the various "actors" in the system use different output measures. The police are concerned with clearance rates or the clearance of "incidents". The courts attempt to move the docket which are usually defendant based. The prosecutor tends to use a compound measure.

The quality of output is even more complex. If we assume that output is a case disposed of and the quality of the output is the minimal acceptable sanction or penalty then we can arrive at a "successful prosecution index". The final element then is time to achieve that disposition of a constant quality.

Ultimately, we want to assess the best way of achieving a weighted disposition with a minimum level of resources. If all three elements are considered we can see the impact of increasing delays, higher dismissal rates, and lower penalties all of which are likely to occur in a system within which resources are reduced. One is reminded of the reduction in the size of candy bars and the substitution of artificial flavoring during the wage-price freeze of 1971. The product and price were technically the same but the quality and weight were reduced. Turning back to the prosecutor, we find that he uses resources in terms of attorneys,paralegals,secretaries,investigators, and equipment to produce the output. This output can be produced in many different ways. The chief prosecutor can have nothing but attorneys on his staff and have them handle all aspects of the case including all typing. A slightly different approach might be to reduce the number of attorneys and hire some secretaries and clerks noting that productivity should increase. Still further we might reduce the legal staff even further by hiring investigators and paralegals to do those technical tasks which do not require formal legal training. Obtaining the right mix of resources is the ultimate problem for the administrator faced with a shrinking budget.

In reality the prosecutor has three different routes to follow in arriving at a disposition; (1)Plea, (2)Trial, and (3)Dismiss. Each "production process" has a different set of underlying parameters.

1. $P = a(SA) + b(JA) + c(IN) + d(CL)$
2. $T = e(SA) + f(JA) + g(IN) + h(CL)$
3. $D = i(SA) + j(JA) + k(IN) + l(CL)$
4. $Q = P + T + D$

Each equation suggests that four types of inputs can be applied to arrive at a disposition. The coefficients or weights a-l are probably quite different in each situation. The last equation(4) simply states that total output is the sum of the three processes. The prosecutor/manager has to determine how to route his cases to maximize Q subject to the constraint the the total hours of a given input used do not exceed the total available.

Another way to look at it is to say, given a total input to the system assuming all cases in during a time period must be disposed, then how do we allocate manpower such that P+T+D is equal to Q. If we cannot do that then the backlog must build and the dismissal process D will take care of the problem.

We have not introduced quality into this model. To do that, we must now multiply Q by the probability of achieving a "minimally acceptable penalty" via a given production process. We choose the concept of a minimally acceptable system although this threshold is clearly part of a continuum. To illustrate the importance of this concept, consider how the prosecutor allocates cases to each production process. If the probability of achieving that threshold penalty can be achieved in either of two processes P or T then the least costly should be taken. On the other hand, if the probability of achieving the desired result is essentially zero then the resources applied to achieving the outcome are wasted. This is the reason that if the result can be achieved through a plea that a trial is a waste of resources.

The question that remains is can these concepts be operationalized. In the next section we attempt to develop part of these concepts empirically.

Methodology.

One dominant characteristic of public prosecutor's offices is the lack of data from which administrative and policy decisions can be made. Fortunately, the prosecutor in Polk County, Iowa(Des Moines) made it his business to overcome this problem.

Polk County is a metropolitan area with a population of 310,000. Des Moines is the county seat and the state capital. Further, it is a major agri-business center and is at the crossroads of Interstates 80 and 35. Even though it is an urbanized area of some importance, the prosecutor did not have any real handle on the output of the system. To alleviate this problem, the prosecutor began to install an automated information system and went one step further by insisting on the rudiments of a time keeping system. Since attorneys are by far the dominant resource available to the office this data can shed some light on the production process in this office. Further, we should be able to detect the level of difference between achieving outcomes by one process versus another.

The data set was extracted from the closed files of the prosecutor. The data include:

1. Information on the complaint.
2. An audit trail of appearances.
3. Adjudication data.

4. Time records.
5. Sentencing data.
6. Specifics of the crime, criminal, and evidence.

A total of 274 cases were coded. In the tables which follow we will begin an exploration of the production process in Polk County which will add to our understanding of how a prosecutor and improve office productivity.

Results.

In Tables 1 through 4 we can begin to see the impact of choosing different dispositional routes. First in Table 1 the various functions performed by the prosecutors are enumerated and the proportion of time spent on each activity as an office are shown. The table shows that the system is plea oriented with 37% of the time reported for these cases and only 4% for trials. This 10 to 1 ratio is quite common throughout the country. Further, it shows that the concentration on trial work as compared to conferences and negotiation is likely to be less productive.

Table 2 uses the charge as a method of looking at the likely expenditure of attorney time. Obviously, the more serious charges will end up at trial because the incentive to plead is reduced somewhat. The difference however is not as great as one might imagine. Using three categories of the Sellin-Wolfgang scale (0,1-6,7+) we that approximately 70% of the lower categories are settled by plea while 55% of the serious offenses are settled by plea. For defendants the results are almost undetectable. After collapsing into three categories of the criminality scale (0,below median, above median) the plea rate was identical among the three. Further, when crosstabbing the grouped data, there is no significant relationship between the seriousness of

the offense and the seriousness of the criminal.

Table 2 shows us a range of more than 4 between types of offense. Homicide was predictably the highest at 2799 and Auto theft was the least at 474. The standard deviations though illustrate the point that there is a tremendous amount of variation within the classes.

The effort required to arrive at adjudication for each process mode is found in Table 3. Two points are important. First, it costs more than twice as much to take a case to trial as to plead it. Further, if you get a reduced charge at trial you spent just as much effort as to get the result. This is an illustration of the weighted disposition. Finally, since a dismissal costs almost as much as a plea, it pays to screen cases out at the very beginning. In this office it perhaps indicates that cases are not lost through neglect rather that some cases get in that should not have.

Tables 4 and 5 show the impact of the seriousness and criminality on expenditure of time. It may be a local policy but the time rises dramatically with the criminality of the defendant. If the defendant has no previous criminal record only about 50% of the work is required. You should recall as well that criminality and seriousness were unrelated.

The results for seriousness are less clear. While the lowest level of seriousness is less than the higher two the F statistic is marginally significant at the 90% level. The implication of all of these preliminary results is that there is no one single measure which can act as a model for deciding the optimum route to follow.

Finally, in table 6 we can see the impact of time with penalty. If confinement is the goal then it will take nearly twice as much effort to dispose of the case as in the case of a fine and 50% more than probation. This points out the problem of taking a case to trial if the only penalty is probation, assuming that probation could have been achieved with a plea.

Conclusions.

When we described the underlying model we expected to be able to measure only with difficulty. This was the case. However, several results show that the effort is worth pursuing. Of the most importance are that the differences in resources required to travel one dispositional route and differ significantly from another. Second, penalties are also related to resources. Granted there is also a relationship between route and penalty however slight. The result then is that the system shows some promise towards management and suboptimization.

TABLE 1

DISTRIBUTION OF ATTORNEY TIME BY FUNCTION

Function	Percent
Total (274) Cases	100.0
A. Screening	10.9
B. Complaints	.8
C. Appearances	.1
D. Preliminary Hearing	.1
E. Grand Jury	.1
F. Depositions	.9
G. Minutes	3.6
H. Trial	4.2
I. Post Trial	.1
J. Plea/Sentencing	37.1
K. Conference	16.8
L. Pleadings	.3
M. Briefs	.7
N. Case Outline	.9
O. Letters	.1
P. Opinions	.0
Q. Meetings	.1
R. Contracts	.0
S. Other Criminal	3.4
T. Other Civil	4.2
U. Miscellaneous	15.7

TABLE 2

EFFORT BY CRIME CLASS

Crime	Number of Cases	Average Number Minutes	Standard Deviation
Homicide	8	2799	2496
Larceny	35	2379	2792
Robbery	29	1838	2900
Burglary	46	1712	2564
Sexual Assault	1	1650	--
Assault	12	1617	2054
Fraud	13	1526	2774
Forgery	15	1481	2440
Kidnapping	4	996	989
Weapons	22	852	1370
Drugs	30	676	1580
Stolen Vehicle	12	474	950

TABLE 3

EFFORT BY DISPOSITION TYPE

Disposition	Average Number Minutes	Standard Deviation
Found Guilty	3182	3340
Found Guilty Lesser Offense	2907	2399
Pled Guilty	1322	2181
Dismissal	1237	2106

TABLE 4

EFFORT BY THE CRIMINALITY OF THE DEFENDANT

Criminality Turner/Ratledge Score	Effort Average Number of Minutes	Standard Deviation
0	847	1683
1 - 180	1551	2491
181+	1850	2061

F (2,271) = 2.340

F prob. = 0.098

TABLE 5

EFFORT BY THE SERIOUSNESS OF THE OFFENSE

Offense Seriousness Sellin/Wolfgang Score	Effort Average Number of Minutes	Standard Deviation
0	1330	2211
1 - 6	1810	2517
7 +	1412	2287

F (2,271) = 1.158

F prob. = 0.316

TABLE 6

EFFORT BY ACHIEVED SENTENCE CLASS

Sentence	Average Number of Minutes	Standard Deviation
Confinement	1710	2512
Probation	1071	1600
Suspended Term	170	72
Deferred Judgement	1252	2148
Fine	920	2003

END