

**FORECASTING THE NEED AND COST:
AN EXPLORATION OF THE SYSTEM DYNAMICS OF LEGAL AID**

by

Shihong Mu

DISSERTATION IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

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Dynamics of Legal Aid

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ABSTRACT

This exploratory study examines legal aid in the context of the criminal justice system and aims to develop a planning tool to forecast the impact of changes in the criminal justice system on the need for and cost of legal aid in criminal matters in British Columbia. Systems analysis and simulation modeling are utilized to explore the system dynamics of the criminal justice system and the legal aid subsystem, to examine the relationships between various components of the system, and to reveal how changes in other parts of the system affect the legal aid subsystem.

This study examines such major actors in the criminal justice system as the police, the prosecution, the courts, and the corrections. It argues that the legal aid as a subsystem is directly or indirectly influenced by the behavior of the prime actors in the whole system. Conceptual and simulation models of the need for legal aid in criminal matters are constructed based on available local, provincial and federal data. The DYNAMO simulation model of legal aid is developed following the base patterns and applied to a set of hypothetical scenarios to show how the operations of the legal aid system react to and act upon other criminal justice components.

This study concludes that the simulation modeling is better fitted to forecast the impacts of change at some decision points in the system on the other parts of the system and on the whole system than to forecast the long term future state of the system. The various scenarios made in this study demonstrate that the simulation modeling is able to forecast the impact of changes in certain part(s) of the criminal justice system including the

legal aid subsystem itself on the need for and cost of legal aid. The DYNAMO simulation model that has been built in this study can be used to help the legal aid planner understand that the provision of legal aid should not be planned in isolation of the criminal justice system and increase his/her ability to work within a complex system while resources are restricted.

DEDICATION

To My Parents

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CHAPTER I. INTRODUCTION

This exploratory study aims to develop a planning tool to forecast the need for and cost of legal aid in British Columbia. There have been some studies on legal aid in Canada in general and in British Columbia in particular, but few of them examine legal aid in the context of the whole criminal justice system. Through systematically examining the relationships between various components of the criminal justice system and how changes in other parts of the system affect the legal aid subsystem, this study uses simulation modeling techniques to forecast the need for and cost of legal aid in British Columbia.

The legal aid system in Canada has expanded dramatically over the past two decades. However, it is believed that such a growth has taken place without provoking the attention it deserves. Thus, the provision of legal aid has recently been described as a volcano waiting to erupt into the public consciousness (Easton, Brantingham and Brantingham, 1992:1).

It is held that the 1990's have proven to be years in which both federal and provincial governments have been struggling with deficits and debts (Griffiths and Verdun-Jones, 1993:285). Government programs of all descriptions have been subject to review. The Justice sector has not been exempted from this review, nor has the delivery of legal aid as an integral component of the administration of justice (National Review of Legal Aid, 1993:45). As it is pointed out by the authors of *Legal Aid and the Poor*, the report by the National Council of Welfare, "Legal aid is in trouble everywhere in Canada (1995:1)". In British Columbia, the Legal Services Society acknowledges that it faces

many challenges (Annual Report of Legal Services Society of B.C., 1991-1992). In general, the widely held concerns are, the rapidly increasing costs of delivering legal aid services in Canada over the last two decades, which far outstrip the increase in population, and the predicted crisis in funding for legal aid plans (Griffiths and Verdun-Jones, 1993:285-6; *Legal Aid and the Poor*, 1995; *Predicting Legal Aid Costs*, 1993:71).

In the fiscal year of 1991/92, total expenditures in legal aid in Canada were \$514 million, representing a 25% increase over the previous year and a constant dollar increase of 29%. From 1987-88 to 1991-92, expenditures in legal aid in constant dollars have increased an average of 13% per year in comparison to 4% in the five years previous to this period (National Review of Legal Aid, 1993:76). It is argued that expenditures in the three largest provinces--Quebec, Ontario, and British Columbia have the greatest potential for actual impact nationally (*Predicting Legal Aid Costs*, 1993:71; National Review of Legal Aid, 1993:49). These three largest provinces account for about 80% of the actual approved applications for legal aid in the country and absorb around 80% of all legal aid dollars spent in Canada (Easton, Brantingham and Brantingham, 1992:49). It is said that Ontario's legal aid plan will have a \$65 million deficit in the 1994/95 fiscal year (Fine, in Griffiths and Verdun-Jones, 1993:286). British Columbia will not be an exception to this financial challenge.

According to Canadian Centre for Justice Statistics (1985, 1993), the cost of legal aid in British Columbia was \$829,000 in 1971. In 1993, the cost went up to 96 million dollars, more than 100 times the cost over two decades before. Expenditures in legal aid

almost doubled in real terms between 1985 and 1991, and rose even more sharply, to more than \$65 million, during the 1991-92 fiscal year as the costs of the 1992 revision of the criminal law tariff began to be felt (Predicting Legal Aid Costs, 1992:18). During April 1992 through March 1994, the Society administered annual expenditures of \$92 million and \$101 million respectively (Annual Report, Legal Services Society of British Columbia, 1992-93 and 1993-94:4). The former Board of the Legal Services Society approved a budget on May 13, 1994 that contained two expenditure components. These components were: a base operation expenditure of \$97.2 million, and a reform expenditure of \$8.6 million (Board Orientation Manual, Legal Services Society, 1995:23).

While the cost of legal aid is sky-rocketing, the demand for legal aid services has also been growing at an unprecedented rate (Annual Report, Legal Services Society of British Columbia, 1992-93 and 1993-94). Therefore, the Legal Services Society of British Columbia is faced with the dilemma of how to meet the need for increased service while implementing the cost containment measures required to reduce the Society's growing deficit (Annual Report, Legal Services Society of British Columbia, 1992-93 and 1993-94).

The *National Review of Legal Aid* concludes that the level of service presently provided by legal aid plans in Canada is essentially the level of service required by the *Charter of Rights and Freedoms*. It cautions that reducing the level of service presently provided would give rise to the risk of significant court intervention in legal aid delivery (1993:73). In the meantime, the Legal Services Society maintains that its commitment to

the people of British Columbia remains to provide good, efficient, equitable service to clients throughout the province, and to responsibly and effectively manage the delivery of legal aid and public legal education in British Columbia (Annual Report, Legal Services Society of British Columbia, 1992-93 and 1993-94:2).

It is argued that legal aid in criminal matters has been given excessive funding, to the detriment of other services, e.g. services in family matters (Agg, 1992:v). This shows that criminal legal aid occupies a very important position in the overall legal aid plan. Criminal legal aid covers all indictable offences and those summary conviction offences in which imprisonment or loss of livelihood is likely upon conviction. It is cautioned that, while court mandated services in criminal matters would leave other services vulnerable, elimination of criminal legal aid for certain offences would lead to further court challenges (Agg, 1992:vi). For example, the British Columbia Court of Appeal declared illegal an attempt by the society to reduce coverage for summary conviction matters in response to a budget cut in 1983 (*Predicting Legal Aid Costs*, 1993:16).

In view of the situation of legal aid in Canada, it is obvious that some assessment of the current regime needs to be undertaken (*Predicting Legal Aid Costs*, 1993:1). The Legal Services Society of British Columbia operates the most complex legal aid plan in Canada (Easton, Brantingham and Brantingham, 1992:39). It has been argued that a thorough overhaul of the legal aid system is required, but one which builds on the best elements of existing services (Agg, 1992:v). The Society must overcome a history of financial, management and service delivery problems caused by years of divided

leadership, chronic underfunding, inadequate service priorities and insensitivity to client and community needs (Agg, 1992). The society itself agrees that reforming legal aid delivery has become a priority and has been preparing for a reform with the primary objective to deliver high quality service for clients throughout the province responsibly and cost-effectively (Annual Report, Legal Services Society of British Columbia, 1992-93 and 1993-94:2).

It is argued that what legal aid needs is not so much more money as better management and that little else will change until there are significant improvements to the management of the Legal Services Society (Agg, 1992:24; *Legal Aid and the Poor*, 1995:2).). To improve the volume, accessibility and quality of services at current rates of expenditure, the society must reorder its priorities, and must reallocate resources to provide a more effective service (Agg, 1992:vi). With the goal of legal aid to provide efficient, high quality services, there is definitely a need to understand the factors influencing the increase in expenditures. Therefore, more studies that examine legal aid costs and expenditures are warranted.

However, as it is pointed out in National Review of Legal Aid (1993), the complex interaction of various factors makes the study of legal aid costs a daunting task. In Ontario, for example, when the economy deteriorated rapidly, applications for legal aid increased by approximately 25% a year, which shows that the economy obviously plays a vital role in driving the cost of legal aid. However, there are also offsetting factors relating

to economic change. In a bad economy, for example, there is a climate which is receptive to salary and tariff reductions, which will in turn reduce costs (1993:47).

This dissertation explores the possibility of forecasting changes in the need for and cost of legal aid in criminal matters. It aims to help legal aid planners understand the intertwining factors that affect the demand and cost of legal aid services and apply present knowledge to anticipation of future trends. Moreover, it is also hoped that this study will help planners explore alternative futures and assess the potential impacts of proposed changes in advance. A better understanding may lead to favourable organizational changes which will improve the efficiency of the system and control costs and expenditures.

For this study, the approaches of systems analysis and simulation modeling are used to emphasize the interconnectedness of the legal aid plan with different components of the criminal justice system in the province. It examines how changes in resources and in the performance of other components of the system may cause changes in the need for legal aid. It is believed that the approach of systems analysis can be used to explore the complexity of the whole criminal justice system and uncover structures which increase our understanding of the nature of legal aid in the province.

Ekstedt and Griffiths (1988) argue that there are two types of planning--reactive and proactive. According to them, reactive planning occurs when a management level decision has been taken which will require an organizational response in preparation for the future, while proactive planning occurs when the future circumstance at issue cannot

be fully anticipated (1988:139. See also Prince and Chenier, 1980:522). The focus of this study is to provide an information database for proactive planning of legal services. Systems analysis and modeling are considered tools capable of providing new insights and develop techniques for proactive planning.

Planners working within the field of legal aid services have two major problems in making predictions and exploring the impacts of change. First, there has never been any conceptual model of the operation of the system which has an orientation towards planning. Second, tools to explore time dependent changes are not readily available. To fill the gap, this study attempts to construct useful conceptual and simulation models for conducting actual analyses and for exploring changes. Specifically, it consists of the development of descriptive simulation models of the need for legal aid in criminal matters in British Columbia, based on available local, provincial and federal data. Then the information gained from the analysis and descriptive model building is used to build a dynamic simulation of the system. Moving beyond the conceptual level, quantitative models are built to make projections of need for legal aid in criminal matters.

Different components within the criminal justice system will be examined to show how they operate and how they are interdependent. This will be followed by a description of what happens in the legal aid system and how the operations of the legal aid system react to and act upon other criminal justice components. The study will then explore both the information feedback and the legal and financial constraints that influence the dynamics and the processes of legal aid. In general, factors that affect the need for and cost of legal

aid in criminal matters come from three main systems: the social-demographic system, the criminal justice system, and the legal aid system. Planners must become aware of how information and people flow so that they can identify methods for improving the performance of the system. They must also explore the consequences of currently popular schemes for change or reform of the system. This study examines the three systems in a systemic manner. Through forecasting the future need for legal aid, it explores both current function and performance and the feasibility of change in order to increase the ability of legal aid planners to work within a complex system while resources are restricted.

Chapter II presents an overview of legal aid in British Columbia in terms of the evolution of legal aid, the mandates and funding of the Legal Services Society, services provided by the society, profile of legal aid recipients. More emphasis is given to analyzing the costs of delivering legal services, and the impact of restraint programs on legal services. Legislation and court decisions on legal aid are also discussed. Finally, it examines the role that the legal profession has played in delivering legal services. In general, this chapter attempts to show various aspects and actors in the legal aid system, the interdependence and interconnectedness between all the parts within the system at different levels of hierarchy.

Chapter III discusses different components in the criminal justice system from a systems point of view. In the system, all different parts are considered interconnected, although they may pursue conflicting goals. Any change in one part may cause changes in

other parts of the whole system. Four major actors, the police, the prosecutor, the court and the corrections are examined both individually and as a whole. The emphasis is on the interdependence and interconnectedness of the various parts of the criminal justice system. The discretions of the major actors in the criminal justice system are examined. Legal aid, as one component of the criminal justice system, is inevitably influenced by the behavior of other components of the system. All the major actors in the criminal justice system produce direct and indirect input into the legal aid subsystem. The analysis leads to the impact of changes in practices of the police, prosecution, court, and corrections on the demand and cost of legal aid.

Chapter IV raises research questions and discusses the methodology used by and data collected for this study. The approaches of systems analysis and computer simulation modeling are examined to explain why they are adopted in this study. As this study is to test the feasibility of using computer simulation modeling to forecast the need for and cost of legal aid, some previous criminal justice system models are examined in this chapter. These include the JUSSIM developed by Blumstein and his associates (1974) and, more importantly, the dynamic modeling of a court system by Brantingham (1977). It is also indicated what constitute the basis of the models constructed in this present study.

JUSSIM is basically a fixed flow model. The structure of typical flows of cases through the American criminal justice system was developed and computerized. Outputs of case flows to any branch of the model are derived from a base input number. Given a certain number of crime known to the police, for instance, the model estimates how many

people will be sent to jail or put on probation. This basic flow simulation was changed and adapted for Canada during the CANJUS project of the late 1970's. The limitation of this model is that the functioning of any part of the system is assumed to work independently of any other part (Brantingham, 1977). Moreover, the system is assumed to be at equilibrium. Thus, it has no capacity to handle changes over time.

To overcome such limitations, Brantingham's model was designed to be dynamic rather than static. In her study, Brantingham (1977) used the systems approach and simulation modeling techniques to examine a criminal court system in an American state. Her model reveals the complex interconnections and the dynamic, changing relationships within a criminal justice system. Basically, in addition to analyzing the need for legal aid from a systems perspective, the present study is an extension of Brantingham's study (1977) and an application of the technique of dynamic simulation modeling to the study of legal aid.

Chapter V tries to develop a conceptual model on the basis of the discussions in Chapter II and Chapter III, as it is thought to be necessary to conceptualize a simulation model before it is programmed. The conceptual model delineates the way in which variables described in the earlier chapters are interconnected and explores others that may also be related and affect legal aid. In this chapter, the conceptualization of the model is achieved through the search for causal relationships, feedback structures and the development of flow charting diagrams, causal loop diagrams and the DYNAMO flow diagram. It is a simulation of the system dynamics of legal aid, which shows the

interconnectedness in the system. The discussion and illustration of various modules in this chapter demonstrate the dynamic interactions between legal aid administration and the criminal justice system. However, it is noted that the DYNAMO flowcharts are only simplified representations of the program per se, as it is not feasible to represent a multi-dimensional model with a two-dimensional format.

Chapter VI presents an empirical analysis of legal aid in British Columbia, for the development of simulation modeling requires an understanding of the whole system both conceptually and empirically. It analyzes the behavior of the various major actors and their interrelations in the legal aid system using empirical data for the variables described in Chapter V. The need for legal aid is a function of various factors. The analysis in this chapter is made based on three major sets of empirical data, which include demographic and other crime generating variables, variables for the major components of the criminal justice system discussed in earlier chapters, and those for the system of legal services.

Chapter VII explores the applicability of the simulation model developed in the DYNAMO simulation language to the legal aid system. Output at various stages in the legal aid system is produced on the basis of base flow patterns of crime, charges, court procedures, application for legal aid and legal aid expenditures, using the historical data from 1984 to 1990. The DYNAMO simulation model of legal aid in British Columbia is developed following the base pattern and applied to various hypothetical scenarios, which include patterns under increased crime, patterns under increased resources, policy alternatives by the Legal Services Society, and projection of the future. The discussion of

the scenarios shows the impact of changes in crime pattern on legal aid delivery with restrained and unrestrained budget for Legal Services Society, the consequences of hypothetical policy alternatives in the criminal justice system on legal aid, and the results of such hypothetical policy alternatives adopted by the Legal Services Society as legal aid eligibility expansion, and different legal aid tariffs. Moreover, several different projections of the need for and cost of legal aid in the near future are demonstrated.

In summation, this study consists of the development of descriptive simulation models of the need for legal aid in criminal matters in British Columbia, based on available local, provincial and federal data. The information gained from the analysis and descriptive model building is then used to build a dynamic simulation of the system. Moving beyond the conceptual level, it further builds quantitative models to make projections of need for legal aid in criminal matters. In general, these models will improve the understanding of the legal services system from a planner's viewpoint.

This study concludes that the simulation modeling is better fitted to forecast the impacts of change at some decision points in the system on the other parts of the system and on the whole system than to forecast the long term future state of the system. It is believed that a simulation model can be used not only to see "what is", but also to explore the impact of a series of "what if" questions. In this study, however, the emphasis is on the latter. For example, it is more desirable for the simulation model to be used to explore whether there would be any change in the need for legal aid if the Crown counsel changes charging patterns than to predict the exact volume of the need for legal aid in ten years

from now. However this study cautions that, as it is relatively crude, more work is needed to refine the model before it can be used a planning tool.

CHAPTER II. OVERVIEW OF LEGAL AID IN BRITISH COLUMBIA

Provision for assistance in legal matters to the poor has been in operation in British Columbia for several decades (Brantingham and Brantingham, 1984; Cawley, 1991). Over these decades, the legal aid program has evolved from a mere charity activity on the part of the legal profession into a mostly government-funded multi-million dollar business. While more and more people have received legal aid, the per capita cost of providing legal aid has also increased rapidly. Many factors contribute to the increase in the need for and cost of legal aid. This chapter will review the contributing factors found within the British Columbia legal aid system. These include the historical development of legal aid, the operations of the legal aid plan, the mode of providing legal aid, the scope of services, and several others. The chapter's focus will be on those aspects of the system that have most influenced the need for and cost of legal aid in British Columbia.

LEGAL SERVICES SOCIETY OF BRITISH COLUMBIA

Legal aid in the province of British Columbia is now administered by the Legal Services Society of British Columbia, which was created in 1979 by provincial legislation which amalgamated two extant legal aid providers: the Legal Services Commission and the Legal Aid Society (Brantingham and Brantingham, 1984; Cawley, 1991).

The Legal Services Society of British Columbia (LSS) is, both functionally and by statute, independent of the provincial government and the legal profession. "It is not an

agent of the Crown or of the law society” (Legal Services Society Act, Chapter 227, Section 4.2). The statutory objects of the Society are: (1) to ensure that legal services are given to individuals who would not otherwise receive them because of financial or other reasons, and (2) that education, advice and information about the law are provided to the people of British Columbia. These objectives make legal aid a right for financially eligible individuals under certain circumstances. Based on the statutory objectives, it is the Society’s agenda to provide more and better legal aid services to more poor people. This agenda is also one of the major reasons for the ever increasing cost of legal aid in British Columbia. The Society also determines the priorities and criteria for services it provides or a funded agency provides under the Act (CCJS, 1994: 10.5).

According to the Legal Services Society Act, it is the Board of Directors that has the duty to ensure that the goals and objective of the Society as established by the Act are reached. The Board also has a responsibility to the public to question and critically analyze any proposals or information brought forth by management.

The Board of Directors¹ consists of fourteen members. Seven are appointed by the Lieutenant Governor in Council and seven by the Law Society in consultation with the executive of the British Columbia branch of the Canadian Bar Association. At least two of

¹ The Legislative Assembly of British Columbia passed a bill in 1994, which, when proclaimed, will amend Section 5 of the Legal Services Society Act. According to the new legislation the Board of Directors will consist of fifteen directors. Five will be appointed by the Lieutenant Governor in Council, five by the Law Society, two by the Native Community Law Office Association of BC (NCLO), two by the Community Law Offices of BC (CLO) and one by the directors appointed by NCLO and CLO.

those appointed by both the Lieutenant Governor in Council and the Law Society (a total of four) are to be non-lawyers. Directors hold office for two-year terms and may not hold it for longer than six consecutive years. (Legal Services Society Act, Section 5)

Before the Legal Services Society was created in 1979, legal services in British Columbia were administered by the Legal Aid Society and the Legal Services Commission. The Legal Aid Society basically followed a *judicare* model, (which will be discussed later) in which its centrally controlled offices and Area Directors made fee for service referrals to lawyers in private practice for both criminal and civil matters. The Legal Services Commission, on the other hand, acted as a policy maker to supervise local legal service projects and to provide funding and back-up for community law offices, which were decentralized and would allow each community to choose the type of legal aid services it needed (Brantingham and Brantingham, 1984:40; Cawley, 1991).

Because of these historical roots, the Legal Services Society of British Columbia (LSS) provides a variety of services through what Easton et al. (1992:39) called “the most complex legal aid plan in Canada”. As of January 1, 1993 the LSS provided services through staff lawyers and paralegals in 16 branch offices, through 10 Community Law Offices and 7 Native Community Law Offices that contracted with the LSS; through two Native Legal Information Offices; through a Prison Liaison Office; through private lawyers appointed as administrative Area Directors in 21 additional communities; and through panels of over 2000 private lawyers who take cases on referral (CCJS, 1994).

The LSS branch offices are normally located in the largest communities in the province. The employees in these offices are LSS employees. Each branch has a Managing lawyer, and is staffed by lawyers, paralegals, and other support staff. The branch offices located at: Burnaby, Campbell River, Chilliwack, Courtenay, Dawson Creek, Fort St. John, Grand Forks, Kamloops, Kelowna, Nanaimo, Nelson, Prince George, Prince Rupert, Richmond, Smithers, Surrey, Vancouver, and Williams Lake. Prisoners' Legal Services at Abbotsford, and Community Law Clinic and Immigration & Refugee Law Clinic at Vancouver are also LSS' branch offices.

Community Law Offices (CLOs) have developed out of the former Legal Services Commission and are normally located in smaller and medium-sized communities. They are privately incorporated societies which are funded, in whole or in part, by LSS. These are located at Abbotsford, Cranbrook, Fort Nelson, Langley, Maple Ridge, Nanaimo, New Westminster, North Vancouver, Penticton, Port Coquitlam, Powell River, Quesnel, Vernon, and Victoria.

Native Community Law Offices (NCLOs), similar to the CLOs, are also privately incorporated societies that exist in communities with sizable native populations. They focus their efforts on the local native population. The offices are in Burns Lake, Duncan, Fort St. James, Fort St. John, Hazelton, Lillooet, Lytton, Masset, Merritt, New Aiyansh, Port Alberni, Prince George, Skidegate, Terrace, and Vancouver.

Area Directors are members of the private bar contracted to do intake work on behalf of the LSS in small communities without a field office presence. They are positioned at Armstrong, Chetwynd, Enderby, Fernie, Golden, Invermere, Kaslo, Ladysmith, Parksville, Port Alberni, Revelstoke, Salmon Arm, Sechelt, Squamish, Ucluelet, and Vernon.

In addition, LSS have also funded a variety of other agencies to help with intake or service delivery. These include the Community Legal Assistance Society (CLAS), the Salvation Army and the Elizabeth Fry Society.

FUNDING OF LEGAL AID IN BC

Before 1964, legal aid services were provided through volunteer work by individual lawyers and local bar associations, with administrative support from the Law Society. Costs for the services were covered by the law profession (Brantingham and Brantingham, 1984; Cawley, 1991). In 1964, the provincial government started to fund legal aid through the Ministry of Attorney General and the Law Society. However, the funding was fairly minimal. It was, for example, “an honorarium of \$25 per day for lawyers handling criminal cases” (LSS Board Orientation Manual, 1995:14).

Although the federal government had funded legal aid in British Columbia in many legal aid projects, formal funding from the federal government started in 1972, when the federal and provincial governments negotiated a cost sharing agreement for criminal legal aid. The province received about 50% of its costs for criminal legal aid from the federal

Department of Justice. Services were to be provided to financially eligible clients when there was a likelihood of imprisonment on conviction. At the same time, community groups, including civil liberties and anti-poverty groups also received funds for legal assistance and education programs, primarily from the federal government (Board Orientation Manual, 1995: 15).

Table 1 Funding Resources for Legal Aid in British Columbia (In thousands of dollars)

| Year | Total Revenue | Federal Government | Provincial Government | Legal Profession | Clients' Contribution | Other² |
|-------------|----------------------|---------------------------|------------------------------|-------------------------|------------------------------|--------------------------|
| 1974-75 | \$3,912 | \$1,274 | \$2,332 | \$278 | \$27 | \$1 |
| 1975-76 | \$7,369 | \$2,358 | \$4,351 | \$570 | \$26 | \$64 |
| 1976-77 | \$8,444 | \$3,039 | \$4,433 | \$856 | \$40 | \$76 |
| 1977-78 | \$8,585 | \$2,685 | \$4,956 | \$825 | \$60 | \$59 |
| 1978-79 | \$11,094 | \$5,950 | \$4,469 | \$550 | \$61 | \$64 |
| 1979-80 | \$12,617 | \$6,765 | \$5,133 | \$613 | \$52 | \$54 |
| 1980-81 | \$13,684 | \$9,606 | \$3,163 | \$640 | \$61 | \$214 |
| 1981-82 | \$15,458 | \$7,046 | \$6,100 | \$1,808 | \$51 | \$453 |
| 1982-83 | \$18,838 | \$3,019 | \$12,750 | \$2,760 | \$46 | \$263 |
| 1983-84 | \$16,382 | \$6,534 | \$7,389 | \$2,000 | \$191 | \$268 |
| 1984-85 | \$18,243 | \$8,970 | \$6,950 | \$2,000 | \$134 | \$189 |
| 1985-86 | \$17,598 | \$7,358 | \$6,866 | \$3,081 | \$97 | \$196 |
| 1986-87 | \$22,211 | \$11,135 | \$7,101 | \$3,691 | \$99 | \$185 |
| 1987-88 | \$23,436 | \$11,256 | \$8,171 | \$3,000 | \$82 | \$927 |
| 1988-89 | \$26,245 | \$11,308 | \$10,454 | \$3,000 | \$111 | \$1,372 |
| 1989-90 | \$33,091 | \$15,424 | \$12,218 | \$3,043 | \$101 | \$2,305 |
| 1990-91 | \$40,110 | \$14,365 | \$17,654 | \$5,756 | \$115 | \$2,220 |
| 1991-92 | \$62,639 | \$13,892 | \$36,841 | \$10,155 | \$142 | \$1,609 |
| 1992-93 | \$92,435 | \$21,897 | \$65,109 | \$4,185 | \$219 | \$1,025 |
| 1993-94 | \$101,055 | \$30,075 | \$65,541 | \$4,178 | \$279 | \$982 |

Source: Canadian Centre for Justice Statistics (1989 and 1995)

In 1990 the federal government froze its contribution level to criminal legal aid and capped civil legal aid (LSS, 1995:18). Since the cost of legal aid continued to increase after the federal government's funding freeze, the federal share of funding decreased sharply and the provincial government's share increased. In the fiscal year of 1992/93, the federal government's contribution accounted for about 24 percent of the total revenue and the provincial government contributed over 70 percent (Table 1). Although the impact of the federal government's changes in funding level for legal aid provision was not felt

² "Other" revenue usually includes funds from interest, publication sales, government donated services and miscellaneous (CCJS, 1993)

immediately in British Columbia, it would definitely affect legal aid services in the province in the long run. As the cost of legal aid has been increasing dramatically the provincial government will soon find it difficult to absorb all the increase in cost by itself and will react accordingly.

The legal profession in British Columbia has long made substantial contributions to the legal aid system in BC. In addition to regular contributions, the legal profession has sometimes made special grants to assure the system functions smoothly. In 1986, for example, a special grant from the Law Foundation of BC restored the tariff³ to its 1981 level. In April, 1991 the private bar withdrew services to legal aid clients, demanding higher pay for providing legal aid services. After negotiations between the Legal Aid Liaison Committee, the Attorney General, the Law Foundation and the LSS, the tariff was doubled. The provincial government provided an additional \$6 million for the fiscal year, half of the estimated cost increase for the fiscal year of 1991/92, and informed LSS that is planned to review models of delivering legal services. A one-time grant from the Law Foundation of \$6 million supported the 100% increase of the legal aid tariff for the fiscal year 1991/92. Since the direct beneficiaries of these major grants were the private bar lawyers who ended up getting higher pay, it can be argued that contributions from the Law Foundation are, at least partly, to benefit the lawyers providing legal aid.

³ The legal aid tariff is a fee schedule according to which the private bar lawyers are paid for the legal aid services they provide. Detailed description of the legal aid tariff can be found in the *Tariff* section in the latter part of this chapter.

According to the LSS' contribution policy, most of the legal aid clients, i.e., those who receive a tariff service (except Human Rights and court-directed counsel) and those who receive staff services lasting more than two hours are supposed to pay a minimum of \$10 user fee (LSS, 1992). A reading of Table 1 comparing the volume of clients that have been served and the amount of clients' contribution suggests that this policy was not been implemented. Facing increasing legal aid costs and limited resources, LSS has recently been considering implementation of a recovery project that will make legal aid clients who have received legal aid services pay user fees and contributions.

SERVICES PROVIDED BY THE LSS

The formal objectives of the Society are set out as follows in the Legal Services Society Act (R.S.B.C. 1979 c. 227) Section 3.(1):

The objectives of the society are to ensure that

- (a) services ordinarily provided by a lawyer are afforded to individuals who would not otherwise receive them because of financial or other reasons; and
- (b) education, advice and information about law are provided for the people of British Columbia.

In order to meet these objectives the LSS administers both the legal aid plan and a wide range of other legal services for the poor and general public in British Columbia. This section will briefly describe these services in general and then discuss more specifically the representational services in criminal law matters.

Representational services

This is the area that people most often think of in connection with legal services. This is also the area where most of the expenditure of the LSS goes each year. Legal representation is provided for eligible people who are charged with any criminal offence for which a person might go to jail or lose employment (This will also be discussed later in the section on coverage policies); who have family problems such as separation, custody and access, maintenance, property division, divorce, family violence; who have refugee claims and serious immigration problems; human rights and discrimination cases. The Society normally refers such cases to private bar lawyers and pays the lawyers' legal fees according to an established tariff. Branch office and community law office staff may represent clients in other types of cases, such as landlord and tenant disputes; first Nations hunting and fishing cases; income replacement/pension appeals involving social assistance; Canada pension and disability pension matters, workers' rights disputes involving worker's compensation, disability pensions, and unemployment insurance; Mental Health Act review board hearings; Criminal Injuries Compensation; debt problems including law suits, collection practices, foreclosures, and bankruptcies. Some civil cases such as those involving bankruptcy are referred to the private bar on a *pro bono* basis. In these cases the lawyer works for no fee and the Society covers the lawyer's expenses.

In the early years of legal aid, criminal representational services dominated the mix of representational services provided (Table 2). In 1983, for example, over 66% of all representational services involved criminal matters while 15% involved family matters.

Over the years, however, representational services for civil matters increased steadily both in volume and in proportion. In the meantime, although the volume of criminal law representation increased (before 1993), the proportion of criminal law representation shows a continuous decrease. It is shown in Table 2 that the proportion of criminal law representation decreased to about 52% in 1994 while the family law representation went up to over 36%. Both the volume and proportion of representation for immigration cases went up from less than 1% before 1991 to over 3% as a result of the decision by the Supreme Court of British Columbia in the case of *Gonzalez-Davis vs. Legal Services Society* ([1991] 81 D.L.R. [4th] 12 B.C.C.A.).

Table 2 Representation Service Delivery by Type (All Approved Applications)

| Year | Criminal | | Family | | Immigration | | Other Civil | |
|-------------------|----------|-------|---------|-------|-------------|------|-------------|-------|
| | Count | % | Count | % | Count | % | Count | % |
| 1983 | 18,982 | 66.1% | 4,389 | 15.3% | 166 | 0.6% | 5,181 | 18.0% |
| 1984 | 24,863 | 64.8% | 7,038 | 18.4% | 302 | 0.8% | 6,148 | 16.0% |
| 1985 | 25,482 | 62.5% | 9,041 | 22.2% | 342 | 0.8% | 5,886 | 14.4% |
| 1986 | 27,804 | 63.6% | 10,402 | 23.8% | 281 | 0.6% | 5,202 | 11.9% |
| 1987 | 29,224 | 64.7% | 10,967 | 24.3% | 397 | 0.9% | 4,547 | 10.1% |
| 1988 | 30,824 | 63.1% | 12,831 | 26.3% | 238 | 0.5% | 4,947 | 10.1% |
| 1989 | 32,292 | 61.0% | 15,056 | 28.4% | 352 | 0.7% | 5,250 | 9.9% |
| 1990 | 35,130 | 57.6% | 20,441 | 33.5% | 159 | 0.3% | 5,222 | 8.6% |
| 1991 | 42,880 | 57.6% | 24,779 | 33.3% | 1,330 | 1.8% | 5,438 | 7.3% |
| 1992 | 44,869 | 54.8% | 28,641 | 35.0% | 2,684 | 3.3% | 5,692 | 7.0% |
| 1993 | 42,494 | 52.1% | 29,909 | 36.7% | 2,901 | 3.6% | 6,201 | 7.6% |
| 1994 | 36,783 | 51.5% | 25,803 | 36.2% | 2,229 | 3.1% | 6,546 | 9.2% |
| Total/ Average | 391,627 | 58.6% | 199,297 | 29.8% | 11381 | 1.7% | 66,260 | 9.9% |

Source: The Management Information System of the Legal Services Society Of British Columbia.

Other Services

In addition to legal representation, the Legal Services Society provides a wide range of other legal services to the people in British Columbia. It provides duty counsel⁴ services in almost all criminal courts and in some youth courts. These services, however, are not generally available in family court. There are some duty counsel services for apprehension of children cases under the *Family Child Services Act*. Pre-court duty counsel services are provided to inmates prior to their first appearance. Subject to time availability, duty counsel may provide summary advice to people not in custody on their first appearance.

Legal Services Society is also responsible for a number of special programs: public legal and information services, native services, the do-your-own-divorce program and prison services. One of the LSS mandates is to ensure that “education, advice and information about law are provided for the people of British Columbia” so that all British Columbians have equal access to the law. Thus, the Society operates several programs to oversee this mandate. Legal education, advice and information about the law is provided to the people of British Columbia by the Library Services Program and the Publication Legal Education and Information Program and the Schools Program.

The Library Program of the LSS provides services and reference material on poverty law, aboriginal law, immigration law and other community law issues, to LSS

⁴ Duty counsel are either members of the private bar retained on a *per diem* rate or LSS staff. Duty counsel are available to unrepresented defendants, primarily for bail hearings of persons in custody, and as time permits, for first appearances by people not in custody.

offices, public libraries, advocacy groups, management and program staff, and to the general public. The Legal Resource Centre operated by the Library Program is open to the public and provides funding and selection assistance, training and field support. The Library Programs conducts legal research for LSS field staff around the province, which includes access to the national Quick Law computer-based legal reference service. The Program also provides support and guidelines for collections for branch offices as well as training and field support. The Program runs a Law Line open to the public for people seeking legal information and referrals. In 1994, staff on the Law Line answered over 15,000 calls (LSS Board Orientation Manual, 1995).

Working primarily with community groups and LSS offices, the Public Legal Education & Information Program provides funding for specific public legal education projects; maintains and distributes legal information publication; helps groups both to identify their concerns about the justice system and to recommend solutions to problems they encounter when trying to use it; lobbies government agencies to include the clients' perspectives in making program decisions; and works with other agencies and institutions to create support for the Society's mission statement (Board Orientation Manual, 1992).

In 1994, the Program funded 54 specific public legal education projects; the audience included women, people from diverse cultural communities, people with disabilities, low income people, youth, witness/victims, lesbians and gay men, and advocates. The program also provides small grants for LSS branch offices and community law offices to do public legal education work in their local communities. In the past, this

work has included workshops, production of pamphlets and posters, a cable television show on the law, and translation of public legal education materials into other languages, among other ventures. The Program assists staff in branch and other offices to develop outreach and public legal education activities, particularly with diverse cultural communities as well as other legal aid client groups (LSS, 1995).

The Society operated a Schools Program from 1975 to 1994 in response to the lack of suitable legal educational materials and law-related teacher training in the public school system. The Schools Program provided workshops, curriculum materials on legal topics, legal education resource network for teachers. It provided support, curriculum development and legal review for the Faculties of Education and provided curriculum review, consultation and advocacy for the Ministry of Education.

The Publishing Program provides editing, design and revision of current publications, distribution and planning assistance for all program areas. It also provides advice on plain language and the publishing process to external agencies.

Prison services run by the Legal Services Society ensure that prisoners have access to the same legal services that are available to other citizens. Staff lawyers and other personnel provide prisoners with legal information about criminal and family law matters and a wide range of other problems. In order to protect the rights of detained persons under the Charter of Rights and Freedoms, the Society operates a hot line program, which, through a 24-hour duty counsel province-wide telephone line, provided access to

legal advice to persons in police custody who have been charged with a criminal offence or who are under investigation.

In addition to handling routine applications for legal aid in family law, criminal law and immigration, the LSS branch offices and community law offices provide extensive summary legal advice on a wide range of topics.

In order to provide legal services and education to the aboriginal people in British Columbia, the Legal Services Society has operated a Native Program since 1975, which plays the role of advocate for the aboriginal community. The Native Programs Department funds native communities to operate and provide legal services in the communities. The Department produces and funds, both on its own and in conjunction with the Community Program and Library, legal materials and workshops for native peoples. It also provides assistance to individuals requiring information on Indian law.

The Native Programs' staff liaise with aboriginal organizations, LSS field offices, and other funded agencies on matters relating to the Society's mandate. They also conduct preliminary analysis of service delivery deficiencies to aboriginal people and coordinate redress of these deficiencies through the relevant departments and committees. To ensure that all aboriginal people have equal access to the law, the Native Programs Department provides grants for public legal education and produces publications on legal issues specific to aboriginal people. It provides information on a broad range of issues to individuals and organizations in the aboriginal and the general public. Native Programs

also furnishes information to external agencies such as the Ministry of the Attorney General, the Judiciary, Crown Counsel, and to aboriginal and non-aboriginal organizations. In addition to operational services, the Native Programs Department also provides supporting services to other departments within the Society. In its support function, Native Programs develops, coordinates and implements policy and other initiatives for the delivery of mandated legal services to the aboriginal people of BC and evaluates the overall legal service delivery to aboriginal people.

Criminal legal aid representation is primarily provided by members of the private bar who receive payment under a general fee-for-service tariff. The delivery of legal aid, the maintenance of lists of lawyers, the assignment of counsel and the payment of counsel are administratively controlled by the Legal Services Society.

THE ADMINISTRATION OF LEGAL AID AND THE COST OF LEGAL AID

Although it is generally believed that effective administration will lead to a reduction in the cost of service, it is not so simple with the provision of legal aid services. As mentioned earlier, the mandate of the Legal Services Society is to provide more service to more people who are poor. Other things being equal successfully carrying out this mandate will likely lead to higher cost.

As well, the LSS can determine the priorities for services it provides. If the LSS determines to give higher priority to public legal education and does it effectively, more

people may become aware of the availability of legal aid and ask for legal aid; more people may identify their problems as legal ones and ask for legal aid; and more crime may be reported to the police which may lead to more criminal charges and more demand for legal aid. All of this means the translation from successful administration into higher cost.

MODE OF PROVIDING LEGAL AID: JUDICARE OR STAFF

Two major legal aid systems have historically influenced the mode of providing legal aid in British Columbia: the judicare system in England and the public defender system in the United States (Brantingham and Brantingham, 1984; Cawley, 1991; Easton et al., 1992). "The Society provides services (full service, summary service) through a mixed delivery system employing staff professionals and private lawyers. Eligible clients not handled by staff professionals are referred to private lawyers or may choose any lawyer in the community who is willing to act. However, when the offence has a mandatory punishment of life imprisonment, the applicant may choose any private lawyer belonging to the British Columbia Bar" (CCJS, 1994:10.7). Although the legal aid plan can be described as a mixed delivery model, it should be noted that the private bar handles most of the representational services as will be discussed later.

The Legal Aid Society, created in 1970 with financial support from the Law Foundation and the provincial government, started a pure judicare system by referring cases to the private bar lawyers, who were paid the "tariff" by the province. In 1972, the Legal Aid Society proposed a diversification of its delivery methods by using staff lawyers in providing legal aid in the province. In the following four years 30 staff lawyers were

hired in 15 offices throughout the province to “provide summary advice on criminal and family law problems, represent clients, act as duty counsel in criminal courts and make referrals to the private bar” (Brantingham and Brantingham, 1984:37). This marked the start of a mixed model by using both private bar lawyers and staff lawyers and more staff lawyers were hired in later years, including the Burnaby public defense office set up in 1979. However, the Legal Aid Society encouraged staff to “concentrate on civil non-family matters” and the main delivery method continued to be referral to the private bar. In fact, the use of staff lawyers for direct representation generally decreased in the decade 1983 until 1993 when the Legal Services Society started to implement several mixed model pilot teams in Greater Vancouver.

Table 3 shows proportions of direct representation cases handled by the private bar and staff lawyers for the period from 1984 to 1994. Generally, private lawyers handled about 84% of the total caseload, while staff lawyers handled the rest. However, the pattern for criminal matters is quite different from that for civil matters. In the fiscal year of 1993-94, private lawyers handled 95% of the criminal caseload and 73% of the civil caseload, while staff lawyers handled the balance. In comparison, however, staff lawyers handled about 10% of the criminal caseload and almost 60% of the civil caseload in the early 1980's. This trend represents a major movement from the staff model toward the judicare model in British Columbia in the decade before 1993.

Table 3 Number of Cases Handled by Private Bar and Staff (Criminal and Civil Law)

| Year | Criminal Law | | | Civil Law | | | % of all Staff Cases |
|--------------------|----------------|---------------|-------------|----------------|---------------|--------------|----------------------|
| | Private Bar | Staff | % of Staff | Private Bar | Staff | % of Staff | |
| 1984-85 | 22,959 | 2,373 | 9.4% | 5,753 | 8,031 | 58.3% | 26.6% |
| 1985-86 | 23,000 | 2,400 | 9.4% | 6,500 | 7,300 | 52.9% | 24.7% |
| 1986-87 | 26,800 | 1,611 | 5.7% | 8,933 | 6,700 | 42.9% | 18.9% |
| 1987-88 | 26,148 | 1,323 | 4.8% | 10,033 | 6,144 | 38.0% | 17.1% |
| 1988-89 | 29,280 | 1,326 | 4.3% | 11,040 | 6,749 | 37.9% | 16.7% |
| 1989-90 | 28,911 | 1,152 | 3.8% | 13,678 | 6,537 | 32.3% | 15.3% |
| 1990-91 | 32,338 | 1,192 | 3.6% | 16,500 | 6,739 | 29.0% | 14.0% |
| 1991-92 | 42,640 | 1,240 | 2.8% | 20,035 | 6,725 | 25.1% | 11.3% |
| 1992-93 | 42,521 | 1,139 | 2.6% | 22,971 | 7,077 | 23.6% | 11.1% |
| 1993-94 | 39,877 | 2,178 | 5.2% | 22,158 | 8,357 | 27.4% | 14.5% |
| Grand Total | 314,474 | 15,934 | 4.8% | 137,601 | 70,359 | 33.8% | 16.0% |

Source: CCJS, 1995:115

The cost effectiveness of using staff lawyers rather than *judicare* has been a topic for debate in recent years. Evaluations of the legal aid plans in Nova Scotia (Department of Justice, Canada, 1985), Quebec (Canadian Bar Association, 1987), Manitoba (Department of Justice, Canada, 1987) and Saskatchewan (DPA Group Inc., 1988) indicate that “staff models typically cost between one-third and one half as much as *judicare* models per case due to higher productivity, lower administrative costs and fewer trials” (Lau, 1993:55). Using 1990-91 fiscal year data aggregated at the provincial level, Easton *et al.* (1992) analyzed the relationship between the cost per case and percent of cases handled by staff across the ten provinces and two territories in Canada and concluded that “the cost per case falls with the use of staff” (p.56).

The cost effectiveness of using staff versus the private bar in British Columbia is not that conclusive. An evaluation of the Burnaby Public Defender Project conducted in 1981 by Brantingham and her research team found that the average cost for judicare cases was \$225 in Burnaby and \$264 in Vancouver, while the average cost for a public defender case was \$235. Therefore, "the average cost per case for public defender cases was \$9 more than for judicare cases in Burnaby, but \$25 less than judicare cases in Vancouver" (Brantingham, 1982a:9). The cost effectiveness of the staff model versus judicare, as pointed out by Brantingham et al., is dependent on many conditions, such as staff salary structure, judicare tariff rate, and workloads.

In 1993, the LSS set up several staff pilot teams in Greater Vancouver. In an interim report on the performance of the pilot teams, it was found that the average cost per staff case was higher than the average cost per judicare case (LSS, 1994). However, it was too early to come to any conclusion of the cost effectiveness by the pilot teams since they had been in operation for too short a time period to maintain a steady case flow.

PROFILE OF LEGAL AID RECIPIENTS

The characteristics of people who received legal aid is an important question for planning legal services. In addition to the financial situation of the legal aid clients, which is one of the criteria to determine the financial eligibility, it is equally important to understand the pattern of poverty, and other socio-economic and demographic factors of legal aid clients, such as their age, gender, employment status and education. Knowing the

pattern of the age of the legal aid clients, for example, will enable the planner to forecast the potential need for legal aid when the demographic pattern of the population in general changes. People of different age groups would likely need different types of legal aid services.

Generally speaking, legal aid clients tend to be younger than the general population and poorer, and also more likely to be single, unemployed, and male (except for family law clients) (see Table 4). In comparison with clients of other types of law, criminal law clients are younger. The average age is 28 years old for criminal law clients and over 30 for other clients. Criminal law clients are more likely to be single than other clients. Only 17% of them are married or in common law relationship as compared with more than 20% of those for other clients. Criminal law clients are poorer than other clients⁵. They have the lowest average income and least assets among all legal aid clients, with the exception of immigration law clients, who are mostly refugee claimants. The criminal law clients are also more likely to be unemployed than other clients except for immigration law clients⁶. In regard to the high proportion of the unemployed for immigration clients, it should be noted that the majority of immigration law clients are refugee claimants who are not allowed to work. Interestingly, it is also shown in Table 4 that criminal law clients tend to be much better educated than other types of clients.

⁵ It should be noted that illegal income is not considered in this discussion.

⁶ Immigration clients, most of whom are refugee claimants, may be barred by law from working.

Table 4 Profile of Legal aid Applicants in 1994

| Profile Characteristics | Type of Law | | | |
|---|-------------|----------|-------------|-------------|
| | Criminal | Family | Immigration | Other Civil |
| Average Age | 28yrs | 34yrs | 32yrs | 38yrs |
| Education: % less than gr. 9 | 36% | 55% | 72% | 62% |
| Marital Status: % married/common law | 17.2% | 20.8% | 38.9% | 28.1% |
| Average Monthly Income | \$782 | \$1,108 | \$737 | \$964 |
| Adjusted Income * | \$583 | \$826 | \$549 | \$718 |
| Total Assets (of the family) | \$2,594 | \$14,463 | \$537 | \$6,998 |
| Adjusted Assests* | \$1,933 | \$10,777 | \$400 | \$5,215 |
| Percent Employed | 14.4% | 30.5% | 8.7% | 62.7% |
| Gender (% Male) | 85.3% | 31.3% | 73.7% | 62.7% |

Source: The Management Information System of the Legal Services Society of BC

* Adjusted income and assets are based on the Consumer Price Index for British Columbia, all-items, 1986=100 (Statistics Canada- Cat. No. 62001, xxv)

There has been little research on the profile of legal aid clients. Brantingham and Brantingham's evaluation of legal aid conducted in 1984 analyzed the profiles of legal aid clients in British Columbia in 1982. Their analysis makes it possible to compare the profile of legal aid clients in recent years with that of clients over ten years ago.

Table 5 Profile of Legal Aid Applicants in 1982

| Profile Characteristics | Type of Law | | |
|--|-------------|---------|---------|
| | Criminal | Family | Civil |
| Average Age | 27 yrs. | 32 yrs. | 40 yrs. |
| Education: % less than gr. 10 | 70% | 53% | 52% |
| Marital Status: % of married/common law | 24% | 37% | 59% |
| Average Monthly Income | \$500 | \$670 | \$754 |
| Adjusted Income * | \$582 | \$780 | \$878 |
| Total Assets (of the family) | \$818 | \$3,935 | \$5,307 |
| Adjusted Assets* | \$952 | \$4,581 | \$6,178 |

Source: Brantingham and Brantingham, 1984a.

* Adjusted income and assets are based on the Consumer Price Index for British Columbia, all-items, 1986=100 (Statistics Canada- Cat. No. 62001, xxv)

Comparing the profiles of the legal aid clients produces interesting patterns. First, criminal law and family law legal aid clients in 1994, who accounted for more than 90 percent of all legal aid clients, (Table 4), are financially better off than those in 1982 (Table 5) with more substantial difference in assets than in take-home income⁷. The immigration law clients in 1994, most of whom are refugee claimants, and the other civil law clients in 1994, most of whom are poverty law clients, are poorer than those in 1982. In comparison with clients of other types of law, criminal law legal aid clients tend to be poorer than civil law clients, with the exception of immigration clients.

In terms of the age of the clients, there is no significant difference between the two groups, i.e., it is the similar age groups of people that needed and received legal aid in both periods of time. Generally, criminal law clients were the youngest in both time periods. In regard to education, the earlier study found that criminal law clients were more poorly educated than clients of other types of law (see Table 5), while the 1994 data show that criminal law clients were better educated than most clients of other types of law (see Table 4). It should be noted, however, that there is some discrepancy in the measurement adopted for the two periods. The Brantingham and Brantingham study used grade 10 as the measuring criterion. In the Management Information System of the LSS, code "9" stands for both grade 9 and university education, which makes it impossible to have an accurate count of people with less than grade 10 educate and the closest cutoff point is Grade 9. With the different cutoff points, the figures suggest that criminal law and family law legal aid clients in 1994 are likely to be better educated than those in 1982. Comparing

⁷ The total assets for 1993 legal aid clients are pure assets, with debt deducted.

clients of different types of law, the pattern in 1994 is also different from that in 1982. Immigration legal aid clients (most of them are refugee claimants) are the least educated, which is followed by other civil law clients. The difference between criminal law clients and family law clients in 1994 is no longer as obvious as that in 1982. This pattern of better educated clients is likely to correlate with the fact that the Canadian population as a whole is now better educated than it was over 10 years ago. Legal aid clients in 1994 are less likely to be married (or in common law relationship) than 1982 clients for all types of law. Similarly to the 1982 pattern, criminal law clients are least likely married in 1994.

The research report of Brantingham and Brantingham does not give specific figures about the gender of legal aid clients in 1982. However, the pattern identified in 1982 is very similar to that in 1994, i.e., the majority of legal aid clients for criminal law matters are male (84.6%) and those for family law matters are female (70%).

Table 6 Profile of Legal Aid Applicants in 1993

| Profile Characteristics | Type of Law | | | |
|---|-------------|----------|-------------|-------------|
| | Criminal | Family | Immigration | Other Civil |
| Average Age | 28yrs | 34yrs | 32yrs | 39yrs |
| Education: % less than gr. 9 | 34% | 31% | 69% | 45% |
| Marital Status: % married/common law | 18.1% | 22.4% | 38.9% | 25.6% |
| Average Monthly Income | \$792 | \$1,105 | \$724 | \$955 |
| Adjusted Income* | \$602 | \$840 | \$550 | \$726 |
| Total Assets (of the family) | \$1,902 | \$14,110 | \$199 | \$7,853 |
| Adjusted Assets* | \$1,445 | \$10,721 | \$151 | \$5,967 |
| Percent Employed | 16.3% | 33.6% | 11.5% | 51.6% |
| Gender (% of Male) | 84.6% | 29.9% | 76.2% | 51.6% |

Source: The Management Information System of the Legal Services Society of BC

* Adjusted income and assets are based on the Consumer Price Index for British Columbia, all-items, 1986=100 (Statistics Canada- Cat. No. 62001, xxv)

In October, 1993 the LSS started to implement stricter financial eligibility criteria for criminal law and family law matters. It is interesting to compare the profile characteristics of the legal aid clients before and after the implementation of the new policy. Using the Management Information System of the Legal Services Society of BC the profile of 1993 legal aid clients is analyzed (see Table 6). Thus, the effect of the 1993 eligibility policy can be readily revealed by comparing the profile of legal aid clients in 1993 with that in 1994 (see Table 4). By comparing the monthly income adjusted to constant dollars, legal aid clients under the stricter financial eligibility in 1994 tended to have less income (especially for criminal law clients). They were also less educated, and less employed. In terms of assets, however, legal aid clients in 1994 tended to be a little better off than the clients in 1993. The difference in income and assets found here is consistent with the Legal Services Society's eligibility policy in 1993, which used income as the major criterion in determining the eligibility of legal aid clients, without much emphasis to the amount of assets.

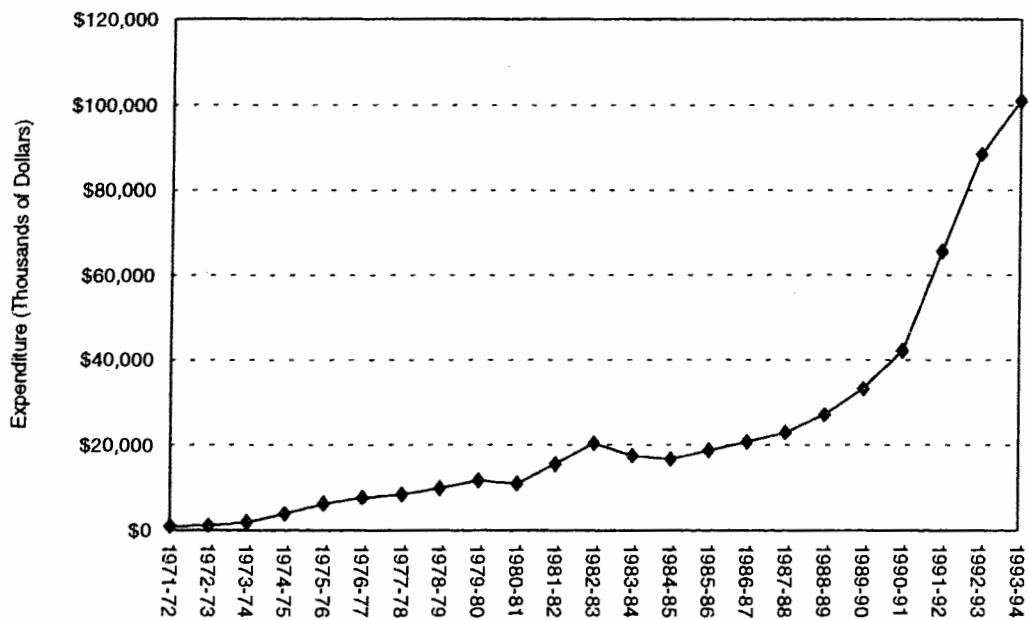
COST OF LEGAL AID SERVICES

Expenditures for legal aid in British Columbia have followed an erratic path. It is shown in Figure 1 that, along with the general pattern of increase, the expenditures for legal aid went up substantially in the early 1980s, and then declined for a couple of years in the mid-80s. After a slow and steady increase that lasted for several years, the expenditures rose rapidly after 1990 as the effects of revised family law and criminal law

tariffs and a newly imposed duty to represent persons in immigration hearings took hold⁸. The expenditures showed an even more dramatic increase, skyrocketing to more than \$65 million, during the 1991-92 fiscal year as the costs of the 1992 revision of the criminal law tariff began to be felt. In the fiscal year 1993-94, the cost of legal aid exceeded 100 million dollars.

⁸ The expansion of legal aid to cover immigration matters will be discussed later in this chapter.

Figure 1 Legal Aid Expenditure in British Columbia



Source: Canadian Centre for Justice Statistics (1985... 1993). *Resource and Caseload statistics for Legal Aid in Canada*

Many factors within the legal aid system may affect the cost of legal aid in general and may contribute to rapid increases in the cost of legal aid in British Columbia. These include:

- volume of clients;
- financial eligibility criteria;
- service coverage policy;
- accessibility (number and location of office);
- tariff system and staff salaries;
- range of services (such as PLE, duty counsel, Brydges), and
- administrative practices.

This chapter provides an analysis of some of the factors listed above.

Financial Eligibility

In order to receive legal aid representational services in British Columbia, an individual must be both financially eligible and have a problem covered by the Legal Services Society (LSS, 1992:2). The detailed criteria used to define financial eligibility and problem coverage basically determine the need for legal aid, which in turn affects the demand for legal aid. The areas of law covered by the LSS will be discussed in the next section in this chapter. Financial eligibility is the major consideration in this section.

In terms of financial eligibility, there are two formal definitions which have some binding effect on the Legal Services Society in defining the need for legal aid. The Legal Services Society Act of 1979 sets out a formal definition of financial eligibility: a person is eligible for legal aid if, for financial reasons, he would not otherwise receive legal services provided by a lawyer (Section 3.1.a). The cost sharing agreement between the Federal Department of Justice and the Ministry of the Attorney General in British Columbia has a more specific definition of the financial eligibility:

... (in determining financial eligibility the provincial agency) shall apply flexible rules that take into account whether the applicant can retain counsel at his own expense without him or his dependents (if any) suffering undue financial hardships such as incurring heavy indebtedness or being required to dispose of modest necessary assets. (Government of Canada, 1978:4-5)

These provisions are fairly general and allow the LSS much room to define the specifics of financial eligibility. The LSS, in response to funding difficulties, has redefined

the need for legal aid by modifying the financial eligibility policy several times in the past two decades.

Before 1982, the LSS followed a flexible financial eligibility policy:

Persons are financially eligible for legal aid when requiring them to pay legal fees would impair their ability to provide themselves and their dependents with the essentials necessary to keep them adequately fed, clothed, sheltered and living together as a family.

The test is designed to be flexible. It takes into account an applicant's entire financial situation, including the probable cost of the services required...

Those not financially eligible for service may nevertheless be assisted if the needed services cannot be obtained from another source (LSS, 1982:8).

In response to a funding cut from the government, the LSS introduced a restraint program with a relatively inflexible income cut-off test in October, 1982, which lasted till 1990. According to this test, applicants whose net family income exceeded the established standards were not eligible for legal aid. The income cut-offs were tied to poverty levels published by the National Council on Welfare and varied by the size of the applicant's family and the size of the community where the applicant resided. However, "those not financially eligible for service may nevertheless be assisted if the needed service cannot be obtained from another source" (LSS, 1984:9) Efforts were made to give as much legal information and advice as possible to ineligible persons who cannot afford a lawyer (LSS, 1984).

In 1990, a flexible eligibility test was introduced for all matters (CCJS, 1994: 10.12). Under the flexible eligibility test even if an applicant's income was above the poverty guideline he/she might qualify for legal aid when it was judged that requiring him/her to pay for counsel would impair his/her ability to furnish self and family with the essentials necessary to keep them decently clothed, sheltered and living together as a family. The eligibility test was flexible enough to allow the plan to also consider: the complexity of the legal matter, the urgency of the situation, the nature of the service applied for, the quantum of the claim, the cost of the proceeding and whether a reasonable person who had to pay a lawyer would spend the money to advance this case (CCJS, 1994: 10.13).

In September of 1993, the Society again tightened its financial guidelines for people with family or criminal law problems who apply for legal aid by removing the flexible test, at least on an interim basis. All legal aid clients, according to the new policy, "must have incomes below the 1992 low income guidelines set by the National Council of Welfare" (Casting, 1993:3), except for family law emergency cases and serious criminal charges involving complex issues of fact and law where the Society may use discretion to provide legal aid services. For those whose incomes are above the low income guideline and who have family law emergency matters, such as applications for interim custody, interim maintenance, occupancy or restraining orders, defense in child apprehension, etc. only limited lawyer services will be provided to alleviate the emergency situation.

Table 7 Low Monthly Net Income Cut-off Table as the Basic Guideline to Test Eligibility for Legal Aid (1992)

| Family Size | Vancouver | Victoria | 30,000-99,000 Population | less than 30,000 Population |
|-------------|-----------|----------|--------------------------|-----------------------------|
| 1 | \$1,090 | \$970 | \$950 | \$880 |
| 2 | 1,540 | 1,390 | 1,360 | 1,260 |
| 3 | 1,900 | 1,700 | 1,670 | 1,540 |
| 4 | 2,140 | 1,930 | 1,890 | 1,750 |
| 5 | 2,300 | 2,100 | 2,050 | 1,900 |
| 6 | 2,460 | 2,240 | 2,210 | 2,050 |
| 7 or more | 2,610 | 2,380 | 2,340 | 2,190 |

Source: Legal Services Society of British Columbia Policy Manual (1992)

Note: Net income equals gross income minus tax, unemployment insurance, Canada Pension plan, medical benefits and maintenance payments.

Coverage Policy

In addition to being financially eligible, a person also has to have a legal issue for which the LSS agrees to provide legal counsel, which is generally referred to as legal aid coverage policy. The LSS covers a wide range of legal issues, including criminal law and civil law which includes family law, immigration law, mental health law, prison law, human rights issues and “poverty law”, a generic term the LSS uses to refer to wide range of legal issues such as unemployment insurance claims, workers compensation, etc. In almost all of these legal areas, the LSS has specific policies about what is covered and what is not. In addition, the LSS modified its policy and redefined the need for legal aid several times for various reasons, one of which was to respond to the changes in the cost of legal aid and changes in funding resources in the past two decades. This section will first briefly describe the coverage policy for civil law then will discuss the criminal law coverage policy in greater detail.

Civil Law Coverage

The formal civil law coverage policy is set by the Legal Service Society Act,

Section 3:

The society shall ensure... that legal services are available for a qualifying individual who...

(b) may be imprisoned or confined through civil proceedings;

(c) is or may be a party to a proceeding respecting a domestic dispute that affects his physical or mental safety or health or that of his children; or

(d) has a legal problem that threatens (i) his family's physical or mental safety or health; (ii) his ability to feed, clothe and provide shelter for himself and his dependents; or (iii) his livelihood.

To meet the statutory mandate, the LSS covers, in respect to family law, all financially eligible people with custody and access matters, maintenance matters, family violence issues and those financially eligible people who have an urgent issue of application to vary maintenance downward; adoption; uncontested divorce; division of property, including enforcement; etc. (LSS, 1992).

In regard to other civil law coverage (non-family), legal aid is available for immigration matters where the basic rule is that a financially eligible person is facing an immigration inquiry or hearing which may result in deportation, and the service is not otherwise available. In other civil matters legal aid is available for those matters where an

unfavorable outcome to a proceeding affects the physical or mental safety or health of the applicant and/or the applicants' children, or endangers the applicants; livelihood or his/her ability to feed, clothe or provide shelter for self or dependents. The types of civil litigation (non-family) which may be covered by legal aid include: defense in motor vehicle negligence, damage actions, landlord-tenant disputes, worker's compensation claims, wrongful dismissal, personal injury, social assistance, consumer protection, unemployment insurance, foreclosures, and bankruptcy. The LSS has a tariff for family law matters and immigration law matters. However, there is no tariff for civil (non-family) matters; assistance is provided by staff of branch offices, community law offices or native community law offices, or on a *pro bono*⁹ referral to a member of the private bar. A pro bono referral covers disbursements, but does not pay fees (LSS, 1992).

Human rights issues are also covered when legal representation is needed for proceedings before the Human Rights Council. Legal Aid for these proceedings are funded by the Human Rights Council, but administered by the Legal Services Society.

Criminal Law Coverage

Similar to the guidelines for the eligibility policy, there are two formal definitions of criminal law "coverage" policy. One is the *Legal Services Society Act* that states that an individual qualifies for legal services if he "is a defendant in criminal proceedings that

⁹ *Pro bono publico* services are provided free of charge by legal professionals.

could lead to his imprisonment” (Section 3.2.b). The other formal definition is stated in the early federal provincial cost sharing agreements, which specify those matters related to criminal law for which legal aid must be provided for eligible persons:

- indictable offences;
- federal summary conviction offences or proceedings under the *Juvenile Delinquent Act*¹⁰ where there is a likelihood, in the opinion of the provincial agency that there will be imprisonment or loss of means of earning a livelihood;
- proceedings pursuant to the Extradition Act and the Fugitive Offenders Act;
- appeals by the Crown in any of the above matters;
- appeals by the accused in any of the above matters, if the provincial agency determines that the appeal has merit or where the court appealed to requests the appointment of counsel on behalf of the appellant. (Government of Canada: 1978)

Prior to October, 1982, the LSS had a relatively more lenient coverage policy. The criminal law tariff covered: “all indictable offences; summary conviction offences where there is a definite likelihood that, if convicted, the accused will receive a prison sentence or lose the means of earning a living ...etc.” (LSS, 1983:9). This basically meant, in practice, that legal aid was available for summary offences where there was a “possibility” of imprisonment. From August 31 till November 21, 1983, “because of a further reduction in funding, the Society was obliged to reduce its services below the minimum set out in s.3(2) of the *Legal Services Society Act*. All coverage was eliminated for anyone facing a summary conviction charge (where the maximum sentence is six months’ imprisonment),

¹⁰ The *Juvenile Delinquency Act* has been superseded by the *Young Offenders Act*, which means that this section needs to be updated.

unless that individual was likely to go jail *and* did not have a related prior record. In effect, this eliminated coverage in thirty percent of cases. This meant that many individuals facing incarcerations as a result of a conviction were denied counsel” (LSS, 1984:8).

The LSS reinstated coverage in summary conviction matters on November 21, 1983, in response to the British Columbia Court of Appeal decision in the case of *Mountain vs. the Legal Services Society of BC* ([1983], 5 D.L.R. [4TH] 170 [B.C.C.A.]).

“The Society now provides services in areas under s.3(2) of the Act. In criminal matters, counsel is provided for all indictable matters, for summary conviction matters where the accused is likely to be imprisoned or to lose the means of earning a livelihood as a result of the charges he or she is facing; for charges under the *Young Offenders Act*” (LSS, 1984:8).

The Legal Services Society followed this policy for over ten years until the August of 1994, when the Society had to reduce the cost of providing legal aid, which more than doubled in the 1992/93 fiscal year as a result of a doubling tariff in the summer of 1991. Instead of providing legal aid for all indictable offences “whether or not jail is likely result of conviction” (LSS Policy Handbook, 1993), the Society decided in August, 1994 that the LSS would appoint counsel for an accused only when the accused was facing “a reasonable chance of jail”, no matter whether the charge was indictable, summary or hybrid. Provincial offences are covered on the same basis. While the chances of imprisonment are dependent on the circumstances of the offence, the record of the accused, and the sentencing patterns of each individual community, the intake staff of legal aid are instructed to “check with the local Crown counsel to get their opinions” (LSS

Policy Handbook, 1994) if they are unsure of the likelihood of imprisonment. In regard to appeals, Crown initiated appeals are generally covered by legal aid while coverage in accused initiated appeals is based on merit.

In exceptional cases coverage will be extended to individuals who may not have the emotional, intellectual or linguistic capacity to pursue a matter on their own accord. The following are some of the possible exceptions to the coverage criteria: (1) the applicant can not obtain the needed legal services from another source; and (2) the applicant agrees to make a financial contribution where possible; and (3) the applicant satisfies one or more of the following criteria: (a) the applicant has special ethnic, cultural or linguistic need; or (b) the applicant is geographically isolated from legal services; or (c) the applicant has a case which could benefit individuals, the majority of whom would be financially eligible for legal aid and which could not proceed without assistance from Legal Services; or (d) the applicant is physically or mentally disabled and thereby unable to obtain legal services elsewhere; or (e) the applicant is a nonprofit organization, where the services are determined to be in the best interest of individuals, a majority of whom would be financially eligible (LSS, 1992).

Tariffs

The Legal Services Society of British Columbia has been using tariff schedules since 1972. At present, most of criminal law, family law, immigration law and human rights cases are referred to the private bar on tariffs which set the amount of fees payable.

Some civil (other than family and immigration law) matters are referred out on a pro bono, disbursements only basis.

Since the introduction of the first tariff schedule in 1972, the tariffs have undergone periodic adjustments, which, as will be discussed later in this study, account for most of the increases in the cost of providing legal aid in BC. The following is a relatively static 'snap-shot' view of the tariff structure in 1993.

Family law, immigration law and human rights cases are paid for on an hourly basis at the rate of \$80 per hour for general preparation, court preparation, court appearances and other services up to specified maximums. For family law matters the maximum billable hours are 26 hours for general preparation, 5 hours for court preparation. For immigration law cases, the maximum billable hours are 9 hours for general preparation, 5 hours for court hearing preparation and no limit for actual court appearance time.

Criminal law tariff structure is a lot more complicated than the civil law tariff. First, the tariff pays different fees for services rendered, depending on the type of charges which are grouped into four categories on the basis of seriousness, consequences and the amount of work required. Following are some examples to illustrate the categorization. Offences related to court process and peace bond, such as violation of judicial interim release or breach of recognizance are grouped in Category 1; common assault, theft, fraud under \$1,000 in Category 2; break-and-enter, assault causing bodily harm and similar

offences are grouped in Category 3; murder, robbery, kidnapping and other most serious offences are grouped into Category 4.

The fees are also based on block payments for billable items which are tied to various court proceedings such as preliminary hearing, guilty plea/trial, sentencing and so on. Tariff rates vary according to the seriousness of the charges. Block fees are based on the average amount of time required for a proceeding, including court attendance, preparation, interviews, meetings and telephone calls. Since the actual amount of time required to complete a matter varies from case to case, the reasoning behind block fees is that referral lawyers gain on some cases and lose on others. Table 8 includes some billable items with some extent of over-simplification to illustrate the manner in which the tariff functions.

Table 8 Examples of Criminal Law Tariff (effective Dec. 1, 1992)

| BILLABLE ITEM | CHARGE TYPE | | | |
|------------------------------|-------------|-------------|--------------|-------------|
| | Category I | Category II | Category III | Category IV |
| Early Termination | \$50 | \$70 | \$90 | \$140 |
| Guilty Plea | \$180 | \$220 | \$260 | \$400 |
| First Half Day of Hearing | \$360 | \$450 | \$540 | \$720 |
| Bail Review (first half-day) | \$140 | \$140 | \$180 | \$180 |
| Sentencing (first half-day) | \$180 | \$220 | \$260 | \$400 |

As mentioned earlier, the tariff has undergone numerous adjustments since it was introduced in 1972. These adjustments, most of which have been increases, have had major impacts on the cost of legal aid in BC. Table 9 lists all the tariff changes and all the

expenditures on legal aid in British Columbia from 1977 to 1993. Table 9 clearly illustrates the impact of tariff change on the cost of legal aid. Following most changes in tariff, the cost would change accordingly in the following years. When there was an increase of 8% of tariff in January, 1979, for example, the expenditure in the following fiscal year increased by about 18%. When tariff was decreased by 12.5% in October, 1982, the cost of legal aid decreased in the following year, too. When the biggest tariff increase in legal aid history took place in June, 1991, the impact is also the most striking: while the expenditure increased by 50% in the same fiscal year of the tariff increase in comparison to the previous fiscal year, the cost in the following year was more than doubled that of the year before the tariff increase. When tariff changes take place, they normally affect the cases that are assigned to the private bar after the effective date of the tariff change. The tariff change in 1991, however, was different from all other changes in that all the cases that were not completed could be reassigned so that the higher tariff rate could be applied. This practice resulted in an immediate increase of cost. However, with downward changes in tariff, the impact will not be seen until a year or two years later.

Table 9 Tariff Changes and Cost of Legal Aid in BC

| Year | Total Expenditure \$'000 | Tariff Change (Compound) | Effective Date of Change |
|-------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1978-79 | \$9,808 | +8% | Jan. 1, 1979 |
| 1979-80 | \$11,572 | | |
| 1980-81 | \$10,905 | +8% | June 1, 1980 |
| 1981-82 | \$15,446 | +38% | Sept. 1, 1981 |
| 1982-83 | \$20,333 | -12.5% | Oct. 1, 1982 |
| 1983-84 | \$17,328 | | |
| 1984-85 | \$16,564 | | |
| 1985-86 | \$18,656 | +14.3% | Jan. 1, 1986 |
| 1986-87 | \$20,643 | | |
| 1987-88 | \$22,813 | +25% | Aug. 1, 1987 |
| | | +32% (Family Tariff Only) | Jan. 1, 1988 |
| 1988-89 | \$27,000 | +8% | Oct. 1, 1988 |
| 1989-90 | \$33,088 | +5% | Oct. 1, 1989 |
| 1990-91 | \$42,018 | +6% | Jan. 1, 1991 |
| 1991-92 | \$65,522 | +100% | June 1, 1991 |
| 1992-93 | \$88,346 | -15% | Dec. 1, 1992 |
| 1993-94 | \$100,894 | +10% (Family Tariff Only) | April 1, 1993 |

Source: CCJS (1986, 1995) and LSS (1995)

Accessibility to Legal Aid Services

Accessibility is crucial in the provision of Legal aid services. People in need of legal aid cannot use the service without access to it, even when the services are available. Offices and other client contact points must be located so that people who need legal aid can have physical access to the services. An accused person is tried in the jurisdiction where the offence was committed rather than where he/she lives. Although the Legal Services Society does not have any jurisdictional requirements, services and the initial client contact points have to be available to where the person is arrested and charged.

Accessibility is also crucial to the need for and the cost of legal aid. To make legal aid services accessible, client contact points have to be set up at approachable places. The availability of services also needs to be advertised to make the potential clients aware of the services. In addition to an initial setup cost, the potential cost of providing services to meet the need that was previously unmet constitutes the lion's share of the cost.

Many factors affect the accessibility of legal aid services. First is the physical availability of client contact points and the availability of staff and private bar able to provide legal counsel (including both summary advice and representation) after the initial contact. In order to make the services available, over 60 client contact points have been set up through out the province (as of January 1, 1993, according to the Legal Services Society's telephone directory), including 16 LSS branch offices, 10 Community Law Offices, 7 Native Community Law Offices, 21 Area Directors, 2 Native Legal Information Offices, a Prison Liaison Office and several charity organizations such as Salvation Army and Elizabeth Fry Society. These client contact points take legal aid applications, provide summary advice and provide full representation for clients where staff lawyers are available. In addition, the LSS retains over two thousand private bar lawyers to provide legal counsel either on tariff or on a pro bono basis (CCJS, 1994). In addition, to make the legal aid services physically available, the services also need to be approachable and the potential clients need to be informed of the availability of the service. The Legal Services Society, and its predecessors, have made efforts to achieve this end by means of advertising and through public legal education programs. It should also be noted that

police are now required to mention the availability of duty counsel and legal aid as a routine part of the arrest process.

Given all the efforts by the LSS and its predecessors, the current accessibility to legal aid services in BC remains to be evaluated. The only research that has been conducted on this topic is in the *Evaluation of Legal Aid in British Columbia* by Patricia L. Brantingham and Paul J. Brantingham (1984) about ten years ago. After comprehensive research on the accessibility of legal aid services in British Columbia, they concluded that in spite of the fact that the location of offices was partially planned and partially an historical accident, "At a regional level, the LSS has been remarkably successful in matching resources to what appear to be problem areas." However, "their success was more limited at the Administrative Service Area level" (Brantingham and Brantingham, 1984a:206). At another dimension of accessibility, they found that "legal aid is not uniformly available to the people of British Columbia" (Brantingham and Brantingham, 1984b:9). They argued that the need for legal aid in criminal matters should correlate with court actions. "Knowing the prosecution rate and the poverty in an area should make it possible to predict demand for legal aid." However, they found that, controlling for poverty, no correlation between the prosecution rate and the criminal legal aid utilization rate across the services areas in BC. Instead they found that "the use of criminal legal aid was determined by the availability of staff in offices and the referral network that got people to the LSS, not by court prosecution patterns" (Brantingham and Brantingham, 1984b:9). They also noted that there were major holes in the delivery of criminal legal aid services and in the non-family legal aid services. "Areas served by Areas Directors and

circuits courts had low utilization rates. Areas served by offices had higher utilization rates....Not having an Area Director or a circuit court was even worse” (Brantingham and Brantingham, 1984b:9). Based on these finding they concluded that “there must be unmet need for criminal legal aid. Not all people eligible for criminal legal aid are receiving it”.

The problems listed above were found ten years ago. Updated research is obviously needed to reevaluate the current status of accessibility to legal aid services in BC. However, a comparison between the distribution of the client contact points analyzed by Brantingham and Brantingham ten years ago and the client contact points now shows that only a few additional client contact points have been set up during the intervening eleven years, which indicates that the problem of accessibility that was found ten years ago may still exist (see Table 10).

Table 10 A Comparison of Client Contact Points

| Type of Contact Point | 1982 | 1993 |
|------------------------------|-------------|-------------|
| Branch Office | 15 | 16 |
| CLO | 10 | 10 |
| NCLO | 4 | 7 |
| Area Director | 20 | 21 |

THE IMPACT OF FUNDING ON LEGAL AID IN BC

The *Legal Services Society Act* establishes the right of qualified people in British Columbia to have legal aid when they need it. However, the vague wording in the *Act* makes this right open to interpretation by the administrators of legal aid when there are changes in the environment in which legal aid is provided. Various factors have impacted

on the behavior of the legal aid system in BC. Community involvement, legal profession involvement, changes in law (especially court decisions) and government policy have all left their marks on the manner in which legal aid is provided today. However, nothing has impacted on the legal aid system more than the funding has.

First of all, it is the systemic funding from the government and the legal profession that made it possible to initiate a system that provided the people in the province with systemic legal services. Before 1970, "legal aid was essentially a voluntary system relying on the charitable impulses of individual members of the bar" (Brantingham, 1984:35), although the provincial Attorney General had agreed to pay honoraria of \$30 per day for minor indictable matters and \$50 per day for serious indictable matters since 1964. In 1970 the Legal Aid Society was created with financial support from the Law Foundation and the provincial government, which marked the establishment of a formal legal aid system in British Columbia. In 1972, the federal and provincial governments entered a cost-sharing agreement for criminal legal aid. The province received about 50% of its costs for criminal legal aid from the federal Department of Justice. Meanwhile, the provincial government changed its policy and increased funding for legal aid. As a result of the substantial funding from the federal government and the increased funding from the provincial government, the legal aid system in BC experienced a major expansion and reorganization in the ten-year period from 1972 to 1982. In these ten years, criminal law coverage was extended, and the criminal law and family law tariffs were increased. The Legal Services Commission by statute in 1975 started to administer all legal aid funding and plan the delivery of legal services. The Commission established legal information

services to support the placement and use of legal materials in public libraries throughout the province. The Legal Resource Centre was created to answer reference questions and provide public access to legal information through the Law Line. Later in 1976, the Native Programs Branch was established to improve delivery of legal services to native people. In 1979 the Legal Services Society was created by statute through a merger of the Legal Aid Society and the Legal Services Commission. By the end of the fiscal year of 1981-82, there were a total of 18 LSS branch offices, 10 Community Law Offices, 7 Native Legal Information Offices and 17 Area Directors throughout the province to provide legal services. In addition, the LSS funded several agencies such as the Elizabeth Fry Society and the BC Civil Liberties Association and ran several special programs such as the Prison Services Program, the Burnaby Public Defender Office and the Do Your Own Divorce Program (LSS, 1982).

While substantial funding from the government and the legal profession made it possible for the poor in the province to have more and more access to legal services in the ten year period from 1972 to 1982, as illustrated above, cuts in funding have had equally important impacts on the legal aid system in BC. By late 1982 and early 1983, both the federal and provincial governments announced economic restraint policies. While the federal government's restraint policies had little direct effect on the funding for legal aid in BC, the provincial government made heavy cuts to the funding for legal aid which had dramatic impact on the legal aid system. In July 1983, instead of providing the modest increase expected by the Society, the provincial Attorney General's Ministry reduced government funding for legal aid for 1983/84 by \$3.7 million from that actually provided

in 1982/83. The Society's financial difficulties were compounded by the Law Foundation of British Columbia's reduction in funding by \$760,000 (LSS, 1984:4). Overall, this represented more than a 20% cut in resources.

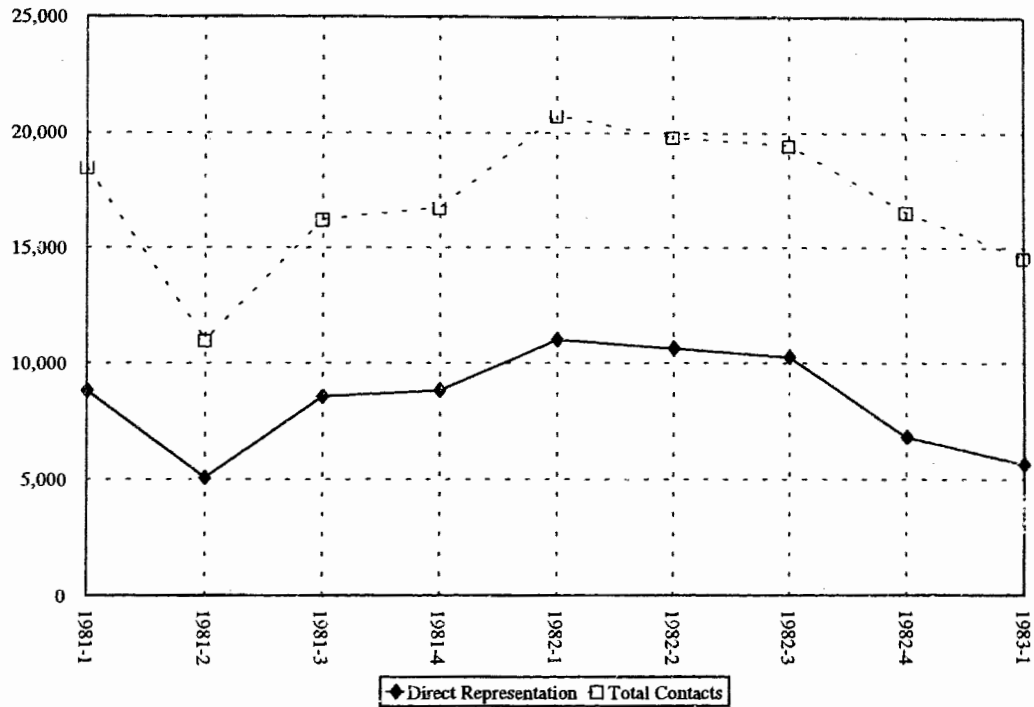
As a result of the massive reduction in funding from both the provincial government and the legal profession, the Legal Services Society had to take several measures to manage the deficit:

- Coverage in family and criminal law cases was narrowed;
- "All coverage was eliminated for anyone facing a summary conviction charge (where the maximum sentence is six months' imprisonment), unless that individual was likely to go to jail and did not have a related prior record (LSS, 1985);
- Strict financial eligibility guidelines were adopted for criminal and family matters;
- Services in all information programs were reduced;
- A user fee was introduced for all clients who received representational service;
- Tariffs of fees paid to lawyers were reduced by 12.5%;
- Five offices in Nanaimo, Vernon, Cranbrook, Smithers and Maple Ridge were closed (LSS, 1985) and staff level was reduced in other offices;
- Funding was discontinued for the paralegal hired by the North Shore Information and Referral Society in North Vancouver and for the paralegal hired by the Richmond Women's Resource Centre Society; and
- Funding of the British Columbia Civil Liberties Association was discontinued and funding to the Elizabeth Fry Society was substantially reduced.

As a result of all these measures, the cost of providing legal aid in the province decreased in 1983, 1984 and 1985 (Figure 1) and the number of clients that received legal

aid also decreased. In the fourth quarter of 1982, as illustrated in Figure 2, the volume of direct representation was 33% lower than the previous quarter and 23% lower than the same period in the previous year. The volume of direct representation in the first quarter of 1983 was even lower. The tariff stayed at the reduced rate for several years until 1986 when the Law Foundation of BC made a special grant to the LSS of BC, which restored the tariff to its 1981 level.

Figure 2 Impact of Restraint Programs on Volume of Services



Source: Brantingham and Brantingham, 1984:Table 1-13.

LEGISLATION, COURT DECISIONS, THE SOCIAL ENVIRONMENT AND LEGAL AID

Many aspects of the Canadian justice system may influence the number of persons served by legal aid and the cost of providing legal aid. Chapter VII will discuss how various parts within the justice system influence the need and cost of legal aid. This section focuses on how legislation, court decisions, and the social environment affect the need for and cost of legal aid.

In 1984 the federal government proclaimed the *Young Offenders Act*, a comprehensive overhaul of the procedures relating to young people. In particular, the *Act*

provides that any young person (between the ages of 12 and 17), when charged with a criminal offence, has a statutory right to a court order appointing counsel paid for by the Crown, even if that person is ineligible for legal aid. If a young person is refused legal aid, he/she can ask the court for "court-directed counsel" under the *Young Offenders Act*. Since the enactment of the *Young Offenders Act*, the LSS has extended unlimited coverage to applicants charged as young offenders for federal offences. Table 11 illustrates the impact of the *Young Offenders Act* on the need for and cost of legal aid. The columns of "Court Directed YOA" show the volume and cost of those cases that were either financially ineligible or fell out of the range of coverage. Comparing the court directed YOA cases with the eligible YOA cases over the 11 years reveals interesting patterns. The first pattern is the difference between the volume and cost in the first few years and that in the last few years. In the first few years, the impact of the Act was relatively minimal. Eleven years later, however, both the volume and cost of cases increased dramatically. In 1994, the cost of court directed cases rose to over two million dollars a year. One hypothetical explanation of this pattern is that young offenders were generally unaware of their rights under the *Young Offenders Act* in the earlier years of the enactment of the Act. When they were charged under the YOA, they (or their parents) would pay for legal counsel out of their own pockets. The second pattern is the fairly stable percentage of Court Directed Cases out of all YOA cases (around 30 percent) between 1987 and 1992 and the sharp increases in 1993 (6 percent from the previous year) and 1994 (almost 11 percent from the previous year). Meanwhile, the volume of eligible YOA cases decreased in the last two years. The second pattern reveals the impact

of the changes of the eligibility policy and the coverage policy by the Legal Services Society in 1993 and 1994 as discussed earlier in this chapter. Since the eligibility policy and coverage policy became more strict, more people failed to meet the approval standard and more youths consequently had court directed counsels. Table 11 also indicates that it may take many years to see the full impact of new legislation. In the current instance, the need for and cost of legal aid for younger offenders have been increasing since the proclamation of the *Young Offenders Act* ten years ago. And it cannot be concluded that 1994 saw the full impact of the *Act*, i.e., the percentage of court directed YOA cases may keep increasing.

Recently, the parliament has been considering redefining the age boundary of young offenders. Any change in the age boundary will impact legal aid significantly. If the upper limit of 17 is changed to 15, for example, fewer people would receive legal aid under the court direction, which would translate into less cost of legal aid. However, those between the ages of 15 and 17 would go to adult courts, where it takes more time to process a case. This would mean higher legal aid cost because part of the age group would be from poor families and would qualify for legal aid.

Table 11 Volume and Cost of Legal Aid for YOA Cases

| | Eligible YOA | | Court Directed YOA | | % of Court Directed YOA | |
|------|--------------|-------------|--------------------|-------------|-------------------------|-----------|
| | # of Cases | Cost | # of Cases | Cost | % of Cases | % of Cost |
| 1984 | 1,440 | \$255,548 | 80 | \$11,872 | 5.3% | 4.4% |
| 1985 | 2,430 | \$434,608 | 383 | \$64,572 | 13.6% | 12.9% |
| 1986 | 3,250 | \$677,697 | 1,086 | \$197,437 | 25.0% | 22.6% |
| 1987 | 3,343 | \$775,900 | 1,476 | \$304,719 | 30.6% | 28.2% |
| 1988 | 3,674 | \$1,026,515 | 1,807 | \$450,686 | 33.0% | 30.5% |
| 1989 | 3,884 | \$1,314,727 | 1,960 | \$542,482 | 33.5% | 29.2% |
| 1990 | 3,808 | \$1,379,796 | 2,257 | \$642,331 | 37.2% | 31.8% |
| 1991 | 4,838 | \$2,563,551 | 2,287 | \$989,666 | 32.1% | 27.9% |
| 1992 | 4,680 | \$3,804,967 | 2,774 | \$1,736,933 | 37.2% | 31.3% |
| 1993 | 4,240 | \$3,168,582 | 3,193 | \$1,952,672 | 43.0% | 38.1% |
| 1994 | 3,461 | \$2,355,000 | 4,043 | \$2,182,358 | 53.9% | 48.1% |

In addition to new legislation, the interpretation of existing legislation by the court at different levels has had significant impact on the need for and cost of legal aid. In 1990, the Supreme Court of Canada ruled, in the case of *Regina vs. Brydges* [1990] 74 C.R. (3d) 129, that people who have been arrested or detained in custody have the constitutional right to receive immediate information about the availability of legal aid and duty counsel. In the majority decision in that case, Chief Justice Lamer considered the historical development of legal aid programs in Canada and the development of special duty counsel programs which were designed to provide summary advice at the pre-trial stage of criminal proceedings. He held that the purpose of these programs coincided with the right to counsel under section 10(b) of the Charter of Rights and Freedoms. On that basis, Chief Justice Lamer ruled that the police had a duty at the time of arresting or detaining an individual on criminal charges to provide that person with immediate

information about the availability of duty counsel and legal aid (National Review of Legal Aid: 26). Following the decision of the Supreme Court, the Legal Services Society of BC started a toll-free province-wide telephone service (the Brydges Project) to ensure that people detained in custody had prompt access to legal aid advice (LSS, 1991).

In order to reduce the expenditure of legal aid during a budget squeeze in 1983, the Legal Services Society attempted to reduce coverage for summary conviction matters even where imprisonment was a likely result. This action by LSS was declared illegal by the British Columbia Court of Appeal (*Mountain vs. Legal Services Society*, [1984] 2 W.W.R. 438). It ruled that the plan could not deny criminal and civil services established in the *Legal Services Act*, 1979. The LSS, therefore, had to restore its coverage to the earlier level.

Before 1990, refugee claimants and other persons subject to immigration proceedings might get services through staff lawyers or *pro bono* programs. Whether they actually could obtain the services was subject to the availability of staff lawyers or of private lawyers who were willing to take such cases on *pro bono* basis. The British Columbia Supreme Court ruled that coverage in deportation proceedings is mandatory under the terms of the Legal Services Society Act (*Gonzalez-Davis vs. Legal Services Society* [1991] 5 WWR 181). In April of 1991 this ruling was upheld by the British Columbia Court of Appeal ([1991], 81 D.L.R. [4TH] 12 [B.C.C.A.]). In response to this court decision the legal aid plan created an immigration tariff (CCJS, 1994: 10.9). Table 12 illustrates the impact of the court decision in the case of *Gonzalez-Davis vs. Legal*

Services Society on the need for legal aid and the cost of providing legal aid. As a result of the court decision, each year more than two thousand people are redefined as in need of legal aid with an additional cost of four million dollars.

Table 12 Volume and Cost of Legal Aid for Immigration Cases

| year | # of Clients Served | Cost |
|------|---------------------|-------------|
| 1992 | 2,638.00 | \$3,895,765 |
| 1993 | 2,584.00 | \$4,649,860 |
| 1994 | 2,123.00 | \$4,374,642 |

Data Source: Legal Services Society's Management Information System

It should be noted here that although the Supreme Court of Canada has not yet ruled on whether there is a constitutional obligation on the state to provide state funded defence for the trial of an indigent defendant, several court decisions by the highest provincial courts indicated that the courts are prepared to determine not only what legal issues must be covered, but also who should be covered. The British Columbia Court of Appeal made a decision in regard to *what* legal issues should be covered by state funded counsel in the cases of *Mountain vs. Legal Services Society* [1984] and *Gonzalez-Davis vs. Legal Services Society* [1991] 5 WWR 181.

A typical decision by the court in the direction of *who* should be covered is the one made in Ontario by the Court of Appeal in *Regina vs. Rowbotham* (1988) 41 C.C.C. (3rd) 1, that while there is no constitutional right to counsel at state expense, trial judges have the power to determine whether representation of an accused who wants counsel is essential in order to ensure a fair trial. In this case the legal aid applicant had originally

been denied legal aid on the ground that her \$24,000 annual income disqualified her. The Ontario Court of Appeal found on the facts of the case which involved multiple defendants and possibility of a 12 month trial that counsel was necessary to ensure the fairness of the trial. Thus the court decided to the effect that counsel be provided to the applicant at the expense of the state.

The demand and the need for legal aid are directly related with the larger social and economic environment. Under ideal situations when the level of criminal charges remains the same changes in employment rate and welfare will affect the level of demand and need for legal aid. More people on welfare, for example, means more demand for legal aid. Demand for legal aid should also vary with changes in demographic characteristics (e.g. percentage of males, percentage of females, percentage of young people, percentage of single parent families, etc.), and migration level. Meanwhile, changes in the socio-economic environment impact on the crime patterns and criminal charge patterns. All of these changes are interrelated and impact on legal aid directly and indirectly.

LAWYERS AND LEGAL AID

Lawyers, both those in private practice and those on the staff of the Legal Services Society, are an indispensable part of the legal aid system. They do almost all the legal counsel work, both summary advice and full representation. Without lawyers' participation in legal aid activity, the legal aid system will cease to exist. Because of their indispensable participation in the provision of legal aid services and their concern for the

provision of legal aid, their role has a significant impact on the policy development by the LSS, and on the need for and cost of legal aid.

First of all, it is the legal profession that initiated the first organized legal aid services when the Law Society urged local bar associations to establish legal aid societies “to render legal aid to indigent persons who appear to be worthy thereof and who are unable to obtain legal assistance themselves” (Proceedings, Annual General Meeting of the Law Society, 1934 in Cawley, 1991:197). The Victoria and Vancouver Bar Associations started legal aid clinics for civil matters shortly after the Law society’s Annual General Meeting. Although these legal aid activities were put aside when World War II started in 1939, the legal profession in British Columbia “did play an active role in the legal aid scheme developed for the Armed Forces” (Cawley, 1991:197) and resumed legal aid activities after the War.

The legal profession was also the major advocate arguing that the government should involve in legal aid services. Almost as soon as the legal aid program started in Vancouver and Victoria, the problems of increasing caseload and high cost of furnishing transcripts, which were essential in all higher court trials and especially so in appeal hearings, started to emerge and become more and more pressing. The legal profession realized that “funding beyond the capacity of the VBA [Vancouver Bar Association] was necessary if the criminal legal aid portion of the Vancouver Bar’s program were to continue” (Cawley, 1991:199). Moreover, there were too few volunteer lawyers who

participated in the legal aid services. To solve these problems the legal profession made repeated appeals to the provincial government for funding.

The establishment of the Legal Aid Society of British Columbia basically marks the government's take-over of the responsibility of providing legal aid services from the legal profession although the Society was independent from the government. The legal profession's role in legal aid services has been largely represented by individual lawyers who accept legal aid cases as approved by the Legal Aid Society and later by the Legal Services Society. However, it is important to note that the role of the legal profession in legal aid is still very important to the legal aid system in BC.

A major impact from the legal profession on the legal aid system is the repeated request to increase tariffs. As is illustrated in Table 9, the legal aid tariffs have been adjusted over a dozen times since 1978. Out of all the tariff adjustments, only two were downward adjustments; all the rest were upwards adjustments made at the request by the private bar. The most dramatic impact of the actions by the private bar on legal aid was experienced in the summer of 1991 when the private bar lawyers struck for several months while demanding a tariff increase. As a result of the job action, the tariff was doubled. As a result of the tariff adjustment, the cost of providing legal aid in the province was more than doubled in the following fiscal year. Consequently, the LSS had to redefine its eligibility policy to meet the budget.

In order to “represent the interests of the lawyers of British Columbia who provide legal aid services” (Agg, 1992:46) the lawyers providing legal aid formed the Association of Legal Aid Lawyers (ALL) in 1991 following their withdrawal of legal aid services in the summer. As an organized unit, the ALL voiced their strong opposition to using staff lawyers in providing legal aid. In 1994, the ALL started another job action, demanding that the LSS cancel its plan to hire staff lawyers to handle 50% of legal aid cases. As a result of this job action, the LSS modified its plan and agreed to hire staff lawyers that would handle no more than 30% of legal aid cases.

The legal profession has expanded significantly in the last ten years, according to the statistics of registered lawyers (CCJS, 1993). In 1984, there were 4,787 registered lawyers in British Columbia. In 1993, the total number of registered lawyers increased by 60 percent from ten years ago. The number of private bar lawyers providing legal aid services also increased from 1,457 in 1984 to 1,674 in 1993. The expansion of the legal profession has mixed impact on legal aid. More lawyers mean better availability of lawyers and more legal aid services. Better services may be provided with more lawyers in that the LSS may have better choices in selecting lawyers for legal aid clients. More services, on the other hand, means higher cost. An expanded legal profession also means a stronger voice in the collective decision making process, which may partly explain the repeated increases in legal aid tariff (Table 9).

While the private bar lawyers who provide legal aid have formed an organization to get their voice heard, staff lawyers belong to the Professional Employees Association

(PEA). Through the PEA as a bargaining unit, staff lawyers' salaries have greatly increased in the last ten years. Both the increasing salaries of staff lawyers and the increasing legal aid tariff for private bar lawyers have led to the increasing cost of legal aid, which has, in turn, forced the LSS to redefine the need for legal aid in order to meet its budget. Therefore, the legal profession should be considered as a major part of the legal aid system. Their opinions and demands have a major impact on the cost of and need for legal aid. Thus, they must be taken into account when developing legal aid policies.

LEGAL AID AND THE CRIMINAL JUSTICE SYSTEM

The need for and the cost of legal aid is closely related with criminal justice system agencies. The volume of criminal charges by the police is the most important factor to determine the level of the need of legal aid. Other factors remaining constant, more criminal charges lead to greater need for legal aid. The legal procedures the Crown Counsel choose to proceed with the accused in court, either by means of going to trial, staying charges or withdrawing charges directly impact on the cost of legal aid. The interactions between the Crown Counsel and the defence lawyer in regard to guilty plea or trial have a significant impact on the cost of legal aid in that a case that goes to trial costs, on average, as much as over three times as one that pleads guilty. The number of inmates in correctional institutions applying for parole directly constitute the need for legal aid and the cost of legal aid, although the volume is small.

While the criminal justice system provides input into the legal aid in the form of the need for legal aid and the cost of legal aid, legal aid provide input into the criminal justice

system in the form of legal representation, which would be otherwise absent in the courts. Meanwhile the Legal Services Society can influence the guilty plea patterns in the courts by modifying the legal aid tariff for guilty plea and trial. If the legal aid tariff is unreasonably low, more cases would like go to trial and thus creates excessive workload in the court system.

SUMMARY

The legal aid system is complex. The complexity of the system can be seen in the various aspects and actors in the system; the interdependence and interconnectedness between all the parts within the system at different levels of hierarchy; and the multi-direction flow of information into the system, within the system, and out of the system. The close relationship between legal aid and the criminal justice system renders it necessary to render the legal aid system as a subsystem of the criminal justice system and conduct more research into the administration of criminal justice.

CHAPTER III. OVERVIEW OF THE CRIMINAL JUSTICE SYSTEM

In this chapter, the discussion focuses on the criminal justice system which is traditionally regarded to consist of the four official agencies: the police, the prosecution, the courts, and corrections. While the interconnectedness between the four agencies is discussed, attention will be paid to their relationship with the legal aid system, especially in regard to the prediction of the need for and the cost of legal aid in British Columbia. Since the objective of the research is to develop a simulation model, which is normally a representation of the simplified real world system, the discussion of the criminal justice system will remain at a certain level of simplification.

The criminal justice system is defined by many as a system and the four major official agencies in the system, police, prosecution, court and corrections as subsystems within the system (Connidis, 1982, Ekstedt, 1988, Griffiths and Verdun-Jones, 1994). In the present study, legal aid is considered as another subsystem of the criminal justice system. In this system, all different parts are interconnected, although they may pursue conflicting goals. The legal aid subsystem is inevitably influenced by the behavior of other subsystems. For example, criminal charges laid by the police are the major input into the legal aid subsystem in the form of people in need of legal counsel. The legal procedures in the court system, such as trials and guilty pleas, stays and charge withdrawals, and failures to appear become information input into the legal services subsystem, directly affecting the

legal aid tariff structure, the cost per case and eventually the total cost and the definition of need for legal aid. The local sentencing practices in the court system sends the information input into the legal services subsystem by way of interacting with the coverage policy of the LSS. The workload in the corrections system sends direct persons input into the legal services subsystem by means of creating the need for the services from the Prison Legal Aid Program. Indirectly, the effectiveness of the corrections subsystem feeds back into the criminal justice system by way of affecting the patterns of crime. Last, but not the least are the changing features of legislation such as the *Criminal Code*, the *Narcotics Control Act*, the *Young Offenders Act* that create major information input directly into the legal aid system by means of affecting the eligibility policy of the LSS and by means of dominating the behavior of the whole criminal justice system.

The behavior of the prime actors in the criminal justice system, while directly influencing the need for legal aid and the cost of legal aid, are also interrelated with each other and thus indirectly affect the need and cost of legal aid. The police, for example, are closely interrelated with the courts. The police send input into the courts in the form of criminal charges and receive feedback from the courts in the form of court decisions which become part of the guideline for policing. The courts, whose sentencing patterns have a direct impact on the number of people eligible for legal aid, are interrelated with the corrections by way of affecting the population of correctional institutions, which affects the need for and cost of the prison legal aid program. The sentencing patterns also affect the potential crime patterns, taking into account the deterrence effect and the effectiveness of corrections. The crime patterns will in turn affect the need and cost of legal aid. Thus,

in order to understand the relationship between the criminal justice system and the need for and cost of legal aid, it is necessary to review the roles of the major actors within the criminal justice system and the inter-connectedness between the major actors.

The operation of the criminal justice system is a complex process. Persons accused of criminal offences are processed from one subsystem to the next. The effectiveness of the system is dependent on all the major actors within the system to function effectively. While the criminal justice system is recognized as a whole and the four major official agencies, the police, the prosecutor, the court and the corrections, are all connected with each other, the system has to be analyzed by examining each part separately.

LAW ENFORCEMENT

The entry point to the criminal justice system is usually the police when the criminal justice system is defined as consisting the four major official agencies, the police, the Crown, the court and the corrections. The police are recognized as the key players in the criminal justice system (Sewell, 1985) in that they arguably control, to a large extent, the quantity and quality of the input into the criminal justice system. It is at this point, that part of the crimes reported to the police are turned into criminal charges, which are the input into the rest of the subsystems (or can be alternatively called throughput in the criminal justice system).

The activity of the police can either increase or decrease the amount of throughput handled by the other subsystems. If police are not effective in preventing crime,

prosecution, court and prisons may be flooded. If police fail to solve crime, prosecutions cannot proceed and court cannot do justice -- the rest of the system will never have its chance (Cole, 1972). While playing the major role in controlling the input into the criminal justice system and the legal aid subsystem, police have great discretion in exercising the control by identifying more or less crime, by laying more or fewer charges, by encouraging the public to report more or less crime, and by focusing on some specific types of crime.

Police and Crime

Thus the relationship between police and crime is complex. Criminal activity can be seen as input for the police when reported to the police and criminal charges laid against the suspect as the output by the police. Meanwhile, criminal activity is also the output of police activity since one of the major objectives of the police work is crime control. Activities of the police may increase crime and may decrease crime. When the police do a good job in crime prevention, the volume of criminal may decrease. When the police fail to prevent crime, the volume of criminal activity may decrease. In terms of crime known to the police, on the other hand, the police doing a good job may also lead to an increase in the amount of known crime by means of having a supportive public that reports more crime and apprehending more offenders (Griffiths and Verdun-Jones, 1994).

Canadian law does not require citizens to report crimes of which they have knowledge to the police. Thus, the public has considerable discretion in this respect. Repeated victimization surveys conducted in the United States and Canada discovered that

more than 50 % of crimes are never reported to the police (Griffiths and Verdun-Jones, 1994:73). Meanwhile, it is impossible for the police to detect all the crimes that are committed. Therefore, the amount of crime detected by the police is highly dependent on the willingness of the citizen to report crime to the police. In fact, "the vast majority of crime the police learn about are brought to their attention by victims and witnesses" (Brannigan, 1984:95). The police, however, are not totally out of control of the situation. Through community relation programs, through crime prevention programs and through the mass media, they can influence the volume and types of crime the community reports to them. Daily policing activities (patrol, crime investigation, arrests, etc.) also influence crime reporting. The presence of patrolling police officers may encourage people to report crime to the police. Active police investigation and arrests of suspects of certain types of crime would encourage people to report to the police, although it can also be argued that active police investigation and arrests would deter the crime from happening.

Even if the criminal event is brought to the attention of the police, the police have considerable amount of discretion in processing the report. They can choose to record the crime report and they can choose not to record the crime. Black's study (1970) in Boston, Chicago, and Washington, DC discovered that "35% of crimes reported to the police and investigated by them went unrecorded" (Brannigan, 1984:96). Several factors are found to be affecting the selective recording of criminal events by the police. These include the seriousness of the crime, the preference of the complainant for the arrest of the suspect, the degree of familiarity between the victim and suspect, and the amount of deference and respect shown to the police by the complainant (Brannigan, 1984). A more important

factor that affects the amount of crime recorded is related with the measurement of the police work. In evaluation of the police work the clearance rate is normally used as an indicator of the quality of the police work. "In order to improve the clearance rate, police might decide not to report certain occurrences that are judged to be unresolvable" (Sewell, 1985:64).

From the legal perspective, crimes are definitions of the state. In this perspective, crime is a sociopolitical artifact, not a natural phenomenon. There is nothing that is criminal in any act itself. Crime is merely a consequence of the definition by the authority (Packer, 1968, Turk, 1977, Becker, 1963). "While the line between criminality and normality is often arbitrary" (Brannigan, 1984:95-5), "the police are at the forefront of this definition production. They are given organizational capability to produce particular levels of crime, and to produce particular types of crime to the relative exclusion of other" (Ericson, 1981:8). Selective law enforcement is best reflected in what is normally called proactive policing where the police officer initiates encounters. Enforcement of traffic laws and prostitution related laws is the area where discretion is frequently used in determining where to enforce the law.

Police and Charges of Criminal Offences

The major output from the police that becomes the major input into the legal aid subsystem is criminal charges laid by the police. With other variables remaining constant, the more charges the police lay the more need for legal aid there will be.

For each alleged criminal event that police encounter, the police constable handling the case has several options in regard to the disposition of the case: the constable can make further investigations or drop the case. The constable can charge or arrest or release the suspect. The constable can mediate, warn or make a referral. Many factors are found to affect the decision the police officer makes. They include the seriousness of the crime, the evidence the police have obtained about the case, the attitude of the victim/complainant, the personal attributes of the suspect, the personal attributes of the police officer handling the case, the resources and the organizational characteristics of the police department, and their environment including the behavior of the prosecutor, the court and the community.

First is the nature of the alleged criminal event. Police officers are more likely to pursue things further (investigate further and lay charges) with more serious cases than with less serious cases. Normally, the police focus their attention on the more serious and more visible types of crime such as murder, assault causing bodily harm, robbery and kidnapping, which tend to be more detectable, too. Other sorts of crime such as fraud and tax evasion are less visible and draw less attention from the police (Brannigan, 1984:94).

The amount and the nature of the evidence the police can gather is essential for the police to determine whether to pursue with criminal charges. The police estimate the strength of the evidence according to their experience in the court. It is up to the constable to determine whether he has a case with strong evidence.

The role of the victim/complainant is important for the police to determine further action. When the victim of a crime is unwilling to press charges the police are reluctant to do so on their own. Without the cooperation of the victim, it will be difficult to convict the offender in court. The police used to be very reluctant to press charges in domestic disputes when they did not have the cooperation of the victim/complainant until a recent change in policy to “zero tolerance” in domestic assault cases, which has substantially increased laying of charges in assault cases. Arrest patterns have been found to highly reflect the victim’s role as well as those of the police officer and the suspect, “particularly when the desire is for leniency and also, though less frequently, when the complainant demands arrest” (Klockars, 1983:279).

It has been argued that police officers identify themselves with the middle class and reinforce the middle class values in their routine policing (Ericson, 1982:66). Therefore, the personal characteristics of the suspect such as age, gender, race, attitude and socioeconomic status may become important factors for the police officer to consider when making decisions in disposing the case. Klockars (1983) found that the probability of arrest increases when a suspect is disrespectful toward the police. “Piliavin and Briar (1964) suggested that the police decision to arrest juvenile offenders was not based simply on the offence having been committed. The juvenile’s demeanor or show of respect for the police, as well as any exhibition of contrition or show of remorse or sorrow, determined whether the case was brought to court” (Brannign, 1984:59). According to Griffiths and Verdun-Jones (1994), many police observers in Canada have expressed the concern that

ethnic minorities and Aboriginal peoples in Canada, as well as citizens of lower socioeconomic status, are often subject to police discrimination.

Police officers are different in their background, attitudes, perceptions, personality and work-style preferences. These individual differences are likely to influence the way in which police officers dispose the cases they handle. Research in this area discovered that police officers with less experience tend to make more arrests. Moreover, “college-educated officers have been found to be more active in detecting offences, to make more arrests than their less-educated colleagues” (Griffiths and Verdun-Jones, 1993:170).

Related with the first factor is the volume of crime reported and the availability of police resources. No police department is able to fully investigate all crimes reported because of the limitation of resources. Decisions have to be made as to what to pursue further. In addition, “there is considerable variability across police departments in terms of the resources available to prevent and respond to crime. Some departments may have the resources to engage in more proactive policing, which may result in high rates of arrest for certain categories of crime” (Griffiths and Verdun-Jones, 1994:178). Ericson (1982) analyzed the relationship between the volume of crime known to the police, the number of persons charged and the number of police officers in Canada over 16 years from 1962 to 1977. He found that while the number of reported crimes per police officer per annum increased from 30 in 1962 to 45 in 1977, the number of persons charged per officer per annum remained stable at approximately 14 throughout the period. This finding strongly

supports the argument the “crime is, above all, a function of the resources available to know it” (Manning 1971:234).

The organizational differences between different police departments also impacts on the patterns of criminal charges. James Q. Wilson (1968) compared the arrest rate of juvenile delinquents in two police departments. He found that in the professional department, that is, the department marked by an emphasis on centralization of operation, recruitment on basis of achieved characteristics, and a stress on education and training, juveniles were arrested at the rate of 47%. In the more traditional department, emphasis was given to attributes such as height and weight, familiarity with the local culture and having relatives in the department. For this type of department, the arrest rate was only 30%. The size of police departments is also found to be a factor affecting the charging patterns. In a US study, Smith and Klein (1984) found that police officers in bigger police departments tend to make more arrests while officers in smaller departments were found to be more lenient in their enforcement practices.

The police are supposed to be independent of politicians in the process of law enforcement, especially in the day-to-day operations in western democratic countries such as Canada or the United States of America. “No government can properly direct any policeman to prosecute or not to prosecute any particular person or class of persons”(Sewell, 1985:159). However, politicians can to a large extent govern policing policies by making legislative changes. In addition, the government can influence policing policy by means of increasing or decreasing the level of funding.

The last and the most important factor from the systems perspective that affects the charging practice is the information feedback from the Crown Counsel and the court. The Crown Counsel does not prosecute every single case the police have filed for prosecution. In British Columbia, the Crown Counsel "reviews (or screens) the charges and pre-approve them before the information is laid by the police" (Brockman, 1996:101). In addition, when proceeding with prosecution, the Crown Counsel can modify the charge, return the case to the police for more information, issue a caution letter or divert the case (Porteous, 1994). The police can be encouraged or discouraged the messages implicit in Crown counsel's actions.

THE COURT SYSTEM

The court is responsible for determining the guilt or innocence of the accused and the penalty for the convicted (Griffiths and Verdun-Jones, 1994). According to Brantingham (1977), the court subsystem is different from other components of the criminal justice system from a systems point of view. She argues that the court is the only subsystem that can, to some extent, control both its input and its output. While the Crown counsel takes the fundamental control of input by screening cases out of the system or by directing the cases along different routes into the court system, the judge controls the output by determining the guilt or innocence of the accused and by making sentencing decisions. The decisions made by both the Crown and the court have great impact on the administrations of the court subsystem and the legal aid.

The Crown Counsel: Input Controller

After the police have laid criminal charges, files go the prosecutor to proceed in the court. Of the many agencies within the criminal justice system, the Crown Counsel is distinctive since it is concerned with all aspects of the criminal justice system. At this stage, the prosecutor "enjoys a formidable degree of discretion in carrying out his or her duties in the court process" (Griffiths and Verdun-Jones, 1994:304). The prosecutor has the power to determine which cases will be prosecuted and the charges to be made. He can determine whether the case will proceed to prosecution; he can determine how to prosecute; he can stop the procedure even when the case is in trial. He can determine the bargain to be agreed upon with the defendant. All of the options open to the prosecutor have significant impact on the need for and cost of legal aid. They also have direct impact on the operations of the police, and the courts (Cole, 1972:141).

The prosecutor can determine whether the case will or will not be prosecuted in court at all. Although earlier studies suggest that the prosecutor does not do much screening of cases because "the overcrowded lower court docket leaves little time for reflection by prosecutors on the sufficiency of the charge in each case which comes before the court" (Grosman, 1978:27), recent statistics in British Columbia indicate that the Crown Counsel does conduct active screening¹¹. In February, 1994, for example, the Crown Counsel withheld or returned to the police for more information about nine percent

¹¹ The Crown Counsel in in British Columbia, Quebec and Now Brunswick exercise substantially more control over case scrutiny than is the customary in other Canadian jurisdictions because these three provinces have adopted a screening procedure for the prosecutor (Brockman, 1996:101).

of all RCC files (police requests for criminal charges) (Porteous, 1994). In addition, he can drop the charge when he believes that there is insufficient evidence and that it is impossible to gather more information; he can issue a caution letter when he believes that the charge is not serious and a caution letter is good enough to warn the accused not to commit crime again; he can divert the case out of the system or he can proceed to prosecute the case.

The Crown Counsel's ability to proceed with a prosecution is very often limited by the willingness of the victim and witnesses to cooperate; the preferences of the police; the strategies of the accused and his counsel; the cooperation of the judge in granting adjournments; and court schedules (Osborne, 1983). However, when the prosecutor decides to go ahead with prosecution, he has further discretionary powers such as:

selecting how to proceed on a dual or hybrid offence; restricting an accused person's right to elect the method of trial in relation to an indictable offence by laying a direct indictment or by insisting on a trial by judge and jury where an offence carrying a maximum penalty of more than five years' imprisonment is concerned; deciding whether or not to oppose bail; deciding whether to grant discovery of the prosecution's case against the accused and to what extent; deciding whether to appeal against the acquittal (Griffiths and Verdun-Jones, 1994:304).

Although the Crown's ability to proceed with a prosecution is limited, terminating a case by withdrawal of the charges is largely the result of a discretionary decision of the prosecutor rather than an initiative of the judge (Grosman, 1969; Osborne, 1983). Grossman pointed out that

prosecutors feel free to reduce or withdraw charges on their own initiative. In this way they exercise belated control over the decision-making processes of the police. The majority of withdrawals are made on the independent initiative of the prosecutor handling the case (1969:).

Although the Criminal Code does not expressly give prosecutors the right to withdraw charges, the judge has been found to “rarely question or refute the application” to withdraw charges (Osborne, 1983:57). In fact, termination of a case by withdrawal or dismissal is found to be the most common method of disposition next to conviction as the result of a guilty plea (Osborne, 1983).

While the Crown has an absolute right to withdraw a case before a plea is taken, his decision to withdraw a case is often affected by external factors that are beyond his control. The victim or witness’s failure to appear in court is a frequent reason for a charge withdrawal. When the victim does not wish the prosecutor to proceed with a prosecution, the Crown is likely to withdraw the charge “even though the formal law rarely requires the consent of the victim as a condition to prosecution (Miller, 1970:171). The Crown may also have to withdraw a case when the police have laid charges before they have gathered sufficient evidence to support the charge (Griffiths and Verdun-Jones, 1994).

In addition to charge withdrawals, the Crown also has the discretion to stay criminal proceedings. Staying a charge is different from withdrawing a charge in that when a charge has been withdrawn, there is no charge remaining on the record, and to continue the prosecution a new charge must be laid. Consequently, the withdrawal of the charge terminates the proceedings. When a stay is entered, however, the prosecutor may

continue the proceedings without laying any new charge within the appropriate limitation of time period, although the Crown seldom re-prosecutes a stayed charge. Similar to the situation of charge withdrawals, although it seems to have the power to review the Crown's decision to enter a stay of proceedings, the court is found to be reluctant to exercise its control (Griffiths and Verdun-Jones, 1994).

Plea Bargaining

Plea bargaining is one of the most controversial issues in the criminal justice system and has unique impact on the administration of criminal justice and of legal aid. Plea bargaining is an informal conviction process and a negotiating process. In this process the accused offers to plead guilty to some offence, in return for some benefit either in the form of having the charges against him reduced or in exchange for a more lenient sentence in type or in length. The Crown, in return for the accused pleading guilty can promise some benefits to the accused. The Crown can promise to reduce the charge to a lesser degree, withdraw or stay other charges or promise to recommend a more lenient sentence (Verdun-Jones and Hatch, 1985:3). Although the agreement between the Crown and the accused reached in the plea bargaining process does not have any binding effect to the judge, the court normally "relies on the prosecutor's judgment when accepting a plea of guilty; if the plea is acceptable to the prosecution it is acceptable to the court" (Grosman, 1978:29).

Although plea bargaining is believed to be a widespread phenomenon (Ericson and Baranek, 1982) and much research has been conducted in this area, the extent of plea bargaining is actually unknown (Grossman, 1969; Bowen-Coulthurst, 1970). It is believed that in the United States plea bargaining is more tolerated than in most other common law systems. Cole (1972) estimated that up to 90 percent of all defendants charged with crimes plead guilty rather than exercise their right to go the trial. Sigler (1979) estimated that between 80% and 90% of all felony convictions in the US are produced by guilty pleas. The empirical research conducted in Canada suggests that plea bargaining occurs in Canada, too (Cousineau and Verdun -Jones, 1979A). The figures, however, appear to be lower. Canadian studies found that over 70% of accused persons in Canada plead guilty before trial (Greenspan, 1980:263; Ericson and Baranek, 1982; Canadian Committee on Corrections, 1966:134). Although it is generally believed that the extent of negotiating pleading is uncertain (Grossman, 1969; Hartnagel and Wynne, 1975; Canadian Committee on Corrections, 1966), the evaluation research on the public defender project in Burnaby, British Columbia, Canada by Brantingham et al. (1981) discovered that public defenders and the private bar legal aid lawyers had different patterns in regard to the plea negotiation. "In Burnaby public defenders engaged in discussions with Crown in 47% of the cases" (p. 51). The private bar legal aid lawyers in Burnaby and Vancouver entered into discussions with the Crown Counsel in about 25% of their cases. A comparison between the overall guilty plea rate of 70% as documented by many criminologists (Grossman, 1969; Hartnagel and Wynne, 1975; Canadian Committee on Corrections, 1966) and the patterns as discovered by the Brantingham's study in British Columbia

(1981) suggests that a large number of guilty pleas entered in Canada are not the product of some kind of plea bargain.

Reasons for plea bargaining

One of the most common justifications for plea bargaining is the need to dispose of cases as rapidly as possible; otherwise, the court system would grind to a halt. Just how caseload pressures come to influence plea bargaining decisions, however, remains unclear. Alschuler (1968) and Rhodes (1979) believe these pressures are background factors which do not determine either which cases shall be plea bargained or on what terms. Rather, these pressures act at a distance and simply require that some portion of the caseload be plea bargained. Mills (1971) describes caseload pressures as having a direct and distressing impact on plea bargaining (In McDonald, 1979:155).

The study conducted by McDonald et al. (1979:193-5) shows that contrary to popular belief, prosecutors and defense counsel are not concerned with the question of the court's backlog or caseload when they are attempting to evaluate what to do with individual cases.

Since many parties are involved in the plea bargaining process the reasons to initiate plea bargaining are many, too. The accused, as a major player in the process, hopes to get a "deal" for pleading guilty, although research has discovered that on most occasions they do not (Ericson and Baranek, 1982; Solomon, 1983). The police would be

more than willing to have the accused plead guilty because that will make their work look good for making successful charges.

Of all the major factors involved in the bargaining, the very broad discretionary powers enjoyed by the prosecution and the benefit the prosecutors get from the plea bargaining process are probably the most significant. Through plea bargaining the prosecutor can be assured of a politically beneficial high rate of conviction, yet does not have to spend the time and effort to prepare a trial case. He also avoids the ever-present risk of losing even a clear-cut case should the accused have gone before a jury. "It provided a way to obtain convictions in cases that might have been lost at trial because of inherently weak evidence, sloppy police work, incompetent prosecution, or biased or unpredictable juries" (McDonald, 1979).

It should be noted that although it is generally believed that the plea bargaining is normally a negotiating process between the Crown and the accused and/or the defense lawyer, police officers are often involved in plea discussions as well. Crown attorneys often are not well informed about a case because they often do not receive the case until the morning of the court appearance. If the case goes through several court appearances, the same crown attorney frequently does not stay with the case but passes it on to whomever is handling the cases for the courtroom that case comes up in the next time around. As a result, crown attorneys often rely on the police assessments of the case (Ericson, 1982). Meanwhile, the police have an interest in the plea bargaining. Guilty pleas are an easy means for conviction that will free the police from repeated court appearances,

which at times can be very demanding. As well guilty pleas make the police work look better for guilty pleas basically confirm police actions and police justice (Skolnick, 1976). Police involvement in plea bargaining arguably starts when the police officer lays charges. He tends to over charge the accused with the highest number and degree of charges that possibly be supported the available evidence (McDonald, 1979). The charge then becomes the asking price in plea bargaining (Ericson and Baranek, 1982).

The defense lawyer is also ultimately concerned with strategies leading to a bargain plea. It is the impersonal elements involving the economics of time, labor, and expense, together with his commitment to the court organization, that win the allegiance of most defense attorneys, not the needs of the accused (Blumberg, 1971:66-7).

It is clear that the court, too, benefits from the plea bargaining. Similar to other agencies in the criminal justice system, the court system is limited with resources. Court calendars are always crowded with new cases and case backlog is always there. Plea bargaining makes it possible to dispose of cases as rapidly as possible. If all cases go to trial the court system would grind to a halt. The recent Supreme Court of Canada's Askov decision (*Regina vs. Askov*, 1990, 59 C.C.C. [3d]) on case backlog and the defendant's right to speedy trial makes it imperative for the court to process criminal cases in a speedy manner. However, it is not clear whether the Crown is driven by the court caseload to initiate plea bargaining and research into plea bargaining has conflicting findings.

Legal aid tariff may be a major factor in the guilty plea process, too. As discussed earlier in the Chapter, block fees are paid for criminal legal aid according to different procedures cases go through the court. In 1992, for example, \$400 was be paid for defending a legal aid client charged with robbery who pleaded guilty. \$720 would be paid for each half day of hearing if the case went to trial. A busy lawyer would be financially better off if he chooses to practice “dump trucking”¹² in which two or more guilty pleas are arranged on the same morning than going to a trial hearing. On the other hand, a lawyer might be financially better off to bring the case to trial if he does not have sufficient caseload to arrange “dump trucking”.

Impact of the Crown’s Discretion

As illustrated above, the Crown has substantial discretionary power in many options in disposing criminal cases at different stages. He can drop the charges, return the cases to police or withhold the case for more information. He can proceed with the prosecution following different routes (summarily or indictable in case of hybrid offences) or he can initiate plea bargaining. He can withdraw charges or stay proceedings almost at any stage before a plea is taken. All of these options open to the Crown has tremendous impact on the administration of the legal aid system. When charges are dropped, the caseload for the court system is lessened and there will be no further need for legal aid and no cost or much less cost of legal aid will be generated.

¹² “Dump trucking” is a used in Ontario to describe the phenomenon of pleading guilty on behalf of several clients at the same time by the defence lawyer, according to Dr. Prefontaine at the defence of this dissertation.

The Output from the Court

Decisions made by the judges on convictions, acquittals and sentencing constitute the major output from the court system. While these decisions affect the crime patterns in the form of the potential deterrence effect they all have significant impact on the administration of the criminal justice system and the legal aid system. First of all, appeals can be made following these decisions which affects the need for and the cost of legal aid for appeals. While the Legal Services Society provides conditional legal aid to the appeals made by the accused on merits, it has to continue the provision of legal aid to those accused where the Crown make appeals.

A major output from the court system is the sentencing decision by the judge. While the sentencing decisions by the judge have a direct impact on the population in the corrections system, which affects the need for and the cost of prison legal aid, they also affect the crime patterns indirectly, considering the deterrence effect, the rehabilitation effect by corrections and the incarceration effect. Crime patterns, in turn, will affect the need for legal aid.

A wide range of options are available to the sentencing court. They include: "(1) fine; (2) suspended sentence and probation; (3) imprisonment; (4) declaration that the accused is a dangerous offender; (5) discharge (either absolute or conditional); (6) order for compensation; and (7) prohibitions and forfeiture" (Griffiths and Verdun-Jones,

1994:352). Within these types of options there are also a wide range of quantum such as the fine amount and length of imprisonment.

Of all the sentencing options, imprisonment has the most significant impact on the legal aid system. Thus it is necessary to have a brief review of the sentencing patterns in the use of imprisonment and the related policy changes. It is found that "custody is the most frequent form of sentence for indictable offences (from 43% to 55% of all cases), while fine is most frequently resorted to when both indictable and summary offences are combined (from 40% to 55% of all cases) (Griffiths and Verdun-Jones, 1994:384). Mitchell-Banks (1983) analyzed the sentencing patterns in British Columbia from 1976 to 1982. Similar to other findings she discovered that the fine was the most serious penalty imposed by the BC courts in the majority of cases (68.6% in 1976). In addition, she discovered that the use of fine declined from 68.6% in 1976 to 56.1% in 1982 and the use of imprisonment increased from 12% in 1976 to 16% in 1982.

Comparing the sentencing patterns in Canada with that in other jurisdictions, Canadian criminologists are of the opinion that imprisonment is over-used in Canada (Jobson, 1980:73), which "appears to have one of the highest rates of imprisonment in the world" (Hogarth, 1971:358). The policy makers in Canada appear to agree with the over-reliance on imprisonment (Canadian Sentencing Commission, 1987 in Griffiths and Verdun-Jones, 1994.) and that Canada probably has one of the highest rates of imprisonment among all Western countries with an imprisonment rate of 108 per 100,000 inhabitants (Correctional Service of Canada, 1986 in Griffiths and Verdun-Jones, 1994).

Thanks to these and other studies, administrators and policy makers in the criminal justice system have begun calling for the reduced use of imprisonment. "The courts have repeatedly emphasized that imprisonment is a sanction that is to be employed as a 'last resort'" (Nadin-Davis, in Griffiths and Verdun-Jones, 1994:363). In a similar fashion, the "Law Reform Commission of Canada advocated that the adoption of sentencing guidelines that would further reduce the courts' use of imprisonment" (Griffiths and Verdun-Jones, 1994).

Canada has a single criminal code, the Criminal Code of Canada. However, the Criminal Code gives the sentencing judges a wide range of sentencing options. Meanwhile, Canada is a large country with its people from different cultures, with different religions. The ten provinces and two territories as well as the regions within the provinces and territories have tremendous differences in social values, cultural values, religious beliefs and many other areas. On top of all the differences, there is an apparent lack of agreement as to the social objectives that sentencing should serve. These are just some of the many factors that lead to the most significant issue in the criminal justice--sentencing disparity. Various studies have concluded that there are significant variations in the manner in which different offence categories are assigned sentences in the various provinces (Hann et al., 1983; Hann and Kopelman, 1986, in Griffiths and Verdun-Jones, 1994:423) and within the provinces themselves (Griffiths and Verdun-Jones, 1994). Murray and Erickson (1983) compared the sentencing patterns for the possession of cannabis in five regions in Ontario and found significant differences in the sentences given. Brantingham (1985) analyzed a large number of criminal cases in two courts in British Columbia. While the

study concludes that the overall sentencing pattern was one of “more consistency than inconsistency” the study did find that there was some degree of disparity in sentencing in that some 35% of sentencing outcomes were unpredictable. The Legal Services Society of British Columbia rightly recognized the existence of sentencing disparity within the province when it recently adopted the new legal aid coverage policy that requires legal aid intake workers in each community to seek the Crown’s opinion about the likelihood of imprisonment for a particular offence in that community before making approval decisions.

It should be noted that “the sentencing process in Canada is currently passing through an era of fundamental change” (Griffiths and Verdun-Jones, 1994:448). With the new legal aid coverage policy, which uses the probability of imprisonment for all offences in any specific region as one of the major criteria for legal aid approval, the changes in sentencing practice will impact the legal aid system significantly.

DEFENCE COUNSEL

Defence counsel undoubtedly plays an extremely important role in the Canadian criminal justice system. While both the Charter of Rights and the Canadian Criminal Code have provisions on the right to counsel for those who have been arrested or detained, the nature of the adversary system, the complex court process, the complicated procedural rules and evidential rules make the presence of legal counsel an essential part in the justice process for justice to be done. In British Columbia defence counsel is required most of the time in the interest of justice and for all practical purposes.

The presence of defence counsel undoubtedly has significant impact on the criminal justice system. First of all, the accused persons who have defence counsels are less likely to be found guilty than those who do not have defence counsels. A comparison of the conviction rates in British Columbia in 1970 and 1978 shows that because of the introduction of legal aid system more accused persons were represented by lawyers and consequently the conviction rate dropped by about 17 percent (Statistics Canada, 1970, 1978). Other research on the impact of defence counsel agrees that legal representation affects the outcome of criminal cases. Renner and Warner's (1981) research found that although the presence of defence counsel made no significant differences in the conviction rates among those who pleaded not guilty, accused persons without defence counsel were significantly more likely to plead guilty than those with defence counsel; and those with defence counsel were more likely to have lenient sentences than those without defence counsel.

The differences in the outcome of criminal cases brought about by the presence of legal representation suggests its impact on the administration of the criminal justice system. Since the presence of legal counsel results in fewer guilty pleas, these cases definitely take more time to be disposed of in the court system. On the other hand, the fewer guilty outcomes and more lenient sentences brought about by legal representation mean less workload to the corrections system. Some would argue that introduction of legal aid has got some bad guys off, or out of jail much more quickly and eventually increases crime.

CORRECTIONS

When discussing corrections there is the tendency to relate it with the agency that carries out the sentences by the court only. From the systems point of view this would mean that corrections receiving input from the court produces output into society. In reality, Corrections is an integral part of the criminal justice system. Corrections receives input from many components both from within and without the criminal justice system. Corrections sends output not only out of the criminal justice system, it also sends input into the criminal justice system. In terms of persons flow in the system, "the correctional enterprise is the gathering place for those persons who have been screened through one or more of the system's other components" (Ekstedt and Griffiths, 1988:10). In addition to receiving persons from the court as a result of sentencing, corrections receives persons input from the police when a person is arrested and put in custody before a bail hearing, or in custody waiting for trial or for sentencing. In regard to output, corrections sends information output to the court in the form of what correctional services are available, "brings forward information to the court concerning offenders awaiting sentence (pre-sentence reports) and for the containment or supervision of persons who are not released by the courts on their own recognizance while awaiting trial" (Ekstedt and Griffiths, 1988:7) in addition to releasing persons into society.

The corrections subsystem is different from other subsystems in the criminal justice system in that it does not have any direct control over the input and its output is also limited to a large extent by decisions in other subsystems. It has to accept, for example,

any number of persons sentenced by the court and any number of criminal suspects the police have decided to keep in custody. Although the correctional system has some degree of policy autonomy in regard to releasing its inmates out of the corrections, its operations are to a large extent controlled by the legislation, the case law and court sentences, in regard to jail terms and minimum jail time before parole.

The operations of corrections have direct impact on the need for and cost of legal aid. The LSS provides legal aid to those in prison in need of legal aid. The corrections subsystem also affects the need of legal aid indirectly, because it affects the patterns of crime. Corrections may arguably affect the patterns of crime in several ways. First, the corrections system may be able to reduce the volume of crime by keeping the offenders from committing crime again by simply incarcerating them inside the various institutions. Since the offenders are isolated from the community they cannot commit crime in the community. Their chances of committing crime inside the institutions are much less because of all the security measures taken by corrections administrators. Second, corrections can reduce the volume of crime if its programs are effective since the offenders will be rehabilitated by going through the various rehabilitation programs and will not commit crime again. Third, corrections may be able to reduce crime by punishing the inmates. The inmates are deterred by the punishment they receive in the corrections system and will not commit crime when they are released back into the society. Fourth, corrections, along with other criminal justice agencies, exercises control on crime by means of general deterrence.

All of the four ways in which corrections may affect the volume of crime are problematic and are under much debate. The claim that merely incarcerating the offenders can reduce crime assumes that the convicted offenders will simply commit more crime if they are not incarcerated. While this assumption may be true with some offenders it should be pointed out that there are just a few hardened offenders who commit repeated crime. A large proportion of offenders will not commit crime again after they commit one or two crimes whether they are incarcerated or free. In addition, the “replacement” effect may also reduce the effectiveness of incarceration on crime. “There are certain crimes that are the ‘work of a criminal labor market’ (Blumstein, 1982:315) and are likely to be replaced. For example, the crimes of those convicted offenders involved in the sale of illicit drugs will most likely be replaced since their sales will be picked up either by an increase in the activity of those still out or by recruitment of an additional seller to take his place” (Griffiths and Verdun-Jones, 1994:411).

The effectiveness of rehabilitation has been under much debate in recent years. On the one hand there is the claim of “nothing works” as represented by the much quoted research by Martinson and his associates (Ekstedt and Griffiths, 1988). With a survey of 231 evaluations of correctional programs conducted between 1945 and 1967 Martinson and his associates concluded that “with few and isolated exceptions, the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism” (Martinson, 1974:25, in Ekstedt and Griffiths, 1988:211). On the other hand there has been extensive research that argues that a large number of correctional programs have produced positive results (Palmer, 1975; Ross, 1979, in Ekstedt and Griffiths, 1988:214).

An extensive research by Andrews et al. (1990:356) suggests that “the delivery of appropriate correctional service” works in reducing recidivism when the service “reflects three psychological principles: (1) delivery of service to higher risk cases, (2) targeting of criminogenic needs, and (3) use of styles and modes of treatment that are matched with client need and learning styles”.

The deterrence effect of imprisonment upon those offenders who are convicted and sentenced to terms of imprisonment has also been a topic of much debate. Some research suggests that there is little evidence to show that imprisonment has any deterrence effect on the convicted offenders (Canadian Sentencing Commission, 1987 in Griffiths and Verdun-Jones, 1994). Some research suggests that imprisonment can actually increase the likelihood of subsequent re-offending since offenders will be placed in an environment to learn more of crime, both the techniques to commit crime and the attitude about crime (Griffiths and Verdun-Jones, 1994:410). The counterpoint to this, research on criminal cases in both Canada and the United States, suggests that imprisonment have a very strong deterrent effect on offenders at around age 30. This has been shown to be especially so for robbers (Gabor, *et al.*, 1987; Feeney, 1986).

SUMMARY

All the major actors in the criminal justice system, the police, the Crown counsel, the court, and the corrections have their unique functions that have their share of impact on the administration of the criminal justice system and on the administration of legal aid, particularly the need for and the cost of legal aid. More importantly, these actors in the

criminal justice system are interrelated. The actions of one actor will bring about changes in the actions of the other actors.

Overall, the organization structure within the criminal justice system is enabling for the police. The ordering of the criminal process is very much under the influence of the police because their versions of the truth are routinely accepted by other crime control agents, who usually have neither the time nor the resources to consider competing the police's version of truths.

While the court system may be dependent upon the police for cases to adjudicate, the police are also dependent on the courts for the acceptance of persons who the police feel should be charged and for the validation of the kinds of information (evidence) that will constitute a successful charge (conviction). The dependence on the court by the police in fact guides the police in their daily activity. Every time the police lay a charge, they have to consider how likely it is the prosecutor will proceed with prosecution and how likely it is the court will convict. When they gather evidence they have to consider whether the court will accept the evidence and whether the methods in collecting the evidence will be challenged in court.

While the court relies on the police to bring forward cases, the decisions by the court feed back into policing all the time in regard to gathering evidence and laying charges. While the court sentences the convicted into the corrections system, the court

also has to take into consideration the availability of corrections programs and the cost of various programs.

All the major actors in the criminal justice system produce direct input into the legal aid subsystem. The police, by laying charges, basically control the caseload of legal aid. The court, by processing the accused through various routes, affects the cost of providing legal aid for each case. The corrections influences the need for prison legal aid. In addition to the direct impact they have on the administration of legal aid, interaction between the major actors have greater impact on legal aid and makes it difficult to forecast the need for and the cost of legal aid.

CHAPTER IV. RESEARCH DESIGN

The reviews of the British Columbia legal aid and criminal justice systems presented in the previous chapters have established that the behavior of legal aid is closely related to the behavior of the major actors in the criminal justice system. Legal aid is dependent on these actors in the criminal justice system for its input, both in the form of material and of information. It sends its output into and also gets feedback from the criminal justice system. While the legal aid system is regarded as a subsystem of the criminal justice system, the behavior of legal aid can only be best understood by studying the whole criminal justice system. In this chapter, research questions are raised for the purpose of examination. This chapter also deals with the methodological issues in this study. The major methodological approach, systems analysis and computer simulation modeling, is discussed and followed by a discussion of data collection.

RESEARCH QUESTIONS

Based on the discussion in the earlier chapters, some basic research questions are raised concerning forecasting the need for legal aid and the cost of legal aid. Since no previous studies of a similar nature have ever been undertaken in this area, this research is exploratory in nature.

As has been discussed in the previous chapters, the cost of legal aid in British Columbia has sky-rocketed in the last two decades. However, there has been little study

about the reasons for the sharp increase in the cost. In this context, the first major purpose of this study is to develop a planning tool that can be used to forecast the need for legal aid and the cost of legal aid.

Second, the need for legal aid and the cost of legal have been found to be closely related with the behavior of the criminal justice system. When one part of the system changes its behavior, other parts of the system will be affected. It is an objective of this study to examine the connectedness among the various agencies within the criminal justice system, including the legal aid system.

Third, computer simulation modeling, as will be discussed in detail in this chapter, has been used in many fields. However, it has never been used to study legal aid. Methodologically, the study is intended to test the feasibility of using computer simulation modeling to forecast the need for legal aid and the cost of legal aid.

METHODOLOGY

Since the legal aid system is interconnected with the criminal justice system, it is necessary to regard the legal aid system as part of the criminal justice system, which is apparently a very complicated system. One way to approach such a complex system is by means of systems analysis and simulation modeling. In this study, systems analysis and simulation modeling are utilized to explore the system dynamics of legal aid and forecast the need for legal aid.

Systems analysis

Systems analysis is adopted as the methodological basis for this study. It should be emphasized that systems analysis is not really a theory but rather an approach or a perspective adopted when conducting the research.

“The systems approach ... is not a sophisticated, mathematical tool such as mathematical systems theory or control theory, or such as one of the many operations research methodologies (e.g., optimization theories or queuing theories). Rather, it is a method of approaching a particular problem or phenomena in order to define the problem and its structure and to proceed from this point to make some preliminary analysis” (Cassidy and Hopkinson, 1976:4).

This distinction here is crucial. When we use this approach, we are testing the applicability of the systems perspective, and its ability to lead to explanation and point to variables of importance, rather than testing a theory’s ability to explain. If hypotheses generated by the systems analysis are borne out, “we can conclude that systems analysis aids in our understanding of the phenomenon under study. If the hypotheses are not borne out, however, we do not conclude that systems analysis is wrong or invalid, but rather that either its applicability to the system under study is somewhat limited or that we have applied it incorrectly” (Connidis, 1982:7-8).

From the systems perspective, a system is defined as “a set of subsystems, interrelated so as to form a unit” (Delaney and Vaccari, 1989:1). The systems approach is concerned with connectedness and wholeness, so it emphasizes the interconnections among the various parts that constitute a whole system (Roberts et al., 1983). While any

description of a real system attempts to bring together various aspects of knowledge from systemic disciplines, a systems approach may avoid “disciplinary myopia” (Wilson, 1981:19). This systems approach can incorporate analysis at many different levels.

According to Connidis (1982:3), systems analysis first became popular in the military during the 1940’s. Since then it has been employed most successfully in areas such as industry where concerns have focused on marketing procedures to increase demand for products and hence profits. In the past three decades the basic concepts in the systems approaches have been transferred to the study of social systems. From the systems perspective the criminal justice system has been defined and studied as a system. Within the criminal justice system, the police, the courts, and corrections are defined and studied as subsystems because what is done in one part of the process affects persons or events in other parts of the network of procedures (Connidis, 1982; Brantingham, 1977; Coffey, 1974; Duffee and Fitch, 1976; Ekstedt and Griffiths, 1988).

Systems analysis is chosen as the methodological basis for this study because of its several characteristics. First is the most fundamental concept in systems analysis, i.e. that of holism (Rapoport, 1968; Connidis, 1982). The concept of holism stems from the recognition that even if each element or subsystem is optimized from a design or operational viewpoint, the whole system’s performance may be less optimal owing to interactions between the parts. Because of the increasing complexity of man-organized systems and the need to cope with this complexity, the necessity for systems thinking has thus become more and more important.

A piece-meal approach to the study of the criminal justice system by studying criminal justice agencies separately does not lead to deep understanding of the criminal justice system. Attempts to improve the performance of the criminal justice agencies individually would not necessarily add up to the improvements of the entire system's performance (Hann, 1973:17). As Connidis points out, "while one need not always deal with the whole of a system, research focusing upon a part or subsystem cannot ignore its relationship to the whole" (1982:12), the performance of legal aid can hardly be understood or improved without a detailed analysis of its interactions with the criminal justice system.

Second is the focus of systems analysis on the relationships between the various parts (subsystems) rather than the parts themselves. As has been discussed, the interactions of legal aid as a subsystem with other subsystems of the criminal justice system are no less important than the legal aid subsystem itself. A systems analysis allows detailed analysis of the interactions.

Third is the stress of systems analysis on the interdependency among system parts. "The concept of interdependency denies the validity of dealing with system parts as if they act (operate) independently. Thus researchers adopting a systems perspective must come to terms with the interdependent relationships existing between that isolated aspect of society selected for study and other societal parts" (Connidis, 1982:12). As has been discussed in the previous chapters the operation of legal aid depends on the other parts in

the criminal justice system for its input and output. A systems analysis will reveal the interdependency.

Rational Goal Model Vs. Functional-systems Model

There are two broad ways to approach the analysis of a complex system, i.e. the rational-goal model and the functional-systems model (Feeley, 1976). The rational-goal model focuses on formal means and goals and the purpose of such systems analysis is optimization. The rational-goal model basically assumes that, to conduct systems analysis, one must be able to identify the system's goals in order to determine whether or not the system can be classified as a system (Landsberger, 1961; Brantingham, 1977; Connidis, 1982). The functional-systems model assumes that complex systems perform many functions. It is the roles and relationships which drive and control the system that are studied. The fact that complex systems exist is considered worthy of investigation (Connidis, 1982; Brantingham, 1977; Feeley, 1976).

The systems approach used in this study conforms more closely to the functional-systems model. It is apparent that using the rational-goal model in this study will be problematic for two major reasons. First, the assumption that the object being studied must have a system goal before it can be studied as a system cannot be applied to the criminal justice system because various parts (subsystems) in the criminal justice systems have their own goals/objectives to achieve: the police tend to aid at crime control; the court system tends to have, as reflected in sentencing, several and arguably contradictory objectives such as punishment, deterrence and rehabilitation; the correctional subsystem

also has a contradictory set of objectives such as punishment, penitence, rehabilitation, reintegration and reparation (Ekstedt and Griffiths, 1988; Griffiths and Verdun-Jones, 1994). For the legal aid subsystem in this study, its objectives are to provide legal services and legal education. Second, the choice of either model is dependent on the objectives of the research. Since the purpose of using the rational-goal model is optimizing the system, this model is more fit for evaluation research, which typically studies the performance of the system and compare the performance with the system's goal. The purpose of this study is that of exploring the system dynamics of the system by means of simulation modeling, which basically determines that the emphasis of the study is on the functional roles of the subsystems and the interactions between the subsystems, rather than the systems goal. In addition, simulation modeling attempts to approximate to the real world as much as possible and thus is more descriptive rather than prescriptive which renders the functional systems model more appropriate for this research.

Systems analysis is used to measure the effect on an organization of alternative programs. It may involve the creation of simulations as a process for testing the effect alternative programs might have upon the system as a whole. In this context, a simulation is any representation by a model of a system or process (Ekstedt and Griffiths, 1988:151). A dynamic model is a simplification of the real world system which changes through time and space. Such a model is used to describe, explain or predict the behavior or operating characteristics of a system of interest (Bohigian, 1971). The model is built by identifying important elements, their interrelationships and interdependency within a system, and by developing simplified structures which represent what is happening in all important

respects (Brantingham, 1977:150; Connidis, 1982:10-12). Therefore, in any systems approach, it is necessary to omit some apparently less important aspects of the real system under investigation so that the model of the system is a simplified and intelligible version of the complex real phenomenon. The model should be kept as simple as possible to reveal the basic structure of the causal processes underlying the behavior of the system.

Defining the Problem: Systems Boundary Determination

There are two types of systems from the systems perspective: closed systems and open systems. The systems analysis techniques are transferred from studies in natural sciences such as physics, physical chemistry and biology. The systems studied from the systems perspective in these fields are normally closed systems. "The key characteristic of closed systems is that they can be isolated from their environment" (Connidis, 1982:19). In a closed system all interactions among the system parts (subsystems) take place within the system and contain no relationship with elements outside the system (Brantingham, 1977:18). However, all social systems including the criminal justice system are open systems because they interact with their environment with continuous inflow and outflow (Brantingham, 1977; Connidis, 1982).

The criminal justice system's characteristic of openness brings about one conceptual issue of determining the system's boundary, i.e., which elements should be regarded as the subsystems within the system that will be the focus of the research and which elements should be regarded as the environment of the system. The conceptual

criterion used for setting up the system's boundary for this research is that of a structural-functional approach, i.e., the system's boundaries will be initially delineated on the basis of its structure, and then will be further refined by relating system functions to system structure. Here, the structure of a system is defined as "the ordering of its activities or organizational pattern" (Connidis, 1982:30).

It should be noted that using the structure as the starting point for systems boundary determination is not based on the assumption that "the structure of social systems determines how their functions are carried out" (Cortes, *et al.*, in Connidis, 1982:31). In fact, this structuralism assumption can be refuted on the ground that the structure of social systems has to change in order to serve certain functions and, in this sense, it is the functions that determine the structure. Thus the dialectic relationship between structure and function basically denies the logic for using whichever as the initial basis in determining systems' boundaries.

There are two major reasons that structure is used as a more desirable basis for boundary determination. As discussed earlier in this chapter, one of the most important characteristics of systems analysis is its holistic assumption. From the functional perspective, the "whole is greater than the sum of its parts"(Connidis, 1982:30), which determines that a system cannot be divided into subsystems while maintaining the system's original function. Structurally, however, a system can be divided into subsystems and divisions of the larger system by structure become the boundaries of smaller, included systems (Connidis, 1982). Secondly, social systems tend to have unique structures that can

be used to identify one system from the others. "While one may be able to delineate the functions performed by a particular social system, difficulty arises when one attempts to define a system's boundaries exclusively on this basis because similar functions may be carried out by several social systems" (Connidis, 1982:31).

Another useful criterion that can be used in determining system boundaries is pragmatic rather than conceptual. "The purpose of the investigation" as argued by Brantingham (1977:19) should be used as the basis for determining system boundaries. Since the purpose of her investigation was "exploring the courts from a functional, performance and potential change perspective" (p.19) she decided to "begin temporally with the commission of crime and end with the discharge of individuals from criminal justice agency control". "If the primary questions being asked were based on uncovering the mechanisms which 'cause' crime or trying to uncover intervention points in the larger social organizations which could be used to prevent criminal acts or reduce crime, then the bounds of the system would quite rightly be different."

It has been stated that the purpose of this research is to explore the possibility of forecasting changes in the need for and the cost of legal aid in British Columbia. It has also been established in the previous chapters that changes in the need for legal aid and the cost of legal aid are heavily dependent on the performance of and interactions among the criminal justice agencies, namely the police, the courts (including the prosecutor and the defence attorney), and corrections. The study, therefore, focuses on the interactions and

interdependencies among the criminal justice agencies. Thus this research objective basically determines the system's boundaries.

The decision to include the police, the courts, and corrections is also supported by the conceptual basis for determining a system's boundaries, i.e., using structure as the basis for initial boundary determination, and then refining the system's boundary by relating function to structure. From the structural point of view, as argued by Connidis (1982:32),

A key structural feature of all social systems is the difference in character of the relationships among system parts as compared to the relationship between the system and its environment. This difference is based primarily upon the frequency and directness of interaction such that parts of a system relate to one another with greater frequency and directness than does the system to its environment.

It is obvious that the system that has been defined has this structural characteristic. The police, the courts and corrections relate to one another much more frequently and directly than any of them or all of them together relate to other social services agencies (Ewing, 1976:126). This is also true for the legal aid subsystem. It can be established that the functions ordered by structure, which are decisions by these agencies are closely tied to structure since each of these agencies has jurisdiction over specific types of decisions in regard to both substantive and procedural criminal law.

In addition to using the formal criminal justice agencies as the object for the systems analysis, this research will attempt to take advantage of one of the characteristics

of social systems, i.e., that social systems tend to be open rather than closed. As discussed earlier, social systems, including the criminal justice system, interact with the environment all the time. The interactions are different in frequency and in directness. Since criminal events reported to the police serve as the major input into the system being studied and the amount of this input is also affected by the output of the system in the form of deterrence effect, incapacitation effect, recidivism, etc. it has been decided to include some crime generators as part of the research object although they are major environmental elements rather than system elements.

Simulation Modeling

Decision makers are often interested in taking action that will change future events. Therefore, to provide estimates of the future effects of policy actions, policy analysts may need to construct models allowing decision makers to anticipate the results of actions they want to take. It is believed that simulation modeling is useful in studying the criminal justice system because of the system's complexity (Brantingham, 1979). Simulation modeling allows the researcher and the planner to discover how changes in one part of the system affects the rest of the entire system. Simulation modeling is geared more towards understanding how different components of the system interact with each other to produce the net activity of the system as a whole than to understanding in depth the activity of a particular component in isolation from the others.

The legal aid system is a complex system consisting of many sub-systems which consist of many parts at different hierarchical levels. The basic characteristic of such a complicated system is that all of the various parts at various hierarchical levels are interconnected. Changes brought about by decisions or exogenous factors in one part of the system influence flows and decisions in other parts of the system. Simulation modeling is one of the most commonly used techniques to study such a complex social systems from the systems perspective.

What is simulation modeling

According to Shannon (1975:4), "simulation is the process of designing a model of a real system and conducting experiments with this model for the purpose either of understanding the behavior of the system or of evaluating various strategies (within the limits imposed by a criterion or set of criteria) for the purpose of the system." He argues that the purpose of building a model, which is a representation of an object, or a system, is to help explain, understand, or improve a system. Such a model provides, through prediction and comparison, a logical way to forecast the outcomes that follow alternative actions; and to indicate a preference among them (Shannon, 1975:4).

According to Putt and Springer (1989:100-101), a model is nothing more than informed speculation about...behavior of some system whether human or nonhuman." Emshoff (1971:28) suggests that "a model is simply a representation of a system and, as such, its function is to integrate data about the system's behavior in a way that provides information about characteristics of that behavior." Similarly, Patton and Sawicki

(1986:206) argue that. models are simplifications of reality that make relatively specific statements about the interrelationships between a limited set of elements of the real world.

The term *simulation model* is usually reserved for those types of models where many units or groups of units are moved through a process or sequence of steps over time. Hann (1973) suggests that a simulation model is essentially an abstraction or simplified representation of the actual phenomenon that is being investigated. According to him (1973:24), "models are used for two basic purposes: as an aid for understanding past behavior and/or for predicting future behavior. The particular model built depends on the way the model builder hypothesizes the way the actual system works." Brantingham argues that simulations are used when the system being studied is so complex that a discrete mathematical representation is difficult or intractable, and they are used in situations where some type of experimentation in the real system is desired but impractical (1979:159-160). According to her, using simulations helps increase our understanding of the behavior of a system over time, and it can reduce the need for experimentation by pointing out probable consequences of implementing ideas (Brantingham, 1977:159-160).

Employing different criteria, models can be classified in various ways. Using time dependency as the distinguishing criterion, a model can be defined as a dynamic model or a static model (Brantingham, 1979; Delaney and Vaccari, 1989). According to Brantingham (1977:154), "static models ignore time. They give a temporal snapshot of a system. Dynamic models, on the other hand, are time-related. The representation of the system provided by the model changes over time. The models are often used to explore

the state of a system at some future date.” In essence, all real world system models, including social system models, are dynamic (Forrester, 1971; Delaney and Vaccari, 1989; Pidd, 1992).

Dynamic models constructed using the computer allow forecasts of the results of changes in any one or a number of interrelated variables. It is argued that computer simulation methodology has two major advantages over other methodologies (Pugh, 1977). It can deal with systems of greater complexity and it is also a highly integrative form of model building which can be used to bring together and relate segments of knowledge from several levels. In principle, computer simulation models can assist in dealing with the complexities of policy analysis by simulating the impacts of alternative policies on the real-world system (Pugh, 1977:1, 21). It is important to note, however, that the usefulness of models of this sort always depends upon the assumptions, especially the causal assumptions, that go into them.

Models have been used with increasing frequency to cope with policy analysis and planning in a society that is growing in complexity. Designed as analogs to that portion of the real world which are relevant to the policy problem under study, the models are intended to simulate a real-world situation in such a way that inferences useful for policy making may be drawn from them (Pugh, 1977:1).

Simulation Models of the Criminal Justice System

As Pidd (1992:2) points out, computer simulation methods, developed since the early 1960s, may well be the most commonly used of all the analytical tools of management science. In the past three decades a diversity of models have been developed to simulate the police, the court, the corrections and the overall criminal justice system. Since no simulation model has ever been developed for the legal aid system and the legal aid system described in this research is very closely related to the whole criminal justice system, simulation models of the criminal justice system will be reviewed in this section.

In essence, simulation models of the overall criminal justice system are of three major types: the deterministic aggregate-flow model as represented by the JUSSIM model, the stochastic case-by-case (entity) flow model as represented by the DOTSIM model, and the dynamic aggregate-flow model as represented by the Florida model. The Best-known overall criminal justice system simulation models are JUSSIM and CANJUS. As the CANJUS model is essentially an implementation of the JUSSIM model in the Canadian context, the two models are almost identical, with the only difference being that the CANJUS model has some modifications made in accordance with differences in system structure and data accessibility in Canada as compared to the United States (Brantingham, 1977; Cornidis, 1982; Chaiken et al., 1976). Thus, reviewing one of the models is sufficient for this study.

JUSSIM was designed by Belkin, Blumstein, and Glass in the Urban Systems Institute at the School of Urban and Public Affairs, Carnegie-Mellon University (Belkin, *et*

al., 1974). Written in FORTRAN IV, the criminal justice system is modeled as a linear steady-state¹³ production process “where crime and associated offenders are the basic unit of flow, and the processing stations are the different stages through which the arrested offender passes” (Chaiken, et al., 1974:22). As crimes and arrestees flow through the system from one stage to the next, the units of flow consume resources at each stage, such as the time of police officers, prosecutors, and judges. The model calculates the rate of consumption of the resources at each stage. Fixed “branching ratios” are used when the units of flow go to alternative stages such as charged or not charged, convicted or acquitted, etc.

The JUSSIM model can be used to estimate the effects of a proposed change at one stage of the criminal justice system on the workload and costs of the following stages and hence estimate changes in resource requirements (Connidis, 1982:42-48). This allows the user to address policy issues that propose changes in the flow and processing of crimes, offenders, and prisoners in the overall criminal justice system with the model. It is possible to estimate the impact on the whole system from the changes in the subsystem.

One major limitation of the JUSSIM model is its rigidity. The branching ratios are fixed or have a known probability distribution. A change in the flow in one part of the system is assumed not to alter the branching ratios in another part of the system. The fixed

¹³ “A steady-state model is one in which the parameters of the system do not change with time, and the long-run characteristics are all that are judged relevant. A linear model is one where parameters are independent of one another and independent of flow rates through the system” (Chaiken, et al., 1974:22).

branching ratio in the model in essence assumes that elements in the system are independent of each other. This assumption is contrary to the basic concepts in the systems approach to the criminal justice system. As discussed earlier, the elements in the criminal justice system are all interconnected and dependent on each other. This is a significant feature of any system and should not be ignored in a simulation model.

Another major limitation is that the flow model is basically timeless. If there is any short or long term change in the branching ratios or delay times, the model has no capacity to handle it (Brantingham, 1977; Connidis, 1982). Another limitation of the model is its steady-state production process in which the parameters of the system do not change with time, whereas time is an important variable in the real system of criminal justice. Case delays in the court system, for example, may substantially change the behavior of the court system.

Based on its success and limitations, the JUSSIM model was modified in the second edition, JUSSIM II. In the second edition, a feedback of recidivism and a time variable are added to simulate the criminal justice system in a dynamic year-by-year manner while the units of flow advance through the system in the same way as in the original JUSSIM model. In JUSSIM II,

all processing is assumed completed within a year's time, and the resource capacity at each stage is assumed sufficient to handle the load. The output from each of the stages, including the corrections facilities, is divided into

the fraction who eventually become recidivists and those who return to the general society and behave as normal citizens (Chaiken, *et al.*, 1976:33).

The addition of the feedback in the form of recidivists and the year-to-year time variable in the JUSSIM II model is a significant advancement as it makes available time-dependent (yearly) outputs of workload, costs and flows and allows the user to address policies that change recidivism and that investigate changes in the times between successive criminal acts. Because of its dynamic structure, the new model provides some forecasting capacity since it can generate “snapshots” of the system performance for several years into the future. On the other hand, the major limitation of the original version, i.e., that of fixed “branching ratios”, still exists with the new model.

A somewhat different approach to simulating the criminal justice system was taken in DOTSIM (Dynamic Offender Tracking Simulation) by Public Safety Systems of Santa Barbara, California (Jago, 1973). While JUSSIM and its close descendants such as CANJUS, JUSSIM II and PHILJIM are all aggregate-flow models, in which the aggregated volumes of crimes and/or offenders flow through the system, the DOTSIM is a case-by-case flow model (Chaiken *et al.*, 1976). Written in FORTRAN for the CDC 6400, the model simulates the movement of offenders through the criminal justice system. Each case or entity within the model is created with characteristics chosen from random number generators based on statistics on the frequency and type found in the real world. The model accumulates measures of both costs and times attributable to each case as it passes

through the processing stages. Costs and average transit times for the offenders through each of the stages are available by crime type.

The major advantage of the DOTSIM model, according to Chaiken et al. (1970), is its case-by-case flow which reflects the actual procedural step-by-step processing of individual offenders through the criminal justice system. Court case delays, for example, are a result of the interaction between the availability of resources to process cases and the accumulative effect of the case-by-case flow. However, the case-by-case flow approach has several limitations in its attempt to simulate the overall criminal justice system. First, the case-by-case flow is in serious conflict with the practice by any criminal justice system in the real world in which many cases are being processed at the same time instead of one by one. In this respect, it is more feasible to use the model to simulate a single agency's activity rather than a whole system. Moreover, the concerns of the senior management of the criminal justice agencies generally do not involve individual cases, but rather aggregate cost and process rates. Thus the problems should be studied by aggregating the individual "events" into a continuous flow and examining this flow in the context of the continuous variables that affect it and are affected by it.

The second major limitation of the DOTSIM model, which is characteristic of all the models reviewed, is that "parameters describing interaction between system components (branching ratios) must be prescribed by the user" (Chaiken *et al.*, 1976:40). Thus, the erroneous assumption of independent elements in a system is implanted in this model. The third limitation of the DOTSIM model is again related to its case-by-case

stochastic approach. This kind of approach normally requires more information on the precise rules for the movement of each case through the system. It is difficult and expensive to obtain data to calculate the precise parameters as required by the model (Chaiken, *et al.*, 1976).

The third representative model is the Florida model developed by Patricia L. Brantingham (1977). Although the model is named "Dynamic Modeling of the Felony Court System" in Florida, it actually simulates all the procedures that criminal cases flow through in the criminal justice system, starting with the criminal events reported to the police and ended with corrections. The major decision points such as arresting, charging, bargaining and sentencing, are all included in the model. Therefore, it is considered more appropriate to regard it as a simulation model of the overall criminal justice system.

Written in DYNAMO, a simulation language designed specifically to simulate the real world dynamic systems, the Florida model was designed to model the complex interrelationships within the system, to identify flow linkages, and to respond to dynamic changes in crime patterns. The equations used in the simulation were designed to model the flow breaks at these important decision points and the information feedback from other agencies and processes within the system.

The major advancement in the Florida model lies in its capacity to simulate the dynamic nature of the criminal justice system. Instead of using fixed branching ratios as used in the other models reviewed, the Florida model allows the branching ratios to

change in response to continuous feedback from various decision points in the system such as workload, resources available and case delays. The inclusion of a monthly time variable moves the model closer to the real system than the year-to-year variables in the other models and makes it possible for the researcher and the potential planner to explore the impact of time related policies.

Review of the three typical simulation models of the overall criminal justice system illustrates that, technically, there are three approaches to developing a simulation model of a complex system in the real world. First, it can be developed by using an all-purpose computing language. The JUSSIM model and the DOTSIM model took this approach. Both of them used FORTRAN, which is an all-purpose computing language. The second approach is to implement a well-developed simulation model into the current situation. CANJUS is an example in this approach. It implemented the JUSSIM model into the Canadian situation by modifying the parameters with data from the Canadian criminal justice system. The third approach is illustrated in the Florida model, i.e., by using a computing language written specifically for simulation purposes.

Each of these three approaches has its advantages and disadvantages when compared with other approaches. Of the three approaches, using an all-purpose computing language offers the most flexibility and power in that the model developer can basically structure the model at his/her will, be it stochastic or deterministic, dynamic or static, aggregate flow or case-by-case flow, with or without feedback, etc. However, review of the three typical simulation models of the overall criminal justice system indicates that for

all purpose computing language approach is the most difficult and most resource-demanding. It requires a team with at least a professional programmer in the computing language of choice to spend several years to develop a simulation model as is the case with the JUSSIM model.

The second approach, implementing a well-developed model, as in the case of CANJUS which implemented JUSSIM in the Canadian context, requires the least effort and resources in developing a simulation model. The developer does not need to do any programming to modify the structure of the simulation model. All he/she needs to do is to collect and analyze data for his subject system and to change the input and the parameters in the model with the analytical results. Using a well-developed model, however, gives the developer the least flexibility. Two conditions must be met before a well-developed model can be implemented in a new context: the structure of the system to be simulated has to be very similar to the simulation model to be implemented; and the purpose of the current research has to be similar to the purpose of the original model.

The third approach, using a computer simulation language to develop a new simulation model, demonstrated in the Florida model, stands somewhere between the first two approaches in terms of efforts required and capacity and flexibility offered. Computer simulation languages are written essentially to make it easier to build simulation models. They normally have various built-in functions and macros that are required for simulations. Using a built-in function or a macro is equivalent to using hundreds of lines of native code in a general computing language. In addition to the ease in developing simulation models,

simulation languages also offer great flexibility and capacity for modeling complex systems. The only major limitation of using a simulation language may be the availability of a language that is suitable for the type of system to be modeled. Generally speaking, simulation languages are written for modeling specific types of systems. DYNAMO, for example, is written for dynamic aggregate-flow models. Therefore, it cannot be used to develop stochastic case-by-case flow models. MAP/1, GALS, and MAST are written for modeling manufacturing systems and cannot be used for dynamic models (Pritsker, 1986). This limitation has become a much smaller problem than it was in the earlier days when simulation was first introduced and there were very few simulation languages available. In the past three decades, a great number of simulation languages have been developed and the researcher normally has a range of choice as long as he has the knowledge and resources (Pidd, 1992; Pritsker, 1986).

The advantages and disadvantages of the three approaches as discussed above demonstrate the general principles that the model builder should follow in choosing the appropriate approach the problem has been defined (or, the system has been identified) for simulation. The model builder should start by reviewing existing well-developed simulation models and compare their compatibility with the system to be simulated. If there is no compatible simulation model existing simulation languages should be examined and their capacities compared with the purpose of the research. Using an all-purpose computing language should be regarded as the last resort.

Since no simulation model has ever been developed to forecast the need for legal aid, there is no possibility of implementing a simulation model. Thus, the feasibility of the second alternative has to be explored, i.e., using simulation programming languages. Of the various simulation programming languages that have been developed during the past three decades, some are general purpose oriented and some are for specific types of models. DYNAMO is selected for this study as the simulation programming language because it is specifically developed to provide a language for analyzing dynamic systems (such as the criminal justice system) characterized by the interconnectedness between various parts within the system and time-dependent continuous feedback. The other reason for choosing DYNAMO is because it is the most cost-effective as compared with some general purpose simulation languages, such as SLAM II and the CSSL languages¹⁴ which, in addition to other functions, have the capacity for simulating dynamic models as well as DYNAMO does. The version used in this research, Professional DYNAMO Plus v.3.1 (for DOS) costs US\$100, while SLAM II costs around US\$50,000, (learned by the researcher when attending a conference in August, 1994¹⁵). The DOS version of DYNAMO is selected for this research over the Windows version out of the consideration of cost-effectiveness as well. The Windows version cost US\$3,000 at the time of inquiry (1994).

¹⁴ The CSSL languages refer to the family of simulation languages which have been reasonably standardised by the Society for Computer Simulation's Continuous System Simulation Language Committee. "Examples of CSSL languages are CSMP III, CSSL III, CSSL IV, ASCL and DARE-P" (Pritsker 1986:579).

¹⁵ At the conference, the Court Services Branch of the Ministry of Attorney General reported its feasibility study of using SLAM to simulate the provincial court system in British Columbia.

Dynamo

Before discussing the procedures to follow in developing a simulation model in DYNAMO, it is necessary to provide a brief description of the DYNAMO simulation language. As an effective tool for building and simulating continuous feedback models, DYNAMO has been widely used to study business, social, economic, biological, psychological and engineering systems, among others.

Using what happened in the past to predict what will happen in the future, DYNAMO is a time dependent simulation language based on linear and non-linear difference equations. It is a language which facilitates the exploration of flows and rates of change and is well suited to modeling interactions and feedbacks. The execution of a simulation model in this language provides a time ordered picture of how a system operates and changes (Brantingham, 1977:175-6).

DYNAMO compiles and executes continuous simulation models. According to Pugh (1983:1), "continuous models are useful when the system in question depends on aggregate (average, continuous) flows rather than on the occurrence of single, discrete events. The problems of senior management, for example, generally do not involve individual sales transactions or particular machines, but rather aggregate revenue and production rates."

DYNAMO can be used to study the structural aspects of models of systems. "State variables, called levels (in DYNAMO), are defined in difference equation form and

may be nonlinear. Nonlinearities are also included in the model through the use of table functions, delay, and clipping operations” (Pugh, 1983:1) DYNAMO used a fixed step size, Euler-type integration algorithm to evaluate the level variables over time.

A DYNAMO model is a set of equations which is constructed to represent flows of people and information. The solutions to the equations represent the simulated behavior or operating characteristics of the system over time. The model consists of a set of equations representing flows, rates of change and information links, and initial time dependent values for variables. The execution of a simulation model in this language provides a time ordered picture of how a system operates and changes. The simulation is designed to identify and model flow linkages, and to respond to dynamic changes in the flow patterns.

The basic concept in DYNAMO is the process of integration which relates a variable to the rate of change over time in that variable. Pritsker (1986:581) provides a brief description of some of the symbols used in DYNAMO: “...variables that are a function of time are indicated by a period following the variable name and subscripts denoting time following the period. Single letters denote points in time and double letters denote that the value holds for an interval. Three points in time are used, which are represented by the letters J, K, and L. The intervals between these points are represented by JK and KL. The length of the interval is fixed and defined by the variable DT.” To take as an example the number of cases represented by legal aid lawyers, at any given time, the number is determined by the difference between the rate at which cases flow into the legal

aid system (in the form of legal aid approvals) and the rate at which cases flow out of the legal aid system (cases are completed and billings are paid). If the system had 10,000 persons on legal aid a year ago and the net rate of change is 100 persons per month, the system now has 10,000 persons plus 100 persons per month times 12 months, or 11,200 persons. In equation form this is :

$$\text{volume (now)} = \text{volume (earlier)} + \text{elapsed time} * \text{rate of change}$$

In DYNAMO, the present time is indicated by the subscript K, the earlier time by the subscript J, and the elapsed time is called DT (Delta (change in) Time). Thus the above equation in DYNAMO will look like:

$$L \text{ VOLUME.K} = \text{VOLUME.J} + \text{DT} * \text{RATE OF CHANGE}$$

A DYNAMO model consists a set of equations which is constructed to represent the flows of goods (in this case people and dollars) and information. The equations are compiled and executed in DYNAMO program. The execution of the DYNAMO model is basically a process of solving the equations on a computer. The equations are solved in an iterative fashion. Each successive iterative solution gives values for the flow levels and rates of change in successive time periods. The solutions to the equations represent the simulated behavior or operating characteristics of the system over time.

DYNAMO makes use of thirteen equation types to generate thirteen types of essential variables. Of the thirteen equation types, three are essential to an understanding of the DYNAMO language and will be discussed in this chapter¹⁶ to illustrate the structure of the DYNAMO simulation language. The three basic equation types are level equations, rate equations and auxiliary equations, indicated by L, R, A respectively in the model.

Level equations are integral equations to generate variables such as the number of persons on legal aid, whose values are calculated by integration. Level equations relate a quantity at the current time to its value at the previous time that calculations were made and to its rate of change during the interval between calculations. They accumulate the effects of changes in the “rate” variables that flow into and out of them. The equation used earlier to illustrate the time function in DYNAMO:

$$L \text{ VOLUME.K} = \text{VOLUME.J} + \text{DT} * (\text{LAAP.JK} - \text{LACMPL.JK})$$

where VOLUME = the number persons on legal aid

LAAP = number of persons approved for legal aid

LACMPL = volume of legal aid completion

is a typical level equation to generate the “VOLUME” variable, which stands for the number of people on legal aid at the current time.

A “rate” variable is the sum of inflows minus the sum of the outflows. The equations determining rates in a DYNAMO model are not restricted to a specific format.

¹⁶ Detailed discussions of the equation types in the DYNAMO language can be found in the Professional DYNAMO Plus Reference Manual published by Pugh-Roberts Associates, 1991.

Rates can potentially be determined by a wide variety of factors in a wide variety of ways.

Examples of rate equations in the legal aid model are:

$$R \text{ LAAP.KL} = \text{PSNCHRG} * \text{APPRATE}$$

$$R \text{ LACMPL.KL} = \text{CURTCASE} * \text{DISPRATE}$$

where PSNCHRG = persons charged with criminal offences

APPRATE = legal aid approval rate

CURTCASE = criminal cases in the court system

DISPRATE = court disposition rate

Auxiliary equations are simple algebraic functions of levels, rates and other auxiliary variable at the current time. They are frequently used as building blocks to make the definition of rate variables clearer and easier while level variables and rate variables form the fundamental building blocks for a DYNAMO model. In terms of the continuous feedback structure of a system, auxiliary variables bridge the gap between levels and the rates changing other levels. In the practice of modeling, as can be seen in the current legal aid model, auxiliary variables tend to be most numerous and to represent important concepts in the system under consideration. "Auxiliary variables tend to be based on information within a system and act to control the physical components of the system" (Pugh-Roberts, 1991:18). A simplified example from the legal aid model is shown as:

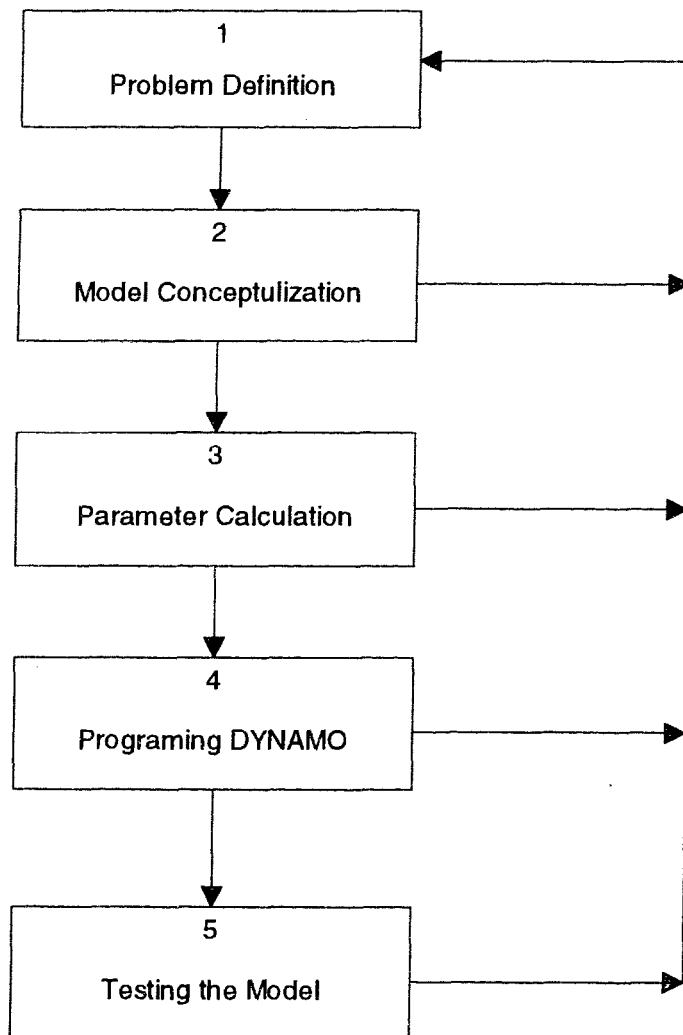
$$A \text{ PSNCHRG.K} = \text{CNP.K} * .30$$

where CNP = crime known to the police.

--Stages in the Simulation Modeling of a System

The process of building a DYNAMO simulation model can be summarized into five stages. First it is essential to define the problem as clearly as possible. Basically it is a matter of defining the system to be simulated. The problem definition in this research is mostly achieved by reviewing the legal aid system and the criminal justice system in British Columbia in Chapter I and Chapter II. It should be noted, however, that problem definition is not a one time shot. As indicated by Figure 3, problem definition needs to be updated every time there is feedback from later stages in building the model.

Figure 3 Five phases in Simulation Model Building



Once the problem has been initially defined it is necessary to attempt some form of conceptualization of the problem viewed as a system. This second phase of system conceptualization requires the researcher's knowledge of the way in which the system functions. This phase can be achieved by constructing a causal diagram or digraph of the system in the case of a dynamic model with continuous feedback. A flow chart is a partial representation of the sequence of operations which are necessary to solve a problem.

DYNAMO uses a set of conventional symbols as a diagrammatic representation of a DYNAMO program. Chapter IV of this paper is devoted to the second phase of model conceptualization which essentially consists of the development of a digraph of the legal aid system using the conventional symbols of DYNAMO.

In the third phase of model building the behavior of the system being studied should be quantitatively analyzed to provide the parameters for all the equations in the DYNAMO model. In the case of modeling social systems (including the criminal justice system), however, it is not uncommon that, because of data collection limitations, some parameters are not available through analysis of empirical data. Therefore, hypothetical parameters have to be used as shown in the Florida model by Brantingham (1977). The validity and reliability of the model become dependent on the proportion of hypothetical parameters as well as the researcher's conceptual understanding of the system. In Chapter V, the empirical analysis of the behavior of the legal aid system in British Columbia will be discussed and the results of the analysis will be used in the DYNAMO simulation model.

The fourth phase of model building is programming in DYNAMO. This is the process in which the model concepts captured on paper in a flow diagram are translated into an operating model on the computer. More specifically, the decision points in the legal aid system are translated into DYNAMO equations. It should be stressed that the programming part has to be refined repeatedly in response to the feedback from the last testing phase of the process.

The fifth phase of model building in DYNAMO is testing the model. First the behavior of the simulation model, i.e., the output of the base flow pattern is compared qualitatively and quantitatively with the behavior of the system being studied. The model may be verified if the simulation model can replicate the actual pattern of the system being studied. This basically means that the output at the important focal points in the model correspond closely with the behavior of the real system.

DATA COLLECTION

The main purpose of data collection in this research is to provide accurate estimates of the parameters needed to make the simulation model a true representation of the actual criminal justice system (legal aid system) based on which future projections can be made. This means that at every significant decision point in the model data are needed to estimate the behavioral model parameters (Hann, 1973:73).

Because of the popular use of computers, many agencies in the criminal justice system, in addition to Statistics Canada, have operational information systems that provide the major information sources for this study. Three sets of data were collected for this study: crime predictors, criminal justice system data, and legal aid data. Crime predictors include such key indicators as the volume of liquor sales, retail volume, population compositions, age and sex structure, unemployment rates and numbers of people on social assistance. Monthly data from 1985 till 1993 were used in the simulation model and the requisite analyses.

The criminal justice system data include data from the police, crown, court and corrections. Data from the police include crimes known to the police and number of charges laid by the police, including both charges against adults and against youths. Data from the Crown prosecutors include the number of cases returned to the police for more information; the number of charges dropped; the number of caution letters; the number of cases that proceed to the court; and, the number of diversions. Court data include the number of cases that go to court and information on dispositions, especially whether by guilty plea or trial. Data from corrections include the number of cases and length of imprisonment.

Legal aid data include number of applicants, applicant age and sex profiles, number of people who have received legal aid over the years, number of private bar lawyers accepting legal aid cases, and number of legal aid intake points. Legal aid data can also provide such information as the time delay between occurrence of crime and charges being laid and patterns in guilty plea and trial, cost of different types of cases and different court procedures, etc.

Forecasts provide information about future needs that are a projection of existing trends--an extension of the past into the future. A common way of predicting the future from the past in social science is through the use of time series analysis. Such an analysis involves obtaining and processing data on one or more variables for many points in time. It is generally contrasted with cross-sectional analysis where data are obtained and

processed over one or more variables for many places at a single point-in-time (Nagel, 1982).

One advantage of using simulation modeling in forecasting the future to the commonly used time series analysis is that time series analysis assumes that nothing changes - that cyclical patterns simply replicates whereas simulation modeling allows the consideration of policy changes and the system dynamics.

LIMITATIONS

There are limitations in using computer simulation models to study a complex social system such as the criminal justice system. A major limitation is that simulation models are built upon many assumptions, which are derived from the researcher's understanding of the system. In essence the validity of a simulation model is as good as the assumptions are. Since our understanding of the criminal justice system is far from thorough, the simulation model will be similarly limited.

Another major limitation is that simulation modeling requires a lot of data to provide the parameters in the model. Although the situation now is a lot better than it was twenty years ago when simulation modeling was first introduced into the study of social systems, data collection proves to be the most time consuming, costly and it is always the case that more data are wanted than are available. Hypothetical parameters have to be used at various decision points in the model for lack of sufficient data. While these

hypothesis are arguably educated guesses, they are nonetheless hypothetical and ultimately affect the reliability of the model when used as a planning tool.

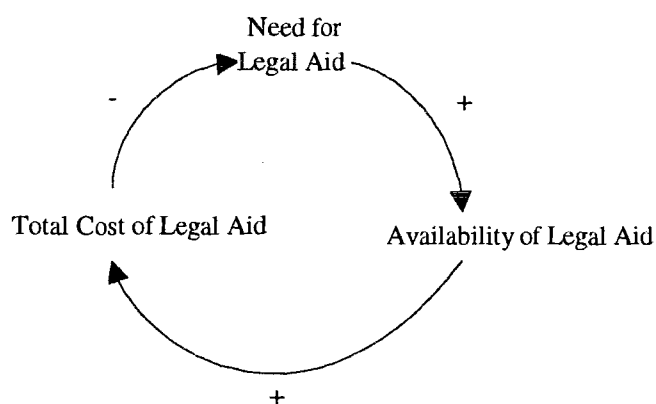
CHAPTER V. DEVELOPING THE CONCEPTUAL MODEL

It has been argued in Chapter II and Chapter III that many factors in the criminal justice system and its environment affect the need for and cost of legal aid in British Columbia. Thus, the preceding discussions have basically defined the problem and significant variables for the study. Before a simulation model is programmed, it is necessary to conceptualize the model by further delineating the way in which these variables are interconnected and exploring others that may also be related and affect legal aid. The conceptualization of the model will be achieved through the search for causal relationships, feedback structures and the development of flow charting diagrams, causal loop diagrams and the DYNAMO flow diagram. The diagrams will provide a useful link between a verbal description of a system and its representation as difference equations.

Causal loop diagrams are a representation of a model that maps out the interacting elements of feedback systems and clearly illustrates the causal relationships. As shown in Figure 4, the individual links in such diagrams can be labeled to show whether the nature of the causal-link is "positive" or "negative". Generally speaking, a plus sign indicates that the variables at the opposite ends of the arrow tend to move in the same direction while a minus sign indicates an inverse relationship. In Figure 4, for example, there is a direct relationship between the need for legal aid and the availability of legal aid, i.e. as the need for legal aid increases, more legal aid offices will be set up and more lawyers will be made available to the people in need of legal aid. There is also a direct relationship between the

availability of legal aid and the total cost of legal aid. On the other hand, there exists an inverse relationship between the total cost of legal aid and the need for legal aid. When the cost goes up, the Legal Services Society normally has to make its eligibility policy more strict to bring down the level of the need for legal aid so as to keep a balanced budget.

Figure 4 Causal Loop for A Legal Aid System



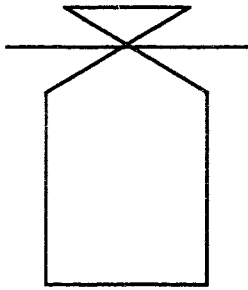
DYNAMO users make use of a set of specific flowcharting symbols. The symbols, as illustrated in Figure 5, include level, flow rate, delay, auxiliary computation, noise, switch, table, source/sink, people flow and information flow. A few words of explanation of these symbols may assist in understanding how they are used.

Of all the symbols level is the most essential concept in DYNAMO simulation. With constant changes in input and output, the level is changing all the time. In the legal aid system, levels can be that of the number of cases that are provided with legal aid; levels can also be the amount of cost. In the court module, level is the number of cases

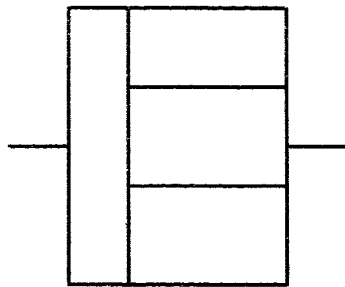
flowing through the court. Rate is an equation which calculates the differences between input and output. Delay is a function used in DYNAMO to control the time when changes in rates are supposed to occur. An auxiliary is an equation to assist in the calculation of rates, delays and levels. A noise is a random fluctuation or interference pattern in data or information. DYNAMO generates noise by selecting a random number between 0.5 and -0.5. Switch is used by DYNAMO to run in what-if situations. When certain condition is met, the program goes to a different route. A table can be used to provide input into the model at different stages. A source is an external input of cases, people, information or resources into the system. A sink is an embodiment of cases or information removed from the system. People flow refers to the through-put of cases going through the system. Information flow refers to the throughput of information in the form of, in the present model, policy changes etc.

Developing a flowchart with DYNAMO specific symbols helps the model builder better understand the causal relations between the various variables and identify the different types of variables that are essential in the programming process. It assists the end user of the simulation model, whether for research purpose or for planning purpose, to understand the logic behind the program.

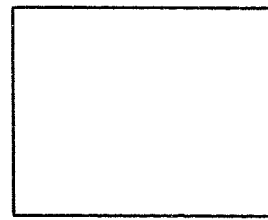
Figure 5 DYNAMO Flowcharting Symbols



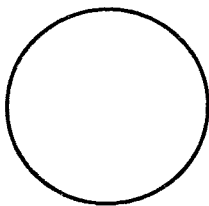
Rate



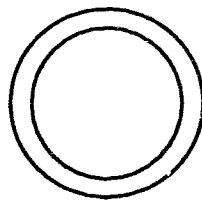
Delay



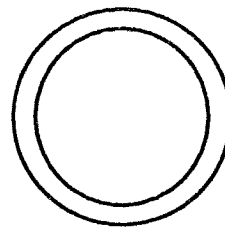
Level



Auxiliary
Computation



Noise



Switch

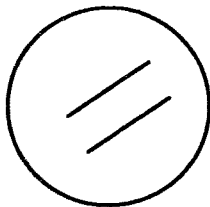
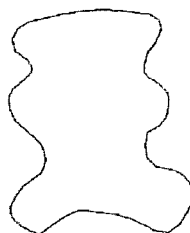
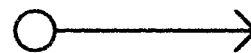


Table
Figure



Source
or Sink



People
Flow

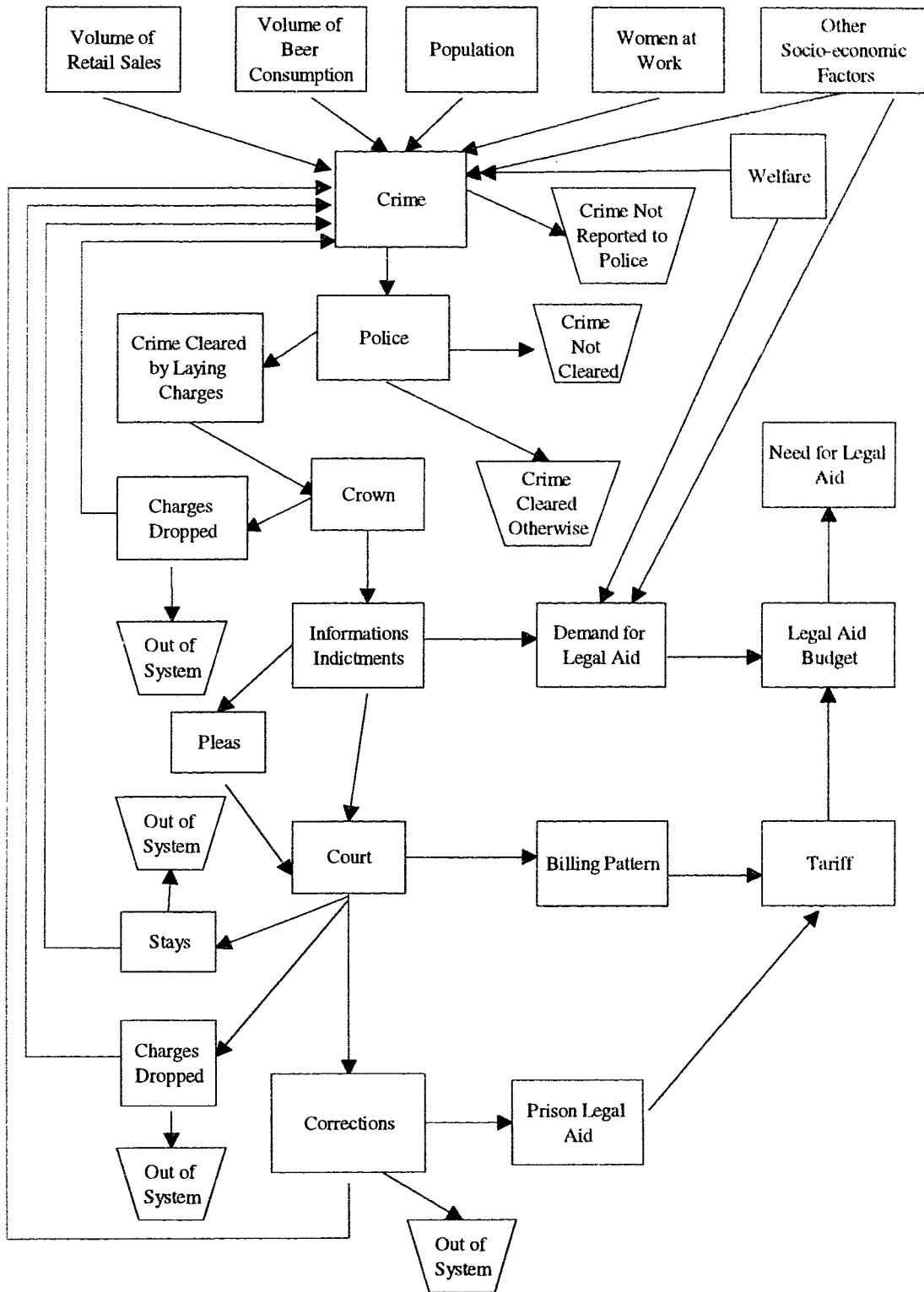


Information
Flow

FACTORS INFLUENCING THE NEED FOR LEGAL AID

Many factors influence the need for legal aid, including socio-economic conditions, demographic characteristics, crime rate, law enforcement, court procedure, policies for legal aid services, the availability and accessibility of legal aid, etc. This is illustrated in the causal loop diagrams shown in Figure 6.

Figure 6 Factors Influencing the Need for Legal Aid



The legal aid system itself influences costs and expenditures of legal aid services, which, in turn, influence the criteria for determining legal aid need (cost for tariff and staff lawyers, administrative practices, financial eligibility criteria, cost per applicant, types of service, service coverage policies, and the distribution of services). For example, if legal aid services are not highly evident, a person may be unaware that he /she is actually eligible for representational services and fails to apply. Or, if the services are not readily accessible, prospective clients may choose not to apply. Some variables that may be used in the simulation model include: number of private lawyers providing services, number of staff lawyers providing services, number of contact points, number of non legal staff, etc.

The socio-economic-demographic pattern may influence the need for legal aid. Given financial eligibility criteria, legal aid expenditures should vary, under ideal circumstances, with changes in employment and unemployment levels, in demographic characteristics (e.g. percentage of males, percentage of females, percentage of young people, percentage of single parent families, etc.), and in migration rate. All of these factors are interrelated. When the percentage of people on welfare increases, the number and percentage of people financially eligible for legal aid will also increase.

For example, in the aggregate profile, criminal legal aid applicants and recipients of representational services are predominately single young males with low levels of education. This general demographic pattern helps estimate the demand and need for legal aid. Census data that can be used for predicting legal aid need include: total population,

total number of families, percentage of males, percentage of males aged 15-24, percentage of single males (never married, separated, divorced), number of female single parents, and number of population aged over 15 with no income. Social and economic predictor data include unemployment rate, number of persons on welfare, average income, rate of women participating work, etc.

Changes in the socio-economic situations impact on the crime pattern which may have an impact on the need for legal aid. The number of people who would seek and receive services, i.e. the demand for service, depends on crime patterns. When more crime is committed, for example, there will be more criminal charges and more will demand for legal aid. A larger volume of serious crime will also increase the demand for legal aid.

The need for legal aid also depends on the operation of the criminal justice system. Many aspects of the procedures of the criminal justice system may influence the need for legal aid. These may include charging practices, trial rates as compared with guilty plea rates, stay and withdrawal rates, the changing and fixed features of the *Criminal Code*, the *Narcotics Control Act* and other legislation including the *Young Offenders Act*, as well as sentencing practices.

For example, persons subject to the jurisdiction of the Young Offenders Court comprised 25 percent of all persons charged with offences in Canada in 1991, but made up only about 15 percent of the total population. The *Young Offenders Act* provides the judge with powers to appoint legal counsel for youth in court, while adults must apply for

legal aid. Even when charged with minor offences under background conditions suggesting little or no likelihood of incarceration, youths are still generally covered in practice by legal aid. Thus, the base of those who might receive legal aid representation increased greatly with the proclamation of the *Young Offenders Act*. Some variables include: offences cleared by charge, persons charged, etc.

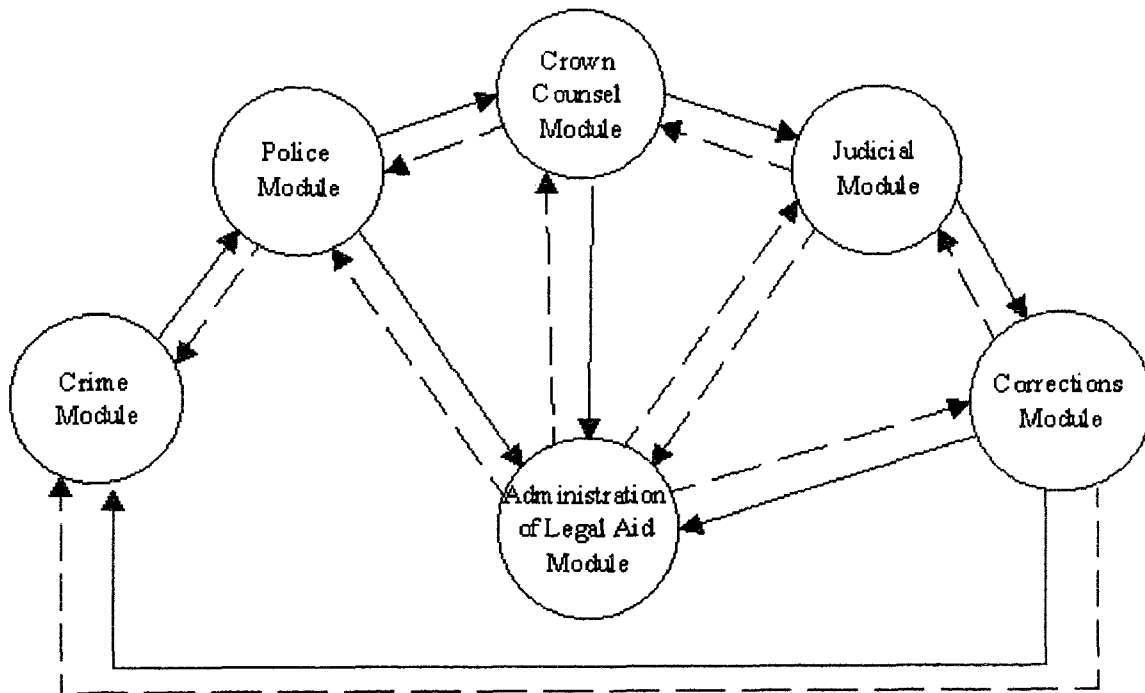
Underlying need and availability, accessibility and willingness to use produce the demand for legal aid. The demand can be increased or decreased by changes in need levels or in levels of availability, accessibility or willingness-to-use. High accessibility makes it natural for an increase in need to be reflected in an increase in demand, that is, requests for services. When there is low accessibility of services, demand would be low even when the underlying need for services increases. Availability and accessibility of legal aid are tied to the site of the criminal event and the home location of the accused. The utilization of legal aid services is largely dependent on the availability and accessibility of the services--mostly, the number and location of intake points.

For the conceptual simulation modeling of legal aid need, many more factors could be chosen depending on the purpose of the analysis. All the factors should be considered jointly. For the first step, feedback loops or flow charts are constructed to show the interrelationship of the factors within each sub-system. Then, they will be connected together further showing the interrelationship among the different sub-systems.

MACRO STRUCTURE OF LEGAL AID

Many variables influence the need for and the cost of legal aid in BC. These variables can be grouped into four sections called modules to make it possible to structure the model: the crime module, the police module, the prosecution module, the judicial module, the corrections module, and the administration of legal aid module. Thus the model can be regarded as made up of six modules, with information and people flowing between them (Figure 7).

Figure 7 Modules of the Legal Aid Model



The modules are not independent, but are interconnected. Information and people can flow between different modules. From the Crime Module, people flow as alleged

offenders to the Police Module in the form of being arrested/charged. Information flows from the Police Module to the Crime Module in the form of deterrence effect. From the Police Module, people flow to the Crown Counsel Module in the form of request for prosecution of the criminal suspect. Information flows back from the Crown in the form of information feedback about what evidence is required to lay charges for criminal offences. From the Police Module people flow to the LSS Module, too, to seek legal advice. Information flows back from LSS to the Police when legal advice is given under the Brydges duty counsel program (24-hour hot line of legal advice for arrestees). From the Crown Counsel Module, people flow into the Judicial Module in the form of being prosecuted and into the LSS Module for legal aid. Information flows from the Judicial Module back into the Crown Module normally in the form of information feedback such as the court's acceptance or rejection of evidence, rulings on motions, etc. Information flows from the LSS Model to the Crown when legal aid is given and some charges are dropped at this stage as a result of legal representation. From the Judicial Module, people flow into the Corrections Module as those who are found guilty serve their sentences. Information flows from the Corrections Module to the Judicial Module in the information feedback about what correctional programs are available and, arguably, jail crowdedness. Information flows from the Judicial Module into the LSS Module in the form of different court procedures that legal aid cases go through, which constitute the tariff cost, and information flows from the LSS into the Judicial Module in the form of legal services provided. From the Corrections Module, people flow back into the system by way of the Crime Module in the form of recidivism. Information flows from the Corrections Module

into the Crime Module, arguably, in the form of general deterrence. People flow from the Corrections Module into the LSS Module for legal aid under the Prison Program provided by the LSS, and information flows from the LSS Module into the Corrections Module when legal aid is provided.

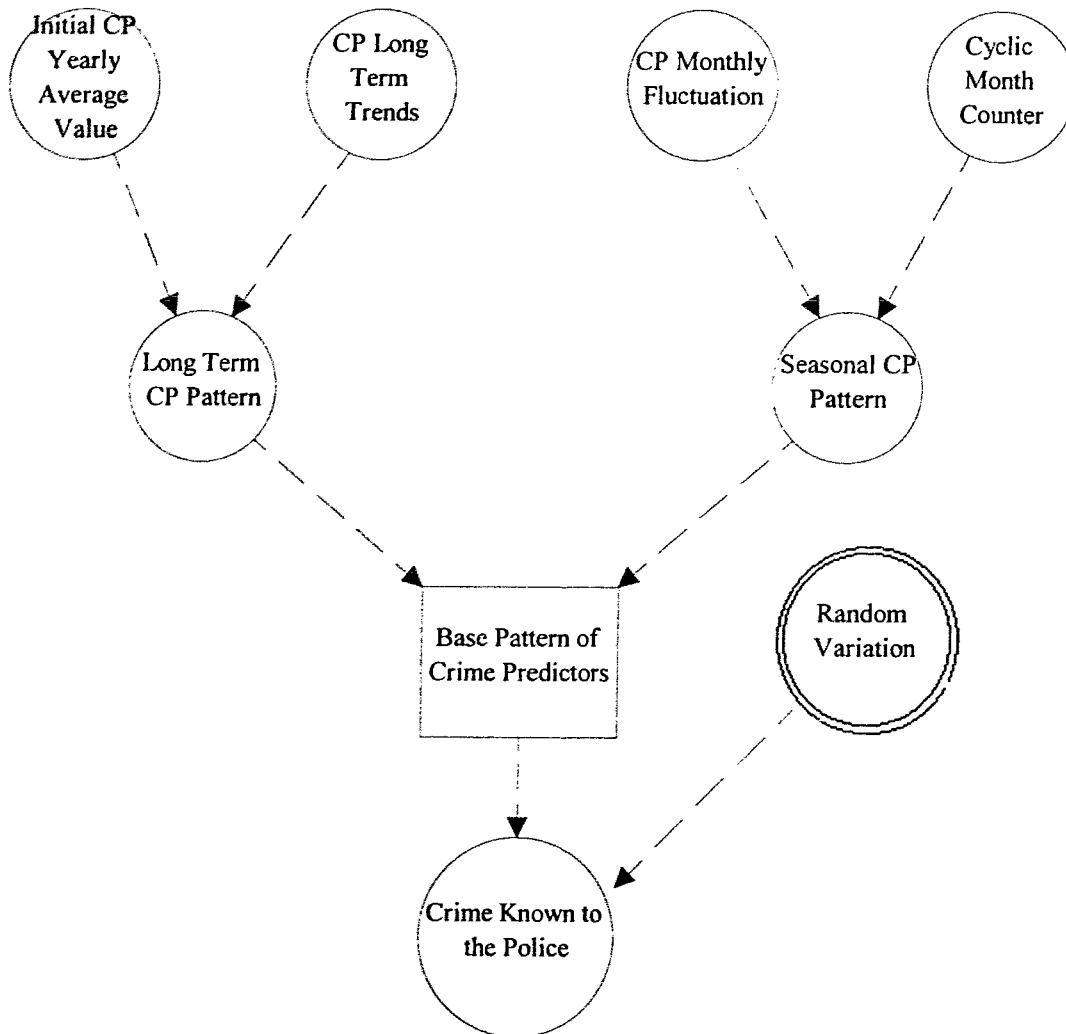
MICRO STRUCTURE OF THE CRIME MODULE

Criminal events are the major input into the criminal justice system as well as the legal aid system. The first part of the simulation model consists of monthly crime patterns by offence and various socio-economic and demographic variables that are used as crime predictors. The crime predictors used in the model are found to vary over time both in terms of long term trend and seasonal fluctuations. In addition, each predictor has a different long term trend and a different seasonal fluctuation pattern. Thus, the generation of each of the base crime predictors (called CP in Figure 8) consists of steps in the DYNAMO model (Figure 8). First, the long term crime predictor pattern is generated by calculating and integrating the yearly average values and the long term trends. Second, the seasonal crime predictor pattern is generated by calculating and integrating the values of the monthly fluctuation and the monthly cycle counter. Third, the base pattern of crime predictors is generated by integrating the long term pattern and the seasonal fluctuation pattern.

With the crime predictors as the input, the amount of crime reported to the police is calculated by seven offence types. Since no crime predictor can predict the amount of

crime with one hundred percent accuracy, some variation is added to the calculation of the volume of crime reported to the police as random variation by using a DYNAMO built-in function called “noise” which produces a random number between -0.5 and +0.5.

Figure 8 Causal Loop of the Crime Module

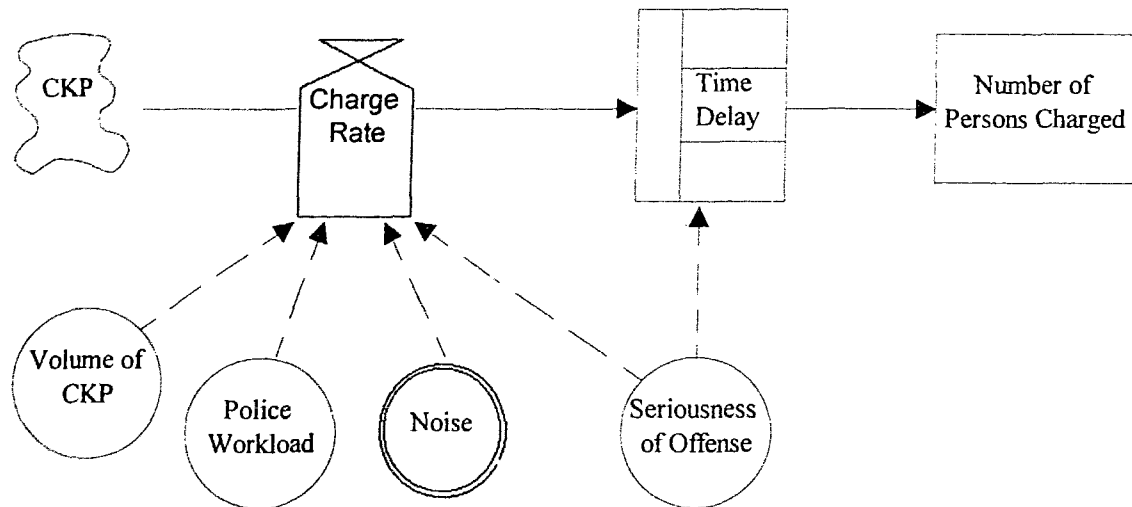


MICRO STRUCTURE OF POLICE MODULE

In the DYNAMO model, the amount of crime known to the police (CKP) by offence type is used to calculate the charges by the police (Figure 9). To make the simulation possible, it has to be assumed that the proportion of multiple offenders committing single offences and single offender committing multiple offences to be fixed over time at the provincial aggregate level.

Using CKP as the input, people flow through the police agency at a certain charge rate and some time delay. The relationship between the amount of CKP and charges is not linear, i.e., the charge rate and the time delay are not fixed. They are affected by the volume of CKP, the workload of the police, the proportion of serious crime versus less serious crime and some unexplainable factors (represented by “noise” in DYNAMO). The level of crime is found to fluctuate over time. Staffing level of the police, however, remains relatively stable. When there are crime peaks, the workload for the police increases. Although police are found to be able to lay more charges at crime peaks, charge rate decreases with more time delay as a result of workload constraints. Facing crime peaks and workload constraints, the police are likely to pay more attention to more serious crimes, resulting in a greater decrease in charge rate and more delay for less serious offence types.

Figure 9 DYNAMO Flowchart of the Police Module

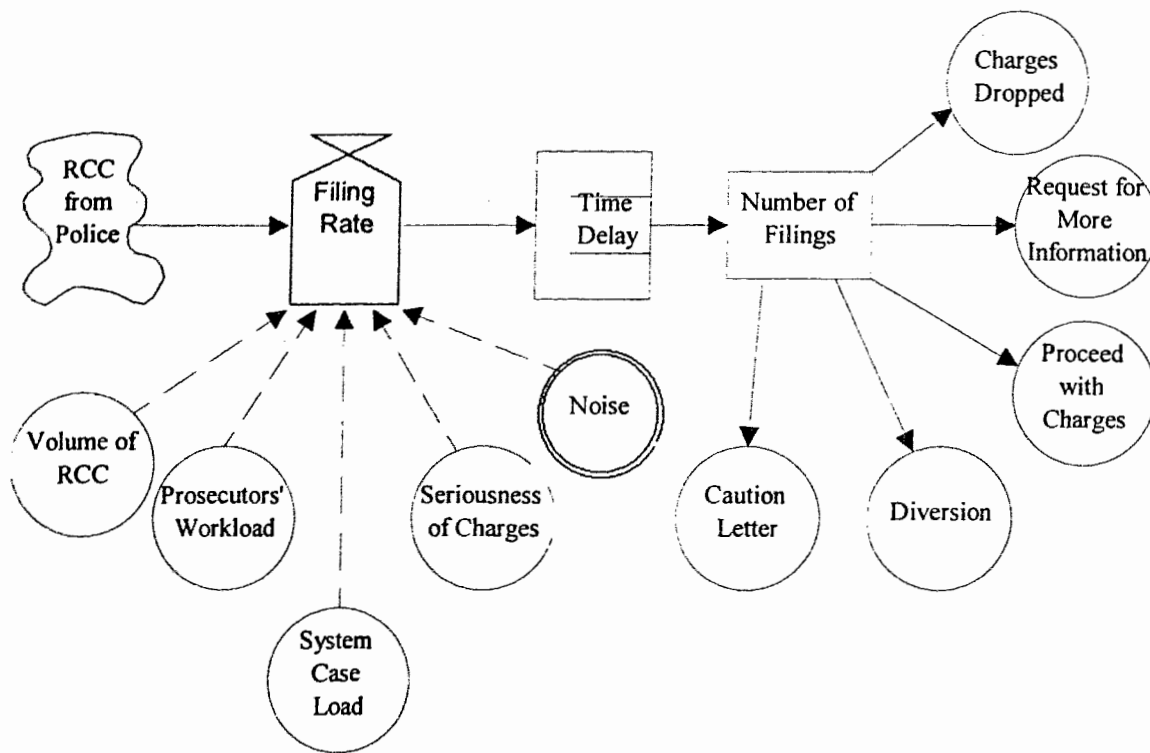


THE PROSECUTION MODULE

Crown counsel has several alternatives in disposing requests for criminal charges (called RCC in Figure 10). In addition to proceeding with the criminal charges as requested by the police, Crown counsel can drop the charge when he/she believes that the evidence is weak or when it is believed that carrying on with the case would be inappropriate; the case can be returned to the police for more information; a caution letter can be issued; or the case diverted out of the system. Cases may have weaknesses in the evidence which cause the Crown to drop the charges or they may have characteristics that compel the Crown to proceed with the charges. However, there are a large number of cases which do not have clear-cut characteristics for disposal alternatives. The disposal of these cases is at the discretion of the Crown.

Several factors affect the Crown in his/her exercise of the discretion to dispose cases. The volume of requests for criminal charges from the police fluctuates over the time. The staff level of the Crown remains relatively stable. These two factors constitute the changing workload for the Crown, which is likely to affect the Crown's decision about disposal alternatives and time delay. The case load in the judicial system such as the volume of case backlog is likely to influence the Crown's decision about case disposal. Unlike the police, who cannot control the input level of crime reported, the Crown can control their own workload and the case load in the system by rejecting RCC or proceeding with RCC without much scrutiny. In the process of screening RCC's from the police, the Crown is likely to treat different types of charges differently. The Crown is less likely to drop a murder charge than a break and enter charge. In a high volume season, especially when there are more serious charges, the Crown is likely to drop more charges of less serious nature.

Figure 10 DYNAMO Flowchart of the Prosecution Module

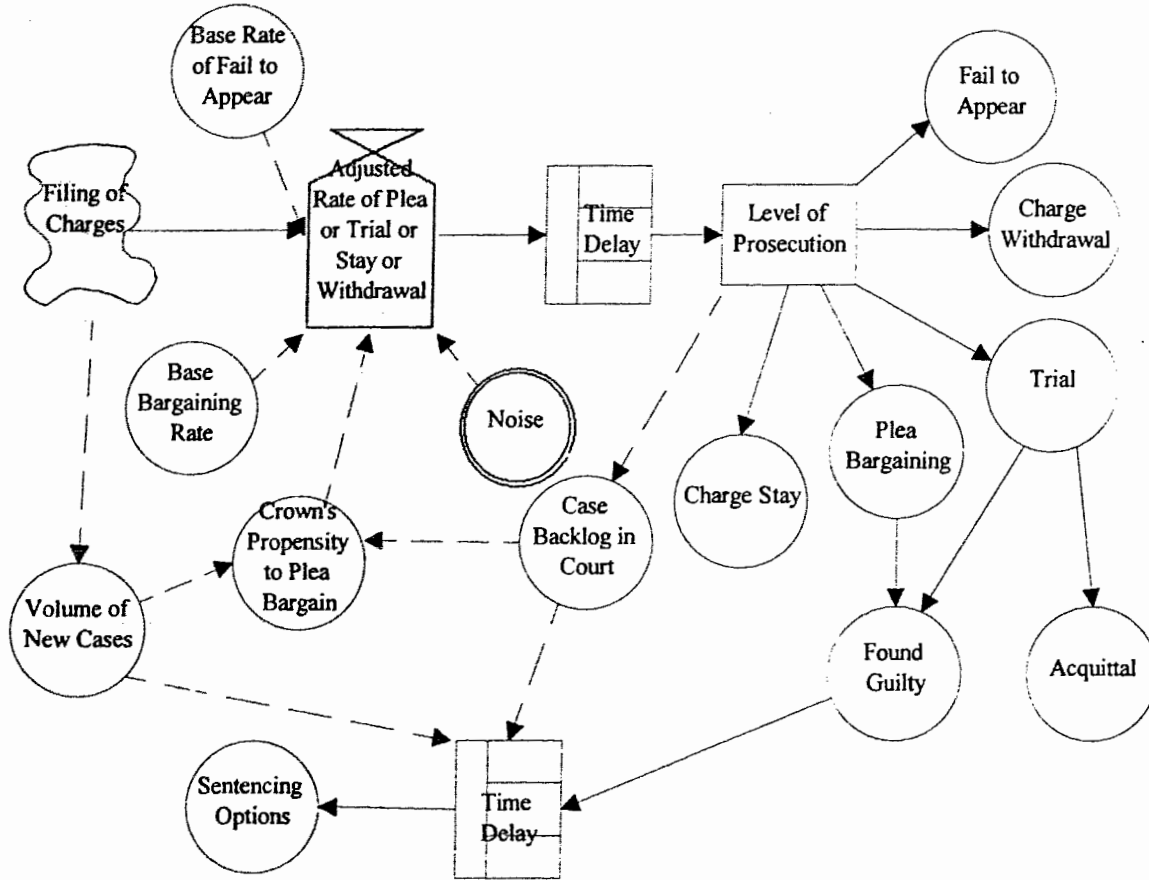


THE JUDICIAL MODULE

After the Crown files charges and proceeds in the court, the major decision point in the judicial module is that of whether there is a guilty plea. Although this decision appears to be up to the defendant and a large number of guilty pleas are made by defendants, no matter what the Crown does or thinks, it is generally believed that the Crown counsel play a major role in the plea bargaining process.

As is shown in Figure 11, the decision by the Crown to take a case through one of the alternative routes has a major impact on the system. Meanwhile, many factors affect the choice of the alternatives called the “Adjusted rate of plea or trial or stay or withdrawal”. A certain number of defendants plead guilty uninfluenced by the system, constituting the base bargaining rate. A certain number of defendants fail to appear, uninfluenced by the system constituting the base rate of fail to appear. The Crown’s propensity to initiate plea bargaining affects the guilty plea rate on one hand. On the other hand, it is affected by the level of new case load and the volume of court case backlog, which, to a large extent, is affected by the Crown’s earlier decisions.

Figure 11 DYNAMO Flowchart of the Judicial Module



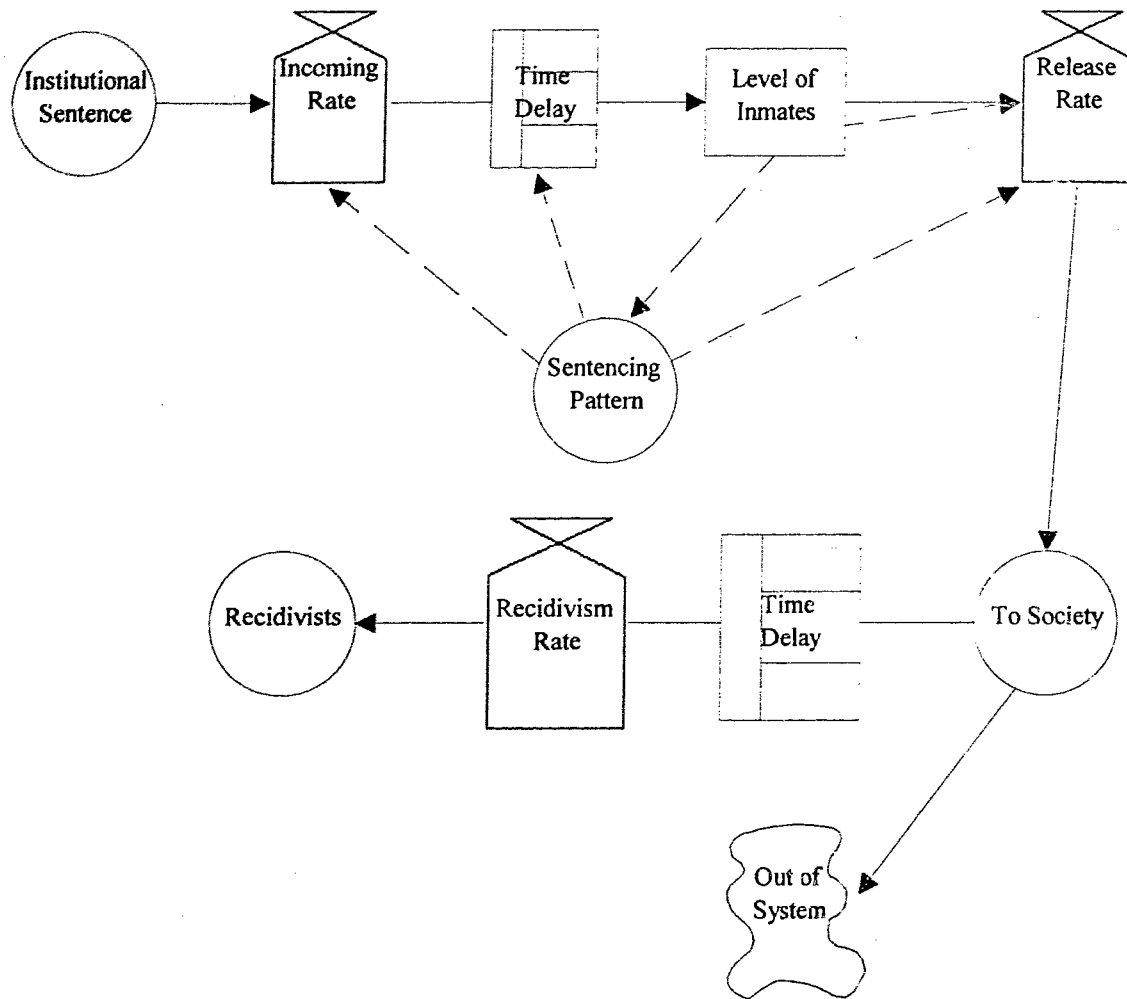
THE CORRECTIONS MODULE

The level of the inmates in the correctional institutions is determined by the incoming rate of people who have received institutional sentences, the time the inmates spend in the institutions (time delay) and release rate. The input rate is dependent on the number of people given jail or prison sentences. The release rate is dependent on the length of time the inmates actually spend in the institutions, which is dependent on the length of sentence. While the sentencing pattern gives information input into the input rate

into the corrections system, determines the length of the stay of the inmates in the corrections system and the release rate, it receives feedback from the corrections system. When the level of inmates in the correctional system changes, because jails have become too crowded for example, judges might opt for short term jail sentence or make use of available diversion programs. The release rate is also determined by the use of parole. Although there is insufficient data to analyze its practice in British Columbia, parole is somehow included in the simulation model.

After serving their sentences, the inmates are released into society. A certain proportion of them will commit crime again sooner or later, which constitutes the feedback into the criminal justice system.

Figure 12 DYNAMO Flowchart of the Corrections Module



THE MODULE OF LEGAL AID ADMINISTRATION

The major input of people into the module of legal aid administration is from the police module and the corrections module where people who are charged with criminal offences or prisoners who face post-suspension/revocation hearings before the National Parole Board or the British Columbia Board of Parole apply for legal aid. Between charges being laid and applying for legal aid, there is a time delay. Some people apply for

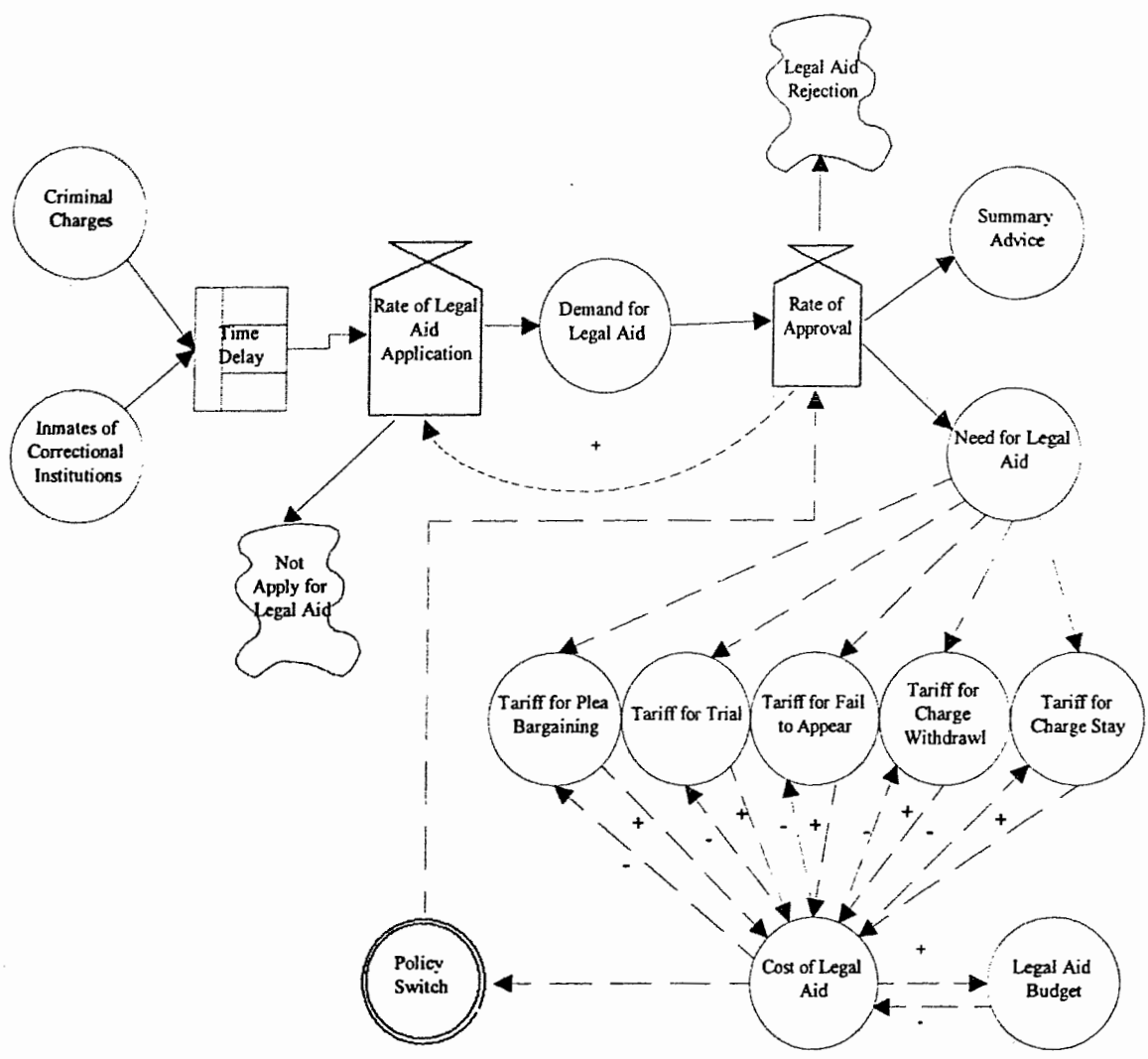
legal aid as soon as they are charged with criminal offences. Others wait until they contact their lawyers or appear in court before they apply for legal aid. The rate of legal aid application is not fixed. While the application rate is affected by the general economic situation, it is also affected by the approval rate of legal aid applications. When the Legal Services Society adopts a stricter eligibility policy, some people would think that they are not eligible for legal aid and, therefore, may not apply at all.

Of those who apply for legal aid, some are approved for full legal representation, some are rejected and some are given summary advice. While the number of people approved for legal aid has the biggest impact on the cost of legal aid, the cost of legal aid affects the approval rate, too, through a policy switch. Normally, the Legal Services Society attempts to expand legal aid services, both in terms of the legal problem areas covered and in terms of the number of people covered within the available resources. However, when cost increases faster than resources so that the LSS becomes unable to cover the increasing cost, the gap between cost and resources normally triggers a policy switch, i.e., a restraint policy will be introduced to reduce the number of legal aid approvals.

The number of people approved for legal aid incurs costs through the legal aid tariff, based on the seriousness of offences and the court procedures legal aid recipients go through. The volume of cases going through different court procedures are mostly affected by the system dynamics in the judicial module as discussed earlier. The tariff for

different procedures, while having positive impact on the cost of legal aid, is inversely affected by the gap between the cost of legal aid and the budget.

Figure 13 DYNAMO Flowchart of the Module of Legal Aid Administration



SUMMARY

The simulation of the system dynamics of legal aid aims to study the interconnectedness in the system. Through the discussion and illustration of the various modules it can be seen that the interactions between legal aid administration and the criminal justice system are dynamic rather than static. At many major decision points the person flow and information flow from the earlier decision points affect the decision alternatives, but feedback from later decision points affect earlier decision points as well. From the legal aid planner's point of view, the interconnectedness in the system is extremely important. Charges at any point would affect the performance of the whole system.

It should be noted as well that the DYNAMO flowcharts are simplified representations of the program per se, basically because it is not feasible to represent a multi-dimensional model with a two-dimensional format. The persons flow in the system is divided into seven offence types and separately traces young offenders and adult offenders. Additionally, some of these people are represented by legal aid lawyers and others are not. All of these people of different characteristics are treated differently at various decision points and go through different sets of court procedures.

CHAPTER VI: EMPIRICAL ANALYSIS OF THE LEGAL AID SYSTEM

The development of a simulation model requires an understanding the whole system both conceptually and empirically. The numerous equations used in the DYNAMO simulation model also requires various parameters which can only be obtained through an empirical analysis of the legal aid system. This chapter analyzes the behavior of the various major actors and their interrelationships in the legal aid system using the empirical data as described in the previous chapter. The analytical results will provide the parameters needed to develop the simulation model in DYNAMO. It will also achieve an understanding of the interconnectedness of the legal aid system.

At the highest level of the system, the need for legal aid is a function of various factors which can be presented in the following form (Table 13):

Table 13 The Equation of the Need for Legal Aid

| |
|--|
| $N = f(C, P, S, U, R, T, B)$ |
| where |
| N = Need for legal aid |
| C = Crime known to the police |
| P = Persons Charged |
| S = Prosecution behavior |
| U = Court behavior |
| R = Corrections behavior |
| T = Legal Aid Tariff |
| B = Budget of Legal Services Society of BC |

The equation representing the need for legal aid and the independent variables can be, in theory, indefinitely long. Operationally for the present research, the boundary of the system is determined at listed above. Each of the factors stated in the function above is a subsystem and a function of many factors at a higher level of resolution. This chapter will analyze these factors at a higher level of resolution in the same order as listed above.

CRIME KNOWN TO THE POLICE

The volume of crime feeds police activity. Police activity feeds court activity. Court activity should feed legal aid tariff activity. As a rough rule of thumb, the volume of crime and types of crime should have a direct relationship with the need for legal aid. This section attempts to analyze the factors that can be used to predict the volume of various types of crime reported to the police.

Crime known to the police is, hypothetically, a function of a number of variables as presented in the following form (Table 14):

Table 14 The Function of Crime Known to the Police

$$C = f(P, S, E, D, B, W, \dots)$$

where

C = Crime known to the police

P = Population change

S = Social environment

E = Economic environment

D = Demography

B = Beer consumption

W = Women participating in work outside home

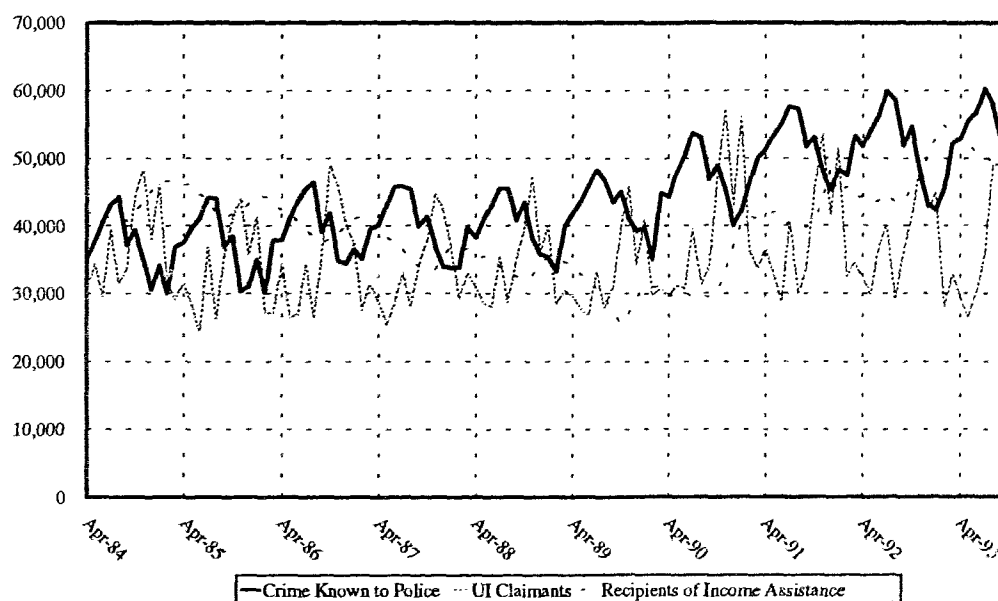
Various aggregated data elements for the province of British Columbia have been collected and analyzed to find the best predictors of crime. Socio-economic data include the monthly number of people receiving income assistance between 1985 and 1993; monthly number of claimants for unemployment insurance compensation between 1985 and 1993; monthly percentage of women participating in the work force obtained from the CANSIM University Base (1946-present); monthly volume of retail sales and monthly volume of liquor consumption. Demographic information includes the estimated total population for each quarter from 1983 to 1993 and the number of people between ages 15 to 24. Crime data include monthly volume of crime reported to the police in the whole province by detailed offence types and number of charges laid against adults and youths.

The relationship between the crime pattern and various socio-economic and demographic patterns is analyzed in order to develop the simulation model. The number of people receiving unemployment insurance is found to correlate negatively and weakly with crime known to the police, the correlation coefficient between the two being -0.17 ($P=0.857$). The number of people receiving income assistance is found to have little relationship with crime known to the police, the correlation coefficient being 0.2203 ($P=0.018$). The relationships between these variables are visually illustrated in Figure 14.

This finding gives support to pattern theory and routine activity theory in that in a welfare society people living on unemployment insurance do not need to commit crime out of absolute necessity to survive. People, when becoming unemployed, instead of

committing crime, tend to spend time at home more than when they are employed, because of the lack of money to go out as well as because there is no need to go out to work. The tendency to stay at home impacts on the reduction of crime in three ways. First, they stay at home to serve as guardians for their property and thus fewer property crimes are committed. Second, by staying at home, people are less likely to become victims of crimes against person, as most person crimes are committed out of people's homes. Third, by staying at home, potential offenders do not find opportunities to commit crime.

Figure 14 Crime, Unemployment and Welfare



A multiple regression analysis between four socio-demographic variables and the volume of crime was conducted using SPSS. (See Appendix A for SPSS output of multiple regression analysis.) Beer consumption, percentage of women participating the work force, retail volume and population were found to be highly correlated with grand

total of crime known to the police (R Square = 0.88); property offences¹⁷ (R Square = 0.76); offences against the person¹⁸ (R Square = 0.91); Auto theft (R Square = 0.90); Robbery (R Square = 0.80) and other criminal code offences¹⁹ (R Square = 0.89). Details of the results of these regression analyses can be seen in the SPSS output section in the appendix.

The high correlation between these socio-demographic variables and crime is in line with the pattern theory (Brantingham and Brantingham, 1993a). People who have consumed a certain amount of beer are normally prone to crime victimization. Meanwhile they are likely to commit crime (Chard, 1995:13-14). Women going to work are more likely to be victims of persons crime than those staying at home. Their homes are also likely to be victims of property crime because their homes have lost their guardians when the women go to work. The correlation between the size of population and crime does not require much explanation: more people basically means more potential offenders and more potential victims.

¹⁷ Property offences include break and enter, auto theft, theft from auto, theft, fraud etc.

¹⁸ Offences against the person include homicide, attempted murder, sexual assault, common assault, robbery and abduction.

¹⁹ Other Criminal Code offences include 14 UCR offence categories: arson, bail violations, counterfeit currency, disturb the peace, escape custody, indecent acts, kidnapping, public morals, obstruct police officer, prisoner at large, trespass at night, mischief/property damage over and under \$1000 and others which are not covered by specific UCR offence category, i.e. breach of probation, obscene/threatening phone calls, extortion, computer/data mischief, loitering at school yards, playgrounds or swimming pools, etc.

Figure 15 Crime and Beer Consumption

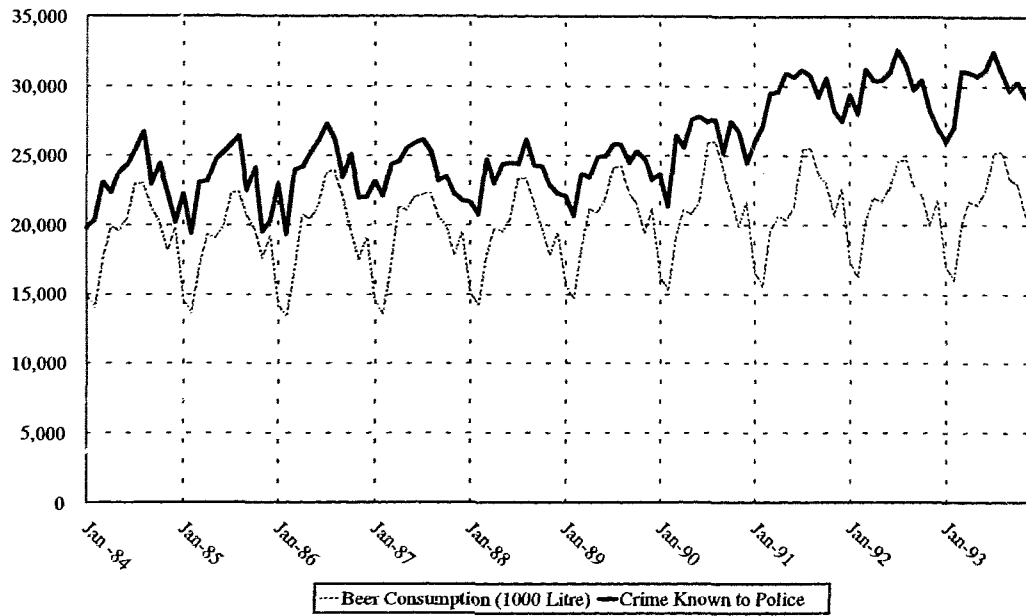
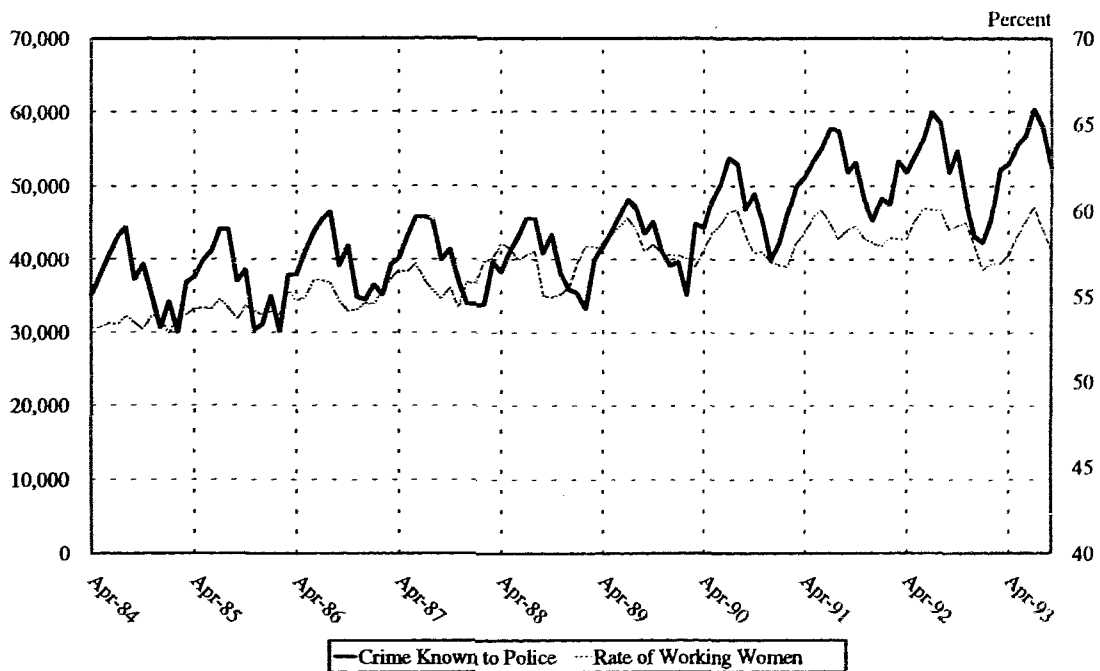


Figure 16 Crime Known to the Police and Rate of Working Women



As a result of the analysis, four variables are chosen to be used in the simulation model: volume of beer consumption, percentage of working women, retail volume and the total of population in BC.

The relationship between the number of youths and the volume of crime should be noted. A negative correlation is found between the two variables. Crime is known to be a youth problem, i.e., a disproportionately high volume of crime is committed by youths. Thus, it is difficult to explain this negative correlation between youths and crime.

POLICING: NUMBER OF PERSONS CHARGED

The number of persons charged is a major variable in the equation of the need for legal aid (Table 13). Everything else being equal, the need for legal aid should increase or decrease in the same rate as that of the number of persons charged. The number of persons charged is a function of a number of variables, too (Table 15).

Table 15 The Equation of the Number of Persons Charged

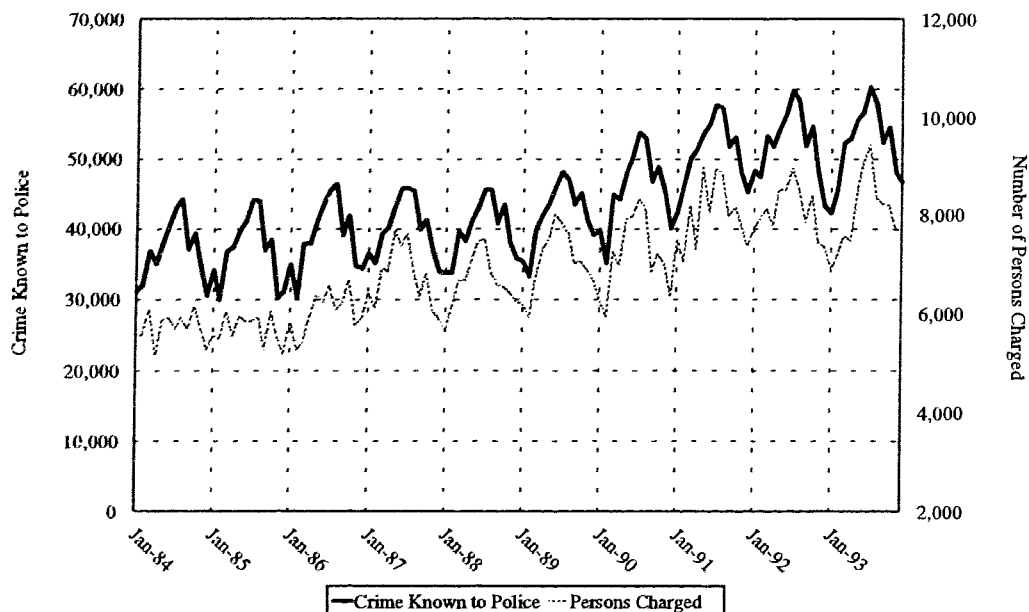
| |
|---|
| $P = f(C, R, O \dots)$ |
| where |
| P = Number of persons charged |
| C = Volume of crime |
| R = Resources available to the police |
| O = Other variables such as changes in law. |

First, the relationship between the number of persons charged and the volume of crime reported to the police is analyzed. The data used in this analysis are the monthly

volume of crime known to the police and the number of persons charged by the police by offence types. It is found that the number of persons charged for criminal offences varies positively with the amount of crime reported to the police. When more crime is reported to the police more criminal charges are laid.

It is clearly shown by Figure 17 that both the amount of crime reported to the police and the number of persons charged have peaks in summer time and the valleys in winter time for almost all the ten years, except for 1984 and 1985 where the number the persons charged did not show clear peaks in summer times. Annual changes in the amount of crime reported to the police and the number of persons charged with criminal offences have a similar positive correlation. In 1993, for example, 634,556 criminal incidents were reported to the police, an increase of 41 percent from the amount of crime reported in 1984. The number of persons charged in 1993 increased 40 percent from that in 1984.

Figure 17. Amount of Crime Reported and Number of Persons Charged



However, when charge rate is compared with the amount of crime reported to the police, it is found that charge rate correlates negatively with the amount of crime. This pattern is illustrated by Figure 18. Generally speaking when more crime is reported to the police in the summer time, the charge rate drops and when less crime is reported to the police in the winter time, the charge rate increases. This pattern is more clear in the first years included in the analysis and tends to diminish in more recent years.

Figure 18 Amount of Crime and Charge Rate

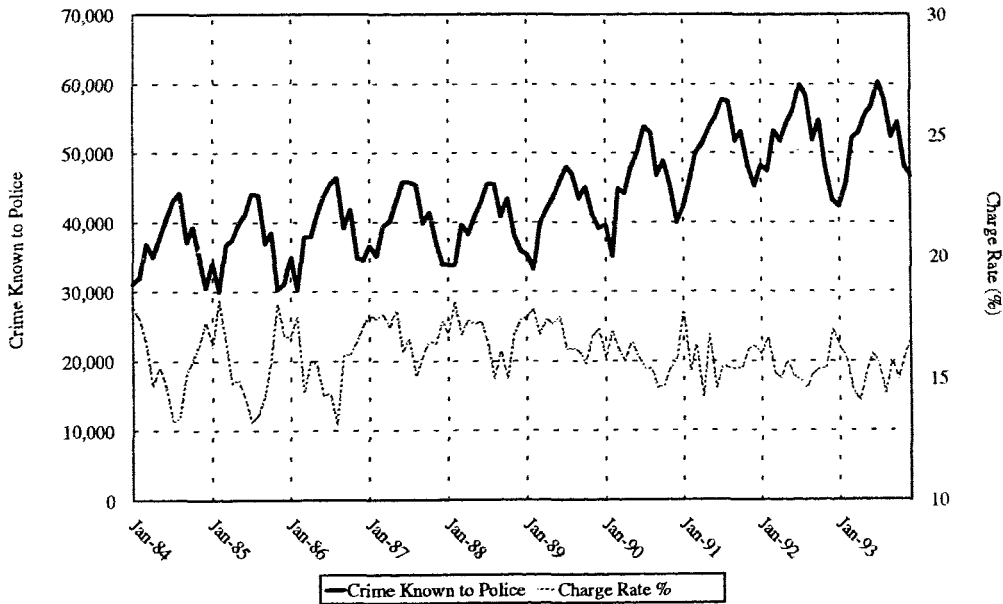


Figure 17 and Figure 18 also indicate the learning curve of the police forces in the province of British Columbia in dealing with the seasonal patterns of crime peaks. In the first few years as covered by the analysis, especially in 1984 and 1985, the number of persons charged remained at a lower level than later years. Even when a crime wave peaked in the summer time, police did not lay more charges, probably because of the lack of staff, which resulted in the low charge rate for the summers in the first three years. Later on, starting in 1986 till 1993, the valleys of charge rates for the summer times became shallower and shallower, indicating the police forces became more capable in dealing with the peaks of the crime wave in summer time; probably by allocating more staff for summer time.

The relationships between amount of crime, the number of persons charged and the staff level of the police forces will be better understood if detailed information of the police staff level for the four seasons for these years is analyzed with the amount of crime and the number of persons charged. Unfortunately, such information is not available. In the absence of the police staffing information, it can only be claimed that the patterns identified tend to support the hypothesis that the number of persons charged and charge rate is a function of the amount of crime and the staffing level of police. With relatively fixed staffing police can investigate and solve only certain number of cases. If the volume of crime goes above certain level but police staffing remains unchanged, they can still only solve a certain number of cases. Consequently the charge rate drops although the number of charges remains the same.

Charge Rate and Offence Types

Charge rates vary with different types of offences. Using twelve months' data in 1993, charge rates by different types of offences are calculated (Table 16). Generally speaking, more serious offences have a higher charge rate than less serious offences. Persons offences are generally regarded as more serious than property offences. The charge rate for persons offences is over 3 times as high as that for property offences. This pattern may also be related to the fact that victims in the persons offences can often assist the police in laying charges by identifying the offenders while a big proportion of the offenders cannot be identified in property offences. Within persons offences, attempted murder has the highest charge rate, 94.6% and abduction has the lowest charge rate,

22.2%. Among property offences, the offence of possessing stolen goods has the highest charge rate, 66.3% while theft over \$1,000 has the lowest charge rate, 5.4%.

Table 16 Charge Rate and Offence Types

| Types of Offence | Crime Known to Police | Number of Persons Charged | Charge Rate |
|--------------------------|------------------------------|----------------------------------|--------------------|
| Persons Offences | 54037 | 20808 | 39% |
| Homicide | 122 | 86 | 70% |
| Attempted Murder | 92 | 87 | 95% |
| Robbery | 5131 | 1527 | 30% |
| Sexual Assaults | 6514 | 2363 | 36% |
| Assaults - non sex | 42034 | 16713 | 40% |
| Abduction | 144 | 32 | 22% |
| Property Offences | 304728 | 35564 | 12% |
| Break and Enter | 70745 | 6522 | 9% |
| Possessing Stolen Goods | 5855 | 3884 | 66% |
| Theft < \$1,000 | 164,512 | 18471 | 11% |
| Theft > \$1,000 | 22253 | 1200 | 5% |
| Motor Vehicle Theft | 25323 | 2062 | 8% |
| Fraud | 16040 | 3425 | 21% |
| Other Offences | 265791 | 39791 | 15% |
| Federal Drugs | 14333 | 8208 | 57% |
| Gaming and Betting | 32 | 3 | 9% |
| Offensive Weapons | 3573 | 1275 | 36% |
| Prostitution | 542 | 465 | 86% |
| Other CC | 154572 | 12311 | 8% |
| Other Federal Statutes | 10860 | 1259 | 12% |
| Provincial Statutes | 54429 | 14574 | 27% |
| Municipal Bylaws | 27450 | 1696 | 6% |
| Grand Total | 624,556 | 96,163 | 15% |

As the cost of representing young offenders in court is different from representing adult offenders (much less costly), it is necessary to analyze the number of youths charged as well as the number of adults charged. Table 17 shows that more adults were charged with criminal offences than youths in almost all offences. Comparing the charging patterns

between persons offences and property offences it is clear that the more serious the offences are, the more adults are charged. The only offence category in which more youths are charged is motor vehicle theft where 55.3% of charges are against youths and 44.7% are against adults.

Another pattern is revealed when the proportion of youths charged for criminal offences with the proportion of youths in the whole population. According to 1991 census in British Columbia, youths between the ages of 10 and 19 account for about 13 percent of the whole population and account for 15 percent of all the people over 10 years of age. Table 17 shows that over 23 percent of all the persons are youths, much higher than the proportion of youths in the province.

Table 17 Charges against Youths and Adults

| Types of Offence | Crime Known to Police | Number of Persons Charged | | Proportion of All Persons Charged | |
|-------------------------|-----------------------------|------------------------------|---------------|--------------------------------------|--------------|
| | | Adults | Youths | Adults | Youths |
| Persons Offences | 54,037 | 17,964 | 2844 | 86.3% | 13.7% |
| Homicide | 122 | 80 | 6 | 93.0% | 7.0% |
| Attempted Murder | 92 | 78 | 9 | 89.7% | 10.3% |
| Robbery | 5,131 | 1,070 | 457 | 70.1% | 29.9% |
| Sexual Assaults | 6,514 | 2,083 | 280 | 88.2% | 11.8% |
| Assaults - non sex | 42,034 | 14,621 | 2,092 | 87.5% | 12.5% |
| Abduction | 144 | 32 | 0 | 100.0% | 0.0% |
| Property Offences | 304,728 | 24,276 | 11,288 | 68.3% | 31.7% |
| Break and Enter | 70,745 | 3,600 | 2,922 | 55.2% | 44.8% |
| Possessing Stolen Goods | 5,855 | 2,733 | 1,151 | 70.4% | 29.6% |
| Theft < \$1,000 | 164,512 | 12,957 | 5,514 | 70.1% | 29.9% |
| Theft > \$1,000 | 22,253 | 932 | 268 | 77.7% | 22.3% |
| Motor Vehicle Theft | 25,323 | 921 | 1,141 | 44.7% | 55.3% |
| Fraud | 16,040 | 3,133 | 292 | 91.5% | 8.5% |
| Other Offences | 265,791 | 31,651 | 8,140 | 79.5% | 20.5% |
| Federal Drugs | 14,333 | 7,606 | 602 | 92.7% | 7.3% |
| Gaming and Betting | 32 | 3 | 0 | 100.0% | 0.0% |
| Offensive Weapons | 3,573 | 984 | 291 | 77.2% | 22.8% |
| Prostitution | 542 | 448 | 17 | 96.3% | 3.7% |
| Other CC | 154,572 | 9,992 | 2,319 | 81.2% | 18.8% |
| Other Federal Statutes | 10,860 | 643 | 616 | 51.1% | 48.9% |
| Provincial Statutes | 54,429 | 10,463 | 4,111 | 71.8% | 28.2% |
| Municipal Bylaws | 27,450 | 1,512 | 184 | 89.2% | 10.8% |
| Grand Total | 624,556 | 73,891 | 22,272 | 76.8% | 23.2% |

PROSECUTION BY THE CROWN COUNSEL

The number of persons prosecuted by the Crown counsel is a major variable in the equation of the need for legal aid (Table 13). The number of persons prosecuted is a function of a number of variables, too (Table 18).

Table 18 The Equation of the Number of Persons Prosecuted

| |
|---|
| $S = f(P, C, R, O, \dots)$ |
| where |
| S = Number of persons prosecuted |
| P = Number of persons charged |
| C = Court caseload and case backlog |
| R = Resources available to the police |
| O = Other variables such as changes in law. |

The Crown counsel does not proceed with prosecution with every case forwarded from the police. The Crown has the discretion to choose from several options to dispose the case in addition to prosecution. He/she can hold the case or return the case to the police for more information, he/she can drop the charge, he/she can choose to send a caution letter to the accused or divert the accused out of the criminal justice system. Table 19 has a one-month sample to illustrate the disposition of the cases received from the police. On average the Crown counsel held or returned to the police for more information about 10% of all the “requests for criminal charges”. There is a regional variation in this practice, with Region 3 (Fraser Valley area) having the highest at 16.9% and Region 4 (the Northern part of BC) having the lowest at 3.9%.

Table 19 Return or Withhold for More Information by the Crown

| | Received from Police | Rtd/Held for More Info | % of R/H for More Info |
|--------------------|---------------------------------|-----------------------------------|-----------------------------------|
| Region 1(Van Isle) | 1,374 | 111 | 8.1% |
| Region 2(Vancvr) | 1,500 | 137 | 9.1% |
| Region 3(Fraser) | 1,910 | 323 | 16.9% |
| Region 4(Interior) | 1,274 | 50 | 3.9% |
| Region 5(Northrn) | 946 | 70 | 7.4% |
| BC Total | 7,004 | 691 | 9.9% |

Data source: Criminal Justice Branch Management Information Report, Ministry of Attorney General, British Columbia, February, 1994.

The Crown proceeded with prosecution for about 85% of those cases that are not returned or held for more information, diverted about 7%, sent caution letters to about 2% of the cases and dropped charges in about 6% of the cases. Again there is significant regional variation in the case disposition at this stage (Table 20).

Table 20 Disposition of the Accused by the Crown

| | Approved to Court | Diversion | Caution Letters | No Charge |
|--------------------------|------------------------------|------------------|----------------------------|------------------|
| Region 1(Van Isle) | 80% | 10% | 1% | 9% |
| Region 2(Vancvr) | 89% | 7% | 0% | 4% |
| Region 3(Fraser) | 80% | 14% | 0% | 6% |
| Region 4(Interior) | 87% | 6% | 3% | 5% |
| Region 5(Northrn) | 89% | 4% | 1% | 6% |
| BC Average/Office | 85% | 7% | 2% | 6% |

Data source: Criminal Justice Branch Management Information Report, Ministry of Attorney General, British Columbia, February, 1994.

The way in which the Crown counsel disposes cases is likely to be influenced by the court caseload and court case backlog and the staff level of the Crown counsel. Unfortunately, there are no time series data for the activities of the Crown counsel²⁰ for such an analysis.

LEGAL AID APPLICATIONS AND APPROVALS

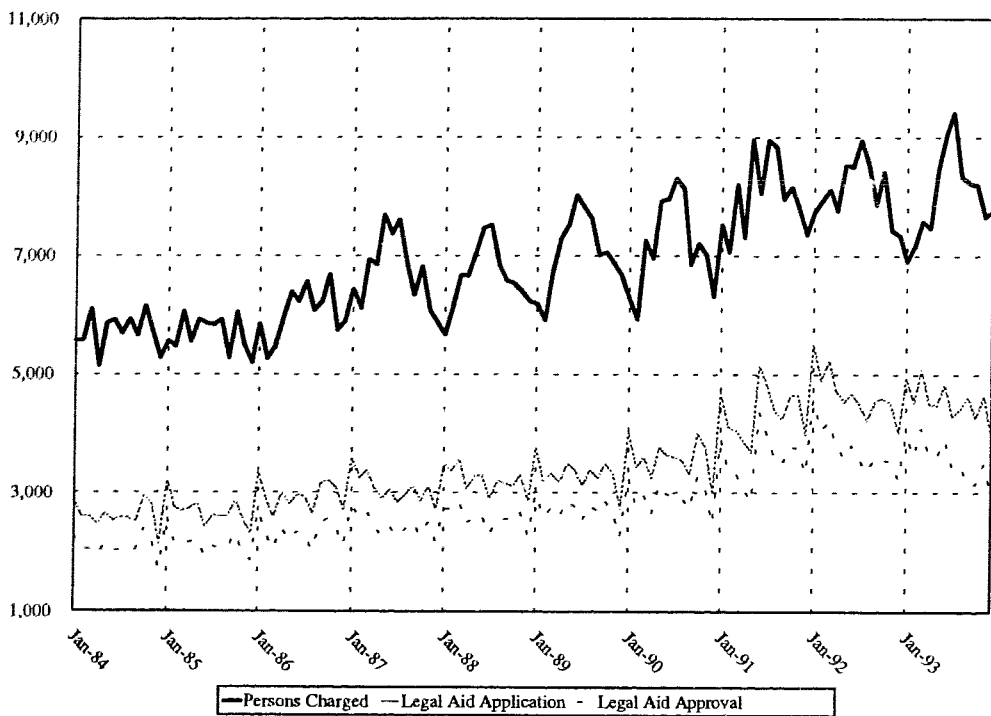
The demand for legal aid, as represented by the volume legal aid applications and the need for legal aid as represented by the volume of legal aid approvals should correlate highly with the number of persons charged with criminal offences. Easton et al. (1992) conducted an elasticity analysis of approved applications with respect to persons charged. They found that the elasticity in the percentage increase in approved applications with respect to the percentage increase in persons charged by the police over the fiscal years 1981-82 through 1990-91 in British Columbia to be statistically different from zero at the 5 percent confidence level and the value of elasticity to be 1.06, meaning that there is a proportional increase (1.06:1) in the number of approved criminal legal aid applications associated with increased level of charges.

The number of cases and percentage of cases that are represented by legal aid lawyers vary over the years. Before 1992, mostly due to the expansion of legal aid in the form of setting up more branch offices throughout the province, more and more people who were charged with criminal offences came to Legal Services Offices to apply for legal

²⁰ The Crown counsel in BC did not start to systematically computerize the data until January, 1994.

aid (Figure 19). This is reflected not only by the volume of legal aid applications but also by the proportion of legal aid applications in comparison to the number of persons charged. In 1984, for example, about 47 percent of the accused applied for legal aid. In 1992, the application rate rose to about 57 percent (Table 21).

Figure 19 Legal Aid Applications and Approvals



In comparison to the fluctuations of the application rate which range from 47 percent in 1984 to 58 percent in 1992, the approval rate to provide legal presentation has been more constant over the years. It should be noted that in September, 1993 Legal Services Society changed its eligibility policy by removing the flexible test and introducing a more stringent requirement of proof of income. The decrease in application rate and approval rate in 1993 is likely the result of this policy change. On the other hand, the

private bar lawyers retained for legal aid services withdrew services for several months in 1993. The decrease in application rate may also be due to the private bar lawyers' job action. (This was certainly the effect of various budget problems and staff strikes in the early 1980s.)

Table 21 Legal Aid Applications and Approvals

| Year | # of Persons Charged | Legal Aid Applications | Legal Aid Approvals | Application Rate | Approval Rate |
|------|----------------------|------------------------|---------------------|------------------|---------------|
| 1985 | 68,192 | 32,133 | 25,482 | 47% | 79% |
| 1986 | 72,330 | 35,300 | 27,804 | 49% | 79% |
| 1987 | 80,936 | 36,786 | 29,224 | 45% | 79% |
| 1988 | 79,697 | 38,569 | 30,824 | 48% | 80% |
| 1989 | 84,640 | 39,589 | 32,292 | 47% | 82% |
| 1990 | 86,063 | 42,901 | 35,130 | 50% | 82% |
| 1991 | 96,113 | 52,234 | 42,880 | 54% | 82% |
| 1992 | 97,056 | 55,886 | 44,872 | 58% | 80% |
| 1993 | 96,163 | 54,455 | 42,492 | 57% | 78% |

Legal Aid Application and Types of Charges

In order to simulate the cost of legal aid, it is important to identify legal aid coverage over different types of offences for two reasons. First, the cost of legal aid per case is different over different types of offences, because some types of cases tend to be more difficult, take more time for preparation and more time in court. The tariff rate is designed to reflect these differences. Second, legal aid coverages are likely to vary over different types of criminal charges. Legal aid coverage policy, for example, determines that legal aid will be provided to those who are charged with criminal offences, the conviction for which will result in the loss of freedom or the livelihood of the accused. Legal aid eligibility policy also determines that those people who are facing serious criminal charges,

such as murder, will be provided with legal aid even if their income is marginally higher than the poverty guideline. These policies basically determine that more people charged with more serious offences are covered by legal aid than those charged with less serious offences. The profile of the offenders, i.e., the poor ones, who are eligible for legal aid, are more likely to face certain types of charges than the richer ones, is also a variant that should be considered.

Although it is important to identify the variation of legal aid coverage over offence types, it is difficult to conduct this analysis. The management information system of the LSS has offence type information for approved legal aid cases. This information has to be compared with information from the other subsystems in the criminal justice system such as the charge volume from the police or the case information from the court. Using information from different subsystems becomes very complicated due to the way in which cases are defined by different parts in the system. Police count cases by the number of persons charged. The court system counts cases by the number of charges and a substantial proportion of the accused have multiple charges against them. Legal Services Society basically defines an application as a case. In addition to the basic rule, LSS has a six-month rule: when a person is charged again within six months after that person made an application, the new charge(s) will be referred to the same lawyer who handled the person's earlier charges, and the applicant with the additional new charge will not be counted as a new case, which is, however, counted as a new case by the police.

Additionally, different parts in the criminal justice system also group cases in different categories, although it is the same criminal code that is being used in various parts of the system. Because of this inconsistency, it is difficult to compare legal aid coverage by offence types by simply comparing raw data from the different parts of the system.

The amount of legal aid provided varies across different types of charges. This analysis is conducted by linking two databases: the database maintained by Legal Services Society and the database maintained by the Court Services of BC. The case identifiers the two databases have in common are the information numbers issued by the police laying the charges and the names of the accused. Each information number is unique only in the police jurisdiction and thus may have duplicates in the province. As well, the names of the accused are not unique either. However, the chances of two cases having the same information number and the same name are very slim. After linking the two data bases by using both of the two identifiers, 100 cases were randomly selected to check the accuracy of the linking. The charges and court locations from the two databases of the cases in the sample were compared. They all have the same court locations and share similar charges. The only difference in charges are the charges that are not recorded in the LSS database, which, as a rule, does not record more than six charges whereas the court database has all the charges. From the result of this comparison it can be concluded that those cases that have been matched by the same information numbers and name are truly represented by legal aid lawyers. Those that are not matched either by name or by information numbers are definitely not legal aid cases. Meanwhile there are about 15% of cases that match

either by information numbers or by names, which may be or may not be legal aid cases. This gray area is not likely to seriously affect the study as the major purpose of this exercise is to compare legal aid coverage over different types of offences by looking at percentages rather than the actual counts of cases.

After the database is developed all the cases are tabulated by offence type and legal aid coverage versus non-legal aid coverage. Table 22 has the results of this tabulation. The table shows that generally speaking, legal aid does cover more of the serious cases and fewer of the less serious cases. For robbery, for example, legal aid covers about 85% of the cases in the court. In comparison, legal aid covered only 32.6% of impaired driving cases.

Table 22 Legal Aid Coverage by Offence Types

| Offence Type | Represented by Legal Aid Lawyers | | Not Represented by Legal Aid Lawyers | |
|-------------------------|----------------------------------|--------------|--------------------------------------|--------------|
| | # of Cases | Percent | # of Cases | Percent |
| Robbery | 398 | 84.9% | 71 | 15.1% |
| Break and Enter | 956 | 84.8% | 172 | 15.2% |
| Possessing Stolen Goods | 716 | 75.1% | 238 | 24.9% |
| Abduction | 21 | 72.4% | 8 | 27.6% |
| Homicide | 68 | 71.6% | 27 | 28.4% |
| Other Criminal Code | 6,505 | 69.5% | 2856 | 30.5% |
| Fraud | 151 | 68.6% | 69 | 31.4% |
| Theft | 2,850 | 62.0% | 1746 | 38.0% |
| Federal Drug | 1,890 | 60.5% | 1235 | 39.5% |
| Sexual Assault | 191 | 57.5% | 141 | 42.5% |
| Common Assault | 2,487 | 56.8% | 1,888 | 43.2% |
| Prostitution | 400 | 54.0% | 341 | 46.0% |
| Impaired Driving | 1,105 | 32.6% | 2,280 | 67.4% |
| Grand Total | 17,738 | 61.6% | 11,072 | 38.4% |

Time Elapsed between Charges and Application for Legal Aid

There are time delays at various stages between the time when a crime is committed and the time the accused applies for legal aid, which is when the workload starts at LSS, and the time when the case is processed in the court system, which is when the major cost occurs to LSS. First of all, there is a time delay between the occurrence of a crime and when the crime is reported to the police. This varies a lot over offence types. After a crime is reported, it takes some time for the police to do investigation before a charge is laid. When a charge is laid, the accused may have first physical appearance in court the next day if the accused is in custody. Or it may take several weeks for the accused to appear in court. When a charge is laid by the police, the accused can apply for legal aid. However, by linking the Legal Services Society's database with the court services' database, it is found out that over 70% of legal aid applications are made after the accused have appeared in court.

Table 23 Time Between Alleged Offence and Application for Legal Aid

| TIME INTERVAL | NUMBER OF CASES | PERCENT | CUMULATIVE PERCENT |
|----------------------|------------------------|----------------|---------------------------|
| Within 10 Days | 7,426 | 28.0% | 28.0% |
| 10 to 30 Days | 3,237 | 12.2% | 40.1% |
| 1 to 2 Months | 4,408 | 16.6% | 56.7% |
| 2 to 3 Months | 2,743 | 10.3% | 67.1% |
| 3 to 4 Months | 1,699 | 6.4% | 73.5% |
| 4 to 5 Months | 1,214 | 4.6% | 78.0% |
| 5 to 6 Months | 931 | 3.5% | 81.5% |
| 6 to 7 Months | 746 | 2.8% | 84.4% |
| 7 to 8 Months | 610 | 2.3% | 86.7% |
| 8 to 9 Months | 492 | 1.9% | 88.5% |
| 9 to 10 Months | 432 | 1.6% | 90.1% |
| 10 to 11 Months | 312 | 1.2% | 91.3% |
| 11 to 12 Months | 257 | 1.0% | 92.3% |
| 1 to 2 years | 1,336 | 5.0% | 97.3% |
| Over two years | 716 | 2.7% | 100.0% |
| TOTAL | 26,559 | 100.0% | |

Data source: The management information system of the LSS

Table 23 illustrates the distribution of time intervals between the time of alleged offence and the date of application for legal aid. It is noticeable that although police lay most of the charges within a few days after the offence is committed, which is indicated in Figure 17, where the peaks and valleys of charges follow that of crime waves closely, only a relatively small number of legal aid applications (28%) were made within 10 days after the offence was allegedly committed. Almost 60 percent of the applications were made within two months of the committal of the alleged offence. This means that when there is a crime wave, the workload of processing legal aid applications, which is the workload of LSS field offices, will increase slightly within a few days and more impact will come after two months. Further analysis and an interview with a police officer in the Vancouver

Police Department (VPD) revealed two reasons for this delay. The analysis found that most of legal aid applicants come to LSS to apply for legal aid after they have made their first appearance in court instead of immediately after they have been charged with criminal offences even though they are advised by the police officer laying the charges that they can apply for legal aid if they cannot afford a lawyer. The interview with the police officer revealed that although police lay most of the charges within a few days after the crime is reported, police officers in Vancouver usually notify the accused to appear in court after five weeks. Different police jurisdictions have different practices in this regard.

Table 24 Time Interval (in Days) Between Alleged Offence and Application for Legal Aid by Charge Type

| Charge | Mean | Median | # of Cases |
|--|--------|--------|------------|
| ABDUCTION | 190.28 | 12 | 196 |
| MURDER | 344.99 | 16.5 | 282 |
| OFFENSIVE WEAPONS | 74.41 | 18 | 1,583 |
| POSSESS STOLEN PROP. OVER (\$1000) | 83.18 | 32 | 2,499 |
| ASSAULT CAUSING BODILY HARM | 102.11 | 35 | 1,726 |
| COMMON ASSAULT | 70.85 | 36 | 4,380 |
| BREAK & ENTER | 97.12 | 42 | 4,338 |
| IMPAIRED DRIVING | 95.15 | 48.5 | 3,819 |
| SEXUAL ASSAULT, SUMMARY | 374.23 | 50 | 193 |
| THEFT UNDER (\$1000) | 93.15 | 50 | 9,031 |
| SEX, OTHER SUMMARY INDECENT ACTS, ETC. | 232.7 | 54 | 355 |
| THEFT OVER (\$1000) | 136.51 | 59 | 1,618 |
| FRAUD, UNDER (\$1000) | 190.63 | 107 | 1,017 |
| SEXUAL ASSAULT, OTHER INDICTABLE | 771.57 | 133 | 1,271 |
| FRAUD, OVER (\$1000) | 351.59 | 182.5 | 619 |

The time interval between crime occurrence and the application for legal aid varies over different types of offences (see Table 18). Common assault, for example, is likely to be reported to the police immediately after it occurs. Sexual assault, on the other hand,

may not be reported until after a few decades. The big difference between the mean value and the median for sexual assault suggests that although over 50 percent of sexual assault cases are reported fairly quickly, there were a small number of cases that must be reported very late or the investigation time was extremely long.

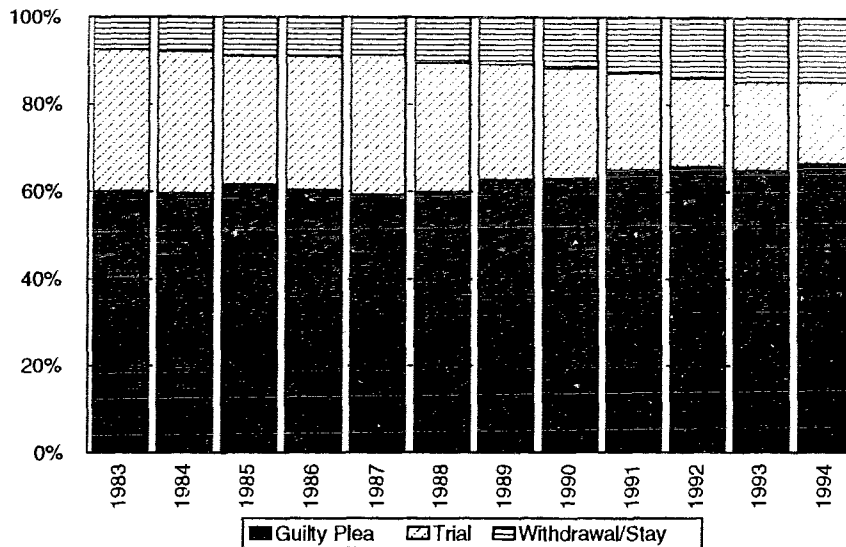
LEGAL PROCEDURES IN THE COURT

The cases go through different legal procedures in the court. Some cases plead guilty, some go to trial, some are stayed and some have charges withdrawn. The different procedures they go through have different impacts on the criminal justice system and different impacts on the cost of legal aid because the tariff of the LSS is structured to pay differently for different legal procedures in the court. It is therefore important to identify the patterns of the legal procedures that cases go through in the court system.

Data from the management information system of the LSS are retrieved for this analysis. It is discovered that of all the cases handled by legal aid lawyers in the past twelve years, 62.8% pleaded guilty, 25.7% went to trial and 11.5% were either stayed or charges were withdrawn²¹ (Table 25).

²¹ The LSS puts charge withdrawal and stay in one category.

Figure 20 Guilty Plea, Trial and Withdrawal/Stay



The overall time series patterns are illustrated in Figure 20 and Table 25. They suggest that more and more cases were completed by guilty pleas and withdrawals/stays and fewer and fewer cases were completed by trials. There were some exceptions from this general pattern in 1986 and 1987 when the percentage of trials went up a little with the percentage of guilty pleas and charge withdrawal/stays decreased.

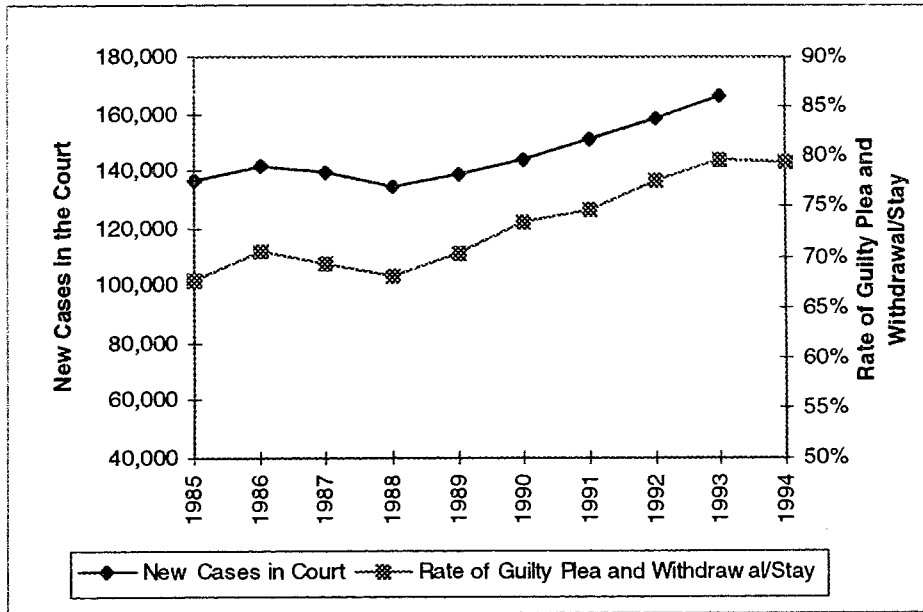
In order to find out the driving force behind the pattern of court procedures that the criminal cases went through, the caseload in the provincial court was retrieved from the Ministry of Attorney General Key Indicator Reports from 1985 to 1993²². The numbers of guilty pleas and withdrawal/stays are put together to be compared with the caseload in the provincial court. The reason for putting guilty pleas and charge withdrawal/stays together is that all of the three procedures tend to fall within the

²² It would be better to have caseload data from 1983 to 1984. However, the caseload data were not available before 1985 or past 1993.

discretion of the Crown counsel, who arguably exercise this discretion according to the caseload conditions in the court (Brantingham, 1977). In addition, the guilty pleas and charge withdrawals/stays are lagged by one year when compared with the caseload in the court. The one year lag is based on several assumptions. First, increases or decreases of the new cases registered in the court system do not show up immediately. It takes quite a few months of increasing or decreasing case volumes before the Crown begins to feel caseload changes. When the Crown feels the changes in caseload and starts to react accordingly, it will take many months for the cumulative effect of the reaction to be seen.

The comparison between the caseload of the court and the rate of guilty plea and charge withdrawal/stays is illustrated in Figure 21. It tends to support the argument (Brantingham, 1977) the Crown has a greater propensity to initiate plea bargains and withdraw or stay charges when the caseload in the court system increases.

Figure 21 Rate of Guilty Plea and Withdrawal/stay Vs. Court Caseload



The guilty plea pattern might be affected by the LSS' tariff structure as well. Effective on December 1, 1992, the LSS adopted a new tariff for criminal law. One of the changes from the earlier tariff was a reduction of the fees for guilty pleas by 25%. The reduction of the guilty plea tariff might discourage the legal aid lawyers from advising their clients to plead guilty and account for the one percent decrease in guilty plea rates from 65.8% in 1992 to 64.8% in 1993 (Table 25).

Table 25 Patterns of Court Procedures

| Date | Number of Cases | | | | Percentage | | |
|--------------|-----------------|---------------|--------------------|----------------|--------------|--------------|--------------------|
| | Guilty Plea | Trial | Withdrawal or Stay | Subtotal | Guilty Plea | Trial | Withdrawal or Stay |
| 1983 | 3,794 | 2,045 | 472 | 6,311 | 60.1% | 32.4% | 7.5% |
| 1984 | 11,378 | 6,197 | 1,514 | 19,089 | 59.6% | 32.5% | 7.9% |
| 1985 | 11,530 | 5,513 | 1,657 | 18,700 | 61.7% | 29.5% | 8.9% |
| 1986 | 12,123 | 6,176 | 1,787 | 20,086 | 60.4% | 30.7% | 8.9% |
| 1987 | 12,105 | 6,526 | 1,765 | 20,396 | 59.3% | 32.0% | 8.7% |
| 1988 | 13,705 | 6,793 | 2,377 | 22,875 | 59.9% | 29.7% | 10.4% |
| 1989 | 14,613 | 6,201 | 2,518 | 23,332 | 62.6% | 26.6% | 10.8% |
| 1990 | 14,927 | 6,002 | 2,775 | 23,704 | 63.0% | 25.3% | 11.7% |
| 1991 | 18,309 | 6,310 | 3,570 | 28,189 | 65.0% | 22.4% | 12.7% |
| 1992 | 19,667 | 6,068 | 4,172 | 29,907 | 65.8% | 20.3% | 14.0% |
| 1993 | 20,566 | 6,503 | 4,661 | 31,730 | 64.8% | 20.5% | 14.7% |
| 1994* | 14,423 | 4,061 | 3,211 | 21,695 | 66.5% | 18.7% | 14.8% |
| Total | 167,140 | 68,395 | 30,480 | 266,015 | 62.8% | 25.7% | 11.5% |

* Cases for 1994 are not complete at the time of data analysis.

* In cases that have multiple charges that go through different procedures, the procedure for the most serious charge is counted.

Different types of cases have different patterns for the different court procedures they go through (Table 26). Homicide has a very low guilty plea rate while Break and Enter has a much higher guilty plea rate. Assault and Abduction have the highest rates of charge withdrawal and stay while Break and Enter has about the lowest withdrawal/stay rate.

Table 26 Court Procedure by Offence Type

| Types of Offence | Guilty Plea | | Trial | | Withdraw/Stay | | Failure to Appear | | Total |
|---------------------|-------------|-------|------------|-------|---------------|-------|-------------------|-------|--------|
| | # of Cases | % | # of Cases | % | # of Cases | % | # of Cases | % | |
| Abduction | 51 | 48.6% | 30 | 28.6% | 23 | 21.9% | 1 | 1.0% | 105 |
| Assaults - non sex | 6,313 | 49.2% | 3,214 | 25.0% | 2,892 | 22.5% | 420 | 3.3% | 12,839 |
| Homicide | 104 | 33.5% | 167 | 53.9% | 37 | 11.9% | 2 | 0.6% | 310 |
| Robbery | 1,187 | 63.4% | 442 | 23.6% | 188 | 10.0% | 54 | 2.9% | 1,871 |
| Sexual Assaults | 890 | 42.6% | 887 | 42.5% | 270 | 12.9% | 41 | 2.0% | 2,088 |
| Break and Enter | 4,788 | 73.7% | 905 | 13.9% | 611 | 9.4% | 190 | 2.9% | 6,494 |
| Fraud | 1,510 | 68.7% | 315 | 14.3% | 240 | 10.9% | 133 | 6.1% | 2,198 |
| Motor Vehicle Theft | 131 | 66.2% | 25 | 12.6% | 33 | 16.7% | 9 | 4.5% | 198 |
| Pos. Stolen Goods | 2,449 | 64.4% | 620 | 16.3% | 572 | 15.0% | 162 | 4.3% | 3,803 |
| Theft < \$1,000 | 6,712 | 67.4% | 1,385 | 13.9% | 1,234 | 12.4% | 624 | 6.3% | 9,955 |
| Theft > \$1,000 | 1,520 | 70.0% | 310 | 14.3% | 262 | 12.1% | 80 | 3.7% | 2,172 |
| Federal Drugs | 4,187 | 61.8% | 1,262 | 18.6% | 927 | 13.7% | 398 | 5.9% | 6,774 |
| Gaming and Betting | - | 0.0% | 1 | 50.0% | 1 | 50.0% | - | 0.0% | 2 |
| Municipal Bylaws | 8 | 66.7% | 2 | 16.7% | 1 | 8.3% | 1 | 8.3% | 12 |
| Offensive Weapons | 766 | 56.0% | 343 | 25.1% | 216 | 15.8% | 43 | 3.1% | 1,368 |
| Other CC | 7,905 | 63.9% | 2,155 | 17.4% | 1,840 | 14.9% | 474 | 3.8% | 12,374 |
| Other Federal St. | 176 | 54.0% | 97 | 29.8% | 47 | 14.4% | 6 | 1.8% | 326 |
| Prostitution | 409 | 49.6% | 233 | 28.2% | 76 | 9.2% | 107 | 13.0% | 825 |
| Provincial Statutes | 1,795 | 60.4% | 687 | 23.1% | 385 | 12.9% | 106 | 3.6% | 2,973 |

LEGAL AID TARIFF AND THE COST OF LEGAL AID

Within a period of ten years, the cost of hiring the private bar to provide legal aid for criminal cases increased almost six times, from \$6.1 million in 1984 to \$36.1 million in 1993. This big increase in cost makes it very necessary to explore the reasons behind it.

Part of the reason for this increase came from the number of people served. In 1984, 22,067 new cases were served with full legal representation by the private bar and in 1993, 38,075 persons were served, an increase of slightly over 1.7 times. The major cause

of the increase in legal aid expenditure is the cost per case. This makes it necessary to analyze the cost per case over the years.

There are different ways to calculate the average cost per legal aid case over time. Different ways calculating the cost per case yield different results. One way to analyze it is to look at the cost per case according to the date on which cases are completed. The other way to analyze the cost per case is using the case starting date. The results of the former method are useful for budgeting in that the major part of the cost occurs when the case is completed and the cost per case and the number of cases completed in a fiscal year directly affects the budget for that fiscal year. The results of the latter, on the other hand, conform with the way that the tariff is paid in that every time there is some tariff change, the change always becomes effective at the starting date of the next case, which is when the case is approved for legal representation and referred to a lawyer. Thus, the cost per case according to the case starting date is useful when one wants to examine the effect of tariff changes.

Table 27 shows the cost per case by using the date of case completion. It is apparent that the cost per case has increased very steeply over time while the number of cases completed has increased less steeply. In 1983, each criminal case cost \$278 on average. In 1993, the estimated average cost per case was \$949.

Table 27 Cost Per Case by Measuring Cases Completed Each Year

| Date of Case Completion | Cost Per Case | Total Tariff Cost | Number of Cases |
|--------------------------------|----------------------|--------------------------|------------------------|
| 1983 | \$218 | \$1,800,402 | 8,258 |
| 1984 | \$278 | \$6,139,120 | 22,067 |
| 1985 | \$289 | \$6,276,938 | 21,756 |
| 1986 | \$307 | \$7,271,123 | 23,699 |
| 1987 | \$311 | \$7,633,678 | 24,546 |
| 1988 | \$366 | \$10,175,197 | 27,811 |
| 1989 | \$416 | \$12,112,057 | 29,138 |
| 1990 | \$454 | \$13,195,516 | 29,077 |
| 1991 | \$634 | \$22,278,755 | 35,158 |
| 1992 | \$936 | \$34,820,190 | 37,191 |
| 1993 | \$949 | \$36,141,306 | 38,075 |

Tariff Changes Over the Years

The Legal Services Society of BC has changed the tariff for criminal law cases many times during the last twenty years. While the Society is under constant pressure from the private bar to increase its tariff, which can be seen in column one in Table 21, it also attempts to improve service and control its expenditure by modifying the tariff structure. As can be seen in Table 21, however, there is always a substantial difference between what is planned and what actually happens. Effective on October 1, 1988, for example, LSS modified its tariff structure by increasing payment over certain procedures and moved some charges from the minor offence category into the major offence category. It was anticipated that the restructured tariff would increase the average cost per case by 10%. The actual cost per case, however, increased 21.9% from \$379 per case in the last tariff period to \$435 in the following. It would be interesting to find out the costing conducted before that change was made.

Table 28 Cost Per Case and Tariff Changes for Different Tariff Periods

| Date of Tariff Change | Anticipated Tariff Change | Actual Change | Cost Per Case | Number of Cases Assigned | Total Cost |
|------------------------------|----------------------------------|----------------------|----------------------|---------------------------------|-------------------|
| Jan. 1, 1979 (1) | 8.0% | | | | |
| Jun. 1, 1980 | 8.0% | | | | |
| Sept. 1, 1981 | 38.0% | | | | |
| Oct. 1, 1982 | -12.5% | | \$275 | 64,713 | \$17,767,742 |
| Jan. 1, 1986 (2) | 14.3% | 9.34% | \$300 | 41,910 | \$12,581,326 |
| Aug. 1, 1987 | 25.0% | 21.76% | \$366 | 32,820 | \$11,996,740 |
| Oct. 1, 1988 | 10.0% | 22.63% | \$448 | 29,787 | \$13,351,614 |
| Oct. 1, 1989 | 5.0% | 6.83% | \$479 | 39,281 | \$18,809,737 |
| Jan. 1, 1991 | 6.0% | 0.72% | \$482 | 13,085 | \$6,310,833 |
| Jun. 1, 1991 | 100.0% | 125.50% | \$1,088 | 26,152 | \$28,441,679 |
| Jan. 1, 1992 (3) | 0.0% | -8.00% | \$1,001 | 38,311 | \$38,333,503 |
| Dec. 1, 1992 | -15.0% | -31.14% | \$689 | 31,634 | \$21,794,885 |
| Oct. 1, 1993 (4) | -5.3% | -30.78% | \$477 | 16,634 | \$7,933,289 |

Notes:

- (1) This was the first tariff change since 1973 when tariff was first introduced.
- (2) This removed the 12.5% restraint reduction implemented on October 1, 1982.
- (3) Tariff was restructured to group charges into four categories from earlier two categories of minor and major charges. Costing was expected to be neutral.
- (4) The decrease was implemented by reducing all fees by 4.3% on criminal cases and a further reduction of 1% of drinking and driving offences.

Another significant discrepancy between anticipated costing through tariff change and actual change in cost is that over January 1, 1991 when the tariff was increased by 6% and the actual cost per case decreased by 1.5% from the last tariff period. An analysis of the cases paid for the periods before and after the tariff change reveals that it was the bigger number of guilty pleas that resulted in the actual decrease in the overall cost per

case since the cost of cases through trials is a lot higher than cases that ended in guilty pleas.

Guilty Plea Vs. Trial

Criminal law legal aid tariff pays block fees for different court procedures in addition to general preparation time and actual time spent in the court. A major procedure dependent tariff differentiation is that between guilty pleas, trials, stay/withdrawal and sentencing. For a robbery case, for example, the 1993 tariff²³ pays \$400/\$600 for guilty plea, \$720 for each half day trial/preliminary hearings, \$400/\$600 for first half day sentencing hearing, etc. The fees for the different procedures have been adjusted many times to make the pay more reasonable and proportional to the time actually spent. Table 29 has the actual payments for guilty plea cases and trial cases since October 1, 1982. Generally speaking, the average cost for a case that goes through trial is almost three times (2.7) as much as that of a case that ends with a guilty plea (\$1,118 Vs. \$409 per case).

²³ Referring to the tariff that became effective on December 1, 1992 and was used till October 1, 1993.

Table 29 Cost of Trial and Guilty Plea over Different Tariff Structures

| Effective Tariff Date | Trial | | Guilty Plea | | Other* | | Total | |
|--------------------------|------------------|---------------|------------------|----------------|------------------|---------------|------------------|----------------|
| | Cost Per Case | # of Cases | Cost Per Case | # of Cases | Cost Per Case | # of Cases | Cost Per Case | # of Cases |
| Oct. 1, 1982 | \$548 | 16,411 | \$187 | 30,858 | \$170 | 17,444 | \$274 | 64,713 |
| Jan. 1, 1986 | \$585 | 10,726 | \$211 | 20,038 | \$190 | 11,146 | \$301 | 41,910 |
| Aug. 1, 1987 | \$698 | 7,772 | \$284 | 15,818 | \$226 | 9,230 | \$366 | 32,820 |
| Oct. 1, 1988 | \$901 | 6,556 | \$339 | 14,723 | \$289 | 8,508 | \$448 | 29,787 |
| Oct. 1, 1989 | \$1,053 | 7,604 | \$363 | 19,836 | \$290 | 11,841 | \$475 | 39,281 |
| Jan. 1, 1991 | \$1,102 | 2,039 | \$408 | 6,898 | \$272 | 4,148 | \$473 | 13,085 |
| Jun. 1, 1991 | \$2,419 | 4,793 | \$886 | 13,377 | \$630 | 7,982 | \$1,089 | 26,152 |
| Jan. 1, 1992 | \$2,768 | 6,277 | \$734 | 19,985 | \$549 | 12,049 | \$1,009 | 38,311 |
| Dec. 1, 1992 | \$1,819 | 4,614 | \$521 | 16,570 | \$465 | 10,450 | \$692 | 31,634 |
| Oct. 1, 1993 | \$1,474 | 1,495 | \$408 | 9,252 | \$334 | 5,887 | \$478 | 16,634 |
| Total | \$1,118 | 68,287 | \$409 | 167,355 | \$331 | 98,685 | \$531 | 334,327 |

*Other column includes stay, withdrawal, change of lawyer, failure to appear.

Offence Category for Tariff

The Legal Services Society of BC pays the private bar for the services they provide according to the seriousness of the charges and the procedures the cases follow through the court. For the purpose of paying according to the seriousness of charges, all charges are categorized into a few groups. Before 1992, all charges were put in two categories, a minor offence category and a major offence category. Since January 1, 1992, charges have been put into four categories. Less serious charges such as Municipal bylaw offences, are grouped into Category I and the most serious offences, such as murder charges are grouped into Category IV. Table 30 shows how much legal aid cases cost in each category from 1982 to 1991. In order to improve service quality with more a reasonable tariff structure, LSS regroup charge categories fairly frequently. In 1989, for

example, a number of charges were moved from the Minor Charge Category to the Major Charge Category. While it was anticipated that the restructured tariff would cost 10% more than before, the actual cost went up by 22.6%. The recategorization accounts for the major part of this discrepancy between what was planned and what actually happened.

Table 30 Cost of Legal Aid Cases by Tariff Categories (1982-1991)

| Effective Tariff Date | Minor Charge Category | | Major Charge Category | |
|--------------------------|-----------------------|------------|-----------------------|------------|
| | Cost Per Case | # of Cases | Cost Per Case | # of Cases |
| Oct. 1, 1982 | \$228 | 62,451 | \$1,708 | 2,017 |
| Jan. 1, 1986 | \$265 | 40,783 | \$1,974 | 924 |
| Aug. 1, 1987 | \$333 | 32,018 | \$2,135 | 623 |
| Oct. 1, 1988 | \$360 | 27,990 | \$1,884 | 1,733 |
| Oct. 1, 1989 | \$381 | 36,996 | \$1,999 | 2,276 |
| Jan. 1, 1991 | \$386 | 12,247 | \$1,745 | 836 |
| Jun. 1, 1991 | \$858 | 24,514 | \$4,551 | 1,632 |

Table 31 shows how much each category actually cost for each of the four Tariff Categories from January 1, 1992 to June 30, 1994²⁴. It shows that Category III had the biggest number of cases and incurred most cost. More noticeable is the cost per case in Category IV, which was over four times as costly as Category III cases. Consequently, the total cost of category IV cases was fairly close to that of Category III although the case volumes of the two categories were far apart.

²⁴ Data used in Table 19 may not be complete for all the three tariff periods because some cases take more time and have not entered the Management Information System of LSS.

Table 31 Cost of Legal Aid Cases According to Categories (1992-1993)

| Effective Tariff Date | Category I | | Category II | | Category III | | Category IV | |
|--------------------------|------------------|---------------|------------------|---------------|------------------|---------------|------------------|---------------|
| | Cost Per Case | # of Cases | Cost Per Case | # of Cases | Cost Per Case | # of Cases | Cost Per Case | # of Cases |
| Jan. 1, 1992 | \$513 | 2176 | \$553 | 15652 | \$1,007 | 17114 | \$4,551 | 2534 |
| Dec. 1, 1992 | \$641 | 2080 | \$429 | 12344 | \$686 | 13720 | \$2,516 | 2311 |
| Oct. 1, 1993 | \$723 | 1261 | \$334 | 7452 | \$522 | 5798 | \$1,270 | 1179 |

YOA Cases Vs. Adult Cases

Although the criminal law legal aid tariff does not have a separate schedule for youths charged under the *Young Offenders Act* (YOA), YOA legal aid cases normally go through simpler court procedures, take less court time and cost less for legal counsel. Because of the provision of the YOA that requires compulsory provision of legal aid counsel whether or not the YOA applicant meet the LSS financial eligibility or problem coverage, the LSS keeps track of the expenditure on YOA cases. Table 32 illustrates the different legal aid cost per case for YOA cases and for adult cases. As hypothesized, YOA cases do cost a lot less than adult cases. On average, a YOA case costs \$421 compared with \$560 per adult case. The impact of the *Young Offenders Act* on the cost of legal aid is also illustrated in Table 32. In 1983 the provision of legal aid to young offenders cost a little over 100,000 dollars and accounted for about three percent of all criminal law legal aid cost. The cost of provision of legal aid to young offenders grew till 1992, when it almost reached six million dollars. By early 1994, young offenders were absorbing almost one-fourth of all criminal legal aid expenditures.

Table 32 Cost of Young Offender Cases Vs. Adult Offenders (Time Series)

| Date of Assignment | Adult Offenders | | | Young Offenders | | | |
|--------------------|-----------------|----------------|--------------------|-----------------|---------------|-------------------|--------------------------------------|
| | Cost Per Case | # of Cases | Total Cost | Cost Per Case | # of Cases | Total Cost | YOA % Criminal Legal Aid Expenditure |
| 1983 | \$286 | 16,025 | \$4,590,162 | \$210 | 649 | \$136,221 | 2.90% |
| 1984 | \$279 | 21,205 | \$5,921,126 | \$182 | 1,774 | \$323,581 | 5.20% |
| 1985 | \$279 | 20,202 | \$5,643,120 | \$191 | 3,384 | \$645,548 | 10.30% |
| 1986 | \$317 | 21,021 | \$6,664,006 | \$220 | 4,641 | \$1,019,490 | 13.30% |
| 1987 | \$353 | 21,879 | \$7,713,348 | \$239 | 4,954 | \$1,181,981 | 13.30% |
| 1988 | \$410 | 22,961 | \$9,411,841 | \$301 | 5,488 | \$1,652,999 | 14.90% |
| 1989 | \$500 | 24,142 | \$12,080,217 | \$326 | 5,765 | \$1,881,015 | 13.50% |
| 1990 | \$507 | 25,585 | \$12,981,844 | \$360 | 6,586 | \$2,368,876 | 15.40% |
| 1991 | \$967 | 31,881 | \$30,840,774 | \$683 | 7,614 | \$5,196,592 | 14.40% |
| 1992 | \$1,058 | 33,219 | \$35,139,340 | \$770 | 7,740 | \$5,963,138 | 14.50% |
| 1993 | \$677 | 28,338 | \$19,196,060 | \$573 | 7,207 | \$4,130,977 | 17.70% |
| 1994 | \$433 | 7,055 | \$3,053,357 | \$392 | 2,331 | \$914,826 | 23.10% |
| Total | \$ 560 | 273,513 | 153,235,195 | \$ 421 | 58,133 | 24,500,418 | 17.5% |

Offence Type and Cost

Different types of offences incur different levels of legal aid cost for various reasons. First, different types of offences have different volumes. Assault (non-sexual), for example, is a high volume offence type that has a higher level of need for legal aid because of the likelihood of imprisonment upon conviction. Second, different types of offences require different amounts of resources in terms of legal counsel preparation time and different likelihoods of court time. The LSS structures the legal aid tariff according to the seriousness and complexity of offence types. A sample of legal aid cases approved between January 1, 1992 and November 30, 1992 is selected to analyze the cost per case

by offence type²⁵. Table 33 presents the results of this analysis. As expected, more serious cases such as homicide cost a lot more per case than less serious cases. Assault, because of its volume, incurred the biggest amount of subtotal cost, although the cost per case is pretty close to the average cost per case. It is also worth noting that there are two kinds of cases, homicide and abduction, that are exceedingly expensive per case while relatively rare. It should be pointed out, too, that serious cases often proceed over long periods of time and may be paid out over several years. This probably explains why the number of homicide cases that have legal aid representation exceeds the number of people charged for homicide in British Columbia.

²⁵ The time period from January 1, 1992 to November 30, 1992 is chosen for the data selection mainly because there was no tariff change in this period and cases approved for legal aid in this period are more likely to be completed at the time of the analysis.

Table 33 Cost per case by offence type

| Types of Offence | Cost per Case | # of Cases | Subtotal Cost |
|-------------------------|----------------------|-------------------|----------------------|
| Persons Offences | \$1,832 | 8,244 | \$15,103,912 |
| Abduction | \$10,558 | 76 | \$802,435 |
| Assaults - non sex | \$849 | 5,985 | \$5,082,236 |
| Homicide | \$17,554 | 215 | \$3,774,087 |
| Robbery | \$2,461 | 887 | \$2,182,494 |
| Sexual Assaults | \$3,018 | 1,081 | \$3,262,659 |
| Property Offences | \$809 | 13,098 | \$10,592,124 |
| Break and Enter | \$948 | 3,434 | \$3,256,041 |
| Fraud | \$1,607 | 1,179 | \$1,894,609 |
| Motor Vehicle Theft | \$439 | 132 | \$57,993 |
| Possessing Stolen Goods | \$794 | 1,920 | \$1,524,304 |
| Theft < \$1,000 | \$509 | 5,265 | \$2,681,878 |
| Theft > \$1,000 | \$1,008 | 1,168 | \$1,177,300 |
| Other Offences | \$775 | 16,652 | \$12,901,131 |
| Federal Drugs | \$984 | 3,607 | \$3,549,216 |
| Gaming and Betting | \$858 | 1 | \$858 |
| Municipal Bylaws | \$534 | 3 | \$1,602 |
| Offensive Weapons | \$992 | 666 | \$660,795 |
| Other CC | \$706 | 5,820 | \$4,108,508 |
| Other Federal Statutes | \$1,347 | 165 | \$222,191 |
| Prostitution | \$635 | 596 | \$378,583 |
| Provincial Statutes | \$551 | 1,514 | \$834,342 |
| Driving Offences | \$735 | 4,268 | \$3,137,003 |
| Others | \$669 | 12 | \$8,034 |
| Grand Total | \$1,016 | 37,994 | \$38,597,167 |

Table 34 Cost of Legal Aid for YOA Cases and Adult Cases by Offence Type

| Offence Type | Adult Cases | | | YOA Cases | | |
|--------------------------|----------------|---------------|---------------------|---------------|--------------|--------------------|
| | Cost Per Case | # of Cases | Total Cost | Cost Per Case | # of Cases | Total Cost |
| Persons Offences | \$1,928 | 6,909 | \$13,321,365 | \$1,335 | 1,335 | \$1,782,547 |
| Abduction | \$11,354 | 63 | \$715,291 | \$6,703 | 13 | \$87,144 |
| Assaults-non sex | \$846 | 5,064 | \$4,281,725 | \$869 | 921 | \$800,511 |
| Homicide | \$18,362 | 196 | \$3,598,872 | \$9,222 | 19 | \$175,215 |
| Robbery | \$2,610 | 651 | \$1,699,351 | \$2,047 | 236 | \$483,142 |
| Sexual Assaults | \$3,236 | 935 | \$3,026,125 | \$1,620 | 146 | \$236,534 |
| Property Offences | \$878 | 9,384 | \$8,240,244 | \$633 | 3,714 | \$2,351,880 |
| Break and Enter | \$1,048 | 2,249 | \$2,356,387 | \$759 | 1,185 | \$899,654 |
| Fraud | \$1,688 | 1,099 | \$1,854,634 | \$500 | 80 | \$39,974 |
| Auto Theft | \$447 | 63 | \$28,153 | \$432 | 69 | \$29,840 |
| Have St. Goods | \$861 | 1,351 | \$1,163,736 | \$634 | 569 | \$360,568 |
| Theft < \$1,000 | \$517 | 3,855 | \$1,992,761 | \$489 | 1,410 | \$689,116 |
| Theft > \$1,000 | \$1,101 | 767 | \$844,572 | \$830 | 401 | \$332,729 |
| Other Offences | \$792 | 14,524 | \$11,508,086 | \$655 | 2,128 | \$1,393,046 |
| Federal Drugs | \$1,012 | 3,377 | \$3,417,165 | \$574 | 230 | \$132,050 |
| Gam. & Betting | \$858 | 1 | \$858 | - | - | - |
| Munic. Bylaws | \$506 | 2 | \$1,012 | \$590 | 1 | \$590 |
| Offenc. Weapons | \$1,003 | 543 | \$544,684 | \$944 | 123 | \$116,111 |
| Other CC | \$729 | 4,362 | \$3,179,390 | \$637 | 1,458 | \$929,118 |
| Other Fed Stat. | \$1,343 | 163 | \$218,958 | \$1,617 | 2 | \$3,233 |
| Prostitution | \$635 | 541 | \$343,384 | \$640 | 55 | \$35,199 |
| Provincial Stat. | \$555 | 1,403 | \$778,398 | \$504 | 111 | \$55,944 |
| Driving Offences | \$732 | 4,122 | \$3,016,963 | \$822 | 146 | \$120,039 |
| Others | \$727 | 10 | \$7,272 | \$381 | 2 | \$761 |
| Aver./Grand Total | \$1,073 | 30,818 | \$33,069,694 | \$770 | 7,177 | \$5,527,473 |

Time lag for the Need for and Cost of Legal Aid.

When an application is approved and a lawyer is provided for the applicant the cost does not all occur immediately. The accused normally has to wait for several months for the court to process his/her case. And then it may take several more months for the court to complete the process. As a rule of thumb, LSS only allows the lawyer to bill LSS

only after a case is completed. Consequently, there is a time difference of several months between when an application for legal aid is approved by LSS and when the cost to LSS is actually incurred. This time difference varies by type of charge, by the types of persons charged, i.e., whether the accused is a young offender or an adult, and it also varies by court procedure, i.e., whether the case is completed by guilty plea or by trial.

Discovering patterns in the time lag is important to the process of forecasting the cost of legal aid, to the planning of legal aid and to the development of the simulation model. When budgeting for LSS, frequently asked questions are, for example, how much the tariff cost will be if the tariff is decreased or increased by a certain percentage or how much decrease has to be made to the tariff if the budget is decreased by a certain percentage. Answering questions of this type is difficult without knowing the patterns of time lag in case completion because changes of legal aid tariff can become effective only with newly assigned cases, not with those that have been assigned.

In 1991, for example, 39,485 cases were approved for legal aid. Those cases cost a total of \$36,037,365²⁶. However, only 33% of all the billings were sent to LSS in the same year in which the cases were approved. The major part, about 51% of the total, came to LSS in the second year.

²⁶ Total billings is slightly higher than this because there are always some lengthy cases that could last quite a few years before completion. However, the incompleting amount normally accounts for no more than one percent of the total billing.

Table 35 Billing Pattern of Cases Approved in 1991

| Date of Billing | # of Cases | Billing Amount | % of Billing |
|------------------------|-------------------|-----------------------|---------------------|
| 1991 | 21,968 | \$12,021,255 | 33% |
| 1992 | 15,447 | \$18,508,185 | 51% |
| 1993 | 1,977 | \$4,547,715 | 13% |
| 1994* | 103 | \$960,211 | 3% |
| Total | 39,495 | \$36,037,365 | 100% |

Note: Billings for the cases approved in 1991 were not complete at the time of this analysis (September 1, 1994). However, the incomplete amount is not likely to be over one percent and thus does not affect the reliability of the results shown in Table 35.

A sample of eleven months' data between January 1, 1992 and November 30, 1992 is used to analyze the time lag. There are several reasons for using data of this period. First of all, this is the most recent period within which there is no tariff change, which sometimes may affect the time of billing. Secondly, cases approved in 1992 are likely to be completed by the time of this analysis.

Table 36 shows that on average, it takes about 5.3 months for a young offender case to be completed and LSS to received a lawyer's bill. On the other hand, adult cases take more time. More serious cases tend to take more time than less serious cases. Homicide, for example, takes almost a whole year to be completed and Break and Enter, Theft Over and Theft Under take about half a year.

Table 36 The Time Difference Between Legal Aid Application and Lawyer's Billing

| Types of Offence | Adult Cases | | Young Offender Cases | |
|------------------------|---------------------|--------------|----------------------|-------------|
| | AVG Time (month) | # of Cases | AVG Time (month) | # of Cases |
| Abduction | 10.02 | 63 | 6.97 | 13 |
| Assaults - non sex | 6.82 | 5,064 | 6.36 | 921 |
| Homicide | 11.88 | 196 | 9.07 | 19 |
| Robbery | 6.99 | 651 | 6.89 | 236 |
| Sexual Assaults | 9.81 | 935 | 7.3 | 146 |
| Break and Enter | 6.38 | 2249 | 5.5 | 1185 |
| Fraud | 7.44 | 1099 | 5.83 | 80 |
| Motor Vehicle Theft | 6.04 | 63 | 3.84 | 69 |
| Possess Stolen Goods | 6.43 | 1351 | 5.37 | 569 |
| Theft < \$1,000 | 6.06 | 3855 | 4.7 | 1410 |
| Theft > \$1,000 | 6.72 | 767 | 5.15 | 401 |
| Federal Drugs | 7.71 | 3377 | 5.45 | 230 |
| Gaming and Betting | 0.72 | 1 | | |
| Municipal Bylaws | 7.05 | 2 | 6.46 | 1 |
| Offensive Weapons | 6.99 | 543 | 5.51 | 123 |
| Other CC | 5.86 | 4362 | 4.71 | 1458 |
| Other Federal Statutes | 7.55 | 163 | 12.51 | 2 |
| Prostitution | 7.25 | 541 | 4.04 | 55 |
| Provincial Statutes | 6.31 | 1403 | 4.79 | 111 |
| Driving Offences | 7.16 | 4122 | 6.16 | 146 |
| Others | 6.08 | 10 | 4.17 | 2 |
| Total Average | 6.82 | 30817 | 5.34 | 7177 |

Different court procedures make big differences in when the cost accrues to LSS after the application for legal aid is approved. On average, it takes about 5.8 months when a case is completed through guilty plea and takes almost three months more to complete a case by trial. More dramatic is the different length of time that abduction charges take. Guilty plea takes about 6.4 months and trials take over twice as much.

Table 37 Time Elapsed between Legal Aid Approval and Billing by Court Procedures and Charge Types

| Types of Offence | Guilty Plea | | Trial | |
|-------------------------|------------------|---------------|------------------|--------------|
| | AVG Time (month) | Cases | AVG Time (month) | Cases |
| Abduction | 6.40 | 22 | 13.77 | 25 |
| Assaults - non sex | 6.17 | 2,415 | 8.14 | 1,320 |
| Homicide | 10.83 | 54 | 13.60 | 77 |
| Robbery | 6.33 | 488 | 9.06 | 171 |
| Sexual Assaults | 8.27 | 339 | 11.37 | 342 |
| Break and Enter | 5.43 | 2,099 | 8.65 | 437 |
| Fraud | 6.94 | 624 | 10.95 | 116 |
| Motor Vehicle Theft | 4.22 | 75 | 5.89 | 8 |
| Possessing Stolen Goods | 5.49 | 1,009 | 8.14 | 250 |
| Theft < \$1,000 | 5.16 | 2,985 | 7.66 | 617 |
| Theft > \$1,000 | 5.46 | 678 | 8.76 | 146 |
| Federal Drugs | 6.91 | 1,871 | 9.40 | 573 |
| Gaming and Betting | | | 0.72 | 1 |
| Municipal Bylaws | 2.79 | 1 | 11.31 | 1 |
| Offensive Weapons | 5.59 | 292 | 8.53 | 147 |
| Other CC | 5.01 | 3,150 | 7.30 | 764 |
| Other Federal Statutes | 5.71 | 81 | 10.10 | 37 |
| Prostitution | 6.14 | 298 | 8.32 | 134 |
| Provincial Statutes | 5.50 | 768 | 7.80 | 313 |
| Driving Offences | 6.35 | 2,638 | 9.35 | 760 |
| Total Average | 5.82 | 19,887 | 8.65 | 6,239 |

SENTENCING RESULTS

Sentencing is the last decision point in the court system, the results of which determines the input into the corrections system. The number of people given jail sentence determines the number of people entering jails and the length of jail sentence is one of the major factors in the time the inmates stay in jails. In the absence of empirical data for other

factors such as that of parole, the sentencing results are the only empirical data that can be used to estimate the length of inmates staying in jails.

As can be expected, the rate of guilty offenders given jail sentence and the length of jail sentence are directly related with the seriousness of the offences (Table 38). Over 90 percent of homicide offenders, as an example of serious offenders, are given jail sentences. The jail time for them is also the longest on average. For motor vehicle theft offenders, on the other hand, only 27 percent are given jail sentences and the average jail time is 26 days. In comparison to adult offenders, young offenders, generally speaking, tend to be less likely to be given jail sentences and shorter jail time when they are found guilty.

Table 38 Sentencing Results

| Types of Offence | Adult Cases | | | | Young Offenders | | | |
|------------------------|----------------------|--------------|------------------------|--------------------------|----------------------|--------------|------------------------|--------------------------|
| | # of persons Charged | Found Guilty | Received Jail Sentence | Average Jail Time (Days) | # of persons Charged | Found Guilty | Received Jail Sentence | Average Jail Time (Days) |
| Abduction | 152 | 56 | 39 | 242 | 16 | 9 | 1 | 42 |
| Assaults - non sexual | 13025 | 6588 | 2266 | 61 | 2409 | 1587 | 360 | 39 |
| Homicide | 562 | 195 | 177 | 1487 | 56 | 21 | 14 | 1410 |
| Robbery | 1737 | 1065 | 855 | 328 | 653 | 414 | 253 | 85 |
| Sexual Assaults | 2645 | 1131 | 733 | 280 | 389 | 218 | 50 | 58 |
| Break and Enter | 4943 | 3218 | 1973 | 115 | 2864 | 2076 | 550 | 56 |
| Fraud | 2550 | 1553 | 693 | 79 | 216 | 145 | 22 | 72 |
| Motor Vehicle Theft | 124 | 63 | 17 | 26 | 124 | 83 | 18 | 51 |
| Possessing S. Goods | 3211 | 1849 | 972 | 63 | 1359 | 910 | 305 | 49 |
| Theft < \$1,000 | 8660 | 5423 | 1912 | 30 | 3148 | 2072 | 220 | 37 |
| Theft > \$1,000 | 1752 | 1028 | 512 | 65 | 956 | 648 | 155 | 46 |
| Federal Drugs | 7740 | 4543 | 2105 | 75 | 611 | 381 | 47 | 62 |
| Gaming and Betting | 2 | 1 | | | | | | |
| Municipal Bylaws | 20 | 7 | 2 | 1 | 6 | 2 | | |
| Offensive Weapons | 1378 | 763 | 342 | 92 | 319 | 193 | 44 | 44 |
| Other CC | 11057 | 6546 | 3423 | 39 | 3707 | 2566 | 1026 | 42 |
| Other Federal Statutes | 409 | 219 | 82 | 30 | 6 | 2 | | |
| Prostitution | 849 | 544 | 124 | 16 | 65 | 34 | 5 | 110 |
| Provincial Statutes | 3153 | 1992 | 1225 | 23 | 232 | 154 | 23 | 45 |
| Driving Offences | 9253 | 6543 | 3039 | 49 | 323 | 245 | 60 | 44 |
| Total | 73222 | 43327 | 20491 | 89 | 17459 | 11760 | 3153 | 55 |

CHAPTER VII. APPLICATION OF THE DYNAMO SIMULATION MODEL

The legal aid system described in the model consists of many sub-systems which in turn consist of many parts at different hierarchical levels. The basic characteristic of such a complicated system is that all of the various parts at different hierarchical levels are interconnected. Changes brought about by decisions or exogenous factors in one part of the system influence flows and decisions in other parts of the system. This chapter will explore the applicability of the simulation model developed in the DYNAMO simulation language to the complicated "real-world" legal aid system, with the focus on the interconnectedness within the system under different patterns.

The model will be tested to run the base flow patterns to produce output at various stages in the legal aid system, which can then be used for comparison with the output from the model applied in various hypothetical scenarios. Then the impact of changes in crime pattern on the legal aid system will be studied. The consequences of hypothetical decisions of policy alternatives in the criminal justice system on the whole legal aid system will be explored. The results of hypothetical policy alternatives by the Legal Services Society of British Columbia on the whole system will be analyzed. Finally, a projection of the need for and cost of legal aid in the near future will be explored.

BASE FLOW PATTERNS

Before analyzing alternative futures and proposed policy changes in the legal aid system, it is necessary to become familiar with the basic flow patterns of crime, charges, court procedures, application for legal aid and legal aid expenditure.

As was mentioned in the previous chapter, the model is designed to track offence categories separately. Seven categories were used: serious persons offence, assault, auto-theft, other property offences, federal drug offences, other criminal code offences and municipal, provincial and federal statutes. Each offence category follows different flow patterns within the system. In 1993, for example, there were 214 homicide cases (including attempted murder) reported to the police and 173 persons were charged with homicide. For break-and-enter (B & E), in comparison, there were 70,745 reported cases and 6,522 persons were charged with B & E. The charge rate was 81% for homicide versus 9% for B & E. Obviously, this is because homicide is a low volume and high resolution crime, while B & E is a high volume and low resolution crime. Most people charged with homicide are represented by counsel paid by legal aid while only 30 percent of the people who are charged with B & E are represented by legal aid counsel.

At the plea negotiation stage, an average of 34 percent of the people charged for homicide plead guilty while 74 percent of the people charged with B & E plead guilty, according to a sample of all the legal aid cases in the Legal Services Society's information system in 1992 and 1993. Because of the differential funnel effect, which is used to illustrate that some criminals get out of the criminal justice system at a faster rate than

others, it takes an average of 13.6 months from filing to disposition for a homicide case which goes to trial and only 5.5 months for a B & E case which goes to a guilty plea. The guilty plea route is almost three months shorter for all charge categories (8.7 months versus 5.8 months).

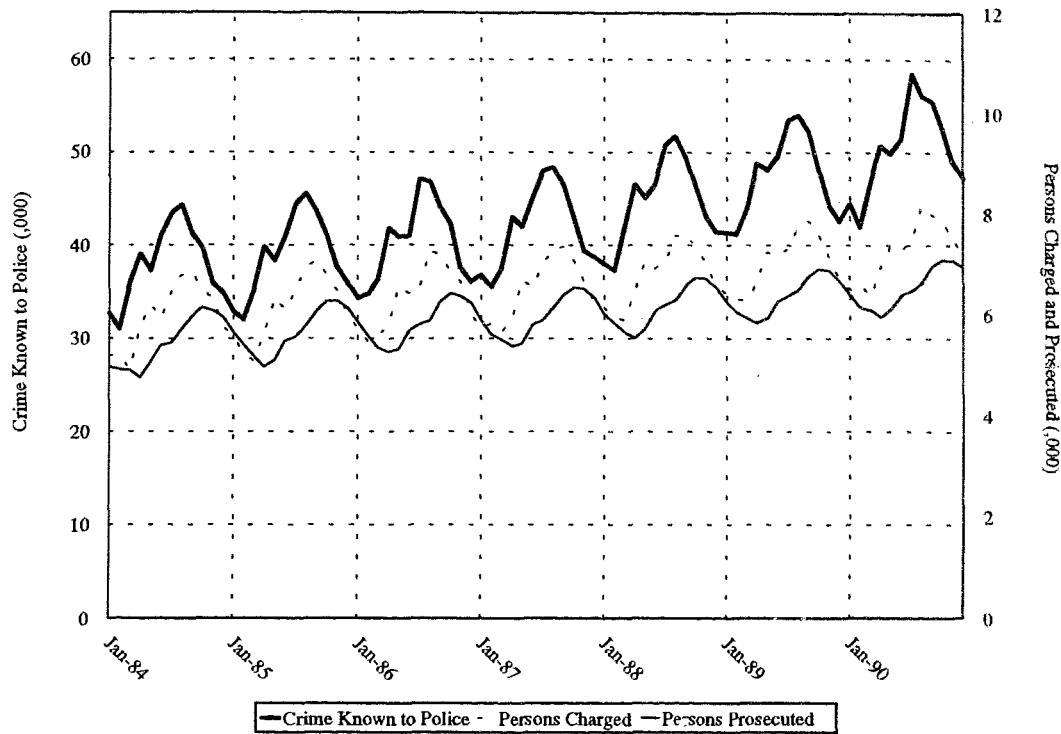
Finally, the flow numbers presented are just averages. The actual values vary over time. How would the impact of an increase in the homicide rate on the courts and on the legal aid expenditure be different than that of a similar increase in the rate of B & E? Even using the fixed branching percentages given above, the answer is not an easy one. If the branching percentages are allowed to vary every time and to depend on the dynamics of the system, the calculations become excessively complex.

The DYNAMO simulation model of legal aid in BC is developed following a basic pattern of the system which is based on the systems analysis of the historical data from 1984 to 1990 in order to handle such complex calculations. DYNAMO permits varying branching ratios. Throughout the model rates are smoothed or leveled; rates were increased or decreased depending on system characteristics.

The basic flow pattern described in this section looks at the patterns at various stages and the assumptions used in building up the basic model. Although the model is developed to track criminal charges in seven categories, demonstrating the flows of all the detailed categories is really not feasible, for it will literally take too much space. As a result, aggregated patterns will be illustrated and discussed in the basic flow pattern.

First of all, the crime pattern in British Columbia is generated, using the crime predictors as discussed in the previous chapter as the major input into the simulation model, namely population size, beer consumption, the rate of working women and retail volume. It is clearly shown in Figure 22 that, in general, the amount of crime shows an increasing trend. The seasonal variation of the amount of crime is also clear, in winter times fewer criminal offences are reported to the police and in summer times more are reported. This pattern is consistent with the actual crime pattern in BC in the seven years being simulated.

Figure 22 Base Flow Pattern (a)

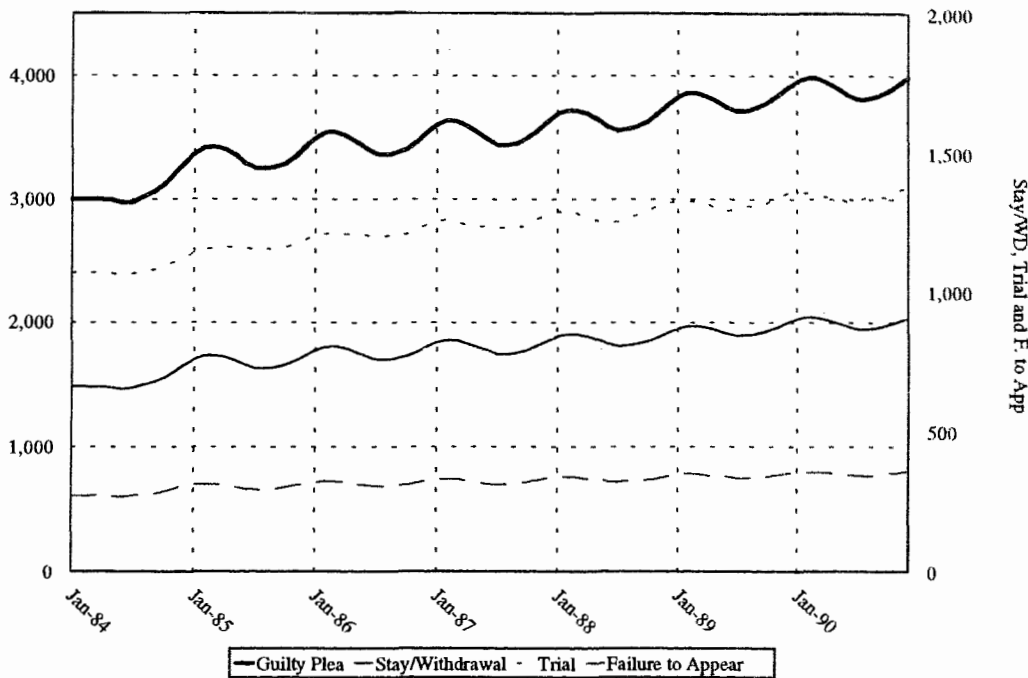


The number of persons charged is generated using crime known to the police as input and the parameters calculated in the previous chapter, namely the differential charge rates in summer time and winter time and some time delay between the time when offences are reported and the time when charges are laid. Basically, more persons are charged over time as the amount of crime increases. In summer time when more crime is reported, more charges are laid. Fewer charges are laid in winter times when there are fewer offences reported.

The number of persons prosecuted is generated when the number of persons charged flow into the Crown Counsel sub-system. Since the Crown does not prosecute every single case as requested by the police, the parameters for the filter function calculated in the previous chapter are used and more time delay is simulated. It should be noted that the time delay as can be seen in the graph (Figure 22), where the peaks and valleys representing the number of persons prosecuted come a few months later than the persons charged, is not only caused by the Crown Counsel. When the police lay charges, they have to set a date for the appearance in court. The time used to simulate the number of persons prosecuted is actually the time for the first appearance in court, for no better data source is available.

Cases flow through the court through various channels. Some plead guilty, some go to trial, some charges are stayed or withdrawn and some of the accused simply fail to appear. Using the output from the Crown Counsel, the basic case through the various channels is simulated. It can be seen in the graph (Figure 23) that the biggest volume of cases went through the court system by means of guilty plea ranging from 3,000 guilty pleas a month in 1984 to about 4,000 guilty pleas a month in 1990. A small number of cases go through trials, ranging from 1,000 cases a month in 1984 to about 1,400 a month in 1990. While the number of fail-to-appear cases remains fairly constant over the years, without much increase or decrease, the number of stays or withdrawals increased substantially from 700 cases a month in 1984 to about 1,000 cases a month in 1990.

Figure 23 Base Flow Pattern (b)

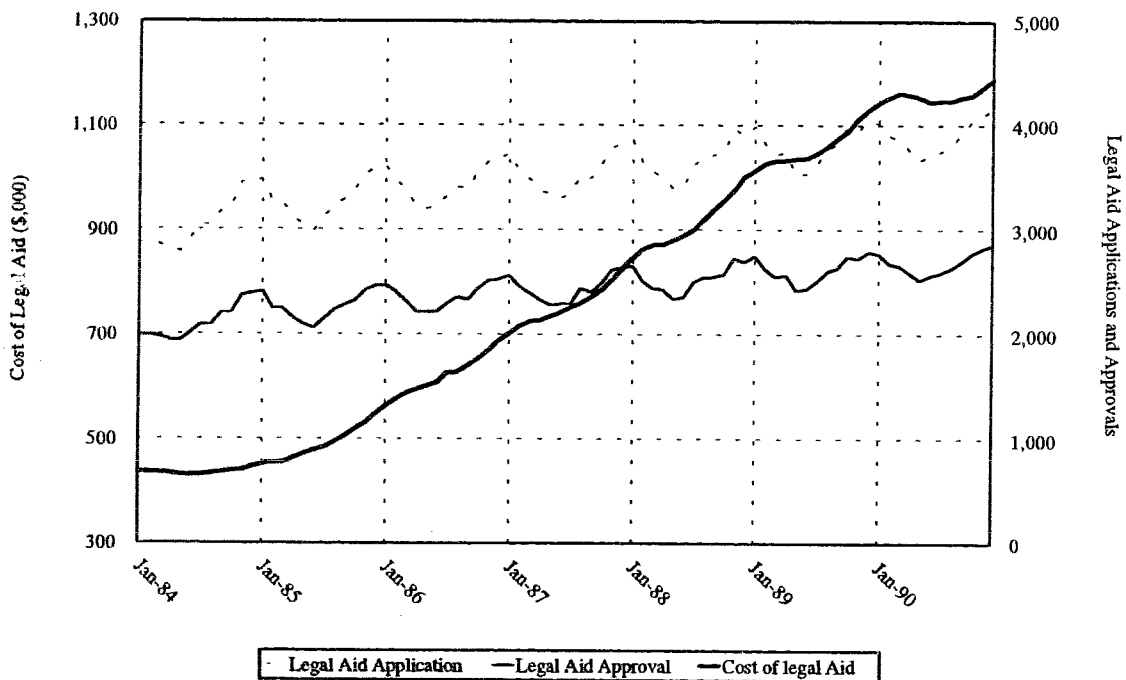


When people are charged with criminal offences, some apply for legal aid and some do not. Although the Legal Services Society changed the financial eligibility and coverage policy several times, which affects the number of legal aid approvals and the number of applicants, the general trend of the volume shows an increase between 1984 and 1990. The seasonal variation has a different pattern than that of crime known to the police and charges. With crime known to the police and criminal charges, the peaks always occur in the summer each year. With legal aid application and legal aid approvals the peaks occur several months later. As discussed in the previous chapter, those who are charged with criminal offences do not apply for legal aid immediately after being notified of the charge, although they may have been informed of the availability of legal aid by the

police. Most of them would wait until they appear in the court and are told by the judge to find a legal aid lawyer if they cannot afford one. The time delay between charges and application for legal aid is thus simulated in the DYNAMO simulation model.

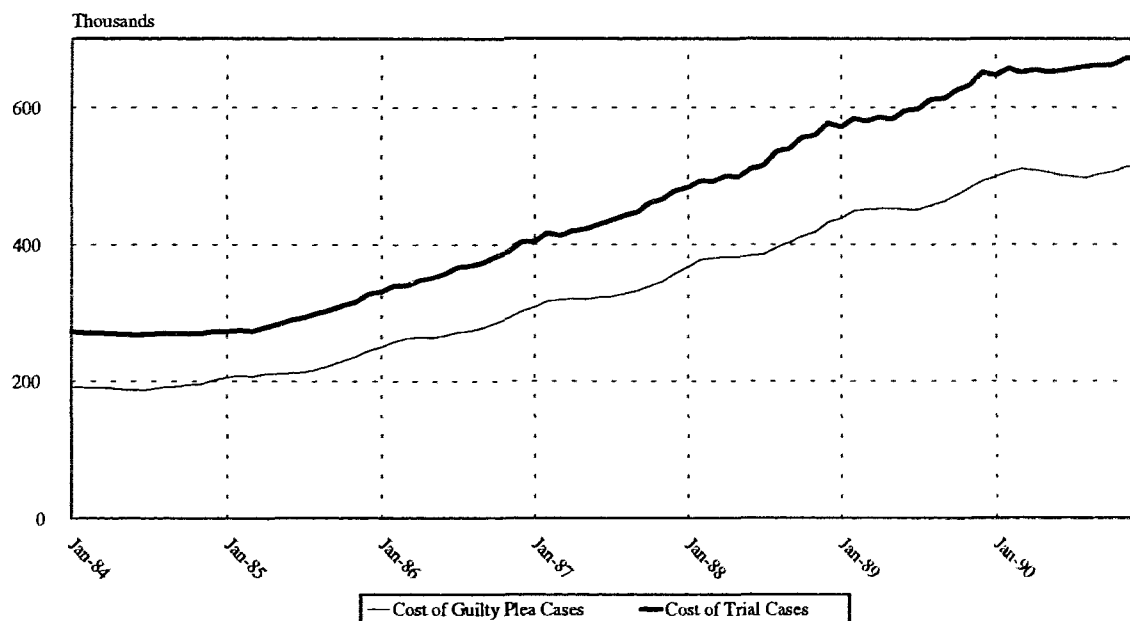
The most striking feature in Figure 24 is the sharp increase of the cost of legal aid from 1984 to 1990 in comparison to the number of legal aid approvals. In the seven year period the number of clients served (legal aid approvals) increased from about 2,000 a month in 1984 to about 2,900 a month in 1990. The cost of legal aid, however, was tripled from about \$400,000 a month in 1984 to about \$1,200,000 a month in 1990. The sharp increase in the cost of legal aid is mostly caused by tariff increase, rather than by the number of clients served.

Figure 24 Base Flow Pattern (c)



As discussed earlier, the cost of providing legal aid varies across different types of charges and across different court procedures. In order to simulate the differential cost of legal aid, different tariff rate per court procedure is built into the DYNAMO simulation model. Figure 25 shows the impact of differential cost over different court procedures. Although much fewer cases go to trial (see Figure 23), the total cost of trial cases is higher than guilty plea cases.

Figure 25 Base Flow Pattern (d): Cost of guilty Plea Cases and Trial Cases



PATTERNS UNDER INCREASED CRIME

There are four crime predictors used as initial input to project seven crime sectors flowing through the simulation model. Hypothetically, the crime pattern for any crime sector for any future crime could be projected by altering any sector of the initial input.

There are, in theory, a large number of future crime states which could be studied. To explore the use of the model for studying future crime patterns and the impact of the future crime patterns on the cost and the need for legal aid, an extreme situation is posited and the simulation run using the extreme crime projections.

For the base calculations, the population in BC increased by one percent in 1985 from that in 1984, then increased by two percent in 1986, then three percent in 1987 (see Table 39). The population in 1990 increased by twelve percent in comparison to 1984 in the simulation model.

It is hypothesized that the size of the population increased by approximately five percent each year in the seven simulated years. This series of cumulative increases in population will bring the population in the seventh year to over 3.9 million, which is 29% higher than that in the first year.

Table 39 Population: Base Flow Pattern and Increased Pattern

| | Population (Base Flow Pattern) | | | Population (5% Increase Each Year) | | |
|------|--------------------------------|-------------------------------|------------------|------------------------------------|-------------------------------|------------------|
| | Population | Compared to the Previous year | Compared to 1984 | Population | Compared to the Previous year | Compared to 1984 |
| 1984 | 3,002,000 | | | 3,048,000 | | |
| 1985 | 3,028,000 | 1% | 1% | 3,186,000 | 105% | 105% |
| 1986 | 3,075,000 | 2% | 2% | 3,332,000 | 105% | 109% |
| 1987 | 3,164,000 | 3% | 5% | 3,503,000 | 105% | 115% |
| 1988 | 3,223,000 | 2% | 7% | 3,629,000 | 104% | 119% |
| 1989 | 3,298,000 | 2% | 10% | 3,775,000 | 104% | 124% |
| 1990 | 3,374,000 | 2% | 12% | 3,931,000 | 104% | 129% |

Data source: CANSIM University Base (machine-readable data file). 1946-Present. SFU/RDL ed., Ottawa, Statistics Canada.

Running the simulation under both the base conditions and the conditions with sharply increased population produces some interesting results. The simulation produces values for every month between January, 1985 to December 1991. To make the analysis of the results tractable, the values are aggregated at the annual level.

First of all, under the conditions with increased population in British Columbia, the total volume of crime reported to the police rose from 460,140 in the first year to 749,340 in the seventh year, an increase of 63 percent (Table 40). The total volume of crime known to the police increased at a higher rate than the growth of population due to the fact that the base simulation model is developed using data from 1984 to 1990. In those years crime *rate* was increasing, meaning that volume of crime reported to the police increased faster than population growth.

Table 40 Crime Known to the Police (Base Flow Pattern Vs. Increased Pattern)

| | CKP (Base Flow Pattern) | | CKP (Increased Population) | | |
|------|-------------------------|------------------|----------------------------|-----------------------------|------------------|
| | CKP | Compared to 1984 | CKP | Compared to Base Flow Model | Compared to 1984 |
| 1984 | 455,930 | | 460,140 | 100.9% | |
| 1985 | 466,860 | 2% | 496,780 | 106.4% | 8% |
| 1986 | 482,360 | 6% | 541,910 | 112.3% | 18% |
| 1987 | 502,970 | 10% | 587,270 | 116.8% | 28% |
| 1988 | 537,390 | 18% | 642,600 | 119.6% | 40% |
| 1989 | 566,950 | 24% | 691,340 | 121.9% | 50% |
| 1990 | 603,920 | 32% | 749,340 | 124.1% | 63% |

Under the extreme conditions, the total number of offences reported to the police rose from 460,140 in 1984 to 749,340 in 1990, an increase of 63%. The number of persons charged, as simulated in the model, increased from 78,512 to 101,491, an increase of 39%, not keeping up with the increase of crime (Table 41). This is a desired result as the simulation model attempts to simulate the discretion exercised by the police. Facing sharply increased crime and budget cuts, the police file criminal charges at a much slower rate than the increase in crime, according to both of the conceptual model and the empirical analysis of the data.

Table 41 Increased Crime Vs. Number of Persons Charged

| | Crime Known to Police | | | Number of Persons Charged | | |
|------|-----------------------|------------------------------|---------------------|---------------------------|------------------------------|---------------------|
| | | Compared to Previous Year | Compared to 1984 | | Compared to Previous Year | Compared to 1984 |
| 1984 | 460,140 | | | 73,253 | | |
| 1985 | 496,780 | 8% | 8% | 78,512 | 7% | 7% |
| 1986 | 541,910 | 9% | 18% | 83,691 | 7% | 14% |
| 1987 | 587,270 | 8% | 28% | 87,430 | 4% | 19% |
| 1988 | 642,600 | 9% | 40% | 92,343 | 6% | 26% |
| 1989 | 691,340 | 8% | 50% | 96,878 | 5% | 32% |
| 1990 | 749,340 | 8% | 63% | 101,491 | 5% | 39% |

Facing increased demand for legal aid resulting from increased volume of persons charged with criminal offences, the Legal Services Society of British Columbia has several policy alternatives, mainly depending on the availability of its resources. If there is no restraint of resources LSS will normally keep its existing policy to expand services and increase tariff in the same way as it did in the time period between 1984 and 1990. To examine the result of this scenario, the demand rate and approval rate for legal aid hypothetically remain the same as in the base flow model as if there were no resource

limit. The tariff rates over the seven years remain the same as were used in the base flow pattern, too, as there were no resource limit or a second policy alternative.

Table 42 compares the demand for legal aid when crime known to the police increases as a result of increased population with the demand for legal aid in the base flow model. It is clear that the demand for legal aid increased rapidly in comparison with the base flow model. In 1984 the increase would be about 1.1%. In 1990, however, the demand would increase by 13.6%.

Table 42 Demand for Legal Aid: Under Increased Crime Vs. Base Flow

| Time | Demand for Legal aid in Base Flow Model | Demand for Legal Aid with Increased Crime | % of Increase in Demand |
|------|---|---|-------------------------|
| 1984 | 36,305 | 36,711 | 1.1% |
| 1985 | 39,036 | 40,776 | 4.5% |
| 1986 | 40,796 | 44,160 | 8.2% |
| 1987 | 41,995 | 46,314 | 10.3% |
| 1988 | 43,505 | 48,423 | 11.3% |
| 1989 | 44,959 | 50,481 | 12.3% |
| 1990 | 46,109 | 52,365 | 13.6% |

Unrestrained Budget for LSS with Increased Crime

As the demand for legal aid increases, the need for legal aid increases as well if LSS does not change its eligibility and coverage policy (Table 43). In 1984, the need for legal aid increased by 2.2% in comparison to the base flow model and in 1990, it increased by 15.2%. The increase of the need for legal aid, as is shown in Table 43, is a little higher than the demand for legal aid (Table 42). This is because in the base flow model, the

approval rate does not remain the same all the time. It is adjusted between two alternative policies: expanding service and restrict service given the amount of demand for legal aid and the budget restraint. In the current scenario, however, approval rate is allowed to remain unchanged, simulating a budget without any restraint, which results in a higher increase of approval rate as compared to the volume in the same year in the base flow model.

Table 43 Need for Legal Aid: Under Increased Crime Vs. Base Flow Model

| Time | Need for Legal Aid in Base Flow Model | Need for Legal Aid with Increased Crime | % of Increase |
|------|---------------------------------------|---|---------------|
| 1984 | 25,094 | 25,653 | 2.2% |
| 1985 | 26,945 | 28,474 | 5.7% |
| 1986 | 28,126 | 30,832 | 9.6% |
| 1987 | 28,981 | 32,387 | 11.8% |
| 1988 | 30,005 | 33,859 | 12.8% |
| 1989 | 30,981 | 35,285 | 13.9% |
| 1990 | 31,766 | 36,605 | 15.2% |

Due to the increased need for legal aid, the cost of legal aid increased by more than eighteen percent in comparison to that in the same year in the base flow model, although the pay rates to the private bar for representing the accused remains the same as they are used in the base flow model. The higher-than-proportional increase in cost (18.1% cost increase vs. 15.2% need increase) is once again a result of simulating unrestrained budget in this scenario, whereas in the base flow model the attempt by the Legal Services Society to control tariff is simulated, which results in a controlled increase.

Table 44 Cost of Legal Aid: Under Increased Crime Vs. Base Flow Model

| | Cost of Legal Aid in Base Flow Pattern | Cost of Legal Aid with Increased Crime | % of Increase |
|------|---|---|---------------|
| 1984 | \$ 5,231,000 | \$ 5,327,200 | 1.8% |
| 1985 | \$ 5,852,100 | \$ 6,112,400 | 4.4% |
| 1986 | \$ 7,433,600 | \$ 8,124,900 | 9.3% |
| 1987 | \$ 9,049,600 | \$10,222,100 | 13.0% |
| 1988 | \$10,906,600 | \$12,566,300 | 15.2% |
| 1989 | \$12,678,000 | \$14,790,000 | 16.7% |
| 1990 | \$13,873,000 | \$16,387,000 | 18.1% |

Restrained Budget for LSS with Increased Crime

The LSS faces resource restraint from time to time even when the volume of crime increases and more people are charged with criminal offences. Consequently, it has to seek other policy alternatives to meet the tight budget, such as tightening the eligibility and coverage criteria, as has been discussed in the earlier chapters (the policy change that triggered the Mountain case and the removal of flexible test and coverage change in 1992 and 1993), reducing the tariff to cut the cost per legal aid case, etc.

Therefore, a more realistic policy alternative that LSS could take, facing rapid increase of the number of persons charged with criminal offences, would be one that aims to obtain more resources on one hand in order to serve more people, and to tighten the need for legal aid on the other hand to meet its budget. Adopting two measures at the

same time will result in a limited increase (under-proportional increase) of the need for and cost of legal aid.

To simulate the policy alternative, a switch is built in the DYNAMO simulation model. When the demand for legal aid or the cost of legal aid reaches the designed level, a budget restraint policy would be adopted to reduce legal aid approval rate and tariff. Table 45 and Table 46 show the effect of this budget restraint policy.

Although the number of persons charged increased by 39 percent under the situation of increased crime, the demand and the need for legal aid did not increase at the same rate (Table 45). The demand for legal aid increased by 31 percent in year 7 from year 1 and the need for legal aid increased by 28 percent. These under-proportional increases result from several factors built in the simulation model. One is the screening effect by the crown counsel. When there are big increases of criminal charges from the police, the crown will screen out more cases by means of diversion, caution letter, staying charges etc., partly because of the staffing restraint on the crown part which means they cannot handle the increased volume of caseload, partly because of the pressure of the court caseload. The more direct factor that affects the demand and need for legal aid is the change of legal aid eligibility and coverage policy, resulting from the increasing cost of legal aid and revenue restraint. Built into the simulation model, there is a policy switch, representing the policy of expanding service and the policy of restraining service. When more people are charged with criminal offences, more people will apply for legal aid. However, when the cost of legal aid reaches a certain level, LSS will face revenue

difficulties, and consequently make stricter eligibility and coverage policy. When fewer people qualify for legal aid, not only the approval rate for legal aid decreases, the number of people applying for legal aid will also decrease, which is referred to as the “deterrence effect” (Manitoba study).

Table 45 Increased Charges, Demand for Legal Aid and Need for Legal Aid

| Time | Charges | Compared to 1984 | Demand for Legal Aid | Compared to 1984 | Need for Legal Aid | Compared to 1984 |
|------|---------|------------------|----------------------|------------------|--------------------|------------------|
| 1984 | 73,253 | | 36,711 | | 25,400 | |
| 1985 | 78,512 | 7% | 40,454 | 10% | 27,933 | 10% |
| 1986 | 83,691 | 14% | 43,415 | 18% | 29,826 | 17% |
| 1987 | 87,430 | 19% | 45,075 | 23% | 30,815 | 21% |
| 1988 | 92,343 | 26% | 46,267 | 26% | 31,474 | 24% |
| 1989 | 96,878 | 32% | 46,992 | 28% | 31,853 | 25% |
| 1990 | 101,491 | 39% | 48,086 | 31% | 32,448 | 28% |

The seven-year period used for designing the simulation model’s base flow pattern was a time that saw rapid increase of the demand and need for legal aid. As well the cost of legal aid increased rapidly, too. The cost of legal aid in 1990 was about \$13.8 million, over 100 percent increase over that in 1985. Although part of the reason for the cost increase was due to increased demand and need for legal aid, the major reason for the increase was the increase of legal aid tariff, the rate that is used to pay the private bar to represent the accused.

The base pattern and the pattern with supposedly increased crime are compared. Table 46 shows the results of this comparison. The most significant difference in the increased patterns of increased crime and increased cost of legal aid can be seen in year 7.

While the volume of crime known to the police in year 7 is 24.1 percent higher with supposedly increased population than the base flow figure in the same year, the cost of legal aid under the situation with supposedly increased population in year 7 was only five percent higher than that in the base flow model in the same year. This limited increase of legal aid cost results from many interconnected factors in the criminal justice system. The police cannot maintain the same charge rate under increased crime, the crown filters out some charges, more guilty pleas, more stays and withdrawals, fewer trials, and, last but not the least, the LSS controls the level of the need for legal aid and tariff rate. As demand for legal aid increases, LSS may have to reduce the need for legal aid by controlling eligibility and coverage, which in turn may reduce the demand for legal aid. The LSS can, as a policy alternative, reduce tariff rate in order to control the cost of legal aid.

Table 46 Increased Crime Vs. Cost of Legal Aid

| | Crime Known to Police | | | Cost of Legal Aid | | |
|------|-----------------------|-------------------|---------------|-------------------|--------------------|---------------|
| | Base Flow Pattern | Supposed Increase | % of Increase | Base Flow | Supposed Increased | % of Increase |
| 1984 | 455,930 | 460,140 | 0.9% | \$5,231,000 | \$5,267,900 | 0.7% |
| 1985 | 466,860 | 496,780 | 6.4% | \$5,852,100 | \$6,034,600 | 3.1% |
| 1986 | 482,360 | 541,910 | 12.3% | \$7,433,600 | \$7,926,900 | 6.6% |
| 1987 | 502,970 | 587,270 | 16.8% | \$9,049,600 | \$9,809,900 | 8.4% |
| 1988 | 537,390 | 642,600 | 19.6% | \$10,906,600 | \$11,795,100 | 8.1% |
| 1989 | 566,950 | 691,340 | 21.9% | \$12,678,000 | \$13,482,000 | 6.3% |
| 1990 | 603,920 | 749,340 | 24.1% | \$13,873,000 | \$14,635,000 | 5.5% |

POLICY CHANGES IN THE CRIMINAL JUSTICE SYSTEM

The impact of increased crime on the need for and cost of legal aid, as analyzed in the previous section, is based on the assumption that the criminal justice system keeps its

policies and practices unchanged as shown in the base flow model. In reality, however, the criminal justice system reacts dynamically to changes in its environment. This is especially true when the input into the system changes, i.e. an increase in the amount of crime.

Police may increase its staff level, thus are able to lay more charges against the suspected offenders; the Crown counsel may filter out more or less cases, to keep in line with its own staff level or the court case load, which is often reflected in the size of the case backlog. The court system may increase its staff level or change the procedures to speed up processing criminal charges. All of these policy alternatives will affect the need for and cost of legal aid. This section will explore the impact of these possible policy changes in the criminal justice system.

Patterns under Increased Resources

Throughout the criminal justice system, resource restraint is a major factor that affects the case flow at every intersection: charge rate by the police drops in summer time because of increased crime and the police do not have enough resources to maintain the same charge rate as that in winter time; the Crown cannot prosecute all requests for criminal charges from the police because of lack of resource in the Crown sector as well as limited resource in the court system that is always overloaded with case backlog; the Legal Services Society cannot provide all of the accused with legal aid lawyers also because of limited resource. As was shown in the discussion of the impact of massive crime

increases, resource restraints at various intersections will definitely affect the need for and cost of legal aid. On the other hand, although the legal aid system is being defined and analyzed as a system in this study, in the real world it is not operated by the administrators as a system. Consequently, resource level can be changed by some administrators in some part in the system without changing the resource level in other sub-systems. It would be interesting to see how increased resource at one part of the system affects other parts of the system.

First, it is hypothesized that the amount of crime known to the police remains the same as in the base flow pattern. However, more resources are allocated to the police, allowing the police to lay more charges when more crime is reported. The results are shown in Table 47. Although the amount of crime known to the police remains the same each year, the number of persons charged with criminal offences is getting larger in the situation with increased resources as compared with that in the base flow model, with the most substantial increase being 12% increase from the base flow pattern in 1990.

Table 47 Number of Persons Charged when Police Have Increased Resources

| Time | Base Flow | | Increased Resources | |
|------|---------------------------|----------------------|----------------------|-----------------------|
| | Crime Known to the Police | # of Persons Charged | # of Persons Charged | Compared to Base Flow |
| 1984 | 455,930 | 65,275 | 67,800 | 4% |
| 1985 | 466,860 | 67,809 | 70,706 | 4% |
| 1986 | 482,360 | 69,881 | 73,189 | 5% |
| 1987 | 502,970 | 71,317 | 75,152 | 5% |
| 1988 | 537,390 | 73,772 | 79,134 | 7% |
| 1989 | 566,950 | 76,274 | 83,574 | 10% |
| 1990 | 603,920 | 78,175 | 87,253 | 12% |

Normally, the LSS aims to expand its services to more people. At the same time, it has to function within a restrained budget. The base model of the simulation was developed with these dual mandates as the foundation. In the model, two equations are developed simulating two policies; one is to expand service, the other is to stop expansion and to start limiting services. Under the situation of increased resources, the Legal Services Society does not have to switch to the strict eligibility and coverage policy and is able to keep expanding services in the same way as it did in the seven-year period between 1984 and 1990, which means using the highest rate of applications made by the accused and the highest rate of approval for legal aid shown in the base flow model as the consistent rate in the model of increased resources to the criminal justice system.

As a result of increased resources to the criminal justice system, while the Legal Services Society keeps its highest approval rate in the seven-year period, the demand and need for legal aid rapidly increase (Table 48), although the crime level remains the same as the base flow model. The largest increase happens for the year of 1990, where the demand for legal aid increase by 15.9 percent and the need for legal for legal aid increase by 14.7 percent when more resources are available to the Legal Services Society.

Table 48 Demand and Need for Legal Aid: Increased Resources Vs. Base Flow

| Time | Base Flow Pattern | | With Increased Resources | | | |
|------|----------------------|--------------------|--------------------------|-----------------------|--------------------|-----------------------|
| | Demand for Legal Aid | Need for Legal Aid | Demand for Legal Aid | Compared to Base Flow | Need for Legal Aid | Compared to Base Flow |
| 1984 | 36,305 | 25,400 | 37,821 | 4.2% | 26,426 | 4.0% |
| 1985 | 39,036 | 27,933 | 41,091 | 5.3% | 28,671 | 2.6% |
| 1986 | 40,796 | 29,826 | 43,348 | 6.3% | 30,210 | 1.3% |
| 1987 | 41,995 | 30,815 | 45,079 | 7.3% | 31,445 | 2.0% |
| 1988 | 43,505 | 31,474 | 47,756 | 9.8% | 33,292 | 5.8% |
| 1989 | 44,959 | 31,853 | 50,848 | 13.1% | 35,418 | 11.2% |
| 1990 | 46,109 | 32,448 | 53,461 | 15.9% | 37,228 | 14.7% |

Along with the increase in resources for the criminal justice system, the greatest impact on the legal aid system is the cost. In 1990, for example, the increase would be over 21 percent (Table 49). This increase is out of proportion to the increase of the demand and need for legal aid (Table 48), in spite of the fact that tariff rate remained the same as in the base flow model. One of the major reasons for this higher-than-proportional increase in the cost of legal aid is due to an increased volume of trials.

Table 49 Cost of Legal Aid: Increased Resources Vs. Base Flow

| Time | Base Flow Pattern | Under Increased Resources | Compared to Base Flow |
|------|-------------------|---------------------------|-----------------------|
| 1984 | \$5,231,000 | \$5,750,000 | 9.9% |
| 1985 | \$5,852,100 | \$6,507,400 | 11.2% |
| 1986 | \$7,433,600 | \$8,296,400 | 11.6% |
| 1987 | \$9,049,600 | \$10,185,700 | 12.6% |
| 1988 | \$10,906,600 | \$12,467,500 | 14.3% |
| 1989 | \$12,678,000 | \$14,946,000 | 17.9% |
| 1990 | \$13,873,000 | \$16,837,000 | 21.4% |

As it is illustrated in Table 47, the number of persons charged shows a sharp increase along with the increase in the resources to the police, ranging from 4% in 1984 to 12% in 1990. Consequently, the volume of trials will also increase. Table 50 shows the volume of trials under increased resources to the police, to the Crown counsel and to the court system. It can be seen that the increase in the volume of trials is higher than the increase of charges. For the year of 1990, for example, the volume of trials under the situation of increased resources go up by 15% in comparison to the 12 % increase of charges in a similar situation. This can be explained by the fact that, in the base flow model, the crown counsel, under the pressure of resource restraints to its own staff level and to the court system, has to initiate more guilty pleas and more stays and withdraw more charges, when the court case load increases. With increased resources to the court system as well as to the Crown staff level, the Crown can keep the rate of guilty pleas and stay/withdrawals at a relatively lower level without much fluctuation according to the case load.

Table 50 Number of Trials: Increased Resources Vs. Base Flow

| Time | Base Flow Pattern | Under Increased Resources | Compared to Base Flow |
|------|-------------------|---------------------------|-----------------------|
| 1984 | 12,875 | 15,502 | 20.4% |
| 1985 | 13,829 | 16,889 | 22.1% |
| 1986 | 14,429 | 17,658 | 22.4% |
| 1987 | 14,837 | 18,352 | 23.7% |
| 1988 | 15,222 | 19,180 | 26.0% |
| 1989 | 15,677 | 20,582 | 31.3% |
| 1990 | 16,020 | 21,885 | 36.6% |

A comparison of the volume of guilty pleas under increased resources with the volume of charges under increased resources and the volume of trials under increased resources further illustrates the impact of increasing resources on the criminal justice system and the cost of legal aid. In the base flow model (Table 51), the guilty plea rates range from 55.8% in 1984 to 59.1% in 1990. The increase of guilty pleas is mostly due to the increased volume of charges and the limited resources to the Crown and the court system. When resources are increased, more cases go to trial and fewer cases will go through guilty plea bargaining. For the year of 1990, for example, the guilty plea rate goes down to 57.7% under increased resources, as compared with that of 59.1% in the base flow model. This is consistent with the conceptual model as discussed in the previous chapter. When more resources are available to the Crown and to the court system, there will be more trials and fewer guilty pleas.

Table 51 Guilty Pleas: Increased Resources Vs. Base Flow

| Time | Base Flow Pattern | | | Under Increased Resources | | |
|------|-------------------|-------------|------------------|---------------------------|-------------|------------------|
| | Persons Charged | Guilty Plea | % of Guilty Plea | Persons Charged | Guilty Plea | % of Guilty Plea |
| 1984 | 65,275 | 36,412 | 55.8% | 67,799 | 36,194 | 53.4% |
| 1985 | 67,808 | 39,803 | 58.7% | 70,705 | 40,031 | 56.6% |
| 1986 | 69,880 | 41,154 | 58.9% | 73,188 | 41,697 | 57.0% |
| 1987 | 71,316 | 42,088 | 59.0% | 75,152 | 42,992 | 57.2% |
| 1988 | 73,771 | 43,336 | 58.7% | 79,133 | 44,984 | 56.8% |
| 1989 | 76,274 | 44,967 | 59.0% | 83,573 | 47,895 | 57.3% |
| 1990 | 78,175 | 46,195 | 59.1% | 87,252 | 50,340 | 57.7% |

Inflexible Crown Counsel

The guilty plea has been frequently criticized for failing to do justice. In spite of all the criticism, the guilty plea has been a major procedure for criminal cases to go through the criminal justice system. As has been discussed in the earlier chapter, over 50 percent of all cases resulted in a guilty plea. The proportion of guilty pleas tended to increase over the years as the caseload in the court system increased in the seven year period. In addition to guilty pleas, the Crown also seemed to be staying and withdrawing more charges over the years. This is also likely to be a reaction to the increasing caseload in the court system. An interesting policy alternative would be to explore with the DYNAMO simulation model the situation where the Crown counsel remains inflexible in regard to guilty pleas and charge stays no matter what the caseload is in the court system.

The situation of having inflexible Crown counsel has to be highly hypothetical. Although it is estimated that over 50% of all criminal cases go through the system by means of guilty pleas, it is not clear how many of them went through bargaining with the Crown who gave a “good deal” either by means of reducing charges or by dropping some charges. Some of the accused would simply plea guilty, with or without a “good deal” from the Crown. Quite arbitrarily, it is determined that the rate of the guilty plea would be reduced by 10% from the lowest guilty plea rate in the base flow model and remains unchanged in the hypothetical model.

Figure 26 shows the comparison between the monthly volume of guilty pleas at the rate in the base flow model and the monthly volume of guilty pleas at the rate reduced by

ten percent over all types of charges. As the Crown becomes inflexible there would be fewer guilty plea negotiations than in the base flow model, in which the Crown has the propensity to negotiate guilty bargains when pressured by the caseload in the court system. The gap between the volumes in Figure 26 gets wider and wider in the later years in the simulation mainly because in the base flow model, when the caseload increases in the later years, the Crown is simulated to initiate more guilty pleas, whereas in the current scenario, the guilty plea rate remains unchanged, resulting in a relatively slower increase. As the number of guilty pleas goes down, the number of trials will go up.

Figure 26 Guilty Plea: Inflexible Crown Vs. Base Flow Pattern

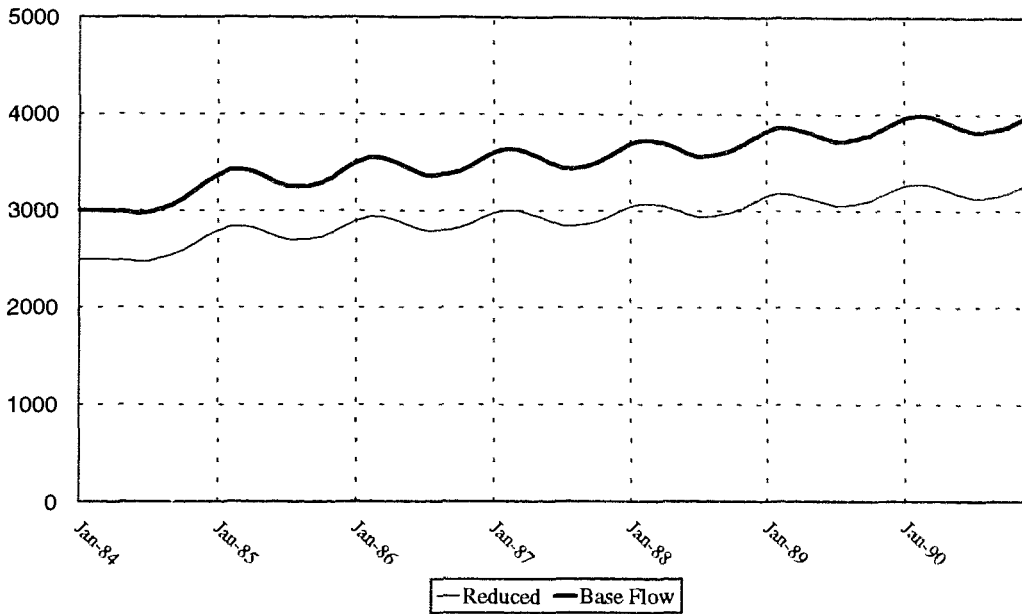
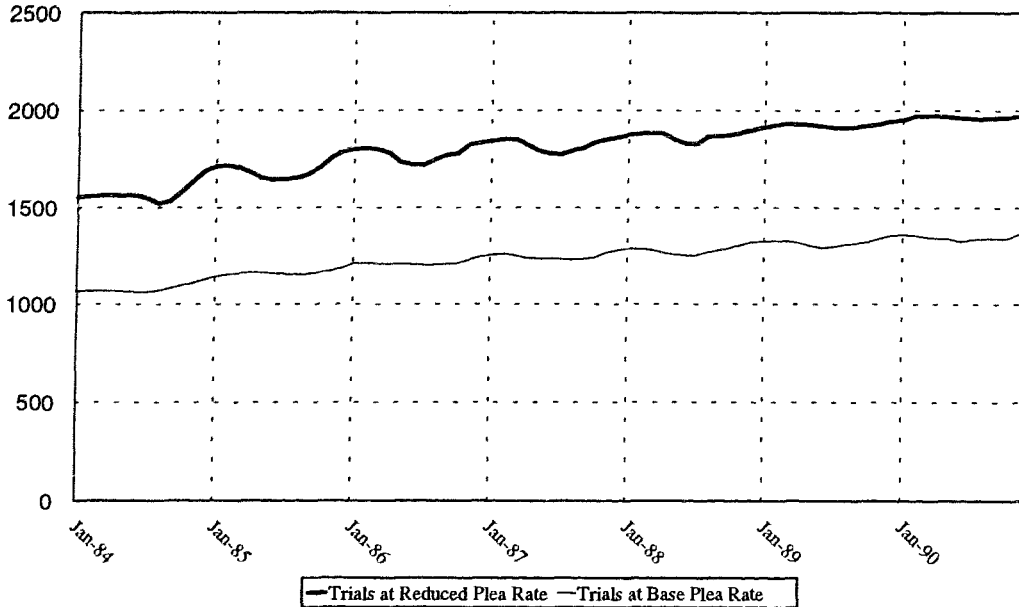


Figure 27 shows the output from the simulation model with reduced guilty plea rate. The number of trials in 1984 increased from about 1,100 cases a month to about 1,400 cases a month. In 1990, the number of trials increased from 1,400 to almost 2,000 a month. This basically illustrates that the output from this scenario is consistent with the conceptual pattern.

Figure 27 Month Volume of Trials: Reduced Plea Rate Vs. Base Plea Rate



When the number of guilty pleas is reduced and the number of trials goes up, the major impact would show on the cost of legal aid. A case going through trial costs much more than a case going through on a guilty plea. In 1991, for example, trial cases cost about \$1,100 per case, whereas guilty plea cases cost only around \$400 per case. Consequently, the total cost of legal aid would go up, as can be seen in Figure 28. Annually, the total cost of legal aid would go up by more than 14 percent (Table 52). In 1990, the total cost would increase by about two million dollars.

Figure 28 Cost of Legal Aid at Reduced Plea Rate Vs. Base Plea Rate

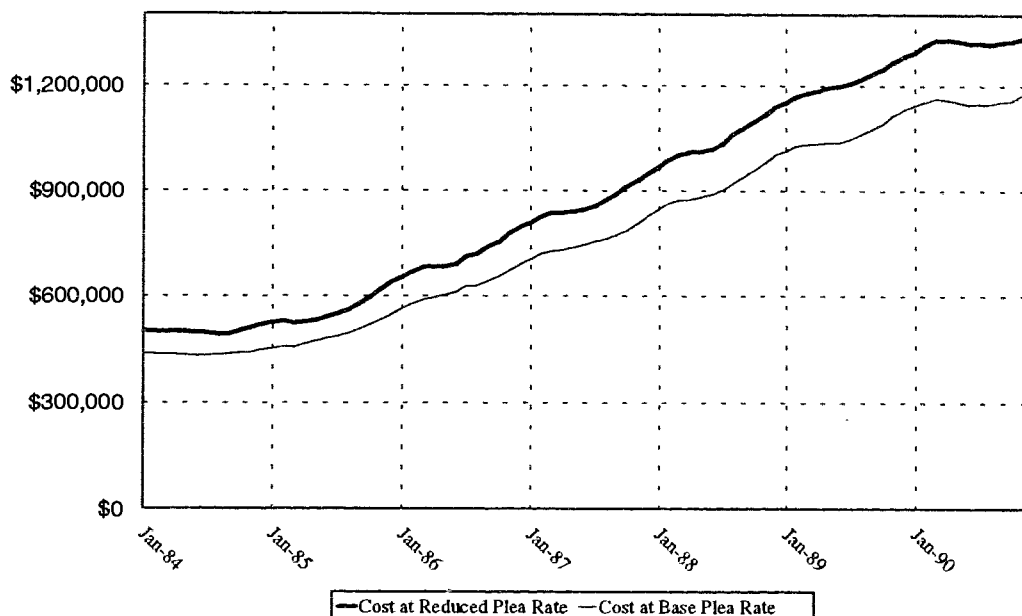


Table 52 Cost of Legal Aid: Inflexible Crown Vs. Base Flow

| Time | Base Flow Pattern | Cost with Inflexible Crown | Compared to Base Flow |
|------|-------------------|----------------------------|-----------------------|
| 1984 | \$5,231,000 | \$5,997,900 | 14.7% |
| 1985 | \$5,852,100 | \$6,702,000 | 14.5% |
| 1986 | \$7,433,600 | \$8,534,900 | 14.8% |
| 1987 | \$9,049,600 | \$10,382,800 | 14.7% |
| 1988 | \$10,906,600 | \$12,498,500 | 14.6% |
| 1989 | \$12,678,000 | \$14,511,000 | 14.5% |
| 1990 | \$13,873,000 | \$15,855,000 | 14.3% |

POLICY ALTERNATIVES BY THE LEGAL SERVICES SOCIETY

The Legal Services Society of British Columbia is mandated, as stated in the *Legal Services Act*, to provide legal aid to those who need legal counsel and would not be able to afford it without legal aid. Meanwhile, the Society is restrained by limited

resources. In order to fulfill its mandate with limited resources, the Society has generally two leverages to maneuver. One is to modify the tariff to change the cost per case and the other is to redefine the need for legal aid within acceptable interpretations of *the Legal Services Act*. This section will explore the applicability of the DYNAMO simulation model in the scenarios where the Legal Services Society adopts different hypothetical policy alternatives in regard to tariff modification and redefinition of the need for legal aid.

Legal Aid Eligibility Expansion

As aforementioned, the seven-year period from 1984 to 1990 was a time to see legal aid expansion. New legal aid field offices were set up, making legal aid more accessible to the needy. Flexible income eligibility test was introduced in this period, allowing more people to be financially eligible for legal aid. What would happen if LSS did not expand the service, i.e., if the Society did not introduce the flexible eligibility test and did not set up new offices. Operationally, the simulation model is supposed to assume that the rate of legal aid application by those who were charged with criminal and the approval rate for legal aid by LSS remain at the lowest level in the seven years.

Table 53 shows the differences in the volume of legal aid applications between the base flow pattern and the simulated scenario. If the LSS did not expand its services during the seven-year period, fewer people would come to LSS to apply for legal aid, and an increasingly greater impact would be noticed over the years. For the year of 1984, for

example, only 0.1 percent of applications would be affected. In 1987 and forward, the change became -2.9 percent.

Table 53 Volume of Legal Aid Applications If LSS Did Not Expand Service

| Time | Base Flow Pattern | Without LSS Expansion | Volume Change | % Change |
|------|-------------------|-----------------------|---------------|----------|
| 1984 | 36,305 | 36,271 | -34 | -0.1% |
| 1985 | 39,036 | 38,615 | -422 | -1.1% |
| 1986 | 40,796 | 39,961 | -836 | -2.0% |
| 1987 | 41,995 | 40,769 | -1226 | -2.9% |
| 1988 | 43,505 | 42,238 | -1267 | -2.9% |
| 1989 | 44,959 | 43,645 | -1315 | -2.9% |
| 1990 | 46,109 | 44,762 | -1347 | -2.9% |

Greater impact can be seen in changes in the volume of legal aid approvals. In 1990, for example, 2.9% fewer people would apply for legal aid (Table 53). The volume of approvals, however, would decrease by five percent (Table 54). This is in line with both the conceptual model and the empirical model. When LSS expanded its services, it set up more offices and increased its approval rate for legal representation. When simulating the removal of expansion of services, the increase of approval rate in the seven years is also removed as well as the increase of the application rate.

Table 54 Volume of Legal Aid Approvals If LSS Did Not Expand Service

| Time | Base Pattern | Without LSS Expansion | Volume Change | % Change |
|------|--------------|-----------------------|---------------|----------|
| 1984 | 25,400 | 25,071 | -330 | -1.3% |
| 1985 | 27,933 | 26,654 | -1279 | -4.6% |
| 1986 | 29,826 | 27,550 | -2276 | -7.6% |
| 1987 | 30,815 | 28,135 | -2680 | -8.7% |
| 1988 | 31,474 | 29,131 | -2342 | -7.4% |
| 1989 | 31,853 | 30,075 | -1778 | -5.6% |
| 1990 | 32,448 | 30,837 | -1611 | -5.0% |

When fewer clients are served, the cost of legal aid will naturally decrease, which is shown in Table 55. Comparing Table 54 and Table 55, however, it can be seen that the cost of legal aid does not change in a linear manner with the number of clients served. In the first year (1984), the number of approvals decreased by 1.3 percent. This decrease in the number of clients served had no impact on the cost in that year. This can be explained by the fact that there is a time delay between the time when an application is approved and the time when the cost is incurred, which is the time the criminal justice system takes to process the accused. Another interesting pattern about the non-linear change between the number of clients served and the cost of legal aid is that the decrease in cost is always much lower than that in the number of clients served, which is mainly due to time elapsed between approval and cost and the increasing tariff during the seven-year period. In other words, the increased tariff reduced the amount of savings that would have been achieved by reducing the number of clients served.

Table 55 Cost of Legal Aid If LSS Did Not Expand Service

| Time | Base Pattern | Without LSS Expansion | Change in Dollars | % Change |
|------|--------------|-----------------------|-------------------|----------|
| 1984 | \$5,231,000 | \$5,231,000 | \$0 | 0.0% |
| 1985 | \$5,852,100 | \$5,815,700 | (\$36,400) | -0.6% |
| 1986 | \$7,433,600 | \$7,319,900 | (\$113,700) | -1.5% |
| 1987 | \$9,049,600 | \$8,825,400 | (\$224,200) | -2.5% |
| 1988 | \$10,906,600 | \$10,598,200 | (\$308,400) | -2.8% |
| 1989 | \$12,678,000 | \$12,310,200 | (\$367,800) | -2.9% |
| 1990 | \$13,873,000 | \$13,467,000 | (\$406,000) | -2.9% |

Legal Aid Tariff

In the seven-year period, which is used to build the base DYNAMO simulation model, LSS increased the tariff several times (see Chapter 1 for details). It would be interesting to find out what the cost of legal aid would be if the tariff remained unchanged since 1984 while serving the same number of clients? Using the DYNAMO simulation model, this question can be easily answered. As can be seen in Table 56 if the tariff that was used in 1984 were used in 1990, the cost of legal aid would be less than half in the base pattern. Comparing Table 56 and Table 55, it is also clear that the expansion of legal aid service accounts for little of the increase in the cost of legal aid. It is the tariff increase in the seven years that account for the great increase in the cost of legal aid.

Table 56 Cost of Legal Aid with Unchanged Tariff

| Time | Base Pattern | If 1984 Tariff Was Used | | |
|------|----------------------|-------------------------|---------------|----------|
| | Cost in Base Pattern | Hypothetical Cost | Volume Change | % Change |
| 1984 | \$5,231,000 | \$5,231,000 | \$0 | 0.0% |
| 1985 | \$5,852,100 | \$5,425,700 | (\$426,400) | -7.3% |
| 1986 | \$7,433,600 | \$5,612,900 | (\$1,820,700) | -24.5% |
| 1987 | \$9,049,600 | \$5,798,900 | (\$3,250,700) | -35.9% |
| 1988 | \$10,906,600 | \$5,997,600 | (\$4,909,000) | -45.0% |
| 1989 | \$12,678,000 | \$6,209,800 | (\$6,468,200) | -51.0% |
| 1990 | \$13,873,000 | \$6,390,400 | (\$7,482,600) | -53.9% |

Using 1992's Legal Aid Tariff

In the seven-year period used in the base flow model, the Legal Services Society used a relatively low tariff in spite of the increases as discussed earlier. In the summer of 1991, legal aid lawyers had a successful job action, which resulted in doubling the tariff in June, 1991, the highest tariff in the legal aid history in BC. This tariff lasted for 19 months till December 1992, when LSS had to reduce tariff by 15 percent. While the earlier scenario was to explore the impact of the lowest tariff in the simulation model, it would be equally interesting to explore what would be the cost of legal aid if the tariff that was used between the summer of 1991 and the end of 1992 was applied to the period between 1984 and 1990 while serving the same number of clients. Table 57 shows the simulated impact in this scenario.

Table 57 Cost of Legal Aid with The Highest Tariff

| Time | Base Pattern | Use Highest Tariff | Change in Dollars | % Change |
|------|--------------|--------------------|-------------------|----------|
| 1984 | \$5,231,000 | \$30,771,000 | \$25,540,000 | 488.2% |
| 1985 | \$5,852,100 | \$31,916,000 | \$26,063,900 | 445.4% |
| 1986 | \$7,433,600 | \$33,017,000 | \$25,583,400 | 344.2% |
| 1987 | \$9,049,600 | \$34,111,000 | \$25,061,400 | 276.9% |
| 1988 | \$10,906,600 | \$35,280,000 | \$24,373,400 | 223.5% |
| 1989 | \$12,678,000 | \$36,526,000 | \$23,848,000 | 188.1% |
| 1990 | \$13,873,000 | \$37,591,000 | \$23,718,000 | 171.0% |

PROJECTION OF THE FUTURE

The primary objective to develop a simulation model for legal aid is to forecast the cost of and need for legal aid with the model when changes take place to other parts of the legal aid system. It explores the possibility of answering such questions as, what if crime increases rapidly, what if the police make more charges, what if more trials go through the court system, etc. The scenarios that are discussed in the first part of this chapter illustrate that the model is able to answer these questions.

The DYNAMO simulation model that has been built in this study has two features that technically allow the projection of the future state of the legal aid system. First, the model has the capacity to run more than 84 time points, which, in this study, stand for 84 months in the base flow model. Second, the initial input into the model, which is the crime predictors, is designed in such a way that it allows either manual data entry of the crime predictors for the future, or that the model can generate the crime predictors by extending

the seasonal variation and the trend in the base flow model into the future. This section will explore the applicability of the model in this perspective.

Projecting the future state of a system has to be based on many assumptions. The behavior of the system, for example, is assumed to have a similar pattern as it has had before. The current trend is assumed to extend to the near future. These are the major assumptions in forecasting the future with the DYNAMO simulation model. This is especially true with the way in which the values of the initial input, the crime predictors are generated. Without much manipulation of the model and by simply letting the model run for 60 time points (each time point in this model stands for one month and 60 time points stand for five years) in addition to the 84 time points in the base flow model and earlier scenarios, the model, as has been programmed, identifies the general trend and patterns in seasonal variation and extends the general trend and pattern thus identified to the additional time points.

Table 58 Crime Predictors Used for Forecasting the Future (1)

| Time | Beer Consumption (,000 Liters) | Compared to Previous Year | Retail Volume (\$'000) | Compared to Previous Year |
|------|-----------------------------------|------------------------------|---------------------------|------------------------------|
| 1984 | 225,270 | | 14,855 | |
| 1985 | 230,500 | 2.3% | 15,563 | 4.8% |
| 1986 | 231,850 | 0.6% | 16,256 | 4.5% |
| 1987 | 233,360 | 0.7% | 17,026 | 4.7% |
| 1988 | 243,400 | 4.3% | 18,206 | 6.9% |
| 1989 | 252,110 | 3.6% | 19,495 | 7.1% |
| 1990 | 255,020 | 1.2% | 18,740 | -3.9% |
| 1991 | 254,460 | -0.2% | 17,164 | -8.4% |
| 1992 | 254,200 | -0.1% | 15,846 | -7.7% |
| 1993 | 254,560 | 0.1% | 14,416 | -9.0% |
| 1994 | 256,950 | 0.9% | 12,926 | -10.3% |
| 1995 | 258,050 | 0.4% | 11,453 | -11.4% |

Future Projection: Crime Predictors

Tables 58 and 59 have the initial values for the crime predictors that are either manually entered or generated by the simulation model (The values from 1984 to 1990 are original ones manually entered into the base flow model. The values from 1991 to 1995 are generated by the simulation model using techniques described in the previous paragraph.). Since three crime predictors used in the base flow model demonstrate increasing trends in the seven years, the generated ones also show similar increasing trends. The population, for example, grows by about 2% each year both in the base flow model and in the projected time period. An exception to the increasing trend is the retail volume which shows a decreasing trend in the last two years in the base flow pattern. Consequently, the simulation model generated decreasing values for the later five years. Given the economic situation in British Columbia, this seems to be an unlikely situation. On the other hand, however, it would be interesting to see how the whole system would react to a situation where crime would increase year by year since the increasing trend of beer consumption, rate of working women, population growth and decreasing trend of retail volume work together to predict crime increase, which will be illustrated later in this section.

Table 59 Crime Predictors Used for Forecasting the Future (2)

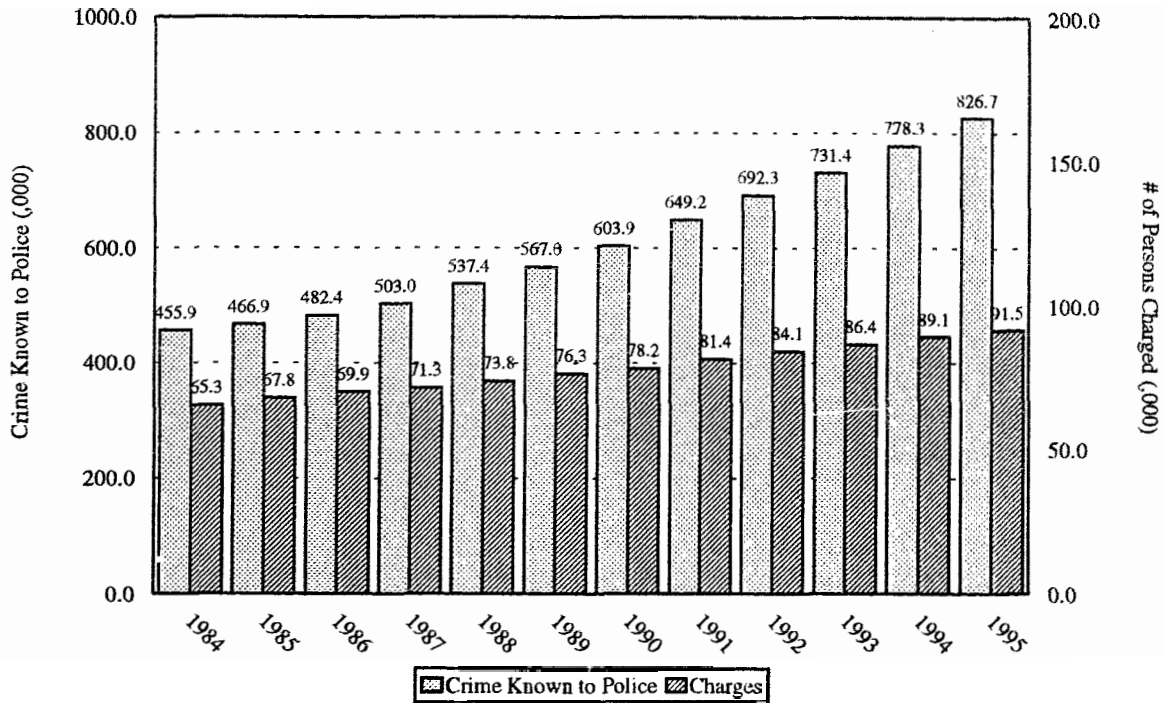
| Time | Rate of Working Women | Compared to Previous Year | Population (,000) | Compared to Previous Year |
|------|-----------------------|---------------------------|-------------------|---------------------------|
| 1984 | 54.0% | | 35,911 | |
| 1985 | 54.4% | 0.8% | 36,221 | 0.9% |
| 1986 | 55.2% | 1.5% | 36,719 | 1.4% |
| 1987 | 56.2% | 1.8% | 37,402 | 1.9% |
| 1988 | 57.3% | 1.8% | 38,383 | 2.6% |
| 1989 | 58.1% | 1.5% | 39,390 | 2.6% |
| 1990 | 58.5% | 0.7% | 40,169 | 2.0% |
| 1991 | 59.1% | 1.1% | 41,027 | 2.1% |
| 1992 | 59.6% | 0.7% | 41,930 | 2.2% |
| 1993 | 59.8% | 0.4% | 42,755 | 2.0% |
| 1994 | 60.4% | 1.0% | 43,557 | 1.9% |
| 1995 | 61.1% | 1.2% | 44,455 | 2.1% |

Future Projection: Crime Known to the Police and Charges

Based on the crime predictors, the simulation model generates crime patterns for the future in addition to the base flow patterns. The figure below shows that the crime pattern is very close to the predicted pattern in the earlier paragraph. The volume of crime known to the police keeps increasing for the entire projected time period. The number of persons charged also increased in the projected time period. However, the increase of the number of persons charged is at a lower rate than the increase of the volume of crime known to the police. In 1995, for example, the amount of crime reported to the police was 31% higher than that in 1990. The number of persons charged in 1995, however, was only 17% higher than that in 1990. This is consistent with the conceptual model in that when the police face more reported crime they are unable to keep up with the earlier charge rate because of the restriction of resources.

It should be noted that when charges drop to a certain level, police forces are likely to increase staff level in order to be able to lay more charges. A trigger could be built into the model to simulate the possible resource increase.

Figure 29 Future Projection: Crime Known to Police and Charges

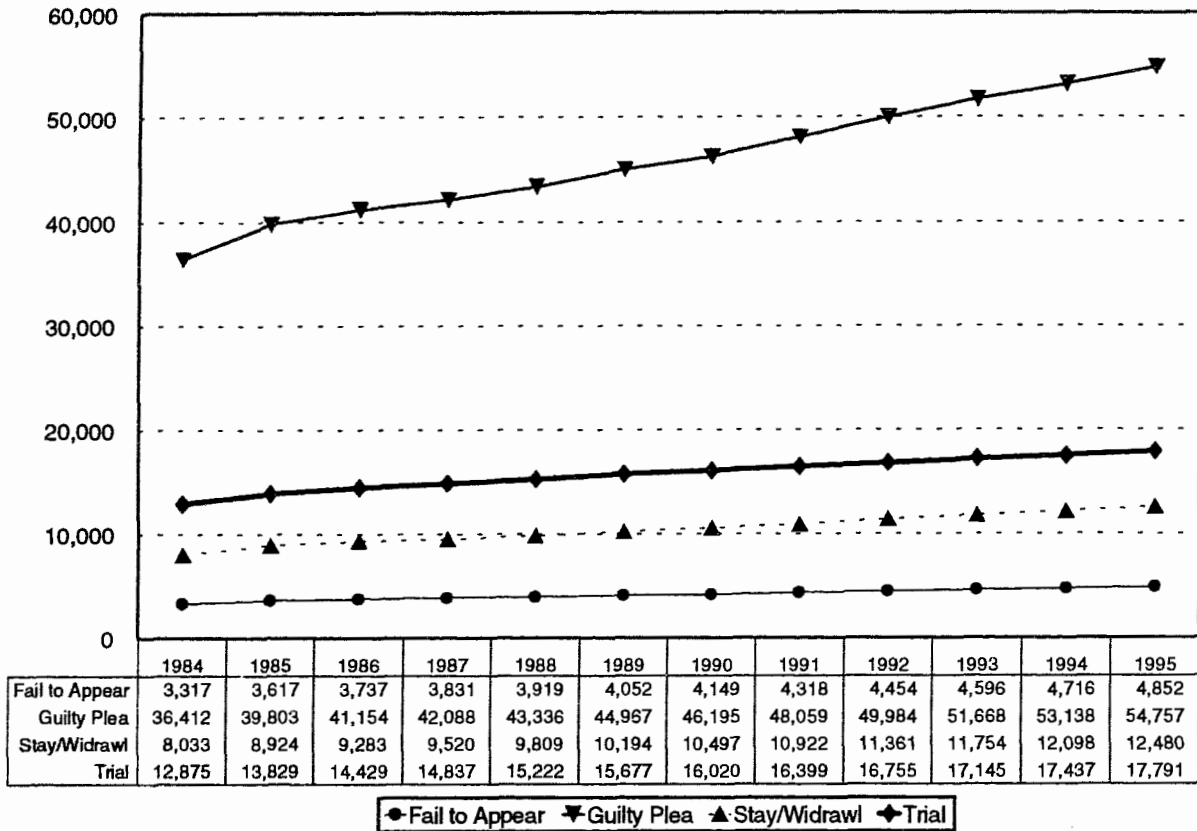


Future Projection: The Court System

With increased number of persons charged in the projected time period, the court system has to speed up processing cases. One alternative is to increase the number of guilty pleas, stay more charges and withdraw more charges in addition to limited increase in resources. Figure 30 gives the outputs of the model simulating the projected court activity. It is shown that the model assumes that the court would take this alternative. The volume of guilty pleas, as illustrated in the figure, shows an up-going trend that is greater

than the volumes of any other procedures. In 1995, 54,757 cases would be completed by way of guilty plea, an increase of 18.5% than that in 1990. Stay/withdrawal increased by 18.9%. Trials, on the other hand, increased by 11.1% in the same two-year comparison.

Figure 30 Future Projection: The Court System



Future Projection: the Need for and Cost of Legal Aid

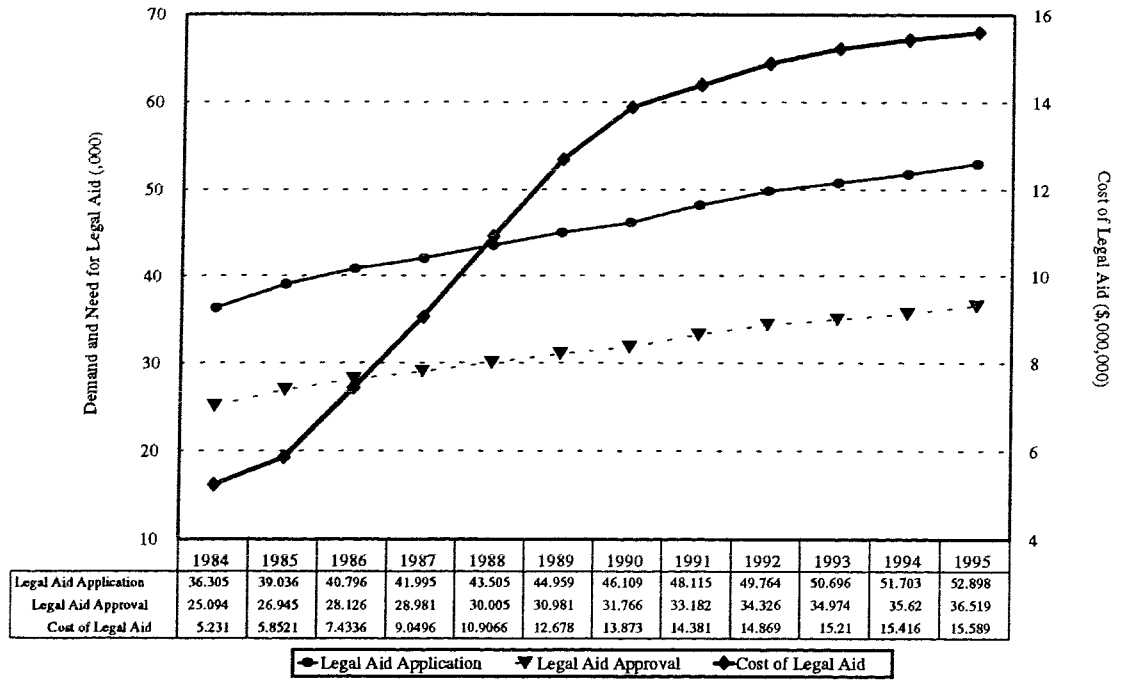
The amount of demand and need for legal aid generally correlates with the volume of charges. When there are more charges there should be more demand and more need for legal aid. However, the Legal Services Society can redefine the need for legal aid in order to control the cost of legal aid.

Figure 31 shows the projected demand and need for legal aid and the cost of providing legal aid. In comparing the volumes in 1995 with that in 1990, it is shown that the demand for legal aid increased by 15% and the need for legal aid increased by 15%. These increases are a little lower than the increase in the number of persons charged (17% as in Figure 29). This is the result of Legal Services Society's policy alternative when facing a substantial increase in criminal charges. It makes its eligibility policy more strict so that fewer people would qualify for legal aid. In turn, the demand for legal aid would also decrease, as a result of the "deterrence effect".

The cost of legal aid increased by only 12.4% in 1995 as compared with the cost in 1990, although 15% more people were actually served. This is likely due to greater increase in the volume of guilty pleas, stays and withdrawals and less increase in the volume of trials, which cost more than twice the cost of guilty plea cases.

What is more striking in the cost of legal aid in Figure 31 is the relatively flat upper slope in the projected time period in comparison to the steeper upper slope in the base flow time period. As discussed earlier, the great increase in the cost of legal aid was mostly due to the tariff increases over the seven years. In the projected time period, however, the tariff rate for 1990 is used without any tariff increase.

Figure 31 Future Projection: Need and Cost of Legal Aid



CHAPTER VIII. SUMMARY AND CONCLUSIONS

The legal aid system in Canada is having crisis in funding after nearly twenty years' expansion. When both the demand for and cost of legal aid services are growing at an unprecedented rate, the Legal Services Society (LSS) of British Columbia is faced with the dilemma of how to meet the increased need for services while implementing cost containment measures required to reduce its growing deficits. To help legal aid planners make policy decisions, this exploratory study examined legal aid in the context of the whole criminal justice system and developed a planning tool to forecast the impact of changes in the criminal justice system on the need for and cost of legal aid in British Columbia.

The legal aid system in British Columbia is a basically government-funded multi-million dollar business, with expenditures exceeding 100 million dollars in the fiscal year 1993-94. Many factors have contributed to the increase in the need for and cost of legal aid. This study examined the contributing factors found within the British Columbia legal aid system, such as the historical development of legal aid, the mode of providing legal aid, the scope and operations of legal aid services including the financial eligibility criteria, service coverage policy, tariffs, and accessibility to legal aid services.

Governments funding is crucial to the existence of the legal aid system. Funding from the government and the legal profession have made it possible for the indigent people in the province to have access to legal services. In the meantime, cuts in funding have had

equally important impacts on the legal aid system and pressed the LSS to take substantial measures to reduce its deficits. In addition to funding cuts, legislation and court decisions have also affected the need for and cost of legal aid. For example, this study demonstrated the impact of the proclamation of the *Young Offenders Act* on the cost and operations of legal aid. While the impact of the legislation seemed minimal in its early stage, the cost for court directed cases went up to over two million dollars in 1994 after a decade of enforcement of the *Act*. This study also discussed the impact of the changes in the LSS' eligibility policy and coverage policy. As the result of the adoption of stricter eligibility and coverage policies, more people failed to meet the approval criteria and were turned down while more youths had court directed counsel rather than LSS appointed counsel. It is cautioned that it may take many years to see the full impact of a new item of legislation. This study also pointed out that the interpretation of existing legislation by courts at different levels has had a significant impact on the need for and cost of legal aid in British Columbia. The cases of *Regina vs. Brydges*, *Mountain vs. Legal Services Society*, *Gonzalez-Davis vs. Legal Services Society*, and *Regina vs. Rowbotham* were discussed to support this argument.

The role of private lawyers in providing legal services for the eligible people in the province was examined in the study. It is no doubt that, without private lawyers' participation in legal aid activity, the legal aid system would cease to function. However, because of their indispensable participation in the legal aid system, the private lawyers' role has had a significant impact on the policy making by the LSS, and on the need for and cost of legal aid.

This study argued that repeated requests to increase tariffs have been the major reason for the increase in the cost of legal aid and for modifications of the LSS' policy. For example, as a result of a job action by the private bar lawyers in the summer of 1991, the tariff was doubled and the cost of providing legal aid in the province was more than doubled in the following fiscal year, which forced the LSS to redefine its eligibility policy to meet its budget.

This study emphasized the dynamic nature of the criminal justice system. The criminal justice system that consists of many parts is under continual flow pressures. It is argued that the flows of people through the system are constantly changing. Crime rates fluctuate and monthly crime patterns vary greatly. Laws, and the organizational structures of the criminal justice agencies are also changing. This study examined such major actors as the police, the prosecution, the courts, the correctional agencies, and some crime generators which were thought to be key elements in the prediction of the need for and cost of legal aid in British Columbia. It is believed that all different components of the criminal justice system are interconnected, although they may pursue conflicting goals. The success of each subsystem is dependent on the behavior of all the rest. Legal aid as a criminal justice subsystem is inevitably influenced by the behavior of the whole criminal justice system. The behaviors of the prime actors in the criminal justice system are also interrelated with each other and then indirectly affect the need for and cost of legal aid.

It is believed that the police, as the key players in the criminal justice system, basically control the quantity and quality of the input into the criminal justice system. They

have great discretion in exercising their control by identifying more or less crime, by laying more or fewer charges, by encouraging the public to report more or less crime, and by focusing on some specific types of crime. The major output from the police that becomes the major input into the legal aid subsystem is criminal charges laid by the police. With other variables remaining constant, the more charges the police lay, the more need for legal aid there will be. This study examined the major factors that might affect police charge rates.

It is argued that, from a systems point of view, the court subsystem is different from all the other parts in the criminal justice system in that it is the only subsystem that can control both its input and output. The input control is conducted by Crown counsel by means of screening cases out of the system or by directing cases along different routes into the court system. The Crown has substantial discretionary power in exercising many options in disposing criminal cases at different stages. Therefore, the practice of the Crown counsel has tremendous impact on the administration of the subsystems of the court and legal aid. On the other hand, the output from the court has even greater impact on the whole criminal justice system, especially through the sentencing decisions made by the judge. While the sentencing decisions by the judge have a direct impact on the population in the corrections subsystem, which affects the need for and the cost of prison legal aid, they also indirectly affect crime patterns. Crime patterns will, in turn, affect the need for and cost of legal aid. It is believed that imprisonment is over-used in Canada and yet it has the most significant impact on the legal aid system. With the new legal aid coverage policy, which uses the probability of imprisonment for all offences in any specific

region as one of the major criteria for legal aid approval, the changes in sentencing practice will have significant impact on the legal aid system.

Corrections is also an integral part of the criminal justice system. Corrections receives input from within and without the criminal justice system and not only sends output out of the criminal justice system, but also input into the criminal justice system. However, the corrections subsystem does not have any direct control over the input and its output is largely dependent on the decisions made in other subsystems. The operations of corrections have a direct impact on the need for legal aid because of the provision of prison legal aid services and they have an indirect impact on the need for legal aid through their effects on crime patterns.

All the major actors in the criminal justice system have their unique functions that have their share of impact on the administration of legal aid, and on the need for and the cost of legal aid. They produce direct input into the legal aid subsystem. The police basically control the caseload of legal aid. The courts affect the cost of providing legal aid for each case. The correctional subsystem influences the need for prison legal aid. In addition to the direct impact they have on the administration of legal aid, the interactions among the major actors may have a greater impact on legal aid and make it more difficult to forecast the need for and the cost of legal aid.

The behavior of legal aid as one of the subsystems in the criminal justice system is closely related to the behavior of the major actors in the system. Legal aid is dependent on

these actors in the criminal justice system for its input. Therefore, the behavior of legal aid can only be best understood by studying the whole criminal justice system. As its main purpose is to develop a planning tool for the legal aid planner, this study tested the feasibility of using computer simulation modeling to demonstrate the interconnectedness among various parts of the criminal justice system and forecast the impact of changes in the system on the need for and cost of legal aid in British Columbia.

In this study, systems analysis and simulation modeling were utilized to explore the system dynamics of legal aid. Being regarded as an approach, systems analysis is concerned with connectedness and wholeness, so it emphasizes the interconnections among the various components that constitute a whole system. It was adopted in this study because of its holism concept and its stress on the interdependency among various system parts. As the operations of legal aid depend on the other parts in the criminal justice system for its input and output, a systems analysis will reveal the interdependency. Moreover, the legal aid system itself is a complex system consisting of many sub-systems which consist of many parts at different hierarchical levels. Simulation modeling is one of the most commonly used techniques to study such a complex social system from the systems perspective. It is believed that using simulations helps better understand the behavior of a system over time. Computer simulation methodology is considered a highly integrative form of model building and can deal with systems of greater complexity.

This study discussed and compared the applications, advantages and limitations of three criminal justice models representing three major approaches, i.e. JUSSIM by Belkin,

Blumstein, and Glass (1974); DOTSIM by Public Safety Systems of Santa Barbara, California (1973); and the Florida model by P. L. Brantingham (1977). It is argued that the model builder should start by reviewing existing well-developed simulation models and compare their compatibility with the system to be simulated once the problem has been defined for simulation. As no simulation model had been developed for the purpose of this study, the feasibility of using simulation programming languages was explored in this study. DYNAMO, a time dependent simulation language based on linear and non-linear difference equations, was selected as the simulation programming language because it is specifically developed to provide a language for analyzing a dynamic system characterized by the interconnectedness between various parts within the system and time-dependent continuous feedback. The execution of a simulation model in this language provided a time ordered picture of how a system operated and changed.

Three sets of data were collected for this study: crime predictors, criminal justice system data, and legal aid data. The data covered the period from 1984 to 1993. The main purpose of data collection in this research was to provide accurate estimates of the parameters needed to make the simulation model a true representation of the actual legal aid system and its interaction with the criminal justice system, based on which future projections can be made.

The discussions in Chapter II and Chapter III defined the problem and significant variables for the study. They served as the basis for developing the conceptual model of simulations. The conceptual model, shown through causal relationships, feedback

structures and the development of flow charting diagrams, causal loop diagrams and the DYNAMO flow diagrams, provided a useful link between a verbal description of a system and its representation as difference equations in the DYNAMO simulation model. The causal loop diagrams were produced to demonstrate various factors influencing the need for legal aid, which included socio-economic conditions, demographic characteristics, crime rate, law enforcement, court procedure, policies for legal aid services, the availability and accessibility of legal aid, etc.

The socio-economic-demographic factors may influence the need for legal aid. Such factors as percentage of males, percentage of females, percentage of young people, percentage of single parent families, unemployment rate, percentage of people on welfare, and migration rate are interrelated. Changes in the socio-economic-demographic situations can bring about changes in crime patterns which may affect the need for legal aid.

The conceptual model illustrated that the need for legal aid heavily depended on the operations of the criminal justice system. Many aspects of the procedures of the criminal justice system may influence the need for legal aid. These may include charging practices, trial rates as compared with guilty plea rates, stay and withdrawal rates, the changing and fixed features of the *Criminal Code*, the *Narcotics Control Act* and other legislation including the *Young Offenders Act*, as well as sentencing practices.

It was demonstrated in the conceptual model that the administration of legal aid itself influenced the need for and the cost of legal aid services, which, in turn, influenced

the criteria for determining legal aid need. The tariff structure, the use of *judicare* versus staff lawyers, administrative practices, financial eligibility criteria, types of service to provide, service coverage policies, and the distribution of services, etc. were all within the maneuver of the legal aid administrators. It was also shown that the utilization of legal aid services was largely dependent on the availability and accessibility of the services, mostly, the number and location of intake points.

The DYNAMO flowcharts are simplified representations of the DYNAMO simulation program *per se*. In this study, the people flow in the system was divided into seven offence types and separately traced young offenders and adult offenders. Since all the people were not represented by legal aid lawyers, the people flow in the model was also categorized by legal aid representation and non-legal aid representation. Thus, people of different types of charges, young or adult and legal aid or non-legal representations were treated differently at various decision points and went through different sets of court procedures.

Six modules were developed to make it possible to structure the model of macro structure of legal aid that showed the interconnectedness of various variables influencing the need for and cost of legal aid in British Columbia. These were: the crime module, the police module, the prosecution module, the judicial module, the corrections module, and the administration of legal aid module. These modules were shown to be interconnected with both information and people flowing among them.

This study also demonstrated micro structures of each of the six modules. Causal loops were drawn to demonstrate the relationship of different variables. Criminal events are the major input into the legal aid subsystem as well as the criminal justice system. The simulation model consisted of monthly crime patterns by offence and various socio-economic and demographic variables that were used as crime predictors. For the police module, people were processed through the police agency at a certain charge rate and with some time delay, which were affected by the volume of crime known to the police, police resources, the proportion of serious crime versus less serious crime, and unexplainable factors.

The prosecution module showed that a number of factors affected the Crown in his/her exercise of the discretion to dispose cases. Among them, the caseload influenced the Crown's decisions about disposal. However, Crown could control their own workload and the caseload in the system by rejecting or proceeding with requests for criminal charges without much scrutiny. The judicial module showed how criminal cases were processed in the court system. It was believed that the major decision point in the module was that of whether there was a guilty plea and that the Crown played a major role in the plea bargaining process. The corrections module showed that the input of the corrections system was dependent on the number of people given jail or prison sentences. The sentencing pattern determined the length of the stay of the inmates in the corrections system and the release rate. In the meantime, it received feedback from the corrections system.

After being released into society, a certain proportion of the former inmates would commit crime again, which constituted the feedback into the criminal justice system. In the module of legal aid administration, the inputs were mainly from the police module and the corrections module. The number of people approved for legal aid had the greatest impact on the cost of legal aid, and the cost of legal aid affected the approval rate through a policy switch, which normally occurred when cost increased faster than resources. The tariff for different procedures, while having a positive impact on the cost of legal aid, was inversely affected by the gap between the cost of legal aid and the budget.

The modules demonstrated that the interactions between legal aid administration and the criminal justice system were dynamic. The people flow and information flow from the earlier decision points affected the decision alternatives, but feedback from later decision points affected earlier decision points as well. In general, changes at any point would affect the performance of the whole system.

As the development of a simulation model required an understanding of the whole system both conceptually and empirically, an empirical analysis of the legal aid system was done to reveal the behavior of the various major actors and their interrelationships within the legal aid system. In the analysis, empirical data were used to provide various parameters needed for developing the simulation model. At the highest level of the system, the need for legal aid was a function of various factors including, in this model, crime known to the police, persons charged, prosecution behavior, court behavior, corrections

behavior, legal aid tariff, and budget of the LSS. Each of these factors was also a function of a number of variables at a higher level of resolution.

The relationship between the crime pattern and various socio-economic and demographic patterns was analyzed in order to develop the simulation model. The findings revealed that the number of people receiving unemployment insurance had negative correlation and the number of people receiving income assistance had little relationship with crime known to the police. It was also shown that such socio-demographic variables as beer consumption, percentage of women participating the work force, retail volume and population were highly correlated with crime known to the police. The results from these analyses gave strong support to the pattern theory and routine activity theory in that the variables that are found highly correlated with crime are the factors that the two theories believe to contribute to the three essential elements for a crime to be committed, namely the presence of a target/victim, the absence of a guardian and the presence of a potential offender. As a result of the analysis, four variables were chosen to be used in the simulation model: volume of beer consumption, percentage of working women, retail volume and the total population in British Columbia.

This study explored the applicability of the simulation model developed in the DYNAMO simulation language to the complicated "real-world" legal aid system. The model was tested to run the base flow patterns to produce output at various stages in the legal aid system. Then, the base flow patterns were used for comparison with output from the model applied in various hypothetical scenarios, which included the impact of changes

in crime patterns on the legal aid system, the impact of hypothetical decisions of policy alternatives in the criminal justice system on the whole legal aid system, and the impact of hypothetical policy alternatives by the Legal Services Society of BC on the system.

The base flow patterns showed that more persons were charged over time as the amount of crime increased from 1984 to 1990. It also showed that the largest volume of cases went through the court system by means of guilty plea and that the number of guilty plea cases per month was increasing. Cases going through trials also increased. During the same period, the number of fail-to-appear cases remained constant, while the number of stays or withdrawals increased substantially.

The analysis revealed a dramatic increase in the cost of legal aid, which was tripled from \$400,000 a month in 1984 to \$1,200,000 a month in 1990. However, the increase was mostly caused by tariff increase, rather than by the number of clients served. It was also shown in the model that, although many fewer cases went to trial, the total cost of trial cases was higher than that of guilty plea cases.

Several scenarios were explored to test the applicability of the simulation model in forecasting the impact of changes in the criminal justice system which included legal aid on the need for and cost of legal aid, i.e. patterns under increased crime, policy changes in the criminal justice system, and policy alternatives by the LSS. It was hypothesized that, under increased crime brought about by population growth, there would be an increased demand for legal aid resulting from increased volume of persons charged with criminal offences.

Thus, the LSS could have several policy alternatives depending on the availability of its resources. The analysis of the scenarios showed the changes in the need for and cost of legal aid under increased crime when the budget of the LSS was unrestrained or restrained. The scenario of unrestrained budget of LSS showed that, due to the increased need for legal aid, the cost of legal aid increased by more than eighteen percent in comparison to that in the same year in the base flow model, assuming that the tariff remained unchanged. However, with the scenario of restrained budget, the LSS could tighten the eligibility and coverage criteria, or reduce the tariff to cut the cost per legal aid case.

This analysis examined these policy switches and revealed that, although the number of persons charged increased by 39 percent under the situation of increased crime, the demand and the need for legal aid increased by only 31 percent and 28 percent, respectively. The under-proportional increases were brought about by the tightening legal eligibility and coverage policy built in the simulation model. As the major reason for the increase in the cost of legal aid during the period from 1984 to 1990 was the increase in the legal aid tariff, the simulation model showed dramatic effect on cost when this factor was under control. The analysis showed that, while the volume of crime known to the police increased by 24 percent, the cost of legal aid was only five percent higher than that in the base flow model.

In terms of the impact of policy changes in the criminal justice system on the need for and cost of legal aid, the simulation model showed that, with increased resources for

the police, more charges were laid by the police, while the amount of crime known to the police remained the same. As a result of increased resources to the criminal justice system, the demand and need for legal aid rapidly increased while the crime level remained unchanged. Moreover, the greatest impact on the legal aid system was cost which showed an out-of-proportion increase in relation to the increase in the demand and need for legal aid, in spite of the fact that tariff rate remained unchanged. On the other hand, with increased resources for the court system, the guilty plea rate went down as compared with that in the base flow model, for more resources available to the Crown and to the court system resulted in more trials and fewer guilty pleas.

The simulation model explored what would happen when the Crown counsel hypothetically remained inflexible in regard to guilty pleas and charge stays with the caseload remaining constant. The results showed that, as the Crown became inflexible, there were fewer guilty pleas than in the base flow model. As the number of guilty pleas went down, the number of trials would go up dramatically. Consequently, the cost of legal aid was affected. In the simulation model, it showed that the total cost of legal aid went up by more than 14 percent as compared with that in the base flow model as a result of reduced plea rate.

LSS policy alternatives were explored and analyzed in the simulation model. It was believed that the LSS had two major possibilities for maneuver when faced with limited resources, i.e., to modify the tariff, and to redefine the need for legal aid. As the period from 1984 to 1990 experienced an expansion in the provision of legal aid in British

Columbia, the scenario of legal aid eligibility expansion was simulated to reveal what could have happened if there had not been the expansion. The results suggested that, if the LSS had not expanded its services during the period, an increasingly greater impact would have been noticed over the years in terms of number of applicants and number of legal aid approvals. More significantly, the cost of legal aid would be reduced in a non-linear manner with the number of clients served. The decrease in cost was always much lower than that in the number of clients served. This is believed to be caused by time elapsed between legal aid approval and the actual incurring of the cost for providing legal aid. It is also because that, in that period, the legal aid tariff was increased several times. The increased tariff reduced the amount of savings that would have been achieved by reducing the number of clients served. The patterns of the output in this scenario implied that reducing the number of persons served would save less money than reducing the cost of providing the same amount of service.

This implication was confirmed by another scenario which was made to explore what the cost of legal aid would be if no changes were made for the tariff rate while the same number of clients was served. The results showed that if the tariff rate used in 1984 had been used in 1990, the cost of legal aid would have been less than half of that in the base pattern. Comparing the two scenarios, it was shown that it was the tariff increase that accounted for the significant increase in the cost of legal aid, whereas the impact of the expansion of legal aid service on the cost was comparatively minimum.

As discussed in Chapter II and Chapter VI, the successful job action taken by legal aid lawyers in 1991 brought about the highest tariff in the BC legal aid history which lasted 19 months till December, 1992, when the tariff was reduced by 15 percent. A scenario exploring the simulated impact of the highest tariff showed that the increase in the cost of legal aid would have ranged from 171 percent for the year of 1990 and 488 percent for 1984, had the highest tariff rate been applied to the period from 1984 to 1990.

Based on the discussions and scenarios made in earlier chapters, a projection of the need for and cost of legal aid in the near future was produced by extending the general trend and patterns identified into additional time points standing for five years in the future. The projection showed that, as the result of the LSS' stricter eligibility policy, the increase in the projected demand and need for legal aid was slightly lower than the increase in the number of persons charged. Moreover, while more people were served than in the year of 1990, the increase in the cost of legal aid was comparatively low in 1995.

From the legal aid planner's point of view, the systems approach and the interconnectedness in the system as demonstrated in the simulation model are extremely important. The various scenarios examined in this study demonstrate that simulation modeling is able to forecast the impact of changes in certain part(s) of the criminal justice system, including the legal aid subsystem itself, on the need for and cost of legal aid.

This study presented the development of a dynamic simulation of the criminal justice system and the legal aid system. The simulation was designed to model the complex

interrelationships within the system, to identify flow linkages, and to respond to dynamic changes in the crime patterns and the major decision points such as charging, guilty plea, sentencing, approving legal aid and changing tariff structures. The equations used in the simulation were designed to model the flow breaks at these important decision points and the information feedback from other agencies and processes within the system.

The DYNAMO simulation model that has been built in this study technically allows the projection of the future state of the legal aid system. The model has the capacity to run more than 84 time points which stand for 84 months in the base flow model. Moreover, the initial input of the crime predictors into the model is designed to allow manual data entry of the crime predictors for the future. The model can also generate the crime predictors by extending the seasonal variation and the trend in the base flow model into the future.

Within the field of criminal justice, planners have two major problems in making predictions and exploring the impact of change. First, conceptual models of the operation of the system which have an orientation towards planning are rare. Second, tools to explore time dependent changes are not readily available. This study has attempted to fill the gaps by constructing a useful conceptual model and an analytic tool for exploring change. The simulation model developed in this study can be used to help the planners of legal aid understand that the provision of legal aid should not be planned in isolation from the rest of the criminal justice system. In addition to the volume of applications for legal aid and the tariff structure for legal aid which are frequently the only variables used in

legal aid planning, all the major decision points in the criminal justice system should be taken into consideration.

When considering policy alternatives, planners tend to assume that other factors are constant. In fact, in a complex system such as the legal aid system in which all major decision points are closely interconnected, other factors can hardly remain constant when changes are initiated at one major decision point. The simulation model built in this study assumed that all the system parts remained dynamic all the time. When changes happened to one component, the rest of the components in the system would respond to the initial change and send feedback to the system simultaneously. This simulation can be helpful for the planners to foresee the possible dynamic changes when policy alternatives are being considered. When legal aid administrators plan changes to the tariff structure, for example, they can use the simulation model to predict the system reactions to the various alternatives. How are the private bar lawyers responding to the changes in the tariff fees for guilty and trials? Is the change likely to encourage the counsel to challenge more cases in the court? How is the Crown Counsel going to react to defence if defence patterns change? How do the chain reactions in the system ultimately impact upon the need for and the cost of legal aid? The simulation model will help the planners to answer such questions that would either require very sophisticated calculations or result no answers at all without a simulation model.

The development of a simulation model of the legal aid system in this research has demonstrated that using simulation modeling in forecasting has a unique advantage: it

allows the researcher and/or legal planners to analyze simultaneously the dynamic interactive impact of many factors on the need for and the cost of legal aid. Additionally, it has demonstrated that simulation modeling can successfully identify certain factors as having the most significant impact on the system. Both in the process of empirical analysis of legal aid in the past and in the process of applying the simulation model to the legal aid system in the real world, changes of the legal aid tariff have been identified as the most important factor that affects the cost of legal aid, which eventually feeds back into the system to affect changes in policy alternatives in regard to the need for legal aid. The capacity to identify effectively the most important factor among many different interrelated factors will be most useful for legal aid planners in the process of decision making. The fact that changes in legal aid tariff have the most significant impact on the cost of legal aid also implies that the private bar plays an important role in the provision of legal aid. Basically, the private bar overrides the three heuristics which are used in the process of collective decision making, namely, representativeness, availability of instances or scenarios and adjustment from an anchor (Kahneman et al. 1982).

This study has its limitations. When computer simulation modeling was introduced into the field of planning thirty years ago, simulation developers recognized the practical problem of inadequate data and costly data collection. Today, the situation with data availability has significantly improved, thanks to advanced computing capacity at lower cost. In spite of all the significant advances, however, it is still frequently found in the research process that more data are needed than available and, in this case, the validity and reliability of the simulation model could be greatly improved if more data were available.

A difficulty frequently encountered in the research is related with what can be called the non-system feature of a system. In this research the criminal justice system is treated as a system with legal aid defined as a subsystem. While the various criminal justice agencies including the LSS should be regarded as a system in terms of their interconnectedness and interdependence, these agencies all enjoy a great degree of autonomy which result in the non-system characteristics. One consequence of these non-system characteristics is the different definition of cases. For example, the police system counts cases by the number of persons charged. The court system counts cases by the number of charges. The LSS counts cases by persons with a six-month-reapplication (later, three-month) rule, and the correctional system counts the number of persons under custody and supervision. This non-system approach to the definition of cases creates great difficulty in research which requires a standard definition of cases. As a result, a compromise has to be made in order for the research to be carried through at the cost of some accuracy and reliability in the model.

A simulation model is based on many assumptions made by the researcher. Thus, developing a simulation model of a complex system such as the one of legal aid in British Columbia requires a good conceptual understanding of the legal aid system, the criminal justice system, and the complex relationships between the various system parts within the system. The validity of a simulation model is always as good as the researcher's understanding of the system to be simulated. Although the criminal justice system is much better understood now than before, there is still much more to be learned about the system. It should be admitted that there is a limit to the researcher's understanding of the

complexity of crime patterns, of the criminal justice system, of the legal aid system, and of the relationships between them. While the simulation model will improve as the researcher's understanding improves, developing a simulation model greatly enhances the researcher's understanding of the system. This is, in fact, a long lasting interactive process.

Changes in legal aid tariff have been identified in both the empirical analysis in Chapter VI and the simulation modeling in Chapter VII as one of the major factors that affect the overall cost of legal aid in British Columbia. Tariff changes, however, are not controlled by the Legal Services Society. They are usually the results of the interactions between the private bar, the level of legal aid funding and the administrators of legal aid. Since the private bar is regarded as part of the environment in the simulation model, the impact of the private bar on tariff changes is not built into the model and cannot be simulated, which limits the model to forecast the changes in legal aid tariff, and eventually limits the model's ability to forecast the cost of legal aid in the long term.

Future research in this area can be conducted in several directions. First of all, more scenarios can be run under various hypothetical conditions using the model that has been developed in this research. What will happen if, for example, the amount of crime decreases dramatically in the next five years? What if fifty percent of the criminal law cases are handled by the LSS staff lawyers and staff lawyers are likely to negotiate significantly more guilty pleas (Brantingham, 1982)? What will happen to the whole system if the court system can handle more cases more quickly than the current situation?

Second, the simulation model as developed in the research can be refined in many ways. More research can be conducted to improve both the conceptual model and the parameters used in the model. In the plea bargaining process, for example more research should be conducted to find the roles played by the defence counsel, the accused and the Crown Counsel and the parameters in this process such as the proportions of the initiations of guilty plea by the defence and by the Crown respectively. More research can be conducted to find more reliable crime predictors which are the initial input into the simulation model. More research can be conducted to find out recidivism rate. More data should be collected on probation patterns in BC. The model would have more accurate results if offence categories can be broken at finer levels than the seven categories as used in the model. In short, almost all aspects of the simulation model can be refined by conducting more research and collecting more data.

Third, the simulation model developed in the research can be used by other criminal justice agencies with minor modifications since the model includes almost all the important decision points in the criminal justice system. It can be used by courts to predict future case loads; it can be used by the Crown counsel to predict the impact of changes in the plea bargaining rules; it can be used by the police to predict the impact on their workload of changes in parole rules; it can be used by the corrections to predict the impact on their workload of changes in sentencing policy or the proportion of defendants given legal aid.

APPENDIX A: SPSS OUTPUT OF MULTIPLE REGRESSION ANALYSIS

SPSS Output 1.

Dependent Variable: Grand total of crime known to the police

Independent Variable:

Retail Volume in BC (Adjusted)

Beer consumption in BC

Total population

Percentage of working women

***** MULTIPLE REGRESSION *****

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. ALL_CKP Grand total of crime known to the police

Block Number 1. Method: Enter BEER WORKWOMN POPULATN RETAIL

Variable(s) Entered on Step Number

1.. RETAIL Retail Volume in BC (Adjusted)

2.. BEER Beer consumption in BC

3.. POPULATN Total population

4.. WORKWOMN Percentage of working women

Multiple R .93645

R Square .87693

Adjusted R Square .87254

Standard Error 2612.68254

Analysis of Variance

| | DF | Sum of Squares | Mean Square |
|------------|-----|------------------|------------------|
| Regression | 4 | 5447810391.07230 | 1361952597.76808 |
| Residual | 112 | 764524323.23539 | 6826110.02889 |

F = 199.52104 Signif F = .0000

----- Variables in the Equation -----

| Variable | B | SE B | Beta | T | Sig T |
|------------|--------------|-------------|----------|---------|-------|
| BEER | .001445 | 1.0207E-04 | .582620 | 14.156 | .0000 |
| WORKWOMN | 949.145665 | 232.160297 | .280440 | 4.088 | .0001 |
| POPULATN | .022884 | .002503 | .608323 | 9.142 | .0000 |
| RETAIL | -12.115857 | 1.642905 | -.394644 | -7.375 | .0000 |
| (Constant) | -94800.15704 | 7890.209350 | | -12.015 | .0000 |

End Block Number 1 All requested variables entered.

SPSS Output 2.

Dependent Variable:

Crime known to the police-other criminal code offences

Independent Variable:

Retail Volume in BC (Adjusted)

Beer consumption in BC

Total population

Percentage of working women

*** MULTIPLE REGRESSION ***

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. OTHER_CC Other Criminal Code Offen

Block Number 1. Method: Enter BEER WORKWOMN POPULATN RETAIL

Variable(s) Entered on Step Number

1.. RETAIL Retail Volume in BC (Adjusted)

2.. BEER Beer consumption in BC

3.. POPULATN Total population

4.. WORKWOMN Percentage of working women

Multiple R .94349

R Square .89017

Adjusted R Square .88625

Standard Error 689.71200

Analysis of Variance

| | DF | Sum of Squares | Mean Square |
|-------------------|----------|------------------------|------------------------|
| Regression | 4 | 431830547.17215 | 107957636.79304 |

Residual 112 53278696.02443 475702.64308
 F = 226.94353 Signif F = .0000

----- Variables in the Equation -----

| Variable | B | SE B | Beta | T | Sig T |
|------------|--------------|-------------|----------|---------|-------|
| BEER | 2.14343E-04 | 2.6946E-05 | .309268 | 7.954 | .0000 |
| WORKWOMN | 444.933522 | 61.287103 | .470447 | 7.260 | .0000 |
| POPULATN | .005339 | 6.6080E-04 | .507841 | 8.079 | .0000 |
| RETAIL | -1.887040 | .433704 | -.219958 | -4.351 | .0000 |
| (Constant) | -33028.40501 | 2082.905978 | | -15.857 | .0000 |

End Block Number 1 All requested variables entered.

SPSS Output 3.

Dependent Variable:

Crime known to the police - auto theft

Independent Variable:

Retail Volume in BC (Adjusted)

Beer consumption in BC

Total population

Percentage of working women

***** MULTIPLE REGRESSION *****

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. AUTOTHEF Auto theft

Block Number 1. Method: Enter BEER WORKWOMN POPULATN RETAIL

Variable(s) Entered on Step Number

1.. RETAIL Retail Volume in BC (Adjusted)

2.. BEER Beer consumption in BC

3.. POPULATN Total population

4.. WORKWOMN Percentage of working women

Multiple R .94958

R Square .90170

Adjusted R Square .89819

Standard Error 158.57734

Analysis of Variance

| | DF | Sum of Squares | Mean Square |
|------------|-----------|----------------|---------------|
| Regression | 4 | 25833988.27080 | 6458497.06770 |
| Residual | 112 | 2816438.65227 | 25146.77368 |
| F = | 256.83204 | Signif F = | .0000 |

----- Variables in the Equation -----

| Variable | B | SE B | Beta | T | Sig T |
|------------|--------------|------------|----------|---------|-------|
| BEER | 3.08671E-05 | 6.1955E-06 | .183263 | 4.982 | .0000 |
| WORKWOMN | -17.669054 | 14.091020 | -.076875 | -1.254 | .2125 |
| POPULATN | .002414 | 1.5193E-04 | .944772 | 15.886 | .0000 |
| RETAIL | -.014234 | .099717 | -.006827 | -.143 | .8867 |
| (Constant) | -5918.902972 | 478.897997 | | -12.359 | .0000 |

End Block Number 1 All requested variables entered.

SPSS Output 4.

Dependent Variable:

Crime known to the police - property offences

Independent Variable:

Retail Volume in BC (Adjusted)

Beer consumption in BC

Total population

Percentage of working women

**** MULTIPLE REGRESSION ****

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. PROPERTY

Block Number 1. Method: Enter BEER WORKWOMN POPULATN RETAIL

Variable(s) Entered on Step Number

- 1.. RETAIL Retail Volume in BC (Adjusted)
- 2.. BEER Beer consumption in BC
- 3.. POPULATN Total population
- 4.. WORKWOMN Percentage of working women

Multiple R .87076

R Square .75822

Adjusted R Square .74959

Standard Error 1358.26720

Analysis of Variance

| | DF | Sum of Squares | Mean Square |
|-------------------|-----------------|------------------------|------------------------|
| Regression | 4 | 647982889.01629 | 161995722.25407 |
| Residual | 112 | 206627656.94952 | 1844889.79419 |
| F = | 87.80780 | Signif F = | .0000 |

----- Variables in the Equation -----

| Variable | B | SE B | Beta | T | Sig T |
|------------|--------------|-------------|----------|--------|-------|
| BEER | 5.32050E-04 | 5.3066E-05 | .578381 | 10.026 | .0000 |
| WORKWOMN | -63.406261 | 120.694234 | -.050511 | -.525 | .6004 |
| POPULATN | .012153 | .001301 | .871038 | 9.339 | .0000 |
| RETAIL | -4.780831 | .854105 | -.419854 | -5.597 | .0000 |
| (Constant) | -16909.78248 | 4101.919173 | | -4.122 | .0001 |

End Block Number 1 All requested variables entered.

SPSS Output 5.

Dependent Variable:

Crime known to the police - persons offences

Independent Variable:

Retail Volume in BC (Adjusted)

Beer consumption in BC

Total population

Percentage of working women

*** MULTIPLE REGRESSION ***

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. PERSONS

Block Number 1. Method: Enter BEER WORKWOMN POPULATN RETAIL

Variable(s) Entered on Step Number

- 1.. RETAIL Retail Volume in BC (Adjusted)
- 2.. BEER Beer consumption in BC
- 3.. POPULATN Total population
- 4.. WORKWOMN Percentage of working women

Multiple R .95415

R Square .91040

Adjusted R Square .90719

Standard Error 195.18389

Analysis of Variance

| | DF | Sum of Squares | Mean Square |
|-------------------|------------|-----------------------|-----------------------|
| Regression | 4 | 43351491.77398 | 10837872.94350 |
| Residual | 112 | 4266835.91833 | 38096.74927 |

F = 284.48288 Signif F = .0000

----- Variables in the Equation -----

| Variable | B | SE B | Beta | T | Sig T |
|------------|--------------|------------|----------|---------|-------|
| BEER | 4.63536E-05 | 7.6256E-06 | .213473 | 6.079 | .0000 |
| WORKWOMN | 62.703067 | 17.343840 | .211610 | 3.615 | .0005 |
| POPULATN | .002574 | 1.8700E-04 | .781621 | 13.766 | .0000 |
| RETAIL | -.407328 | .122755 | -.151543 | -3.319 | .0012 |
| (Constant) | -8653.536077 | 589.448469 | | -14.681 | .0000 |

End Block Number 1 All requested variables entered.

SPSS Output 6

Dependent Variable:

Crime known to the police - robbery

Independent Variable:

Retail Volume in BC (Adjusted)

Beer consumption in BC

Total population

Percentage of working women

*** MULTIPLE REGRESSION ***

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. ROBBERY Robberyoffence

Block Number 1. Method: Enter BEER WORKWOMN POPULATN RETAIL

Variable(s) Entered on Step Number

- 1.. RETAIL Retail Volume in BC (Adjusted)
- 2.. BEER Beer consumption in BC
- 3.. POPULATN Total population
- 4.. WORKWOMN Percentage of working women

Multiple R .89513

R Square .80126

Adjusted R Square .79416

Standard Error 34.12473

Analysis of Variance

| | DF | Sum of Squares | Mean Square |
|-------------------|------------|---------------------|---------------------|
| Regression | 4 | 525834.60636 | 131458.65159 |
| Residual | 112 | 130423.71843 | 1164.49749 |

F = 112.88874 Signif F = .0000

----- Variables in the Equation -----

| Variable | B | SE B | Beta | T | Sig T |
|------------|--------------|------------|----------|--------|-------|
| BEER | -2.44178E-06 | 1.3332E-06 | -.095789 | -1.831 | .0697 |
| WORKWOMN | -16.069363 | 3.032289 | -.461952 | -5.299 | .0000 |
| POPULATN | 4.98281E-04 | 3.2694E-05 | 1.288733 | 15.241 | .0000 |
| RETAIL | -.010384 | .021458 | -.032909 | -.484 | .6294 |
| (Constant) | -309.701612 | 103.055497 | | -3.005 | .0033 |

End Block Number 1 All requested variables entered.

APPENDIX B: DYNAMO SIMULATION MODEL OF LEGAL AID IN BC

* Base Flow Pattern

*

*

* *****

* CRIME PREDICTORS SUB-SYSTEM

* *****

*

* Four variables are used as predictors of crime:

*

* Beer consumption in BC

* Retail volume

* Rate of women participating in the labour force and

* Population

*

* These four variables will appear in the same order in the following arrays.

*

T CRIMEG=18750949,1235.6,53.7,2989358

*

* Table CRIMEG provides the initial values of the crime generators,

* which are the average monthly values in 1985.

*

T CGTRN(*,1)=0.0,0.0339547,-0.004358,0.0004521,0.0584729,0.0338273,0.0042247

T CGTRN(*,2)=0.0,0.045412,0.056675,0.04504,0.075558,0.131526,-0.09768

T CGTRN(*,3)=0.0,0.019926,0.006689,0.026354,0.016039,0.008979,0.00933

T CGTRN(*,4)=0.0,0.0102419,0.0145973,0.0209145,0.0258806,0.0279621,0.0235614

*

* Table CGTRN provides the crime predictors' index over the 7 years between

* 1985 and 1991. Each value is calculated by subtracting the average monthly

* value of twelve months in the previous year from the average monthly

* value of the twelve months in the current year and dividing the difference

* by the previous year's average value. When simulation time is over

* 84 time points the last two values will be repeated.

*

T CGMF(*,1)=-0.2360,-0.2813,-0.1016,0.0305,0.0169,0.0640,0.1963,^

0.2016,0.1092,0.0426,-0.0637,0.0214

T CGMF(*,2)=-0.1570,-0.1846,-0.0426,-0.0244,0.0428,0.0296,0.0234,^

0.0333,-0.0157,0.0047,0.0447,0.2550

T CGMF(*,3)=-0.0202,-0.0153,-0.0114,-0.0042,0.0032,0.0094,0.0163,^

0.0139,0.0081,0.0029,0.0007,-0.0033

T CGMF(*,4)=-0.0088,-0.0076,-0.0063,-0.0051,-0.0033,-0.0016,0.0002,^

0.0025,0.0048,0.0071,0.0084,0.0098

*

* Table CGMF provides the monthly fluctuation of the crime predictors.


```

*
N MONTHC=0 Initial value of monthly counter
*
FOR I=1,4
*
L MONTHC.K=MONTHC.J+DT*(1+PULSE(-12,1,12,12)) MONTHLY COUNTER, CYCLIC
*
N CRIMEG1(I)=CRIMEG(I)
*
L CRIMEG1.K(I)=CRIMEG1.J(I)+DT*(CRIMEG(I)*(TABHL(CGTRN(*,I),^
TIME.J,1,73,12))/12)
*
A CRIMEG2.K(I)=CRIMEG1.K(I)*TABHL(CGMF(*,I),MONTHC.K,1,12,1)
*
* The amount of monthly fluctuation is calculated.
*
A CRIMEG4.K(I)=CRIMEG1.K(I)+CRIMEG2.K(I)
*
* Integrating the trend of crime predictors with monthly fluctuations.
*
FOR H=1,3
A NOISE1.K(H)=NOISE()*(CRIMEG1.K(H)/25)
A CRIMEG3.K(H)=CRIMEG4.K(H)+NOISE1.K(H)
A CRIMEG3.K(4)=CRIMEG1.K(4)+NOISE()*(CRIMEG1.K(4)/100)
*
* CRIMEG3 has all of the crime predictor index with noise added
*
*
* *****
* CRIME KNOWN TO THE POLICE SUB-SYSTEM
* *****
*
A CRIMT.K=(-94800)+(CRIMEG3.K(1)*0.001445)+(CRIMEG3.K(2)*(-12.1159))+^
(CRIMEG3.K(3)*949.1457)+(CRIMEG3.K(4)*0.022884)
*
* CRIMT includes all offences known to the police: criminal code offences,
* federal drug offences, other federal statutes, provincial statutes and
* municipal bylaws. CRIMT is generated by using the constant and B value
* from SPSS regression analysis.
*
A CCT.K=(-60077)+(CRIMEG3.K(1)*7.9664E-04)+(CRIMEG3.K(2)*(-7.1604))+^
(CRIMEG3.K(3)*475.925)+(CRIMEG3.K(4)*0.020084)
*
* CCT is all criminal code offences
*
A OTR_CC.K=(-33028)+(CRIMEG3.K(1)*2.1434E-04)+(CRIMEG3.K(2)*(-1.88704))+^
(CRIMEG3.K(3)*444.9335)+(CRIMEG3.K(4)*0.005339)
*
* OTR_CC includes 14 UCR offence categories: Arson, Bail violations,

```

- * Counterfeit currency, Disturb the peace, Escape custody, Indecent acts,
- * Kidnapping, Public morals, Obstruct police office, Prisoner at large,
- * Trespass at night, Mischief/property damage over and under \$1000
- * and other criminal code, which includes Criminal Code offences not
- * covered by a specific UCR offence category, i.e. breach of probation,
- * obscene/threatening phone calls, extortion, computer/data mischief,
- * loitering at school yards, playgrounds or swimming pools, etc.

$$A \text{ OTHERCC.K} = (-34514) + (\text{CRIMEG3.K}(1) * 2.1823E-04) + (\text{CRIMEG3.K}(2) * (-1.9722)) + ^$$

$$(\text{CRIMEG3.K}(3) * 476.63) + (\text{CRIMEG3.K}(4) * 0.005356)$$

- * OTHERCC includes OTR_CC as well as prostitution, gaming and betting, and
- * possession of weapons

$$A \text{ PERSON.K} = (-8653.54) + (\text{CRIMEG3.K}(1) * 4.635E-05) + (\text{CRIMEG3.K}(2) * (-0.407328)) + ^$$

$$(\text{CRIMEG3.K}(3) * 62.703) + (\text{CRIMEG3.K}(4) * 0.002574)$$

- * Offences against the person include homicide, attempted murder,
- * sexual and non-sexual assault, robbery and abduction.

$$A \text{ DRUG.K} = (-10246) + (\text{CRIMEG3.K}(1) * 6.5972E-05) + (\text{CRIMEG3.K}(2) * (-0.7461)) + ^$$

$$(\text{CRIMEG3.K}(3) * 91.4755) + (\text{CRIMEG3.K}(4) * 0.002939) - \text{person.k}$$

- * Federal drug offences are derived from an SPSS procedure which produces
- * a total of person offences and drug offences

$$A \text{ ATHFT.K} = (-6352.05) + (\text{CRIMEG3.K}(1) * 2.7694E-05) + (\text{CRIMEG3.K}(4) * 0.002251)$$

- * Auto theft

$$A \text{ ASLT.K} = (-6800) + (\text{CRIMEG3.K}(1) * 5.1812E-05) + (\text{CRIMEG3.K}(2) * (-0.316049)) + ^$$

$$(\text{CRIMEG3.K}(3) * 51.5494) + (\text{CRIMEG3.K}(4) * 0.001876)$$

- * Non-sexual assault

$$A \text{ CKP.K}(1) = (\text{PERSON.K} - \text{ASLT.K})$$

- * Serious offences against the person, including homicide,
- * attempted murder, sexual assault, robbery and abduction.

$$A \text{ CKP.K}(2) = \text{ASLT.K} \quad \text{Non-sexual assault}$$

$$A \text{ CKP.K}(3) = \text{ATHFT.K} \quad \text{Auto theft}$$

$$A \text{ CKP.K}(4) = (\text{CCT.K} - \text{PERSON.K} - \text{OTHERCC.K} - \text{ATHFT.K}) \quad \text{Property offences}$$

$$\text{excluding auto theft}$$

$$A \text{ CKP.K}(5) = \text{DRUG.K} \quad \text{Federal drug offences}$$

```

A CKP.K(6)=OTHERCC.K Other Criminal Code offences
*
A CKP.K(7)=CRIMT.K-CCT.K Municipal, provincial and other federal statutes.
*
*
FOR J=1,7
*
A CKPN.K(J)=CKP.K(J)+NOISE()*CKP.K(J)/40
*
* NOISE IS ADDED TO CRIME KNOWN TO THE POLICE
*
A CKPNT.K=SUM(CKPN.K)
*
*
* Grand total of all types of offences. This value will be needed to
* adjust charge rate.
*
* *****
* CHARGE SUB-SYSTEM (POLICE)
* *****
*
*
FOR M=1,1
FOR N=2,7
FOR YOA=A,Y
*
T TIT=0.98,0.96,0.94,0.92,0.90,0.88,0.86,0.84,0.82,0.80,0.78
*
A ACRM.K(J)=CKPN.K(J)*TABHL(TIT,CKPNT.K,37000,77000,4000)
A ACRMT.K=SUM(ACRM.K)
*
* The number of charges that can be laid by the police is not
* proportional to the amount of crime reported to the police.
* When there are increases in CKP charge rate decreases.
* This equation aims to make such adjustment.
*
A ATOTAL.K=SUMV(ACRM.K,i,7)
*
T TCRG(*,A)=0.2894,0.2886,0.0565,0.0939,0.6036,0.0837,0.1376
*
* Decimal fraction of charges against adults
*
T TCRG(*,Y)=0.0585,0.0331,0.0538,0.0447,0.0544,0.0176,0.0646
*
* Decimal fraction of charges against youths
*
A ASAN.K(J,YOA)=ACRM.K(J)*TCRG(J,YOA)
*
* Base level of potential charges for both adults and youths.

```

*
 * When there is more crime, police cannot keep up with the normal
 * charge rate. This is more reflected in the less serious offences.
 *
 T TCHG=0.990,0.98,0.970,0.96,0.950,0.94,0.93,0.925,0.92,0.915,0.91
 T TCHS=0.995,0.99,0.985,0.98,0.975,0.97,0.965,0.96,0.955,0.95,0.945
 A ASAN2.K(M,YOA)=ASAN.K(M,YOA)*TABHL(TCHS,CKPN.K(1),700,1300,60)
 A ASAN2.K(N,YOA)=ASAN.K(N,YOA)*TABHL(TCHG,CKPN.K(1),700,1300,60)
 A ASAN1.K(M,YOA)=SMOOTH(ASAN2.K(M,YOA),1)
 A ASAN1.K(N,YOA)=SMOOTH(ASAN2.K(N,YOA),1.0)
 *
 * Charges of more serious offences is smoothed by 1
 * Charges of less serious offences is adjusted by the amount of more
 * serious offences.
 *
 A NOISE2.K(J,YOA)=NOISE()*SQRT(ASAN1.K(J,YOA))
 *
 A ACCL.K(J,YOA)=ASAN1.K(J,YOA)+NOISE2.K(J,YOA)
 *
 * Some noise is added to the volume of clearance.
 *
 A ACCLT1.K(YOA)=SUMV(ACCL.K(*,YOA),1,7)
 *
 A ACCLT.K=SUM(ACCL.K)
 A ACCLYA.K(J)=SUM(ACCL.K(J,*))
 *
 A RECIT1.K(J,YOA)=DELAY1((INMATES.K(J,YOA)*0.30),12)+NOIS1.K(J,YOA)
 A NOIS1.K(J,YOA)=NOISE()*INMATES.K(J,YOA)*0.01
 * Repeated offenders getting back into the system some time after
 * released from the institution.
 *
 A ACCLT3.K=SUM(ACCL.K)+SUM(RECIT1.K)
 *
 * Total volume of RCC (request for criminal charge).
 *
 * *****
 * THE CROWN SUB-SYSTEM
 * *****
 *
 * Not all the cases submitted to the Crown Counsel go to the court.
 * The Crown Counsel has several options in regard to the disposition
 * of the cases. In addition to sending cases to the court, they return
 * some cases to the police for more information, hold some for more
 * information, divert some cases, send caution letters to some cases,
 * and drop some charges.
 *
 * On average, 85% of all cases are sent to the court. This proportion
 * varies over time, over different types of offences, over accused adults vs.
 * accused youths (youths are likely to have charges dropped or diverted

* than adults) and over different jurisdictions. More serious offences
 * are less likely to be diverted, or dropped, or issued caution letters.
 * Although they are equally likely to be returned to the police for more
 * information, they will eventually come back to be prosecuted. When there
 * are more serious cases, less serious cases are more likely to be dropped,
 * diverted or issued caution letters because of the restraints of the
 * Crown's workload.

*
 T TJFD(*,A)=0.99,0.98,0.97,0.96,0.95,0.93,0.90
 T TJFD(*,Y)=0.97,0.96,0.94,0.90,0.88,0.86,0.84
 *

* Decimal fraction for filing charges

*
 A AJFB.K(J,YOA)=ACCL.K(J,YOA)*TJFD(J,YOA)
 *

* Base number of prosecution filings by the Crown

*
 A AJFV.K(M,YOA)=SMOOTH(AJFB.K(M,YOA),1)
 *

A AJFV.K(N,YOA)=SMOOTH(AJFB.K(N,YOA),2)
 *

* Serious offences and less serious offences are smoothed differentially.

*
 A AJFS.K=SUMV(AJFV.K(*,A),1,2)+SUMV(AJFV.K(*,Y),1,2)
 A AJFL.K=SUMV(AJFV.K(*,A),3,7)+SUMV(AJFV.K(*,Y),3,7)
 *

A AJFSL.K=AJFS.K+AJFL.K
 *

* Totals of serious charges and less serious charges

*
 T TPDROP=1.0,0.99,0.98,0.97,0.96,0.95,0.94,0.93,0.92,0.91,0.90
 A AJUST.K(M)=1.0
 A AJUST.K(N)=TABHL(TPDROP,AJFS.K,800,1800,100)
 *

A AJFV1.K(J,YOA)=AJFV.K(J,YOA)*AJUST.K(J)
 A AJFV4.K(J,YOA)=NOISE()*0.01*(AJFV1.K(J,YOA))
 A AJFV5.K(J,YOA)=AJFV1.K(J,YOA)+AJFV4.K(J,YOA)
 A AJFV2.K(J,YOA)=AJFV5.K(J,YOA)
 *

*
 * When there is a large increase of serious charges, the Crown is likely to
 * adjust the charges against the less serious charges
 *

A AJFVA.K=SUMV(AJFV2.K(*,A),1,7)
 A AJFVY.K=SUMV(AJFV2.K(*,Y),1,7)
 A AJFV2T.K=SUM(AJFV2.K)
 A AJFVYA.K(J)=SUM(AJFV2.K(J,*))
 *

*
 *

* Total number of persons charged with criminal offences by the Crown.

*
*

* *****

* DEMAND FOR LEGAL AID

* *****

*

A ALA1.K(1,A)=AJFV2.K(1,A)*0.95

A ALA1.K(1,Y)=AJFV2.K(1,Y)*0.99

A ALA2.K(1,YOA)=ALA1.K(1,YOA)

*

* Most of those who face serious charges apply for legal aid as soon as

* they are notified of the charge(s) and thus no time

* delay is simulated between charges and legal aid application.

*

FOR P=2,7

*

A ALA1.K(P,YOA)=smooth(AJFV2.K(P,YOA),1)*0.30

A ALA2.K(P,YOA)=smooth(AJFV2.K(P,YOA),2)*0.20

A ALA3.K(P,YOA)=smooth(AJFV2.K(P,YOA),3)*0.30

A ALA4.K(P,YOA)=smooth(AJFV2.K(P,YOA),5)*0.20

A ALA5.K(P,YOA)=ALA1.K(P,YOA)+ALA2.K(P,YOA)+ALA3.K(P,YOA)+ALA4.K(P,YOA)

A ALA3.K(1,YOA)=ALA1.K(1,YOA)

A ALA4.K(1,YOA)=ALA1.K(1,YOA)

A ALA5.k(1,YOA)=ALA1.K(1,YOA)

*

* Most of the charged persons do not apply for legal aid immediately after

* they are charged. They wait until after they appear in the court. The

* equations above attempt to simulate this time delay between charges and

* legal aid applications.

*

T ALA(*,A)=0.85,0.67,0.55,0.54,0.52,0.50,0.59

T ALA(*,Y)=0.94,0.75,0.65,0.55,0.50,0.58,0.65

*

* Tables for demand for legal aid.

*

* Not all of those who are charged with criminal offences demand legal

* aid. Some believe that they do not need lawyers; some hire their own

* lawyers whom they can afford and some feel they do not qualify for

* legal aid (although some of whom actually do).

*

A POLY1.K=1+PULSE(0.01,85,12,85)+PULSE(0.01,85,24,85)+PULSE(0.01,85,36,85)

T LAAJ=0.99,0.97,0.95,0.93,0.91,0.89

A POLY2.K=TABHL(LAAJ,AJFV2T.K,LIMIT,(LIMIT+2000),400)

A APAJ.K=FIFGE(POLY2.K,POLY1.K,AJFV2T.K,LIMIT)

P LIMIT=7500

*

* Demand for legal aid changes over the years. The changes can result from

* discrete policy changes. New offices, for example, were set up in areas

```

* that did not have offices before in order to provide more service.
*
* When the volume of cases reaches a very high level, LSS will stop expanding
* service and make its coverage and eligibility more rigid, which have some
* deterrence effect on the demand for legal aid. Thus, a switch between two
* alternative policies.
*
A ALAA.K(J,YOA)=ALA5.K(J,YOA)*ALA(J,YOA)*APAJ.K+NOISE3.K(J,YOA)
A NOISE3.K(J,YOA)=NOISE()*SQRT(ALA5.K(J,YOA))*2
*
* Base number of legal aid applications
*
*
A ALAAA.K=SUMV(ALAA.K(*,A),1,7)
A ALAAY.K=SUMV(ALAA.K(*,Y),1,7)
A ALAAT.K=SUM(ALAA.K)
A ALAAYA.K(J)=SUM(ALAA.K(J,*))
*
* Grand total of legal aid applications
*
T TLAG(*,A)=0.83,0.78,0.73,0.71,0.67,0.66,0.63
*
* Tables for the base rate of legal aid approvals for adult offenders.
*
T TAPAJ=-0.01,-0.01,-0.01,-0.01,-0.01
A AAPAJ.K=TABHL(TAPAJ,ALAAA.K,3500,5500,500)
*
A ALAP.K(J,A)=ALAA.K(J,A)*(TLAG(J,A)*0.85+AAPAJ.K)
A ALAP.K(J,Y)=ALAA.K(J,Y)
*
* Base number of legal aid approvals
*
A ALAPA.K=SUMV(ALAP.K(*,A),1,7)
A ALAPY.K=SUMV(ALAP.K(*,Y),1,7)
A ALAPT.K=SUM(ALAP.K)
* ALAPT is the monthly total of legal aid approvals.
A ALAPYA.K(J)=SUM(ALAP.K(J,*))
*
* *****
*   COURT SUB-SYSTEM
* *****
*
FOR LA=LS,NL
* LS stands for cases represented by counsel paid by LSS.
* NS stands for cases not represented by legal aid counsel.
*
A ACC.K(P,YOA,LS)=ALAP.K(P,YOA)
A ACC.K(P,YOA,NL)=ALA5.K(P,YOA)-ALAP.K(P,YOA)
A ACC.K(1,YOA,LS)=DELAY1(ALAP.K(1,YOA),2)

```

A ACC.K(1,YOA,NL)=DELAY1(ALA5.K(1,YOA)-ALAP.K(1,YOA),2)
A ACCTT.K=SUM(ACC.K)
*
* Calculation of all new court cases. Category 1 cases are delayed by 2
* to simulate the time difference between charges being laid and first
* appearance in court.
*
*
* *****
* CALCULATION OF GUILTY PLEA
* *****
*
T TGPRB=0.545,0.55,0.65,0.65,0.58,0.59,0.55
*
* Table for guilty plea rate by type of charges.
*
T TGPAJ=0.99,0.995,1,1.01,1.015,1.020
A AJGPRT.K(J)=TABHL(TGPAJ,ACCTT.K,5500,7500,400)
*
*
A AJGPR1.K(J)=TGPRB(J)*AJGPRT.K(J)
*
* Adjustment to base guilty plea rate by adding the
* current propensity to induce guilty plea by the Crown.
*
A AGP.K(J,YOA,LA)=ACC.K(J,YOA,LA)*AJGPR1.K(J)+NOISE()*ACC.K(J,YOA,LA)*0.01
*
* Guilty plea cases
*
A AGPT.K=SUM(AGP.K)
A ACCT.K=SUM(ACC.K)
A GPRATE.K=(AGPT.K/ACCT.K)*100
*
* Rate of guilty plea
*
T TFTAP=0.015,0.05,0.05,0.06,0.05,0.06,0.05
*
* Table for calculation of the number of cases that fail to appear in
* the court. According to the database of LSS, the proportion has been
* fairly consistent over the past ten years.
*
A AFTAP.K(J,YOA,LA)=ACC.K(J,YOA,LA)*TFTAP(J)+NOISE()*ACC.K(J,YOA,LA)*0.005
A AFTAPS.K=SUM(AFTAP.K)
*
* Failure to appear cases.
*
T TSTAY=0.08,0.13,0.14,0.12,0.14,0.15,0.16
*
* Base withdrawal/stay rate by type of charges


```

*
T TSTAYAJ=1.01,1.015,1.017,1.02,1.023,1.025
A AJSTAYR.K=TABHL(TSTAYAJ,ACCTT.K,5500,7500,400)
*
A AJSTAY.K(J)=TSTAY(J)*AJSTAYR.K
*
* Adjustment to base withdrawal/stay rate. This auxiliary will be modified by
* adding adjustment.
*
A
ASTAY.K(J,YOA,LA)=ACC.K(J,YOA,LA)*AJSTAY.K(J)+NOISE()*ACC.K(J,YOA,LA)*0.00
5
A ASTAYT.K=SUM(ASTAY.K)
*
A STAYRATE.K=(ASTAYT.K/ACCT.K)*100
*
A TRIALS.K(J,YOA,LA)=ACC.K(J,YOA,LA)-ASTAY.K(J,YOA,LA)-AFTAP.K(J,YOA,LA)^
-AGP.K(J,YOA,LA)
*
A TRIALT.K=SUM(TRIALS.K)
* Calculation of trials
A TRIALRT.K=(TRIALT.K/ACCT.K)*100
*
*
* *****
* COURT CASE BACKLOG
* *****
*
T TGPDELAY=5,4,3,3,4,3,4
A AGPDELAY.K(J)=TGPDELAY(J)
*
* Table of delays for those who plea guilty
*
T TSTDELAY=6,5,4,3,3,3,4
A ASTDELAY.K(J)=TSTDELAY(J)
*
* Table of delays for charges withdrawn or stayed
*
T TTRDELAY=10,8,7,7,8,6,9
A ATRDELAY.K(J)=TTRDELAY(J)+ATRDLAJ.K(J)
T TRDLAJ=0.5,0.0,0.5,0.0,0.0,0.5
A TRIALT1.K=DELAY1(TRIALT.K,1)
A ATRDLAJ.K(J)=TABHL(TRDLAJ,TRIALT1.K,1250,2250,200)
* Table of trial delays
*
T TFADELAY=5,3,2,2,3,1,4
A AFADELAY.K(J)=TFADELAY(J)
*
* Table of delays for those that fail to appear in court

```

*

*

FOR C=G,F,S,T

*

* G stands for guilty plea cases

* F stands for fail to appear cases

* S stands for withdrawal/stay cases

* T stands for trials

*

A CBACK.K(G,J,YOA,LA)=DELAY1(AGP.K(J,YOA,LA),AGPDELAY.K(J))

A CGP.K(J,YOA,LA)=DELAY1(AGP.K(J,YOA,LA),AGPDELAY.K(J))

A CGPT.K=SUM(CGP.K)

A CGPA.K(J,YOA)=SUM(CGP.K(J,YOA,*))

A CGPYA.K(J)=SUM(CGPA.K(J,*))

*

* CGP=Guilty plea cases

*

A CBACK.K(F,J,YOA,LA)=DELAY1(AFTAP.K(J,YOA,LA),AFADELAY.K(J))

A CFA.K(J,YOA,LA)=DELAY1(AFTAP.K(J,YOA,LA),AFADELAY.K(J))

A CFAT.K=SUM(CFA.K)

*

* Failure to appear cases

*

A CBACK.K(S,J,YOA,LA)=DELAY1(ASTAY.K(J,YOA,LA),ASTDELAY.K(J))

A CST.K(J,YOA,LA)=DELAY1(ASTAY.K(J,YOA,LA),ASTDELAY.K(J))

A CSTT.K=SUM(CST.K)

*

* Stay/withdrawal cases

*

A CBACK.K(T,J,YOA,LA)=DELAY1(TRIALS.K(J,YOA,LA),ATRDELAY.K(J))

A CTR.K(J,YOA,LA)=DELAY1(TRIALS.K(J,YOA,LA),ATRDELAY.K(J))

A CTRT.K=SUM(CTR.K)

A CTRA.K(J,YOA)=SUM(CTR.K(J,YOA,*))

A CTR11.K(J,LA)=SUM(CTR.K(J,*,LA))

A CTRYA.K(J)=SUM(CTR11.K(J,*))

A CTR1.K(YOA,LA)=SUM(CTR.K(*,YOA,LA))

A CTRLA.K(LA)=SUM(CTR1.K(*,LA))

*

* Number of trials

*

T TFG(*,A)=0.5726,0.5607,0.5789,0.5545,0.5828,0.5759,0.5324

T TFG(*,Y)=0.5615,0.6838,0.6667,0.5344,0.6005,0.5639,0.3333

*

A AFG.K(J,YOA)=CTRA.K(J,YOA)*TFG(J,YOA)

A AFGT.K=SUM(AFG.K)

*

* Number of cases that are found guilty in trials.

*

A AGUILT.K(J,YOA)=AFGT.K(J,YOA)+CGPA.K(J,YOA)

*
 * All cases that are found guilty through guilty plea and trial by
 * type of charge and YOA/adult.
 *
 A $COMPT.K = SUM(CBACK.K)$
 *
 *
 *
 * *****
 * SETENCING
 * *****
 *
 T $TJAILA(*,A) = 0.628, 0.337, 0.270, 0.451, 0.442, 0.499, 0.250$
 T $TJAILA(*,Y) = 0.452, 0.222, 0.217, 0.210, 0.123, 0.361, 0.095$
 *
 A $JCGPA.K(J, YOA) = CGPA.K(J, YOA) * TJAILA(J, YOA)$
 *
 * Base equation for the number of people who plea guilty and are sentenced
 * to jail.
 *
 T $SNTNAJ = 0.97, 0.95, 0.93, 0.91, 0.89, 0.87, 0.85$
 A $SNTNA.K = TABHL(SNTNAJ, CTRCGP.K, 3000, 5400, 400)$
 A $CTRCGP.K = AFGT.K + CGPT.K$
 *
 * CTRCGP is the grand total of guilty cases including guilty pleas and
 * found guilty through trials.
 *
 A $JCTRA.K(J, YOA) = CTRA.K(J, YOA) * (TJAILA(J, YOA) * SNTNA.K)$
 *
 * Number of people who are found guilty and sentenced to jail.
 *
 A $JAILAL.K(J, YOA) = JCGPA.K(J, YOA) + JCTRA.K(J, YOA)$
 A $JAILALT.K = SUM(JAILAL.K)$
 *
 * Total of jail sentence.
 *
 * *****
 * CORRECTIONS
 * *****
 *
 T $JAILTM(*,A) = 13, 2, 1, 2.5, 2.5, 1.5, 1$
 T $JAILTM(*,Y) = 5, 1, 2, 2, 2, 1.5, 1$
 *
 * Table of average length of jail time.
 *
 A $INMATES.K(J, YOA) = DELAY1(JAILAL.K(J, YOA), JAILTM(J, YOA))$
 A $INMT.K = SUM(INMATES.K)$
 *
 * Total number of jail inmates.

*

* *****

* COST OF LEGAL AID

* *****

*

T TCOSTG(*,A,LS)=2431,779,779,779,779,516,515

T TCOSTF(*,A,LS)=2040,599,599,599,599,369,335

T TCOSTS(*,A,LS)=3138,745,745,745,745,398,307

T TCOSTT(*,A,LS)=12504,2719,2719,2719,2719,1090,1154

*

T TCOSTG(*,Y,LS)=1944,723,723,723,723,478,514

T TCOSTF(*,Y,LS)=794,440,440,440,440,281,411

T TCOSTS(*,Y,LS)=895,516,516,516,516,347,319

T TCOSTT(*,Y,LS)=5550,1799,1799,1799,1799,1091,1271

*

* Tables of the cost of legal aid per case by charge type, by
* court procedure and by young offenders and adult offenders.

* The cost figures are calculated using cases approved for
* legal aid in 1992.

*

A LAREF.K(J,YOA,LS)=CGP.K(J,YOA,LS)+CFA.K(J,YOA,LS)+CST.K(J,YOA,LS)^
+CTR.K(J,YOA,LS)

A LAREFT.K=SUM(LAREF.K)

*

*

A LSCOSTF.K(J,YOA,LS)=CFA.K(J,YOA,LS)*TCOSTF1.K(J,YOA,LS)

A LSCOSTG.K(J,YOA,LS)=CGP.K(J,YOA,LS)*TCOSTG1.K(J,YOA,LS)

A LSCOSTS.K(J,YOA,LS)=CST.K(J,YOA,LS)*TCOSTS1.K(J,YOA,LS)

A LSCOSTT.K(J,YOA,LS)=CTR.K(J,YOA,LS)*TCOSTT1.K(J,YOA,LS)

*

A LSCF.K(J,LS)=SUM(LSCOSTF.K(J,*,LS))

A LSCG.K(J,LS)=SUM(LSCOSTG.K(J,*,LS))

A LSCS.K(J,LS)=SUM(LSCOSTS.K(J,*,LS))

A LSCT.K(J,LS)=SUM(LSCOSTT.K(J,*,LS))

*

A LSF.K(LS)=SUM(LSCF.K(*,LS))

A LSG.K(LS)=SUM(LSCG.K(*,LS))

A LSS.K(LS)=SUM(LSCS.K(*,LS))

A LST.K(LS)=SUM(LSCT.K(*,LS))

A LSCOSTA.K(LS)=LSF.K(LS)+LSG.K(LS)+LSS.K(LS)+LST.K(LS)

*

A COSTF.K=SUM(LSCOSTF.K)

A COSTG.K=SUM(LSCOSTG.K)

A COSTS.K=SUM(LSCOSTS.K)

A COSTT.K=SUM(LSCOSTT.K)

A LSCOST.K=COSTG.K+COSTF.K+COSTS.K+COSTT.K

*

A CYOAF.K(YOA,LS)=SUM(LSCOSTF.K(*,YOA,LS))

A CYOAG.K(YOA,LS)=SUM(LSCOSTG.K(*,YOA,LS))

A CYOAS.K(YOA,LS)=SUM(LSCOSTS.K(*,YOA,LS))
 A CYOAT.K(YOA,LS)=SUM(LSCOSTT.K(*,YOA,LS))
 A COSTYOA.K(YOA,LS)=CYOAF.K(YOA,LS)+CYOAG.K(YOA,LS)+CYOAS.K(YOA,LS)^
 +CYOAT.K(YOA,LS)

*
 T TINDXG(*,A,LS)=2431,779,779,779,779,516,515
 T TINDXF(*,A,LS)=2040,599,599,599,599,369,335
 T TINDXS(*,A,LS)=3138,745,745,745,745,398,307
 T TINDXT(*,A,LS)=12504,2719,2719,2719,2719,1090,1154

*
 T TINDXG(*,Y,LS)=1944,723,723,723,723,478,514
 T TINDXF(*,Y,LS)=794,440,440,440,440,281,411
 T TINDXS(*,Y,LS)=895,516,516,516,516,347,319
 T TINDXT(*,Y,LS)=5550,1799,1799,1799,1799,1091,1271

*
 A LSINDXG.K(J,YOA,LS)=CGP.K(J,YOA,LS)*TINDXG(J,YOA,LS)
 A LSINDXF.K(J,YOA,LS)=CFA.K(J,YOA,LS)*TINDXF(J,YOA,LS)
 A LSINDXS.K(J,YOA,LS)=CST.K(J,YOA,LS)*TINDXS(J,YOA,LS)
 A LSINDXT.K(J,YOA,LS)=CTR.K(J,YOA,LS)*TINDXT(J,YOA,LS)

*
 A CINDEXG.K=SUM(LSINDEXG.K)
 A CINDEXF.K=SUM(LSINDEXF.K)
 A CINDEXS.K=SUM(LSINDEXS.K)
 A CINDEXT.K=SUM(LSINDEXT.K)
 A LINDEX.K=CINDEXG.K+CINDEXF.K+CINDEXS.K+CINDEXT.K

*
 *
 L TARIFCL.K=TARIFCL.J+DT*(1+PULSE(-15,1,15,15))
 N TARIFCL=0

*
 A TARIF1.K=TARIFB+PULSE(((TARIFCL.K/15)*0.0534),16,(TARIFCL.K+16),1)^
 +PULSE(0.0534,55,31,55)+PULSE(((TARIFCL.K/15)*0.0500),15,(TARIFCL.K+31),1)^
 +PULSE(0.0500,40,46,40)+PULSE(((TARIFCL.K/15)*0.0563),15,(TARIFCL.K+46),1)^
 +PULSE(0.0563,25,61,25)+PULSE(((TARIFCL.K/15)*0.0400),15,(TARIFCL.K+61),1)^
 +PULSE(0.0400,10,76,10)
 C TARIFB=0.17

*
 * Discrete tariff changes over the years.

*
 T TAR=0.95,0.92,0.89,0.86,0.83,0.80,0.75,0.70,0.68,0.65,0.62
 A TARIF2.K=TABHL(TAR,LSINDEX.K,LIMIT2,(LIMIT2+1000000),100000)*tarif1.k
 A TARIFR.K=FIFGE(TARIF2.K,TARIF1.K,LSINDEX.K,LIMIT2)
 P LIMIT2=5000000

*
 * When total cost of legal aid reaches a level at which funding is difficult
 * LSS can reduce its tariff in order to keep the cost at a certain level. Thus
 * the switch (FIFGE) of tariff policies.

*
 *

A TCOSTG1.K(J,YOA,LS)=TCOSTG(J,YOA,LS)*TARIFR.K
A TCOSTF1.K(J,YOA,LS)=TCOSTF(J,YOA,LS)*TARIFR.K
A TCOSTS1.K(J,YOA,LS)=TCOSTS(J,YOA,LS)*TARIFR.K
A TCOSTT1.K(J,YOA,LS)=TCOSTT(J,YOA,LS)*TARIFR.K

*

*

* *****

* SUMMARY OF VARIABLES

* *****

*

*

- * CKPNT = Grand total of crime known to the police
- * CKPN = Crime known to the police by offence
- * ACCLT = Grand total of persons charged with criminal offences
- * ACCLYA = Number of persons charged by offence
- * AJFV2T = Grand total of persons prosecuted for criminal offences
- * AJFV2YA = Number of persons prosecuted by offence
- * ALAAT = Grand total of legal aid applications
- * ALAAYA = Legal aid applications by offence
- * ALAPT = Grand total of legal aid approvals
- * ALAPYA = Legal aid approvals by offence
- * LAREFT = Grand total of legal aid referrals
- * CGPT = Guilty plea cases
- * CGPYA = Guilty plea by offence
- * CFAT = Fail to appear cases
- * CSTT = Stay/withdrawal cases
- * CTRT = Trial cases
- * CTRYA = Trial cases by offence
- * LSCG = Cost of guilty plea cases
- * LSCT = Cost of trial cases
- * LSCOST = Total cost of legal aid

Control Statements

SAVE ckpnt,ACCLT,AJFV2T,ALAAT,ALAPT,CGPT,CFAT,CSTT,CTRRT,LSCOST
SPEC DT=1/LENGTH=145/SAVPER=1

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