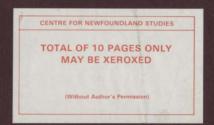
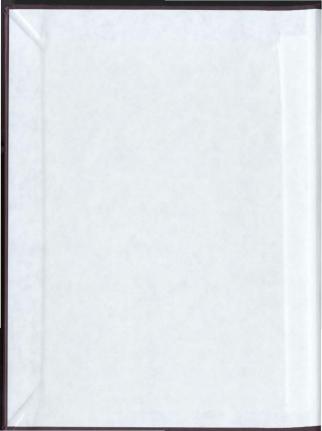
A TOTAL SMOKING BAN: AN EXPLORATORY ANALYSIS OF AVERAGE MONTHLY SICK-LEAVE USE AMONG PUBLIC SERVICE EMPLOYEES BEFORE AND AFTER THE INTRODUCTION OF A NO-SMOKING POLICY



KEN F. FOWLER









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A Total Smoking Ban: An Exploratory Analysis of Average Monthly Sick-Leave Use among Public Service Employees Before and After the Introduction of a No-smoking Policy

BY

© Ken F. Fowler

A thesis submitted to the School of Graduate Studies in partial fulfilment of the requirements for the degree of Master of Science

> Department of Psychology Memorial University of Newfoundland July 1994

> > Newfoundland

St. John's



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ABSTRACT

In a time-series design, sick-leave records of threehundred and nine General Service employees from four Newfoundland government head offices were analyzed over a four-year period to determine if any change in average monthly sick-leave use resulted from the introduction of a no-smoking policy. Using three dependent measures, the total-time index (TTI), frequency index (FI) and short-term index (STI), pre and post measures were assessed for possible changes through the use of ARIMA (p,d,q) procedures and ANOVA procedures where applicable. No significant change in absenteeism regardless of dependent measure, time of policy introduction, or department was found. Differences among dependent measures, the future of absenteeism research and the suitability of sick-leave use as an indicator of employee well-being are discussed.

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This investigation represents the collective efforts of individuals within both experimental and applied areas. I would first off like to thank my advisor/supervisor and mentor Dr. Abraham Ross (Department of Psychology) for contributing not only to my academic skills but also my understanding of the importance of investigative creativity and communication. As well, my gratitude is offered to the other members of my thesis committee, Professor Malcolm Grant (Department of Psychology) and Dr. Lessey Socklal (Department of Business Administration) for their vigilance, comments and suggestions. My appreciation is also extended to Dr. Ted Hannah and Dr. Catherine Button for their advice and instruction during my affiliation with Memorial's Department of Psychology. I also acknowledge the kindness and assistance of the Department of Psychology's staff; Bernice, Brenda and Kim.

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INTRODUCTION

It has been suggested that companies and governments in North America spend billions of dollars each year in employee absenteeism; according to some, employee absenteeism in the U.S. has been estimated to cost \$40 billion a year (Markowich & Silver, 1989). In Canada, absenteeism is perceived as a growing and costly problem for Canadian governments and companies. According to a Statistics Canada labour force survey, the work days missed among full-time paid workers for illness or disability and personal or family responsibilities rose by almost a full day, from 8.6 days per worker in 1987 to 9.4 days in 1990 (Akyeampong, 1992). In particular, between 1987 and 1990, time lost due to illness or disability increased by a third of a day to 6.7 days, while time lost on account of personal or family responsibilities rose by an extra half day (Akyeampong, 1992).

During a period when budgetary restraints limit the earnings and development of industry, administrators have been looking toward such employee behaviour as short and long term sick-leave use, and worker's compensation as a method of reducing expenditures and increasing productivity. Generally, such concerns have been met with various sickleave policy options and occupational health and safety strategies to limit the financial liability associated with brief and prolonged episodes of employee absenteeism.

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Methods of Reducing Absenteeism

Absence-Control Policies. There are several ways in which employers attempt to reduce or control employee absenteeism. One approach seeks to modify the existing sick-leave policy in order to make it less appealing for employees to take sick-leave (sometimes referred to as positive absence-control programs). For instance, some policies contain components which offer a reward or positive motivation for good attendance such as letters of commendation, employee-payments of a percentage of unused sick leave time, or some other predetermined amount of money (Markowich et al., 1989). Other absence-control policies are more punitive in nature whereby aversive consequences, such as dismissals or probationary periods, are imposed on employees with poor attendance records. Recently, it seems that many companies and governments are opting for absencecontrol policies that combine features of both disciplinary and positive-reward absence-control programs which are often . referred to as mixed-consequence systems (Markowich et al., 1989). The "paid leave policy" is an example of such a mixed-consequence system. The paid leave system operates by combining all types of leave (i.e., sick, annual, and family responsibility leave) into one package called "paid leave." While a reward system exist where employees may "cash in" unused paid leave after a specified time period, employees are negatively affected if they are legitimately or

illegitimately sick because, by doing so, they reduce the number of possible days for vacation and family responsibility leave. Such policies have been favourably received by private and public organizations (Markowich et al., 1989; Fowler, 1993).

Researchers have observed components of sick-leave policies such as absence-control strategies to be significantly related to absenteeism rates. For instance, in a study of a public utilities company, Dalton & Mesch (1991) found that a sick-leave policy exempting employees who had accrued more than 90 days of sick leave from pay reductions while absent served as the strongest predictor of sick-leave use. Mathieu & Kohler (1992), in their investigation of absenteeism among transit operators. attributed results to the specific structure of sick-leave policies within each transit depot. One of the most recent meta-analyses conducted Farrell & Stamm (1988) found that organizational-wide factors (such as absence-control policies) are not only significantly related to absenteeism, but are stronger predictors than demographic and psychological factors. Other researchers suggest that the workplace culture (i.e., both formal and informal organizational rules) does much to influence how much sickleave usage is acceptable such that the days lost to sickleave are based upon the amount of paid sick-leave days allowed per year (Chadwick-Jones, Nicholson, & Brown, 1982):

a concept sometimes referred to as "Parkinson's Law of Sick Leave Abuse" (Kopelman, Schneller, & Silver, 1981).

However, adopting absence-control policies depends on whether employers perceive the significant proportion of sick-leave use as being illegitimate or legitimate. The dichotomy of legitimate or illegitimate absenteeism has been widely discussed throughout the literature and will receive more attention in this investigation. Comparable terms have been used in the research such as avoidable and unavoidable absenteeism (Dalton et al., 1991), type A and type B absenteeism (Chadwick-Jones, Brown, & Nicholson, 1973), voluntary and involuntary absenteeism (Chadwick-Jones et al., 1982) and imaginary illnesses (Markowich et al, 1989). Of the entire spectrum of absence research, the avoidable/unavoidable absence dichotomy is perceived by many social psychologists as an interesting and worthwhile domain since employee attitudes and decision-making strategies are fundamental to the study of what constitutes avoidable absenteeism. Consequently, absenteeism research is one area in which social scientific theory and research is directly applicable to industrial problems.

The Wellness Program and No-smoking Policies. It is logical that the introduction of absence-control policies address concerns over avoidable (type B or imaginary) absenteeism. However, what remains in question is the

proportion of overall absences accounted for by avoidable absenteeism needed to justify the introduction of absencecontrol policies. There is very little research that has attempted to determine the proportion. Nonetheless, Dalton et al. (1991) estimated that 60% of all absenteeism was avoidable. The researchers also suggested that only 25% of the employees accounted for this type of absenteeism, a finding which has been previously demonstrated: Garrison & Muchinsky (1977) found between 18% and 58% of the employees were responsible for 90% of the paid and unpaid absenteeism. However, since Dalton et al. (1991) derived the proportion of avoidable absenteeism by subtracting the employee's reported total absence from the number of sick days officially recorded by human resource clerks, the methodology and findings remain somewhat questionable.

Given the uncertainty in terms of what constitutes avoidable absenteeism, another feasible approach to absencecontrol focuses on reducing legitimate (unavoidable or type . A) absenteeism by introducing policies and strategies aimed at maintaining and enhancing the physical well-being of employees in the workplace. Typically, worksite wellness programs have centered on smoking cessation, back injury provention, cardiovascular fitness etc. (Tucker, Aldana, & Friedman, 1991).

As with absence-control programs, wellness programs have also been viewed as worthwhile strategies for reducing

absenteeism due to illness and increasing productivity (Tucker et al., 1990; Hatziandreu, Koplan, Weinstein. Caspersen, & Warner, 1988; Cox, Shephard, & Corey, 1981). Despite the fact that it is self-report in nature, such research suggests that enhancing an employee's physical well-being in the workplace is a viable avenue in addressing the costs associated with excessive absenteeism and is one of the arguments used when no-smoking policies and associated cessation programs are introduced to governments and companies. If fact, one recent article published in "Benefits Canada" (a publication not known for its scientific rigor but nonetheless acknowledged by public and private industry) states that "Studies that monitor the exact cost of a smoking-cessation program on a company's bottom line leave little doubt that smokers impact healthcare, absenteeism and productivity" (Harvey, 1994, p. 51)1.

The Case for a No-smoking policy. Following the publication of the Royal College of Physicians on Smoking (1962) and the Report of Surgeon General's Advisory Committee on Smoking and Health (1964), research on smoking engulfed various scientific disciplines with assessments of relationships between smoking and physical well-being, mortality and other behavioural factors. Overall, the findings have suggested that higher incidences of morbidity

are reported among cigarette smokers than non-smokers: people who smoke tend to have a greater incidence of ischemic heart disease, lung cancer and other broncopulmonary diseases, peptic ulcers, and a larger proportion of chronic diseases (Athanasou, 1975). The most recent figures suggest that one in four North Americans smoke and in Canada alone, 38,000 deaths per year are attributed to smoking (Harvey, 1994).

Although the case has been strongly stated for the harmful effects of smoking on smokers, convincing evidence also exists for the harmful effects on nonsmokers According to the Canadian Lung Association (1992), secondhand or side-stream smoke is significantly correlated with an increased incidence of lung cancer since bystanders are exposed to 50 times the amount of carcinogens inhaled by the user. Other studies suggest that exposure to cigarette smoke enhances the risk of sudden infant death syndrome (Bergman & Wiesner, 1976), elevates the risk of acute illness in children (Cameron & Robertson, 1973), and adult nonsmokers exposed to sucke display increased anxiety. fatigue and aggression (Jones and Bogat, 1978). Other research suggests that smokers and their dependents use the healthcare system an estimated six times more than nonsmokers (Harvey, 1994). In the work setting, such findings are critical since employees work in close quarters, daily for hours at a time. Ferguson (1973) suggested that "...the

(ffence smokers cause to non-smokers who must work along side them cannot be costed (p. 64)".

In terms of business and industry, the study of the effects of smoking has had a significant impact in the areas of employee sickness-absenteeism. For instance, in the National Health Survey of the U.S. Public Service, smokers reported an excess of days lost from work, restricted activity days, and days confined to bed; chronic conditions were also reported by 11% more of the smokers. Weaver (1973) reported that respiratory illness not only is the leading cause of disability absenteeism, but also the major factor in disability benefit payment. Naus, Engler, Hetychova, & Vavreckova (1966) found that the prevalence of respiratory disease rises in a group of smokers as compared to a group of non-smokers. Coates, Bower, & Reinstein (1965) found that employees with chronic cough, wheezing and shortness of breath reported significantly more episodes of respiratory infection and more absences from work because of . chest illness during a three year period than those without these symptoms. Parkes (1983) suggested that time lost through sickness, both in total days off and number of absences is greater a ong smokers than nonsmokers. Finally, Weis (1985) proposed that sick leave has traditionally been a benefit used excessively by smokers whose absenteeism rates are at least 50% greater than nonsmokers. Based on these findings and suggestions, it is logical to propose a

relationship between sickness absenteeism and smoking where respiratory disease may play a crucial role in an increased usage of sick-leave, and that no-smoking policies are therefore worthwhile strategies.

While there have been many encouraging findings in evaluations of no-smoking policies such as reductions in the reported number of cigarettes consumed per day (Borland. Owen, Hill, & Schofield, 1991; Biener, Abrams, Follick, & Dean, 1989; Harvey, 1994), improvements in perceived air guality (Becker, Conner, Waranch, Stillman, Pennington, Lees, & Jski, 1989), and increases in reported cessation rates (Borland, Chapman, Owen, & Hill, 1990; Sorsensen, Rigotti, Rosen, Pinney, & Prible, 1991), there has not been much experiment-based research in terms of effects on absenteeism rates. However, as cited above, there is a wealth of literature proposing a link between smoking behaviour and absenteeism. Therefore, given the relationship between employee smoking and absence due to illness, the main objective of this study is to unobtrusively analyze the absenteeism rates of government workers both before and after the introduction of a nosmoking policy in order to determine whether smoking prohibition actually influences absenteeism rates. However, predicting the effects of the policy on absenteeism rates is difficult since the health effects of smoking cessation or

reduction on employees may take years in which to occur. Therefore, this investigation maintains a purely exploratory approach.

Before aspects of the design and methods are presented, it is useful to discuss various dependent measures, findings, and methods utilized in previous absenteeism research.

Theories of Absenteeism

The Withdrawal Theory of Absence. As mentioned above, the challenge of researchers is to differentiace between absences that are legitimate from those that are not. The distinction between the two concepts is by no means definite. For example, some make the distinction by whether the employee produces a medical certificate; those who do not are assumed to be "voluntary" absences (Chadwick-Jones, et al., 1982). The element of choice is inherent in such perceptions of absenteeism categories. However, Steers & Rhodes (1978) suggest at least three incidences where absenteeism is unavoidable and therefore involuntary; illness and accidents, transportation problems, and family predicaments. Despite this, Chadwick-Jones et al. (1982) question this distinction since it is possible that some accidents may be "choser" 'r some illnesses are relative to the individual or psychose" ,ic in nature. In both cases, absences which are perceived as involuntary may in fact be

voluntary. Although employees may legitimize their absence in the form of a medical certificate, doctor's notes are quite easy to obtain if the employee complains of silments that are difficult to confirm medically (such as headaches or backaches); physicians more often than not accept the complaint as evidence for the illness (Chadwick-Jones et al., 1982).

Since unavoidable and avoidable absenteeism is difficult to distinguish in terms of the medical certificate, most robust theories of absenteeism focus on the employees' need to "withdraw" from the workplace by either a conscious decision or subconscious need (in other words, psychosomatic illnesses).

Hill & Trist's (1953) theory of employee withdrawal, one of the earliest in the literature, attempts to explain how seemingly involuntary absences are voluntary. They propose that a portion of voluntary absenteeism occurs when employees encounter conflicts in satisfactions and obligations such that they withdraw from the work situation by means of accidents or unauthorized absences. Once employees become familiar with the organizational culture, the norms of the organization are internalized by employees who become aware of the types and amounts of absences tolerated. According to Hill & Trist (1953), the employee realizes the amount of absences without permission which is tolerable by the employer and therefore, any absences beyond the permissible amount occur in the form of minor accidents or ailments. While Hill & Trist's (1953) theory has been influential, it has been criticized for not emphasizing the group nature of the absence phenomenon (Chadwick-Jones et al., 1982). While they do discuss the importance of social norms and internalization, they explain a group-based phenomenon in terms of the individual utilizing uncertificated sickness absence as a means of coping with stress, or "individual internal problems" (Chadwick-Jones et al., 1982, p.10).

Social Exchange Theory of Absenteeism. In a variation of the withdrawal perspective of absenteeism, Chadwick-Jones et al. (1982) propose a theory which emphasizes the social context. The interaction between employees and employers is seen as a social exchange based upon both formal and informal contracts. Such formal contracts are pay levels, rules and policies, hours, job duties etc., while informal contracts contain supervisory styles, peer-group relations, and, relevant for this discussion, absences from work. Absences are a negative exchange in that something is taken away and withheld. In this way, absences are understood as something that occurs in response to negative working conditions, "absences may be traded against negative factors such as overly rigid working schedules" (Chadwick-Jones et al., 1962, p.11).

Consistent with Hill & Trist's (1953) theory, Chadwick-Jones et al. (1982) suggest that employees internalize the organizational rules surrounding the frequency and duration of permissible absenteeism and therefore reflect social exchange within an organization. However, among exchanges between individuals and work groups or work groups and management, Chadwick-Jones et al. (1982) found it inconceivable that there could be an exchange between the individual and the organization without the social conditions and rules. The research performed by Chadwick-Jones et al. (1982) is consistent with their claim that absences are part of an informal contract between the employee and the organization, given the particular working conditions. In a study of several organizations, they observed distinct absenteeism patterns within each in terms of seasonal fluctuations, total time used per employee and the frequency of absenteeism episodes.

Types of Absence Measures

The Time-Lost Measure of Absence. As mentioned earlier, researchers suggest that voluntary absences occur even if the employee produces a medical certificate legitimizing the illness (Chadwick-Jones et al., 1982). Support for this comes from research demonstrating a change in absenteeism rates corresponding to changes in sick-leave policies (e.g., Dalton, et al, 1991, See above). However, it is very difficult to determine how much of the voluntary absenteeism disguised as certificated absenteeism exists. Chadwick-Jones et al. (1982; 1973) propose that certain types of absence measurements are better than others for capturing voluntary absences. Accordingly, they believe that voluntary absences. Accordingly missed if both short and long-term absence data are incorporated into one measure. Therefore, absence estimates based on time-lost measures contain more legitimate (or involuntary) cases of absenteeism simply because these estimates are heavily weighted with long-term absences.

The time-lost category of measurements, the most widely used indices of absenteeism (Farrell et al., 1988), are simply "the percentage of possible or scheduled working time lost due to all types of absences" (Chadwick-Jones et al. 1982, p.55). Most research studying various predictors of absenteeism have correlated personal and psychological factors with time-lost measures (Farrell et al., 1988; Chadwick-Jones et al., 1973). However, since voluntary absences tend to be more short-term in nature, time-lost measures are seen as less sensitive to voluntary absences. Consequently, time-lost measures have been criticized as being biased toward long-term absences and therefore inadequate measures of absenteeism (Garrison et al., 1977). Chadwick-Jones et al. (1982) suggest "one man away from work for one month with pneumoconiosis will contribute as much to the time-lost statistic as ten men who choose to rake 2-3 days a month" (p.S6). However, Chadwick-Jones et al. (1973) do suggest that while time-lost measures may not be useful for voluntary absences, "they may help research in industrial medicine which is concerned with variation in type A (or unavoidable) sickness absence only" (p. 76). As well, time-lost measures are also useful for investigations into the estimation of financial liability incurred by organizations (Martocchio, 1992).

The Frequency Index and Short Term Measures

of Absence. Instead of the time-lost measures, an alternative used to capture the voluntary absence phenomenon is the frequency index. This index is simply the number of absences occurring in a given time period. While time-lost indices have been recognized as heavily weighted for longterm absences (and thus unavoidable absences), frequency indices have been perceived as a more accurate measure of avoidable absences (Chadwick-Jones et al., 1973). In their research of four clothing manufacturers, Chadwick-Jones et al. (1973) compared three indices (time-lost, frequency index and short-term measures) and concluded that frequency and short-term measures were more accurate in indexing absences which were voluntary in nature than time-lost measures. Short-term (or attitudinal) indices are derivations of frequency indices which take into account the number of absences less than a given duration (usually two days or less). For example, Chadwick-Jones et al. (1973) designated those absence-episodes which were two days in duration or less as short-term or attitudinal illnesses. Such indices are even more sensitive to voluntary absence than frequency indices (Chadwick-Jones et al., 1982).

Given the wide variation in dependent measures of absenteeism, Muchinsky (1977) suggested that absenteeism "burdened" by the inconsistent use of various absenteeism measures because of the difficulty of comparing between studies. Furthermore, Muchinsky (1977) added that while a few studies have attempted to gauge the reliability of the absenteeism measures they employed, almost none of the articles he reviewed attempted to determine the validity of the measures; "...the methodological hodgepodge surrounding absenteeism indices plagues the evaluation and interpretation of absenteeism research" (p.322). However, Muchinsky (1977) also admitted that it will be extremely difficult to produce a single measure of absenteeism that will encompass the various types of absences.

Correlates of Absenteeism

In terms of the predictor variables studied in absence research, three main categories have been cited. The

category gaining most attention in the literature has been psychological correlates such as job satisfaction, organizational commitment, stress, and job involvement. Much of this attention probably stems from the withdrawal interpretation of absenteeism. The category which has also received attention includes personal factors such as the demographic variables, age and tenure. Finally, the category receiving little attention relative to psychological and personal factors consists of organizational-wide variables such as the effects of various type of sick-leave policies and absence control policies (Farrell et al., 1988).

<u>Psychological factors and absenteeism</u>. In terms of relationships between psychological factors and absenteeism, most have focused on worker attitudes or employee satisfaction and absenteeism. Nicholson, Brown, & Chadwick-Jones (1976) suggest several reasons why employee absence and job satisfaction have been a popular pair in the research. First of all, they suggest that the concept makes intuitive sense - if people are dissatisfied with their jobs, they will withdraw from the work situation. The term "withdraw" suggests another reason for popularity of the job satisfaction-absence relationship in that it is consistent with the "withdrawal theory" of absenteeism proposed by Hill & Trist (1953) (and the social exchange theory offered by Chadwick-Jones et al., 1982). As well, the relationship is common because it provides justification for employers to actively look for ways to improve the quality of the employee work experience. Finally, there appears to be a number of reports demonstrating a relationship between worker attitudes and absenteeism.

While there have been many published articles about the satisfaction-absence relationship and several literature reviews integrating their results, as is typical of absenteeism research, inconsistencies are even inherent in the review articles. Muchinsky (1977), despite being very critical of the inconsistencies among absenteeism investigations, concluded that highly consistent results have been observed in reports relating job satisfaction to absenteeism; in most of the studies, researchers found a significant, negative relationship between the two parameters. He further concluded that this finding was "... highly logical in that withdrawal from work should be related to attitudes towards work" (p. 326).

However, Nicholson et al. (1976) were more critical of the job satisfaction-absenteeism research. In an assessment of many of the same articles cited by Muchinsky (1977), Nicholson et al. (1976) (also reported in Chadwick-Jones et al., 1982) separated them into three groups, "individual correlational" (absence and satisfaction scores are correlated across individuals), "contrasted groups" (groups

or classes of high and low scores are divided and analyzed) or "group correlational" (average absences and satisfaction scores are correlated) (p. 729). Nicholson et al. (1977) found that despite being more rigorous. "individual correlational" studies exhibited as many significant correlations as nonsignificant correlations. Further. "contrast group" studies, despite being unanimous in their findings (i.e., significant, negative relationships), were perceived as difficult to interpret since half presented only descriptive statistics and selective grouping of extreme scores may have yielded artificial differences not based on linear associations between the absences and job satisfaction. Finally, in the "group correlational" category, they suggested that they are improper studies on absenteeism because the authors neglected individual variance by grouping the data.

Consequently, when Nicholson et al. (1976) carried out a study of 1222 male and female production workers in 16 organizations differing in technologies, they found that no significant relationship existed between job satisfaction and absenteeism in most of the organizations studied. They concluded that the common perception that job satisfaction is a consistent and significant predictor of absenteeism is "empirically unsupportable" (p. 735). Chadwick-Jones et al. (1982) state that "it is not possible to establish more than a weak connection between job satisfactions and absences" (p. 99). Later meta-analyses found similar results reflecting the weak relationship between absences and job satisfaction (Scott & Taylor, 1985).

Personal Factors and Absenteeism. Personal factors such as the demographic variables, age and tenure, have also been widely studied (Farrell et al., 1988). While st when investigating possible gender differences exist (e.g., Pines, Skulkeo, Pollak, Peritz, & Steif, 1985; Ferris, Bergin, & Wayne, 1988), none of the existing literature reviews summarizes the findings (Farrell et al., 1988). In terms of research on employee age, the basic suggestion is that we should expect less absenteeism in older employees (Chadwick-Jones et al., 1982). Theoretically, some postulate that older workers are more settled into work schedules and routines and may participate less in leisure group activities, have "fewer outside social activities" or "a smaller number of friends" (Chadwick-Jones et al., 1982. p. 106). On the other hand, if some forms of absenteeism are seen as a form of reaction to rigid work schedules. younger employees may have a stronger reaction than older employees (Chadwick-Jones et al., 1982).

There have been many articles published about employee age and tenure since they have been used to explain additional variance in job satisfaction/absence studies (Staw, 1984). Hacked & Guion (1985) attributed the weakness

of job satisfaction and absence relationship to the confounding affects of a consistent negative relationship between age and absenteeism. Muchinsky (1977) reviewed five age/absence and three tenure/absence reports only to conclude that results were highly inconsistent. However, Chadwick-Jones et al. (1982) reviewed 28 cross-sectional studies and found that age and length of service were strong and negative predictors for absence measures representing short, casual absences (i.e., frequency and short term measures) and that few significant correlations were found between age or length of service when the time-lost measure was used (i.e., the sickness or involuntary measure). Based on these results, Chadwick-Jones et al. (1982) concluded that young, short-service workers, especially males, have a higher susceptibility to casual absences, while relationships between longer-term absence (time-lost) and age and length are more variable.

<u>Work Environmental and Organizational factors</u>. Most of the research focusing on work environment and organizational factors has concentrated on organization-size with the most consistent finding being a positive correlation with absence rate (Muchinsky, 1977; Porter & Steers, 1973). Other less scrutinized variables also demonstrating significant relationships include pay-level, job-autonow, the effects of incentive pay and disciplinary

systems aimed at controlling absenteeism and task repetitiveness (Farrell & Stamm, 1982; Muchinsky, 1977; Porter & Steers, 1973).

In terms of organizational-size, Porter et al. (1973) theorized that the larger an organization, "the lower group cohesiveness, higher task specialization and poorer employee communication" (p. 159). As a result, employees find it difficult to reach full expectation in the position and therefore decreased satisfaction and hence an increased desire to withdraw. Porter et al. (1973) further suggested that such a trend would not be as prevalent among whitecollar workers because they typically experience more job autonomy and intrinsic incentives. While this suggestion seems intuitively feasible, there is little research demonstrating a different trend among blue and white collar workers, Nonetheless, Muchinsky (1977) did cite one article (Metzner & Mann, 1953) demonstrating a difference and the Chadwick-Jones et al. (1982) research on absenteeism trends . among different industries also showed different absenteeism rates among employees from different occupational groups. From their findings, Chadwick-Jones et al. (1982) suggested that different occupational groups seem to develop their own "rules" in terms of the amount and frequency of absenteeism deemed acceptable in the organization and such "absence cultures" serve as important moderating variables between predictors and indices of absenteeism.

In a comprehensive meta-analysis of various correlates of absenteeism, Farrell & Stamm (1988) categorized 72 studies with respect to the type of dependent measure (timelost or frequency) and predictor type (psychological. demographic. work environment or organization-wide factors). The researchers determined that both organization-wide (pay and absence-control policies) and work-environment (task autonomy) factors were better predictors of absenteeism than demographic and psychological factors. In fact, for both measures of absenteeism (frequency and time-lost), organizational-wide and work environment factors had consistent effects more than twice as often as did the same number of correlates in the demographic and psychological categories. As well, all of the consistent organizationalwide or work environment factors were statistically significant. Based on such research, it seems that work environment and organization-wide variables are the most promising areas in absence research.

Objectives of the Present Analysis

On April 1st, 1991, the Government of Newfoundland and Labrador adopted a "Smoke Free Workplace Policy" for government employees. This total smoking ban included offices, hallways, washrooms, cafeterias, etc. According to notices sent to each department, the policy was introduced to "...provide a safe and healthy work environment free from the harmful effects of tobacco smoke." Government also offered smoking cessation programs for interested employees.

While April, 1991 was the general deadline for each department to implement the policy, several departments had already been smoke-free for as many as three years prior to this date.

In light of this event and previous studies on smoking and absenteeism, the present investigation seeks to explore the dynamics of employee absenteeism before and after the introduction of the no-smoking policy in Newfoundland's Public Service. In a time-series design, employee sickleave records are analyzed to see whether there is a change. Since previous research demonstrates a sensitivity difference among various measures in terms of avoidable and unavoidable absence, total-time (also referred to above as the time-lost measure), frequency and short term indices are used.

This study is exploratory in nature and therefore does not make definite predictions with respect to absenteeism rates following the policy introduction. In particular, there is a problem in estimating the time during which involuntary absenteeism will be affected. It seems likely that there will be no immediate impact on involuntary absenteeism because health effects of smoking cessation or reduction may take several years in which to manifest. Consequently, it is probable that no change in the total-

time measure of absenteeism will result during the test period. However, we may predict a change in voluntary illness as indexed by both the frequency and short term measures since the work environment is more comfortable for those who are bothered by tobacco smoke. More specifically, those individuals who have made decisions to withdraw from the workplace due to excessive smoking may reduce their withdrawal behaviour when the environment becomes smoke free.

METHOD

Subjects

Three hundred and nine General Service (GS) workers from Newfoundland's Provincial Government were the subjects of this investigation. In order to limit the potential effects of occupational group (an important component of absence behaviour, Chadwick-Jones et al., 1982, 1973), only GS employees were included. This barganing unit, which comprises more than 50% of all unionized workers in the Newfoundland Government, has a fairly equal distribution of male and female employees. It represents most officeoriented, non-management workers and abides by the same sick-leave policy which has not been altered since its introduction.

Employee Location and Departments

The fact that public service workers are distributed throughout the province offered some threat to the interpretation of results. Therefore, only those employees from two buildings in which head offices are located were selected. This was done to minimize the potential effects of distinctive variables operating at different worksites. General Service employees working in head offices were differentiated from those working at other worksites by

spatial-layout drawings created by an architecturalconsulting firm frequently employed by government.

Of the 18 departments (See Table 1), 4 were selected for two reasons. First, there was a three-year difference in policy-introduction time. This strengthens the internal validity of the results by minimizing any threat due to history (Campbell & Stanley, 1966). Second, these departments were selected because they did not experience significant changes or reorganizations in the past several years. The four departments selected, the dates of the nosmoking policy introduction and the number of employees included are presented in Table 2. While there has been some staff turnover in recent years, these departments have remained reasonably constant in terms of employee.

The Design

As opposed to the correlationa./self-report approach typically utilized in evaluations of no-smoking policies, the approach employed here is guasi-experimental. Utilizing employee sick-leave records from April, 1989 to March, 1993 for the Departments of Finance and Employment and Labour Relations, and April, 1986 to March 1990, for the Departments of Education and Social Services, sick-leave use, both before and after the policy introduction, was compared in a time-series analysis.

Table 1

Departments of the Newfoundland Public Service and those selected for this investigation

Auditor General	Health				
Industry, Trade and Technology	Legislature				
Education *	Justice				
Employment and Labour Relations *	Mines and Energy				
Environment and Lands	Municipal and				
Executive Council	Provincial Affairs				
Finance *	Public Service Comm.				
Fisheries	Social Services *				
Forest and Agriculture	Tourism and Culture				
Work, Service and Transportation					

* Selected Departments

Table 2

Selected departments, dates of policy introduction, and the number of GS employees included from each

Department	Policy Introduction Date	Number of Employees			
Education	March, 1988	* 60			
Finance	April, 1991	** 98			
Social Services	January, 1988	* 70			
Employment & Labour Relations	April, 1991	* 81			

Total

305

Total number of GS employees in head office Randomly selected from the Dept of Finance ٠

**

Such a design allows for the observation of seasonal fluctuations in absenteeism and signifies the influence of other significant events occurring during the same time period. It has the added strength of incorporating four groups or departments, experiencing the introduction of the same policy at different times, as control groups (such a design has been termed a "multiple group design with switching replications", Campbell & Stanley, 1966). Thus, if changes in absenteeism rates occur in more than one department after policy introduction, strong evidence for the policy's effect would be apparent and the threat of history would be weakened (Campbell & Stanley, 1966). Similarly, if no changes in absenteeism among the departments result, there would be strong evidence of the policies lack of effect on absenteeism.

Unfortunately, the archival nature of this design makes it impossible to compare sick-leave use between smoking and non-smoking populations. While this was the original intention, obtaining permission from the unions to survey employees about their smoking status was seen as politically sensitive and therefore discouraged by Treasury Board officials. The reason for this concerned the fact that unions were, at that time, bargaining for a new collective agreement including sick-leave benefits. Consequently, it was felt that canvassing unions for permission to survey employees could have jeopardized bargaining and research.

The Dependent Measures

To measure sick-leave usage, three indices were used. The total-time (also referred to as the time-lost measure), frequency and short term indices were employed based on the proposition that each measure is uniquely sensitive to both voluntary and involuntary absenteeism. As discussed above, the total-time index appears to be a more sensitive measure of involuntary or unavoidable absenteeism since it is more biased toward longer-term absences which are typically perceived as legitimate. Conversely, both frequency and short term (or attitudinal) indices are perceived as a more powerful measure of voluntary or avoidable absenteeism since they gauge the number of absence episodes (the short term index being the most sensitive) (Chadwick-Jones et al., 1982; Farrell et al., 1988).

All three measures were based upon monthly averages and were calculated as follows:

- A. the Total-Time Index (TTI) the average number of sick-leave days per employee, per month,
- B. the Frequency Index (FI) the average number of sick-leave episodes per employee, per month, and
- C. the Short-Term Index (STI) the average number of sick-leave episodes where the number of days is two or less, per employee, per month².

The Departments of Social Services, Finance, and Employment and Labour Relations were represented by 48 TTI measures, 48 FI measures, and 48 STI measures, while the Department of Education was represented by 47 TTI, FI and STI measures.

The Analysis

The statistical analysis of data was carried out by conducting auto-regressive integrative moving average analyses (ARIMA(p,d,q)) developed by Box & Jenkins (1976). For each dependent measure, average monthly sick-leav: use was modeled for each government department separately and for all departments combined. In total, 15 autocorrelation functions and partial autocorrelation functions were produced representing the three measures of the four departments plus three additional measures of all departments combined.

Through the process of model identification, we determined whether the scores representing the time-series illustrations of each department were autocorrelated (and therefore required the "intervention" method of data analysis) or not autocorrelated thus permitting the traditional Ordinary Least Squares (OLS) analysis of variance (ANOVA) procedures (McCain & McCleary, 1979).

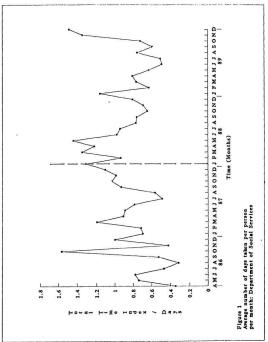
RESULTS

Analyses of the Total-Time Index (TTI)

In the analyses to follow, all observations are based on a specific measure of sick-leave usage called the Total Time Index (TTI) representing the average number of monthly sick-leave days taken per employee³.

Analysis of TTI Measures for the Department of Social Services. Illustrated in Figure 1 are the monthly TTI's for the Department of Social Services before and after the no-smoking policy was introduced during January, 1988. The average monthly number of days taken by each employee ranged from 0.3 days to 1.5 days (See Appendix A).

In Figure 2, both the ACF and PACF plots are displayed. The ACF appears stationary thus suggesting a zero value for the d component of the ARIMA model. As well, the ACF appears to die out exponentially while the PACF has one lone . spike at the first lag. This suggests an autoregressive process whereby the previous value in a series allows for the prediction the current value. Since this series was identified as an autoregressive process, a value of one was assigned to the p component of the ARIMA model. Based on the ACF and PACF plots, the TTI series of the Department of Social Services was best represented by the ARIMA (1,0,0) model.



ag	Corr.	Err1	75525	0 .25 .5 .75 1	Q-statistic	Prob.
1	.373	.140			7.113	.008
2	.240	.138		*****.	10.124	.006
3	.133	.137		*** .	11.061	.011
4	.093	.135		**	11.532	.021
5	.078	.134		**	11.869	.037
6	007	.132			11.872	.065
7	027	.131		1	11.914	.103
8	027	.129			12.268	.140
9	113	.127			13.051	.160
10	024	.126			13.089	.219
	.033	.126		1.	13.158	.283
11		.124			13.245	.351
12	.036	.122			14.179	.361
13	117				15.756	.329
14	149	.119			15.836	.393
15	033	.117			17.282	.368
16	139	.115			17.599	.415
17	064	.114			18.287	.437
18	093	.112			18.324	
19	.021	.110				.501
20	125	.108			19.657	.480
21	125	.106			21.037	.457
22	080	.104			21.634	.482
art	ial Auto	correlat	ions			
1	.373	.144		*****.*		
2	.117	.144		** .		
3	.011	.144		• •		
4	.021	.144		•		
5	.028	.144		* .		
6	066	.144	. •			
7	028	.144				
	062	.144				
8						
	071					
9	071	.144		• :		
9	.068	.144	:	: :		
9 10 11	.068	.144	:			
9 10 11 12	.068 .074 .014	.144 .144 .144				
9 10 11 12 13	.068 .074 .014 170	.144 .144 .144 .144				
9 10 11 12 13 14	.068 .074 .014 170 097	.144 .144 .144 .144 .144				
9 10 11 12 13 14	.068 .074 .014 170 097 .082	.144 .144 .144 .144 .144 .144				
9 10 11 12 13 14 15 16	.068 .074 .014 170 097 .082 138	.144 .144 .144 .144 .144 .144 .144	=			
9 10 11 12 13 14 15 16	.068 .074 .014 170 097 .082 138 .023	.144 .144 .144 .144 .144 .144 .144 .144	::			
9 10 11 12 13 14 15 16 17 18	.068 .074 .014 170 097 .082 138 .023 022	.144 .144 .144 .144 .144 .144 .144 .144	=			
9 10 11 12 13 14 15 16 17 18	.068 .074 .014 170 097 .082 138 .023 022 .116	.144 .144 .144 .144 .144 .144 .144 .144	:			
9 10 11 12 13 14 15 16 17 18 19 20	.068 .074 .014 170 097 .082 138 .023 022 .116 173	.144 .144 .144 .144 .144 .144 .144 .144				
9 10 11 12 13 14 15 16 17 18	.068 .074 .014 170 097 .082 138 .023 022 .116	.144 .144 .144 .144 .144 .144 .144 .144	:			

Figure 2 - TTI ACF and PACF for the Dept of Social Services

Given this proposed model, an estimation of the magnitude of the dependency of adjacent points in the time series was carried out. In this case, the autoregressive correlation coefficient was estimated to be 0.406 (t = 2.86, p = .006). Since the autoregressive coefficient did not equal or exceed plus 1 and was significant at the .001 level, the proposed model was retained.

In the diagnosis stage, the model was tested to determine whether it accounted for the behaviour of the series and left only uncorrelated error unaccounted for. This was achieved by checking the ACF of the residuals to see whether they behaved as a white noise process. As can be seen in Figure 3, there were no spikes beyond the 95% confidence limits at either lag and all Q-statistics were not significant. Therefore, based on the results of this diagnosis stage, the ARIMA (1,0,0) model was considered acceptable.

Intervention Analysis of TTI Measures for the Department of Social Service. Once an adequate model for the series was identified, we incorporated an intervention term representing the no-smoking policy introduction into the equation. Because we were interested in whether a prolonged change existed in sick-leave behaviour following the policy introduction, we introduced a simple step function by employing dummy variables.

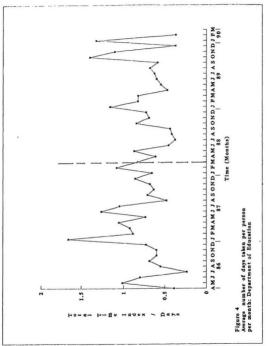
Auto	correla			
Lag	Corr.	Err1	75525 0 .25 .5 .75	1 Q-statistic Prob.
		- F		-
1	050	.140	. •	.128 .720
2	.126	.138		.962 .618
3	.022	.137		.988 .804
4	.012	.135	. • .	.997 .910
5	.069	.134		1.264 .939
6	047	.132		1.389 .967
	016	.131		1.403 .985
789	054	.129	. • .	1.578 .991
9	110	.127	. ** .	2.317 .985
10	.005	.126		2.318 .993
11	.014	.124		2.330 .997
12	.111	.122		3.157 .994
13	106	.121	. ** .	3.925 .992
14	141	.119	. ***	5.324 .981
15	.080	.117	. ** .	5.790 .983
16	-,150	.115	. ***	7.468 .963
17	.014	.114		7.482 .976
18	105	.112	. **	8.371 .973
19	.124	.110		9.645 .961
20	094	.108	. **	10.401 .960
21	062	.106		10.748 .967
22	.002	.104		10.748 .978

Figure 3 - ACF for residuals of the Dept of Social Services

A value of zero was assigned to the series prior to the policy introduction and a value of one was introduced at the point of policy introduction (January, 1988), and for every point after.

In general, once an intervantion component is introduced, the ARIMA analysis yields a coefficient indicating the direction of the change (if any) and how well the series is explained by the intervention. Generally, a negative sign suggests a decreasing trend and a positive sign suggests an increasing trend. In the case of the Social Service time-series data, the coefficient observed was 0.482 (p = 0.109). While the positive coefficient suggested a slight increase in the TTI, it was not significant. Based on this analysis, there was no significant change in sick-leave use for Social Services (as indexed by the TTI) following the introduction of the no-smoking policy.

Analysis of TTI Measures for the Department of Education. Figure 4 illustrates the TTI time-series for the Department of Education before and after the no-smoking policy introduction during March, 1988. As with "he Department of Social Services, the TTI for the Department of Education ranged roughly between 0.3 and 1.6 days per month (See Appendix B).



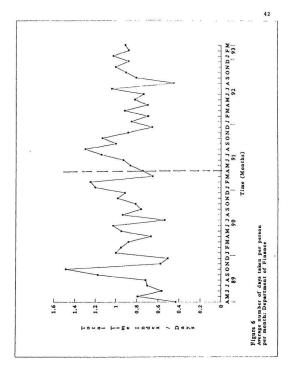
	Corr.	Err	175525	0 .25	.5 .	75 1	Q-statistic	Prob.
1	.058	.141		+		1-1	.167	.682
2	.054	.140					.317	.853
3	.187	.138					2.145	. 543
4	198	.137					4.239	.375
5	046	.135					4.355	. 500
6		.135					8.528	. 202
67	273			1 .			9.580	.202
2	135	.132					10.414	.214
8	.119							.237
9	065	.128		·			10.669	
10	.148	.127					12.038	.283
11	010	.125					12.045	.360
12	.009	.123					12.050	.442
13	.059	.122	•	· ·			12.290	. 504
14	195	.120					14.954	.381
15	180	.118		1 .			.7.293	.302
16	111	.116		· ·			18.212	.312
17	138	.114					19.666	.292
18	074	.112		1 .			20.101	.327
19	081	.110	. **	(·			20.644	.357
20	.113	.108		** .			21.730	.355
21	.111	.106		** .			22.816	.354
22	050	.104		1 .			23.043	.399
	ial Auto		tions					
1	.058	.146						
2	.051	.146		•				
3	.182	.146	:	:				
3	.182	.146 .146 .146						
345	.182	.146		:				
3456	.182	.146 .146 .146		:				
34567	.182 228 039	.146 .146 .146 .146		:				
345678	.182 228 039 307	.146 .146 .146 .146 .146		:				
34567	.182 228 039 307 012	.146 .146 .146 .146 .146 .146		 :••				
3456789	.182 228 039 307 012 .140 .041	.146 .146 .146 .146 .146 .146		····				
3 4 5 6 7 8 9 10	.182 228 039 307 012 .140 .041 .083	.146 .146 .146 .146 .146 .146 .146 .146		: ::				
3 4 5 6 7 8 9 10 11	.182 228 039 307 012 .140 .041 .083 168	.146 .146 .146 .146 .146 .146 .146 .146		: ::				
3 4 5 6 7 8 9 10 11 12	.182 228 039 307 012 .140 .041 .083 168 030	.146 .146 .146 .146 .146 .146 .146 .146		: :.				
3 4 5 6 7 8 9 10 11 12 13	.182 228 039 307 012 .140 .041 .083 168 030 044	.146 .146 .146 .146 .146 .146 .146 .146		: ::				
3 4 5 6 7 8 9 10 11 12 13 14	.182 228 039 307 012 .140 .041 .083 168 030 044 064	.146 .146 .146 .146 .146 .146 .146 .146		: :				:
3 4 5 6 7 8 9 10 11 12 13 14 15	.182 228 039 307 012 .140 .041 .083 168 030 044 064 200	.146 .146 .146 .146 .146 .146 .146 .146		: ::				;
3 4 5 6 7 8 9 10 11 12 13 14 15 16	.182 228 039 307 012 .140 .041 083 168 030 044 064 064 064 072	.146 .146 .146 .146 .146 .146 .146 .146		 				-
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	.182 228 039 307 012 .140 .041 .083 168 030 044 200 072 072	.146 .146 .146 .146 .146 .146 .146 .146		 				;
3 4 5 6 7 8 9 10 11 12 13 14 5 16 7 18	.182 228 039 307 012 .140 .041 .083 168 030 044 064 200 072 091 084	.146 .146 .146 .146 .146 .146 .146 .146		: :.				;
34567891011213415167189	.182 228 0.39 307 012 .140 .041 .083 168 030 044 064 064 072 091 084 084	.146 .146 .146 .146 .146 .146 .146 .146		 				:
3 4 5 6 7 8 9 10 11 2 13 14 15 16 17 18 19 20	. 182 228 039 307 012 .140 .041 083 168 030 044 064 064 072 091 084 091 084 098 .029	.146 .146 .146 .146 .146 .146 .146 .146		 				;
3456789011234516789	.182 228 0.39 307 012 .140 .041 .083 168 030 044 064 064 072 091 084 084	.146 .146 .146 .146 .146 .146 .146 .146		 				

Figure 5 - TTI ACF and PACF for the Dept of Education

However, unlike Social Services, Education's ACF and PACF plots (shown in Figure 5) exhibited no significant correlations among any of its monthly TTI's as demonstrated by the absence of autocorrelation spikes beyond the 95% confidence limits and no significant Q-statistics at any lag. Based on the appearances of the ACF and PACF, the TTI series did not require differencing (hence a zero d value), and contained no evidence of an autoregressive or moving average component (and hence zero p and q values). As a result, the model was given an ARIMA (0,0,0) structure.

Since the TTI values were not significantly correlated at any lag, we compared the scores before the policy introduction with those after by means of ANOVA (the assumption of independence was not violated). While some researchers suggest that repeated measures ANOVAs are more appropriate in such cases (at least 50 to 100 cases with uncorrelated errors, McCain & McCleary, 1979), given that each score in the time-series was uncorrelated, we felt it unnecessary to account for non-significant correlations through repeated measures procedures. Therefore, for all analyses that require ANOVA in this section, all pre and post scores are troated independently.

A comparison of the pre-TTI values (24 scores with a mean of 0.7865 days) with the post-TTI values (23 scores with a mean of 0.7058 days) indicated no significant difference (F(1,46) = .84, p = 0.365).



	Corr.	Err.	-175525	0 .25 .5 .75 1	Q-statistic	Prob.
1	.148	.140			1.116	.291
2	085	.138		· ·	1.492	.474
3	062	.137			1.695	.638
4	034	.135			1.758	.780
5	075	.134			2.075	.839
6	119	.132			2.889	.823
7	.036	.131		· ·	2.964	.888
8	.284	.129			7.790	.454
9	052	.127			7.955	.539
10	155	.126			9.478	.487
11	069	.124			9.786	.550
12	102	.122	. **		10.475	.574
13	112	.121	. **		11.329	.583
14	095	.119		· ·	11.962	.609
15	.125	.117		** .	13.094	.595
16	.169	.115		*** .	15.247	.507
17	.124	.114		** .	16.430	.494
18	144	.112	.***		18.080	.450
19	165	.110			20.329	.375
20	127	.108	.***		21.709	.357
21	.003	.106		•	21.710	.416
22	.049	.104		· .	21.932	.464
	ial Auto	correl	ations			
1	.148	.144		*** .		
1 2	.148	.144	:	*** :		
1 2 3	.148 109 033	.144 .144 .144		*** : :		
1 2 3 4	.148 109 033 029	.144 .144 .144 .144				
1 2 3 4 5	.148 109 033 029 077	.144 .144 .144 .144 .144		*** .		
1 2 3 4 5 6	.148 109 033 029 077 108	.144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7	.148 109 033 029 077 108 .056	.144 .144 .144 .144 .144 .144 .144	:			
12345678	.148 109 033 029 077 108 .056 .254	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7	.148 109 033 029 077 108 .056	.144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10	.148 109 033 029 077 108 .056 .254 154 100	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11	.148 109 033 029 077 108 .056 .254 154 100 032	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11 12	.148 109 033 029 077 108 .056 .254 154 100	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11	.148 109 033 029 077 108 .056 .254 154 100 032	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11 12	.148 109 033 029 077 108 .056 .254 154 154 150 032 120	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11 12 13	.148 109 033 029 077 108 .056 .254 154 100 032 120 075	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11 12 13 14	.148 109 033 029 077 108 .056 .254 154 100 032 032 075 052	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	.148 109 033 029 077 108 .056 .254 154 154 100 032 120 075 052 .092	.144 .144 .144 .144 .144 .144 .144 .144				
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	.148 109 033 029 077 108 .056 .254 154 154 100 032 120 075 052 .092 .016	.144 .144 .144 .144 .144 .144 .144 .144		·····		
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	.148 -109 -033 -029 -077 -108 .056 .254 -154 -154 -100 -032 -120 -075 -052 .092 .016 .157	.144 .144 .144 .144 .144 .144 .144 .144		·····		
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	.148 -109 -033 -029 -077 -108 -056 -254 -154 -154 -100 -032 -120 -075 -052 -092 -016 -157 -164	.144 .144 .144 .144 .144 .144 .144 .144		·····		
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	.148 -109 .033 -029 -077 -108 .056 .254 -154 -100 -032 -120 .075 -052 .092 .016 .157 -154	.144 .144 .144 .144 .144 .144 .144 .144		·····		

Figure 7 - TTI ACF and PACF for the Lept of Finance

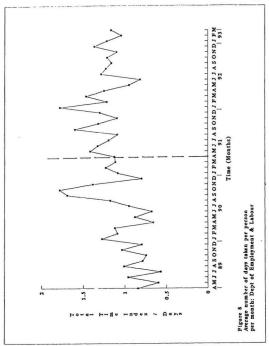
Hence, no significant change in the average number of sickleave days resulted after the no-smoking policy introduction.

Analysis of TTI Measures for the Department of

Finance. The time-series plot for the Department of Finance is shown in Figure 6. From April, 1989 to March, 1993, the TTI fluctuated between approximately 0.4 days and 1.5 days per month (see Appendix C). The figure also shows the introduction of the no-smoking policy during April, 1991 (the last deadline given to all remaining provincial departments not yet completely smoke free).

Again, looking at the ACF and PACF illustrations in Figure 7, while there is a slight spike exceeding the 95% confidence level at lag 8, no significant Q-statistics exist among any lag. Therefore, similar to Education, the model identified for the Department of Finance was ARIMA (0,0,0).

Given the independence among TTI points, the TTI values. prior to the introduction of the no-smoking policy (24 scores with a mean of 0.8548 days) were compared to the TTI scores following the no-smoking policy (24 scores with a mean of 0.8885 days) using ANOVA. Based on the analysis of Department of Finance TTI measures, no significant difference was found (F(1.47) = .28, p = 0.602).



Auto	correlat	ions					
Lag	Corr.	Err.	-175	525	0 .25 .5 .75	1 Q-statistic	Prob.
1	.341	.140				5.950	.015
2	.201	.138			**** .	8.060	.018
3	.071	.137			• .	8.330	.040
4	.085	.135			** .	8.723	.068
5	015	.134				8.734	.120
6	.080	.132			** .	9.100	.168
7	.294	.131			****.*	14.157	.048
8	.262	.129			*****	18.279	.019
9	.096	.127			** .	18.844	.027
10	.012	.126			• .	18.853	.042
11	.111	.124			** .	19.647	.050
12	085	.122		. **		20.131	.065
13	097	.121		. **		20.774	.078
14	.017	.119				20.796	.107
15	036	.117			1 .	20,893	.140
16	135	.115		. ***		22.266	.135
17	052	.114				22.479	.167
18	053	.112				22.706	.202
19	162	.110			·	24.870	.165
20	199	.108			· ·	28.258	.103
21	192	.106				31.520	.065
22	069	.104				31,962	.078
Part	ial Auto	corre	lations				
1	.341	.144			*****.*		
2	.096	.144			** .		
3	027	.144		. *			
4	.058	.144			* .		
5	068	.144		. *			
	.100	.144			** .		
7	.295	.144			******		
8	.084	.144			** .		
9	098	.144		. **			
10	069	.144					
11	.129	.144			*** .		
12	144	.144					
13	083	.144					
14	.033	.144					
15	177	.144					
16	129	.144					
17	.101	.144			**		
18	092	.144					
19	171	.144					
20	012	.144					
21	099	.144					
22	.040	.144					

Figure 9 - TTI ACF and PACF for the Dept of Employment & Labour Relations

Analysis of TTI Measures for the Department of Employment and Labour Relations. The time-series illustration for the Department of Employment and Labour Relations is shown in Figure 8. The highest TTI value of the series occurs August, 1990 (1.78 days) and December, 1991 (1.78 days) and the lowest occurs July, 1989 (roughly 0.6 days) (see Appendix D). It also appears that larger, more variable peaks occur in 1990 and 1991 while relatively small ones occur in 1989 and 1992.

ACF and PACF plots for Employment and Labour Relations are displayed in Figure 9. Despite the ACF spike at lag 7, the exponential decay of spikes in the ACF and the one lone spike in the PACF suggested the existence of a stationary, autoregressive process. The values of 1, 0 and 0 were therefore assigned to p, d, and q respectively (an ARIMA (1,0,0) model).

Given this tentative ARIMA model, the model parameters were estimated. In this case, an autoregressive correlation. coefficient was estimated at 0.339 (t = 2.46, p = .017). Lince the absolute value of the coefficient was less than 1 and statistically significant, the model was retained.

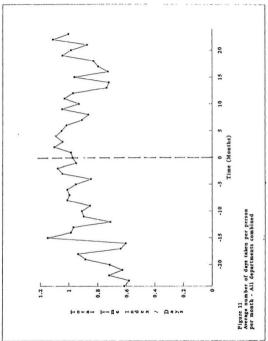
Finally, as indicated by the ACF plot of the residuals resulting from the estimation phase (See Figure 10), the ARIMA (1,0,0,) model was deemed suitable because no ACF spikes occurred beyond the 95% confidence intervals and significant Q-statistics were absent.

Lag	Corr.	Err.	-1	75	5	25	-	.25	.5	.75	1	Q-statistic	prob.
1	030	.140				.'						.047	.829
2	.097	.138						** .				. 533	.766
3	025	.137										.568	.904
4	.087	.135						** .				.977	.913
5	082	.134					**					1.354	.929
6	006	.132										1.356	.968
7	.240	.131						*****				4.714	.695
8	.181	.129						****.				6.684	.571
56789	.017	.127										6.702	.668
10	066	.126					*					6.976	.728
11	.167	.124						*** .				8.777	.642
12	113	.122					**					9.629	.648
13	095	.121					**					10.246	.674
14	.072	.119						· .				10.614	.716
15	.002	.117										10.614	.779
16	136	.115					***					11.998	.744
17	.006	.114										12.000	.800
18	.015	.112										12.019	.846
19	105	.110					**					12.926	.842
20	116	.108					**					14.072	.827
21	139	.106					***					15.784	.782
22	.019	.104										15.819	.825

Figure 10 - ACF for the residuals of the Dept of Employment and Labour Relations

Intervention Analysis of TTI Measures for the Department of Employment and Labour Relations. Similar to previous procedures, an intervention was incorporated into the model to determine whether it significantly contributed to the explanation of TTI dynamics. As with the Department of Social Services, a simple step function was introduced. By assigning dummy variables representing the pre and post intervention to the model (0 and 1 respectively), a correlation coefficient rating the magnitude of the intervention was observed at 0.16 (t = 0.471, p = .639). Since this coefficient was not significant, there was no change in the average number of monthly sick-leave days following the introduction of the no-smoking policy.

Analysis of TTI Measures for all Departments Combined. In order to assess the combined dynamics of the total average monthly usage of sick-leave, the pre and post-TTI measures were combined for all four departments. Regardless : of the year or month during which no-smoking policies were introduced, data were entered such that the pre-policy months for each department corresponded with one another (e.g., t-24, t-23, ... t-1): the policy introduction stood at time zero. Post-policy months were entered in a similar fashion (e.g., t+1, t+2,..., t+23). Given this data-entry format, the average number of sick-leave days per person, per month for all departments combined could be determined.



Lag	Corr.	Err.	-175525 0 .25 .5 .75 1	Q-statistic Pro
1	.452	.140		10.420 .00
2	.201	.138		12.523 .00
3	.266	.137		16.295 .00
4	.305	.135		21.381 .00
5	.189	.134	. ****.	23.373 .00
6	.049	.132		23.513 .00
7	.199	.131		25.830 .00
8	.085	.129	. ** .	26.259 .00
9	108	.127	. ** .	26.976 .00
10	048	.126		27.119 .00
11	.035	.124		27.198 .00
12	.077	.122		27.597 .00
13	015	.121		27.612 .01
14	157	.119	. ***	29.344 .00
15	149	.117	. ***	30.957 .00
16	119	.115	**	32.015 .01
17	.003	.114		32.015 .01
18	086	.112	. ++1	32.604 .01
19	102	.110	**	33.458 .02
20	101	.108	**	34.333 .02
21	204	.106	· · · · ·	38.045 .01
22	165	.104	***	40.562 .00
	ial Auto		ations	
1	.452	.144		
		.144	·	
3	.222			
4	.139	.144		
4	.139	.144		
4 5 6	.139 015 092	.144 .144 .144	1 ** 1 1	
4567	.139 015 092 .190	.144 .144 .144 .144		
45678	.139 015 092 .190 170	.144 .144 .144 .144 .144	**	
456789	.139 015 092 .190 170 150	.144 .144 .144 .144 .144 .144		
45678910	.139 015 092 .190 170 150 .046	.144 .144 .144 .144 .144 .144 .144	**	
4 5 6 7 8 9 10	.139 015 092 .190 170 150 .046 .008	.144 .144 .144 .144 .144 .144 .144		
4 5 7 8 9 10 11 12	.139 015 092 .190 170 150 .046 .008 .102	.144 .144 .144 .144 .144 .144 .144 .144		
4 5 6 7 8 9 10 11 12 13	.139 015 092 .190 170 150 .046 .008 .102 .021	.144 .144 .144 .144 .144 .144 .144 .144		
4 5 6 7 8 9 10 11 12 13 14	.139 015 092 .190 170 150 .046 .008 .102 .021 244	.144 .144 .144 .144 .144 .144 .144 .144	* 	
4 5 6 7 8 9 10 11 12 13 14 15	.139 015 092 .190 170 150 .046 .008 .102 .021 244 079	.144 .144 .144 .144 .144 .144 .144 .144		
4 5 6 7 8 9 10 11 12 13 14 15 16	.139 015 092 .190 170 170 150 .046 .008 .102 .021 244 079 .017	.144 .144 .144 .144 .144 .144 .144 .144	* 	
4 5 6 7 8 9 10 11 12 13 14 15 16 17	.139 015 092 .190 170 150 .046 .008 .102 .021 244 079 .017 .142	.144 .144 .144 .144 .144 .144 .144 .144		
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	.139 015 092 .190 170 150 .046 .008 .102 .021 244 079 .017 .142 099	.144 .144 .144 .144 .144 .144 .144 .144	* 	
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	.139 015 092 .190 170 150 .046 .008 .102 .021 244 079 .017 .142	.144 .144 .144 .144 .144 .144 .144 .144		
4 5 6 7 8 9 10 11 12 13 14 15 16 7 18 9 0	.139 015 092 .190 170 150 .046 .008 .102 .021 244 079 .017 .142 099	.144 .144 .144 .144 .144 .144 .144 .144		
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	.139 015 092 .190 170 150 .046 .008 .102 .021 244 079 .017 .142 099 .011	.144 .144 .144 .144 .144 .144 .144 .144		

Figure 12 - TTI ACF and PACF for all departments combined

Figure 11 displays the time-series plot for all departments with the policy introduction at time zero. As the figure indicates, TTI values ranged between 0.58 days at T-23 and 1.14 at T-15 (see Appendix E). Through visual inspection, it also appears as though the TTI values are more variable before the policy was introduced.

Continuing with the model identification process, both the ACF and PACF plots are presented in Figure 12. The ACF shows spikes at lags 1 and 4 and then appears to die out exponentially. Given the lone spike at lag 1 of the PACF plot, an ARIMA (1,0,0) model was tested. As with the Departments of Social Services and Employment and Labour Relations, the model was identified as an autoregressive process without the need for differencing. Consequently, a value of 1 was assigned to the p component and 0 for the d and g components.

In the parameter estimation phase, the autoregressive correlation coefficient was found to be 0.484 (t = 3.77, p = . .0004). Since the coefficient had a value less than 1 and was statistically significant, further support was given to the adequacy of the ARIMA (1,0,0) model.

In the final stage of assessing model suitability, the residuals of the model estimation process were plotted to determine if all that remained was uncorrelated error. As Figure 13 shows, the residuals did behave as white noise as the Q-statistics at every lag were not significant and

52

3.

Lag	Corr.	Err1	75525	0.25.5.75	1 Q-statistic	Prob.
1	031	.140			.050	.824
2	114	.138			.724	.696
23	.100	.137		**	1.257	.739
4	.197	.135			3.377	.497
5	.087	.134		**	3.796	.579
6	162	.132	. ***		5.287	.508
456789	.225	.131		*****	8.256	.311
8	.063	.129		· .	8.497	.386
9	183	.127	. ****		10.549	.308
10	036	.126	. *		10.630	.387
11	.024	.124			10.668	.471
12	.107	.122		** .	11.427	.493
13	.031	.121		*	11.492	.570
14	147	.119			13.026	.524
15	056	.117			13.250	.583
16	099	.115	. **		13.986	.600
17	.126	. 114		*** .	15.224	.579
18	072	.112		19 ⁶	15.639	.618
19	042	.110			15.783	.672
20	.036	.108		* i	15.891	.723
21	153	.106		1	17.982	.650
22	017	.104			18.010	.705

Figure 13 - ACF for residuals of all department combined

ACF spikes extended beyond the 95% confidence limit. As a result, the ARIMA (1,0,0) model was considered an appropriate model for the series.

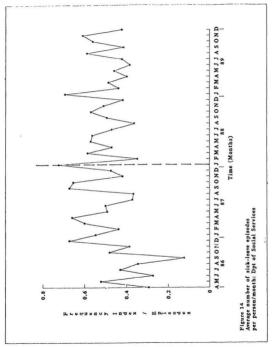
Intervention Analysis of TTI Measures for all

<u>Departments Combined</u>. Similar to the Social Service and Employment and Labour Relations' intervantion analyses, we introduced a step function whereby all periods prior to the policy introduction were assigned dummy variable values of 0 while those after were assigned dummy variable values of 1. By incorporating this intervention component into the model, the analysis of the step function yielded a non-significant step coefficient of 0.044 (t = 0.283, p = .779). Based on this finding, it seems evident for all departments combined that no significant change in the TTI occurred following the introduction of the no-smoking policy.

Analyses of the Frequency Index (FI)

This section focuses on similar analyses for a measure denoting the average number of sick-leave episodes per month, per employee (the Frequency Index (FI)).

Analysis of FI Measures for the Department of Social Services. The FI time-series plot for the Department of Social Services is presented in Figure 14. FI values range between 0.71 episodes during January, 1988 (the policy



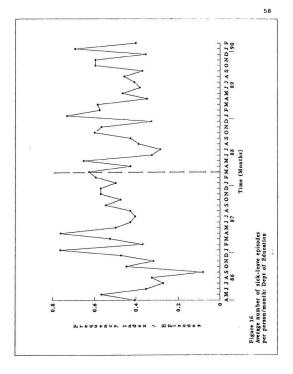
ag	Corr.	Err	175525 0 .25 .5 .75 1	Q-statistic	Prob.
1	.016	.140		.014	.906
2	.079	.138	[**	.341	.843
3	.063	.137	•	. 555	.907
4	.072	.135		.842	.933
5	.044	.134		.952	.966
6	.043	.132		1.058	.983
7	.020	.131		1.082	.993
8	143	.129	***1	2.310	.970
9	.078	.127	**	2.680	.976
10	.001	.126		2.680	.988
11	069	.124	: •i :	2.991	.991
12	.015	.122		3.006	.996
13	089	.121	. ••1	3.544	.995
		.119		3.824	.996
14	063	.119		3.879	.998
15	.027	.117		4.267	. 998
16	072		· · · · ·	4.795	. 998
17	.083	.114	·		. 990
18	165	.112		6.965	.975
19	153	.110			
20	038	.108	· • •	9.029	. 983
21	061	.106	· · · ·	9.360	. 986
22	.077	.104		9.910	.987
	ial Auto		1		
1	.016	.144	. * .	and the same same to same to	
2	.079	.144	1++		
3	.061	.144			
4	.061	.144			
5			· 12 ·		
	.034	.144			
2					
6	.029	.144			
67	.006	.144	·		
6 7 8	.006	.144	· ··· †		
6 7 8 9	.006	.144	···· [.]		
6 7 8 9	.006 160 .070 .014	.144 .144 .144 .144	···[·		
6 7 8 9 10	.006 160 .070 .014 070	.144 .144 .144 .144 .144			
6 7 8 9 10 11 12	.006 160 .070 .014 070 .028	.144 .144 .144 .144 .144 .144	··· .		
6 7 9 10 11 12 13	.006 160 .070 .014 070 .028 083	.144 .144 .144 .144 .144 .144 .144			
6 7 8 9 10 11 12 13 14	.006 160 .070 .014 070 .028 083 054	.144 .144 .144 .144 .144 .144 .144 .144			
6 7 8 9 10 11 12 13 14	.006 160 .070 .014 070 .028 083 054 .050	.144 .144 .144 .144 .144 .144 .144 .144			
6 7 8 9 10 11 12 13 14 15 16	.006 160 .070 .014 070 .028 083 083 054 .050 084	.144 .144 .144 .144 .144 .144 .144 .144			
6 7 8 9 10 11 12 13 14 15	.006 160 .070 .014 070 .028 083 054 .050	.144 .144 .144 .144 .144 .144 .144 .144			
6 7 8 9 10 11 12 13 14 15 16 1.7	.006 160 .070 .014 070 .028 083 083 054 .050 084	.144 .144 .144 .144 .144 .144 .144 .144	· · · ·		
6 7 8 9 10 11 12 13 14 15 16 17 18	.006 160 .070 .014 070 .028 083 054 .050 084 .134	.144 .144 .144 .144 .144 .144 .144 .144			
67891011213145161.77189	.006 160 .070 .014 070 .028 083 054 .050 084 .134 165 187	.144 .144 .144 .144 .144 .144 .144 .144	· · · ·		
6 7 8 9 10 11 12	.006 160 .070 .014 070 .028 083 054 .050 084 .134 165	.144 .144 .144 .144 .144 .144 .144 .144	· · · ·		

Figure	15	-	FI	ACF	and	PACF	for	the	Dept	of	Social	Services

introduction date) and an unusually low value of 0.10 episodes during September, 1986 (See Appendix A). It was later determined that this low FI value was the result of a two-week general strike that occurred at that time. It is interesting to note that the strike influenced the FI measure but not the TII measure. Perhaps the TII measure accounted for people who went on extended sick-leave just prior to the strike and remained on it during the strike. The result therefore would be a less notable dip in sickleave use. For the FI however, people on strike cannot use sick-leave even once, let alone on a more frequent basis. Hence, we see a more extreme dip in the FI measure.

Based on the ACF and PACF illustrations in Figure 15, it is evident that no significant relationship exists among the FI points since none of the ACF spikes exceed the 95% confidence limits and significant Q-statistics are absent at every lag. Given the absence of significant dependence among FI scores, the model was identified as an ARIMA (0,0,0) model.

As a result, FI values prior to policy introduction (a mean of 0.4509 episodes) were compared to the remaining FI values (a mean of 0.4923 episodes) by means of ANOVA. The results showed that no significant difference was observed between pre- and post-policy FI scores (F(1,47) = 1.23, p = 0.272). Hence, no significant change in the average monthly sick-leave episodes was found following policy introduction.



	correla			Q-statistic	Prob.
Lag	Corr.	Err.	-175525 0 .25 .5 .75 1	Q-statistic	Prob.
1	.056	.141		.159	.690
2	.150	.140		1.304	. 521
3	.178	.138		2.958	.398
4	223	.137		5,630	.229
5	018	.135		5.647	.342
5	210	.135	****	8.114	.230
67	290	.133		12.955	.073
8	.095	.132	**	13.484	.096
9	109	.128	••1	14.205	.115
10	.146	.128		15.539	.114
	.140	.125		17.178	.103
11	.159	.125		18.836	.093
12		.122		18.869	.127
13	.022	.122		18,870	.170
14	001	.118	****1	21.762	.114
15	200			22.548	.126
16	103	.116		23.779	.126
17	127	.114		26.050	.099
18	169	.112		26.847	.108
19	098	.110		27,261	.128
20	070	.108		28.229	.134
21 22	.105	.106		32.715	.066
Part	ial Auto	ocorrel 146			
1	.056	.146	ations *		
1 2	.056	.146			
1 2 3	.056 .147 .166	.146			
1 2 3 4	.056 .147 .166 272	.146 .146 .146 .146			
1 2 3 4 5	.056 .147 .166 272 050	.146 .146 .146 .146 .146			
123456	.056 .147 .166 272 050 179	.146 .146 .146 .146 .146 .146			
1234567	.056 .147 .166 272 050 179 203	.146 .146 .146 .146 .146 .146 .146			
12345678	.056 .147 .166 272 050 179 203 .152	.146 .146 .146 .146 .146 .146 .146 .146			
123456789	.056 .147 .166 272 050 179 203 .152 .014	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10	.056 .147 .166 272 050 179 203 .152 .014 .153	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11	.056 .147 .166 272 050 179 203 .152 .014 .153 .023	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12	.056 .147 .166 272 050 179 203 .152 .014 .153 .023 .159	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12 13	.056 .147 .166 272 050 179 203 .152 .014 .153 .023 .159 228	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12 13 14	.056 .147 .166 -272 -050 -179 -203 .152 .014 .153 .023 .159 -228 -053	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	.056 .147 .166 272 050 179 203 .152 .014 .153 .023 .159 228 053 236	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	.056 .147 .166 .272 .050 .179 .203 .152 .014 .153 .023 .159 .228 .053 .053 .024	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	.056 .147 .166 -272 -050 -179 -203 .152 .014 .153 .023 .159 -228 -053 -236 .024 .035	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 0 11 12 13 14 15 16 17 18	.056 .147 .166 - 272 - 050 - 179 .203 .152 .014 .153 .023 .159 - 228 .053 - 236 .024 .035 .012	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	.056 .147 .166 -272 -050 -179 -203 .152 .014 .153 .023 .159 -228 -053 -228 -053 -224 .024 .035 .012 .080	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 7 18 9 20	.056 .147 .166 -272 -050 -179 -203 .159 -228 .014 .153 .014 .153 .236 .014 .236 .053 -236 .012 -090 -186	.146 .146 .146 .146 .146 .146 .146 .146			
1 2 3 4 5 6 7 8 9 0 11 12 13 14 15 16 17 18 9	.056 .147 .166 -272 -050 -179 -203 .152 .014 .153 .023 .159 -228 -053 -228 -053 -224 .024 .035 .012 .080	.146 .146 .146 .146 .146 .146 .146 .146			

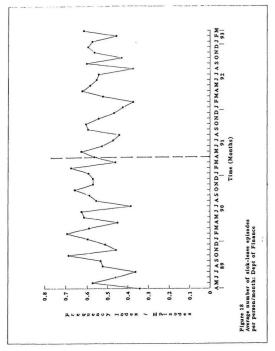
Figure 17 - FI ACF and PACF for the Dept of Education

Analysis of FI Measures for the Department of

Education. Similar to the trend demonstrated in Figure 14, the FI time-series for the Department of Education in Figure 16 also shows a notable dip during September, 1986 (an FI of 0.081 episodes). Again, the influence of the general strike is evident (see Appendix B). The effect suggests much more variability among FI scores before policy introduction as the FI peaks to 0.76 episodes.

For an assessment of the degree of dependency among FI points, Figure 17 illustrates the ACF and PACF for the Department of Education. Again, there were no significant correlations among FI values at any lag and an absence of significant ACF spikes (therefore an ARIMA (0,0,0) model). Due to the statistical independence among FI scores, an ANOVA was carried out to "ompare pre- and post-policy FI scores (24 scores with a mean of 0.4644 episodes and 23 scores with a mean of 0.4679 episodes). There was no significant change in FI values following the no-smoking policy introduction for the Department of Education (F(1,46) = .64, p = 0.365).

Analysis of FI Measures for the Department of Finance. Figure 18 presents the Department of Finance's average number of monthly sick-leave episodes per employee between April, 1989 and March, 1993. As the figure shows, FI values fluctuate between approximately 0.3 episodes and 0.65



	Corr.	Err.	-175	525	0 .25 .	5 .75	1 Q-statistic	Prob.
1	.065	.140						
							.215	.643
2	124	.138					1.014	.602
3	.006	.137					1.016	.797
4	.110	.135					1.670	.796
5	.023	.134					1.699	.889
6	073	.132					2.005	.919
7	.033	.131			• •		2.067	. 956
8	.224	.129			****.		5.077	.749
9	071	.127					5.390	.799
10	288	.126		*.****			10.628	.387
11	029	.124					10.682	.470
12	.233	.122			*****		14.311	.281
13	095	.121		. **			14.928	.312
14	157	.119		. ***			16.675	.274
15	040	.117					16.793	.331
16	012	.115					16.804	.398
17	131	.114		. ***	1 .		18.124	.381
18	161	.112		. ***	1		20.196	. 322
19	.038	.110					20.316	. 376
20	017	.108					20.339	.437
21	129	.106		***			21.825	.410
	205	.104						
22	205	.104			1 .		25.713	.264
art	ial Auto	correl	ations				25.713	. 264
art	ial Auto	.144	ations	·	· ·		25.713	. 264
1 2	.065 128	.144 .144	ations	:	• :		25.713	. 264
1 2 3	ial Auto .065 128 .024	.144 .144 .144	ations		• : • :		25.713	. 264
1 2 3 4	ial Auto .065 128 .024 .093	.144 .144 .144 .144 .144	ations		••		25.713	. 264
1 2 3 4 5	ial Auto .065 128 .024 .093 .012	.144 .144 .144 .144 .144 .144	ations		* : ** :		25.713	. 264
art 2 3 4 5 6	ial Auto .065 128 .024 .093 .012 053	.144 .144 .144 .144 .144 .144 .144	ations		* **		25.713	. 264
1 2 3 4 5 6 7	ial Auto .065 128 .024 .093 .012 053 .045	.144 .144 .144 .144 .144 .144 .144 .144	ations		* : ** : *		25.713	. 264
1 2 3 4 5 6 7 8	ial Auto .065 128 .024 .093 .012 053 .045 .200	.144 .144 .144 .144 .144 .144 .144 .144	ations	•			25.713	. 264
1 2 3 4 5 6 7 8 9	ial Aut: .065 128 .024 .093 .012 053 .045 .200 102	.144 .144 .144 .144 .144 .144 .144 .144	ations				25.713	. 264
art 1 2 3 4 5 6 7 8 9 10	ial Aut: .065 -128 .024 .093 .012 053 .045 .200 102 239	.144 .144 .144 .144 .144 .144 .144 .144	ations	•	* ** ***		25.713	. 264
1 2 3 4 5 6 7 8 9 10	ial Aut: .065 -128 .024 .093 .012 053 .045 .200 102 239 016	.144 .144 .144 .144 .144 .144 .144 .144	ations	•	•••		25.713	. 264
art 1 2 3 4 5 6 7 8 9 10 11 12	ial Aut: .065 -128 .024 .093 .012 -053 .045 .200 -102 -239 -016 .181	.144 .144 .144 .144 .144 .144 .144 .144	ations	:	·····		25.713	. 254
1 2 3 4 5 6 7 8 9 10	<u>ial Aut</u> .065 -128 .024 .093 .012 -053 .045 .200 -102 -239 102 181 134	.144 .144 .144 .144 .144 .144 .144 .144	ations				25.713	. 254
art 1 2 3 4 5 6 7 8 9 10 11 12 13	ial Aut: .065 .128 .024 .093 .012 .053 .045 .200 .102 .239 .016 .181 .134 .078	.144 .144 .144 .144 .144 .144 .144 .144	ations		·····		25.713	. 254
art 1 2 3 4 5 6 7 8 9 10 11 12 13 14	<u>ial Aut</u> .065 -128 .024 .093 .012 -053 .045 .200 -102 -239 102 181 134	.144 .144 .144 .144 .144 .144 .144 .144	ations		·····		25.713	. 264
art 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	ial Aut: .065 .128 .024 .093 .012 .053 .045 .200 .102 .239 .016 .181 .134 .078	.144 .144 .144 .144 .144 .144 .144 .144	ations				25.713	. 264
art 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16	<pre>dal Aut: .065 .024 .024 .093 .012 053 .045 .200 102 239 016 .181 134 078 078</pre>	2007721 .144 .144 .144 .144 .144 .144 .144 .1	ations		••••		25.713	. 264
art 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17	dal Aut: .065 -128 .024 .093 .012 -053 .045 .200 -102 102 .045 .200 .102 .206 .181 .078 .074 .074 .074	2007721 .144 .144 .144 .144 .144 .144 .144 .1	ations		•••••		25.713	. 254
art 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	ial Aut: .065 .128 .024 .093 .012 .053 .045 .200 .102 .239 .016 .181 .134 .078 .046 .175 .029	2007rel 144 144 144 144 144 144 144 14	ations		 		25.713	. 264
art 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	(1al Aut: .065 -128 .024 .093 .012 -053 .200 -102 -239 -016 .181 -078 -016 .1134 -078 -015 -105 -029 .015	2007rel 144 144 144 144 144 144 144 144 144 14	ations		•••		25,713	. 264
art 1 2 3 4 5 6 7 8 9 10 11 12	ial Aut: .065 .128 .024 .093 .012 .053 .045 .200 .102 .239 .016 .181 .134 .078 .046 .175 .029	2007rel 144 144 144 144 144 144 144 14	ations		·····		25.713	. 264

Figure	19	-	FI	ACF	and	PACF	for	the	Dept	of	Finance

episodes (see Appendix C). Overall, the variability among FI scores appears rather consistent from year to year.

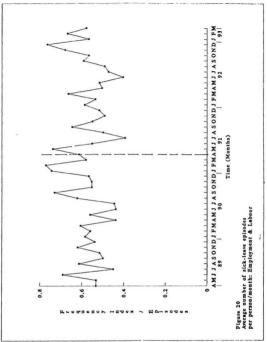
The ACF and PACF plots are given in Figure 19. Despite the significant spike at lag 10, an ARIMA (0,0,0,) model was identified since all Q-statistics were non-significant. This was yet another case where the lack of statistical dependence among scores allowed for the employment of ANOVA procedures.

In the comparison of 24 pre- and post-policy FI scores (with means of 0.5390 and 0.5285 episodes respectively), there was no significant change in average monthly sickleave episodes after the no-smoking policy was introduced (F(1,47) = .16, p = 0.693).

Analysis of FI Measures for the Department of

Employment and Labour Relations. The time-series graph for the Department of Employment and Labour Relations' average monthly sick-leave episodes is presented in Figure 20. Overall, FI values range between 0.39 and 0.73 episodes (see Appendix D).

The ACP and PACF plots for this department are displayed in Figure 21. As is typical in all departments discussed in this section, the ACF and PACF suggest no dependency among FI scores. In particular, there were no ACF spikes beyond the 95% confidence level and Q-statistics at every lag were not significant. However, there was one



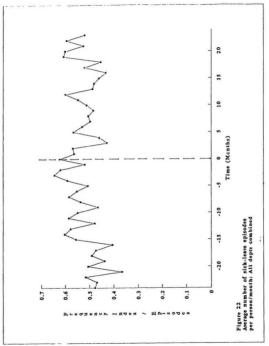
	correla					
Lag	Corr.	Err.	-175525 0	.25 .5 .75 1	Q-statistic	Prob.
1	.220	.140			2.468	.116
2	.021	.138			2.490	.288
3	.017	.137			2.505	.474
4	.084	.135			2.893	.576
5	101	.134			3.463	.629
6	208	.132			5.936	.430
7	138	.131			7.056	.423
8	033	.129			7.123	. 523
9	.004	.127		-	7.123	.624
10	230	.126	*****		10.451	.402
11	035	.124		1	10.530	.483
12	.039	.122			10.633	.561
13	039	.121			10.737	.633
14	067	.119			11.051	.682
15	035	.117			11.138	.743
16	233	.115			15.209	.509
17	232	.114			19.380	.307
18	006	.112	1		19.383	.369
19	.034	.110	1.		19.477	.427
20	.017	.108	: 1		19.501	.490
21 22	.006 .141 ial Auto	.106 .104	ations	÷	19.503 21.348	.553
21 22 Part	.006 .141 ial Auto .220	.104 .104 .144		•		
21 22 Part 1 2	.006 .141 ial Auto .220 029	.104 .104 .144 .144	- [***	4 **:		
21 22 Part 1 2 3	.006 .141 ial Auto .220 029 .019	.104 .144 .144 .144	- [***	: ":		
21 22 Part 1 2 3 4	.006 .141 ial Auto .220 029 .019 .081	.104 .144 .144 .144 .144 .144	- [***			
21 22 Part 2 3 4 5	.006 .141 ial Auto .220 029 .019 .081 145	.104 .144 .144 .144 .144 .144	- [***			
21 22 art 1 2 3 4 5 6	.006 .141 ial Auto .220 029 .019 .081 145 164	.104 .144 .144 .144 .144 .144 .144 .144	- [***	: 		
21 22 Part 2 3 4 5 6 7	.006 .141 .220 029 .019 .081 164 065	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 art 1 2 3 4 5 6 7 8	.006 .141 ial Auto .220 029 .019 .081 145 164 065 .001	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 1 2 3 4 5 6 7 8 9	.006 .141 ial Auto .220 .029 .019 .081 145 164 065 .001 .036	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 art 1 2 3 4 5 6 7 8 9 10	.006 .141 .220 .029 .019 .081 .145 .164 .065 .001 .036 .237	.104 .144 .144 .144 .144 .144 .144 .144	- [***	•		
21 22 1 2 3 4 5 6 7 8 9 10 11	.006 .141 .220 029 .019 .081 145 164 065 .001 .036 237 .046	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 Part 2 3 4 5 6 7 8 9 10 11 12	.006 .141 .220 .029 .019 .081 145 164 065 .001 .036 237 .046 012	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 Part 2 3 4 5 6 7 8 9 10 11 12 13	.006 .141 .220 029 .019 .081 145 065 .001 0.366 237 .046 012 104	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 1 2 3 4 5 6 7 8 9 10 11 12 13 14	.006 .141 .220 .029 .081 .145 .065 .001 .036 .001 .036 .0237 .046 .012 .012 .007	.104 .144 .144 .144 .144 .144 .144 .144	- [***	•		
21 22 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	.006 .141 ial Auto .220 .019 .081 145 164 065 .001 .036 237 .012 104 012 104 070	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	.006 .141 ial Auto .220 .029 .081 .145 .064 .064 .037 .046 .012 .104 .007 .070 .344	.104 <u>correl</u> .144	- [***	•		
21 22 1 2 3 4 5 6 7 8 9 10 11 2 13 14 15 16 17	.006 .141 ial Autc .220 .019 .081 145 164 061 .036 237 .046 012 104 012 012 007 070 346	.104 <u>correl</u> .144	- [***			
21 22 Part 1 2 3 4 5 6 7 8 9 10 11 12 13 14 5 6 7 8 9 10 11 2 13 14 5 16 7 18 9 10 11 2 13 14 5 16 17 10 10 11 10 10 10 10 10 10 10 10 10 10	.006 .141 ial 200 .220 .029 .019 .081 145 .065 .001 .036 .037 .046 .037 .046 .012 .012 .012 .012 .012 .012 .012 .012	.104 <u>correl</u> .144	- [***			
21 22 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 7 18 19	.006 .141 .200 .229 .019 .081 -145 -164 -065 .001 .036 -237 .046 -012 -104 -007 -070 -344 -208 .061 -208	.104 .144	- [***			
21 22 Part 1 2 3 4 5 6 7 8 9 0 11 12 13 14 15 16 7 18 9 0 20	.006 .141 .220 029 .019 .081 145 .001 .036 237 .046 237 .046 237 .046 237 .046 237 .046 237 .042 .001 200 .041 200 .041 .045 .001 .045 .045 .045 .045 .045 .045 .045 .045	.104 .144 .144 .144 .144 .144 .144 .144	- [***			
21 22 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 7 18 19	.006 .141 .200 .229 .019 .081 -145 -164 -065 .001 .036 -237 .046 -012 -104 -007 -070 -344 -208 .061 -208	.104 .144	- [***			

Figure 21 - FI ACF and PACF for the Dept of Employment and Labour Relations

significant spike in the PACF at lag 16. Again, since an ARIMA (0,0,0) model was identified, the FI scores were considered statistically independent and the pre-FI scores were compared to the post-FI scores using ANOVA. The pre-FI mean of 0.5729 episodes was not significantly different from the post-FI mean of 0.5692 episodes (F(1,47) = .02, p = 0.889). Therefore, no significant change in FI values resulted.

Anal: sis of FI Measures for All Departments Combined. Through visual inspection, the time-series graph in Figure 22 appears more variable among pre-policy scores as compared to post-policy scores. As well, FI values range from 0.36 to 0.64 episodes. (see Appendix E).

The ACF plot displayed in Figure 23 shows no significant Q-statistics until lag 18 when all remaining Qstatistics are significant. As well, while no significant ACF spikes occur in early lags, three significant spikes exceed the 95% confidence limits at lags 16, 17 and 18. The PACF however, does not exhibit any significant spikes at either lag. Since the first several lags of any ACF and PACF usually dictate the type of ARIMA model, the lack of significant spikes and Q-statistics in the first several lags in both functions suggests an ARIMA (0,0,0) model.



	Corr.	Err.	-175525	0 .25 .5 .75 1	Q-statistic Prob
1	.267	.140		*****	3.648 .056
2	.148	.138		***	4.789 .091
3	.166	.137			6.263 .100
4	.116	.135	:		7.003 .136
5	. 060	.134			7.206 .206
6	171	.134	·	- ·	
7	.070	.132			8.869 .181 9.152 .242
8		.129		- ·	
9	.019	.127		· ·	9.174 .328
	068			•	9.462 .396
10	084	.126	1.47 1215-0		9.913 .448
11	.047	.124	1.	1. 1	10.057 .525
12	.078	.122	·		10.467 .575
13	131	.121			11.641 .557
14	131	.119			12.853 .538
15	039	.117			12.965 .605
16	277	.115	*.****		18.735 .283
17	335	.114	**.****		27.424 .052
18	296	.112	**.***		34.421 .011
19	114	.110	. **		35.489 .012
20	055	.108	. •		35.752 .016
21	184	.106	****		38.755 .010
22	.055	.104			39.030 .014
	inl ante	acorrol	ations		
1	ial Auto	.144	ations	*****.	
1 2	.267	.144		** .	
1 2 3	.267 .082 .117	.144 .144 .144			
1 2 3 4	.267 .082 .117 .042	.144 .144 .144 .144		** .	
1 2 3 4	.267 .082 .117 .042 002	.144 .144 .144 .144 .144		** .	
1 2 3 4 5 6	.267 .082 .117 .042	.144 .144 .144 .144		** .	
1234567	.267 .082 .117 .042 002 236 .158	.144 .144 .144 .144 .144 .144 .144		** .	
12345678	.267 .082 .117 .042 002 236	.144 .144 .144 .144 .144 .144		** .	
123456789	.267 .082 .117 .042 002 236 .158	.144 .144 .144 .144 .144 .144 .144		** .	
123456789	.267 .082 .117 .042 002 236 .158 013	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10	.267 .082 .117 .042 002 236 .158 013 046 066	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10	.267 .082 .117 .042 002 236 .158 013 046 066 .115	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10 11 12	.267 .082 .117 .042 002 236 .158 013 046 066 .115 .010	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 0 11 12 13	.267 .082 .117 .042 002 236 .158 013 046 066 .115 .010 119	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10 11 12 13 14	.267 .082 .117 .042 002 236 .158 013 046 066 .115 .010 119 111	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	.267 .082 .117 .042 -236 .236 .158 .013 046 .115 .010 119 111 .005	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	.267 .082 .117 .042 236 .158 013 046 066 .115 .010 119 111 111 005 312	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	.267 .082 .117 .042 -236 .158 -013 -046 .115 .010 -119 -111 .005 -312 -151	.144 .144 .144 .144 .144 .144 .144 .144	:	** .	
1 2 3 4 5 6 7 8 9 10 11 2 14 15 16 7 11 2 12 3 4 5 6 7 8 9 10 11 2 12 12 12 14 5 6 7 8 9 10 11 2 15 14 5 16 7 10 10 10 10 10 10 10 10 10 10 10 10 10	.267 .082 .117 .042 .236 .158 .013 .046 .066 .115 .010 .119 .111 .005 .312 .151 .136	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 7 18 19	.267 .082 .117 .042 .236 .158 .042 .236 .158 .046 .115 .046 .115 .046 .115 .010 .119 .111 .312 .312 .312 .312 .312 .315	.144 .144 .144 .144 .144 .144 .144 .144		** .	
1 2 3 4 5 6 7 8 9 10 11 12	.267 .082 .117 .042 .236 .158 .013 .046 .066 .115 .010 .119 .111 .005 .312 .151 .136	.144 .144 .144 .144 .144 .144 .144 .144		** .	

Figure 23 - FI ACF and PACF for all depts combined

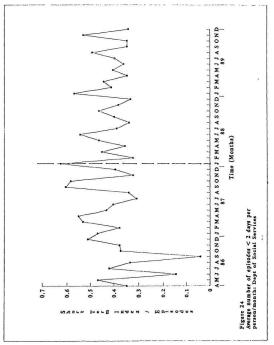
Strengthening this conclusion is the fact that each of the four departments had previously demonstrated no significant dependency among PI scores.

Recognizing the scores of this series as statistically independent, we compared pre- and post-FI scores using ANOVA. There was no significant difference between the mean of the pre-policy FI values (0.5185 episodes) and the postpolicy FI values (0.5230 episodes) (F(1,47) = .57, p = 0.812).

Analyses of the Short-Term Index (STI)

In this final section, all observations relevant to the Short Term Index (STI) are presented. This index represents the average number of sick-leave episodes numbering two days or less per month, per person.

Analysis of STI Measures for the Department of Social Services. The time-series graph for Social Service's STI measures is presented in Figure 24. Perhaps the most notable low point of this figure occurs during September, 1986. Again, as discussed in the previous section, this unusual low point (approximately 0.05 episodes) resulted from the government worker's general strike. Since both the STI and FI measures account for sick-leave frequency, we can see the strike's influence in the STI time-series graph.



Lag	Corr.	Err.	-175525	0 .25	.5 .75	1	Q-statistic	Prob
-				+		-		
1	005	.140		• •			.001	.973
2	096	.138					.483	.785
3	.163	.137		*** .			1.896	. 594
4	.090	.135		** .			2.341	.673
5	003	.134		•			2.342	.800
6	.005	.132					2.343	.886
7	055	.131					2.517	.926
8	092	.129					3.024	.933
9	.123	.127		** .			3.955	.914
10	050	.126		· ·			4.115	.942
11	142	.124		I .			5,419	.909
12	.042	.122					5.534	.938
13	085	.121					6.025	.245
14	.024	.119		•			6.067	.965
15	028	.117		1			6.122	.978
16	096	.115		1 1			6.807	.977
17	.151	.114		*** .			8.566	.953
18	105	.112					9.441	.949
19	190	.110					12.414	.867
20	016	.108		1 1			12.436	.900
21	.004	.106					12.438	.927
22	.076	.104		1 **			12.968	.934
	ial Auto		ations					
1	005	.144	·					
2	096	.144						
3	.163	.144						
4	.083	.144						
S	.028	.144		• •				
6	006	.144						
7	084	.144						
8	110	.144						
9	.114	.144		** .				
10	046	.144	. •					
11	081	.144						
	.015	.144						
12 13	118	.144						
13	.073	.144						
13 14 15	.073	.144	: •	1 3				
13 14 15 16	.073 043 061	.144	:					
13 14 15 16 17	.073 043 061 .184	.144 .144 .144 .144	•					
13 14 15 16 17 18	.073 043 061 .184 180	.144 .144 .144 .144 .144						
13 14 15 16 17 18 19	.073 043 061 .184 180 156	.144 .144 .144 .144 .144 .144						
13 14 15 16 17 18 19 20	.073 043 061 .184 180 156 042	.144 .144 .144 .144 .144						
13 14 15 16 17 18 19	.073 043 061 .184 180 156	.144 .144 .144 .144 .144 .144						

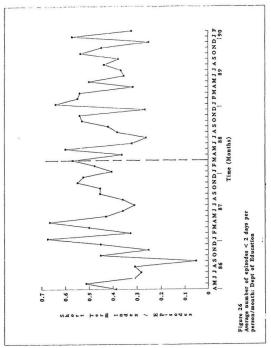
Figure 25 - STI ACF and PACF for the Dept of Social Services

However, there was also a unexplained low point occurring during June of the same year (around 1.5 episodes).

Figure 25 displays the ACF and PACF plots of Social Service's STI measures. As the figure shows, the absence of significant ACF spikes and Q-statistics suggested an ARIMA (0,0,0) model. Since stationarity exists and there is no evidence of either an autoregressive or moving average process, a zero value was assigned to the p, d, and q parameters. Consequently, because there were no significant correlations among STI scores, ANOVA was used to compare pre-policy STI scores with post-policy STI scores. The difference between pre- and post-policy STI scores (a premean of 0.3985 episodes and a post-mean of 0.4326 episodes) was not significant (F(1,47) = .96, p = 0.333).

Analysis of STI Measures for the Department of

Education. Figure 26 presents the time-series plot for STI measures representing the Department of Education. As with the Department of Social Services, the low STI value for September, 1986 is evident. There also appears to be notable variability among scores in that measures range from approximately 0.26 to 0.68 episodes (not including September, 1986) (see Appendix B).



ag	Corr.	Err.	-175525 0	.25 .5 .75 1	Q-statistic	Prob.
1	.000	.141			.000	. 997
2	. 098	.140			.491	.782
3	.151	.138	***		1.692	.639
4	272	.137			5.665	.226
5	011	.135		-	5.672	. 339
6	146	.133	***1		6.864	. 334
7	271	.133			11.094	.135
8	.095	.132			11.631	.168
9	084	.130			12.062	.210
		.120			12.908	.229
10	.117			a."	16.117	.137
11	.224	.125				
12	.171	.123		•	18.045	.114
13	033	.122	· · · ·		18.118	.153
14	.043	.120			18.246	.196
15	205	.118			21.266	.129
16	090	.116			21.862	.148
17	015	.114			21.879	.189
18	192	.112	****		24.807	.130
19	030	.110	. *		24.882	.164
20	096	.108	. **		25.661	.177
21	.037	.106	. (*		25.785	.215
22	.257	.104			31.848	.080
1	.000	.146	ations	•		
2	.098	.146				
3	.153	.146				
4	289	.146				
5	042	.146				
6	118	.146				
7	202	.146	. ****			
8	.067	.146				
9	015	.146				
10	.117	.146				
	.111	.146				
		.146				
11						
11 12	.216					
11 12 13	210	.146				
11 12 13	210	.146				
11 12 13 14	210 025 196	.146 .146 .146	: •••••]	:		
11 12 13 14 15	210 025 196 .017	.146 .146 .146 .146		:		
11 12 13 14 15 16	210 025 196 .017 .081	.146 .146 .146 .146 .146	••••			
11 12 13 14 15 16 17 18	210 025 196 .017 .081 026	.146 .146 .146 .146 .146 .146				
11 12 13 14 15 16 17 18 19	210 025 196 .017 .081 026 052	.146 .146 .146 .146 .146 .146				
11 12 13 14 15 16 17 18 19 20	210 025 196 .017 .081 026 052 233	.146 .146 .146 .146 .146 .146 .146				
11 12 13 14 15 16 17 18 19	210 025 196 .017 .081 026 052	.146 .146 .146 .146 .146 .146	····			

Figure 27 - STI ACF and PACF for the Dept of Education

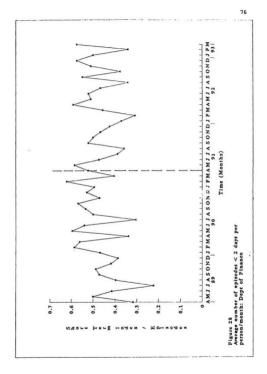
Based on the ACF and PACF displayed in Figure 27, a familiar trend is evident. Given the absence of significant Q-statistics at every lag and only one significant ACF spike at lag 22, the model identified was again ARIMA (0,0,0). Since the ARIMA (0,0,0) model signifies the statistical independence of STI scores, 24 pre- and 23 post-policy STI scores were compared using ANOVA.

While there appeared to be a slight increase in STI measures after the policy introduction (0.4184 episodes as compared to 0.4303 episodes), this difference was not significant (F(1,46) = .11, p = 0.747).

Analysis of STI Measures for the Department of

Finance. In Figure 28, the time-series plot of STI values for the Department of Finance shows that STI scores fluctuated between approximately 0.22 episodes and 0.62 episodes (see Appendix C).

Looking at the ACF and PACF graphs in Figure 29, independence among STI measures is again evident as there are no significant Q-statistics or ACF spikes at any lag (therefore an ARIMA (0,0,0) model).



ť.

	Corr.	Err	-175525 0 .25 .5 .75 1	Q-statistic	Prob
-					
1	102	.140		.528	.467
2	062	.138	. • .	.729	.695
3	028	.137	· ·	.771	.856
4	019	.135		.792	.940
5	038	.134	. •] .	.874	.972
6	.040	.132		.966	.987
7	082	.131	. **	1.361	.987
8	.007	.129		1.364	.995
9	032	.127	. • .	1.425	.998
10	259	.126	*****	5.675	.842
11	. 022	.124		5,706	.892
12	.220	.122		8.921	.710
13	083	.121	**	9.396	.742
14	.012	.119		9.406	.804
15	.050	.117		9.589	.845
16	.011	.115		9.599	.887
17	.035	.114		9.695	.916
18	070	.112		10.093	.929
19	.037	.112		10.207	.929
20	073	.108		10.658	.955
21	144	.106			.955
22	128	.104		14.021	.901
				14.021	.901
Part	ial Auto	correla		14.021	.901
Part	ial Auto	.144	tions	14.021	.901
Part 1 2	ial Auto 102 073	.144 .144	itions	14.021	.901
Part 1 2 3	ial Auto 102 073 043	.144 .144 .144	itions	14.021	.901
1 2 3 4	ial Auto 102 073 043 032	.144 .144 .144 .144 .144	itions	14.021	.901
1 2 3 4 5	ial Auto 102 073 043 032 050	.144 .144 .144 .144 .144 .144	itions	14.021	.901
1 2 3 4 5 6	ial Auto 102 073 043 032 050 .026	.144 .144 .144 .144 .144 .144 .145 .144	itions	14.021	.901
1 2 3 4 5 6 7	ial Auto 102 073 043 032 050 .026 085	.144 .144 .144 .144 .144 .144 .141 .144 .144	itions	14.021	.901
1 2 3 4 5 6 7 8	ial Auto 102 073 043 032 050 .026 085 011	.144 .144 .144 .144 .144 .141 .144 .144	itions	14.021	.901
1 2 3 4 5 6 7 8 9	ial Auto 102 073 043 032 050 .026 085 011 046	.144 .144 .144 .144 .144 .141 .144 .144	itions	14.021	.901
Part 1 2 3 4 5 6 7 8 9 10	ial Auto 102 073 043 050 .026 085 011 046 284	.144 .144 .144 .144 .144 .144 .144 .144	tions	14.021	.901
Part 1 2 3 4 5 6 7 8 9 10	ial Auto 102 073 043 050 .026 085 011 046 284 056	.144 .144 .144 .144 .144 .141 .144 .144	11100#	14.021	.901
Part 1 2 3 4 5 6 7 8 9 10 11 12	ial Auto 073 043 050 050 056 085 011 046 284 056 178	.144 .144 .144 .144 .144 .144 .144 .144	tions	14.021	.901
1 2 3 4 5 6 7 8 9 10 11 12 13	ial Auto 102 073 043 032 050 .026 085 011 046 284 056 .178 072	COTTULA .144 .144 .144 .144 .144 .144 .144 .14	11100#	14.021	.901
Part 1 2 3 4 5 6 7 8 9 10 11 12 13 14	ial Auto - 102 - 073 - 043 - 032 - 050 - 026 - 085 - 011 - 046 - 284 - 056 .178 - 072 - 072	00000000000000000000000000000000000000	11100#	14.021	.901
Part 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	ial Auto 102 073 043 032 050 .026 085 011 046 264 264 056 .178 072 012 .047	COTTUIA .144 .144 .144 .141 .141 .141 .144 .144 .144 .144 .144 .144 .144 .144 .144	11100#	14.021	. 901
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	ial Auto - 102 - 073 - 043 - 050 - 050 - 026 - 085 - 011 - 046 - 284 - 056 - 178 - 072 - 012 - 047 - 030	2007rula .144 .144 .144 .144 .144 .144 .144 .14	11100#	14.021	
Part 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	(ial Auto - 102 - 073 - 043 - 050 - 050 - 026 - 085 - 011 - 046 - 056 - 178 - 052 - 012 - 047 - 032 - 047 - 032	Corrula .144 .144 .144 .144 .144 .144 .144 .14	11ion#	14.021	.901
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	ial Auto - 102 - 073 - 043 - 032 - 050 - 085 - 011 - 046 - 284 - 056 - 178 - 072 - 012 - 012 - 012 - 030 030 - 030 - 040 - 030 - 040 - 030 - 040 -	corrula .144 .144 .144 .144 .144 .144 .144 .14	11100#	14.021	
Part 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	ial Auto - 102 - 073 - 032 - 050 - 085 - 016 - 046 - 284 - 056 - 012 - 012 - 012 - 013 - 030 - 013 - 093 - 045	corrula .144 .144 .144 .144 .144 .144 .144 .14	1110n#	14.021	.901
Part 1 2 3 4 5 6 7 8 9 10 11 2 13 14 5 16 7 8 9 10 11 2 13 14 5 16 7 18 9 10 11 2 13 14 5 16 7 18 9 10 11 12 13 14 5 16 7 10 11 10 11 10 10 10 10 10 10 10 10 10	<pre>ial Aut: - 102 - 073 - 043 - 032 - 050 - 085 - 011 - 046 - 284 - 056 - 176 - 072 - 012 - 012 - 047 - 013 - 047 - 033 - 047 - 033 - 047</pre>	Corrula .144	11ion#	14.021	.901
Part 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	ial Auto - 102 - 073 - 032 - 050 - 085 - 016 - 046 - 284 - 056 - 012 - 012 - 012 - 013 - 030 - 013 - 093 - 045	corrula .144 .144 .144 .144 .144 .144 .144 .14	1110n#	14.021	

Figure 29 - STI ACF and PACF for the Dept of Finance

The results of the ANOVA performed on the pre- and post-policy STI values show that the pre- and post-STI means (0.4618 episodes and 0.4682 episodes respectively) were not significantly different (F(1,47) = .06, p = 0.811).

Analysis of STI Measures for the Department of

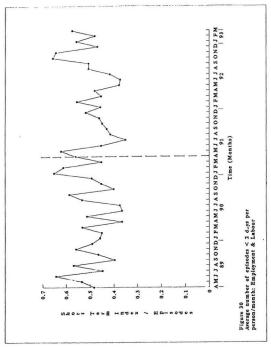
Employment and Labour Relations. Presented in Figure 30 is the STI time-series plot for the Department of Employment and Labour Relations. As the figure shows, STI values range from approximately 0.35 to 0.64 episodes (see Appendix D).

The ACF and PACF are displayed in Figure 31. Despite the significant ACF spike at lag 22, all remaining spikes do not exceed the 95% confidence interval. As well, given the absence of significant Q-statistics at every lag, the ARIMA (0,0,0) model was again utilized.

Treating each STI score independently, the pre- and post-policy scores were compared using ANOVA. The difference between pre-policy STI scores (with a mean of 0.4932) and post-policy STI scores (with a mean of 0.4858) was not significant (F(1,47) = .10, p = 0.757).

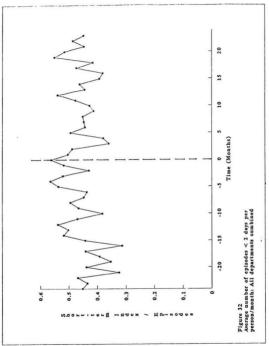
Analysis of STI Measures for All Departments Combined.

All departments were again combined in order to conduct an overall comparison between pre- and post-policy STI scores. As is shown in Figure 32, STI scores fluctuate between 0.31



	Corr.	Err	175525	0 .25 .5	.75 1	Q-statistic	Prob.
1	.199	.140		**** .		2.022	.155
2	.003	.138				2.022	.364
3	004	.137				2.023	. 568
4	.020	.135		•		2.046	.727
5	144	.134		1 .		3.208	.668
6	222	.132				6.027	.420
7	215	.131				8.728	.273
8	030	.129				8.781	.361
9	.109	.127		**		9,509	. 392
10	149	.126				10.906	.365
11	025	.121				10.945	.448
12	017	.122				10.964	. 532
13	035	.121		1		11.050	.607
14	040	.119				11.164	.673
15	022	.117				11.199	.738
16	219	.115		1		14.801	. 539
17	173	.114				17.128	. 446
18	.066	.112				17.478	.491
19	.080	.110		** *		18.011	. 522
20	.085	.108	:			18.636	.546
21	.087	.106				19.315	. 565
22	.229	.104	<u></u>	*** *		24.139	.340
art	ial Auto	correla	tions	****			
1	.199	.144					
1 2	038	.144	: •				
1 2 3		.144					
1234	038 .004 .021	.144 .144 .144					
1234	038	.144					
123456	038 .004 .021	.144 .144 .144					
1234567	038 .004 .021 160	.144 .144 .144 .144	=				
12345678	038 .004 .021 160 171	.144 .144 .144 .144 .144					
1234567	038 .004 .021 160 171 158	.144 .144 .144 .144 .144 .144	•••				
123456789	038 .004 .021 160 171 158 .026	.144 .144 .144 .144 .144 .144 .144					
1234567890	038 .004 .021 160 171 158 .026 .123	.144 .144 .144 .144 .144 .144 .144 .144	•••				
1234567890112	038 .004 .021 160 171 158 .026 .123 218 .003 118	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				
1234567890112	038 .004 .021 160 171 158 .026 .123 218 .003	.144 .144 .144 .144 .144 .144 .144 .144					
123456789101123	038 .004 .021 160 171 158 .026 .123 218 .003 118	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				
12345678910112314	038 .004 .021 160 171 158 .026 .123 218 .003 118 110	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				;
1234567890011234	038 .004 .021 160 171 158 .026 .123 218 .003 118 110 009 03; 287	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				;
12345678900112314	038 .004 .021 160 171 158 .026 .123 218 .003 118 110 009 05;	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				;
12345678900112314567	038 .004 .021 160 171 158 .026 .123 218 .003 118 110 009 03; 287	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				;
12345678900112314156678	038 .004 .021 160 171 158 .026 .123 218 .003 118 110 009 05; 249	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				;
12345678	036 .004 .021 160 171 158 .026 .123 218 .003 118 110 009 037 287 249 .028	.144 .144 .144 .144 .144 .144 .144 .144	···· ····	•			;
12345678901123456789001123456789001123456789001123456789001123456789000000000000000000000000000000000000	036 .004 .021 160 171 158 .026 .123 218 .003 118 110 009 03? 249 .028 .025	.144 .144 .144 .144 .144 .144 .144 .144	···· ····				;

Figure 31 - STI ACF and PACF for the Dept of Employment and Labour Relations



Auto	correla	tions			
Lag	Corr.		-175525 0 .25 .5 .75 1	Q-statistic	Prob.
1	.186	.140	****	1.765	.184
2	031	.138	•	1.814	.404
3	.092	.137		2.266	.519
4	067	.135		2.509	.643
5	139	.134	***	3.584	.611
5	067	.132		3.837	.699
7	093	.131		4.346	.739
8	035	.129		4.421	.817
9	.053	.127		4.593	.868
10	007	.126		4.596	.916
11	.214	.124	1 ****	7.579	.750
12	.034	.122		7.657	.811
13	024	.121		7.697	.863
14	.045	.119	· .	7.837	.898
15	.044	.117	•	7,978	.925
16	219	.115		11.564	.773
17	219	.114		15.260	.577
18	124	.112		16.496	.558
		.112		16.514	.623
19	015	.108	(Î	17.078	.648
20	081	.108		17.755	.64
22		.104	· · · · · · · · · · · · · · · · · · ·	21.281	. 503
22	.195	.104	. [****	21.281	. 503
	ial Auto				
1 2	.186	.144			
2	068	.144			
3	.115	.144			
4	116	.144	. ** .		
5	095	.144	. ** .		
6	044	.144			
7	074	.144	· · ·		
8	.011	.144			
9	.043	.144			
10	034	.144			
11	.228	.144	*****.		
12	103	.144	. ** .		
13	.028	.144			
14	006	.144			
15	.068	.144			
16	216	.144	. ****		
17	138	.144	. ***		
18	088	.144	. ** .		
19	.087	.144	. ** .		
20	148	.144			
21	057	.144			
22	.132	.144			
0.000			,		

Figure 33 - STI ACF and PACF for all departments combined

and 0.55 episodes per month. While the STI scores appear more variable during the pre-policy time period, this is probably due to the effects of the general strike observed in the Departments of Social Services and Education.

Similar to the non-significant ACFs and PACFs observed in each department separately and as illustrated in Figure 33, a'l ACF spikes and Q-statistics were not significant at any lag for all departments combined. Given an ARIMA (0,0,0) model, and following the procedures of previous sections, pre- and post-STI scores were statistically compared using ANOVA. The difference between the pre-policy STI mean (0.4519 episodes) and the post-policy STI mean (0.4681 episodes) was not significant (F(1,47) = .07, p = 0.403).

DISCUSSION

This study was carried out to test claims made by those who suggest that employee smoking is a significant contributor to absenteeism. Indeed, statements like "Studies that monitor the exact cost of a smoking-cessation program on a company's bottom line leave little doubt that smokers impact healthcare, absenteeism and productivity" (Harvey, 1994, p. 51) need to be empirically tested. Based on the results obtained in the investigation of four Newfoundland Government departments, it appears that the nosmoking policy did not influence sick-leave use two years after its introduction. In no case was there a significant change in sick-leave use regardless of dependent measure, time of policy introduction, or department.

Given the archival nature of the investigation and thus the inability to differentiate the smoking population from the non-smoking population, the reason why no effect was found remains somewhat questionable. It seems that there was no change in employee-health in the fir/t two years (as indexed by the TTI measure) and hence no change in absenteeism during thic period. Arguably, any health improvements caused by such a policy may take years in which to surface. In this study, we allowed onlv two years following the policy introduction and thurefore may have been too early to observe the policy's influence. However,

there was usen no change in avoidable absences as measured by both the FI and the STI. This is curious since it seems logical that improving air quality should also lead to an increased comfort level and a decreased need to withdraw from the work environment.

It is possible that while the policy may have been a health improvement for non-smokers, denying smokers an opportunity to smoke may have led to an increase in sickleave use among this group. A mixture of non-smoker's reduction in sick-leave use and smoker's increase in sickleave use may have resulted in no significant overall change. Based on the nature of the data however, we cannot test this explanation.

On the other hand, there may have been a general improvement in health status and comfort for all employees but it did not manifest itself in the form of sick-leave use. While sick-leave is offered to employees during times of illness, as suggested in the introduction, a notable portion of sick-leave use is not due to illness. Perhaps the lack of results of this investigation support the claim that because sick-leave use does not totally reflect the number of legitimate illnesses, it is not a sensitive measure of employee well-being. However, we did incorporate different sick-leave in order to capture legitimate and illegitimate sick-leave use. Since there was no change in either measure, it appeared that neither avoidable nor unavoidable absenteeism was influenced by the policy.

Difference in Autocorrelations Among the TTI, FI and STI Measures

While we did not find any change in sick-leave use as a function of the policy, we did observe differences among the sick-leave measures during ARIMA identification. Unlike the FI and STI measures, the TTI measure (commonly perceived as an unavoidable absenteeism measure) produced distinct timeseries in two departments, and for all departments combined. In particular, for the Departments of Social Services and Employment and Labour Relations, and for all departments combined, the ARIMA procedure found rapid exponential decay in the first several lags of each ACF and one spike at the first lag for each PACF. As a result, ARIMA judged each series to be autoregressive such that each current value in the series was predicted by the previous value of the series. However, for both the FI and STI measures, no significant relationship among the points of either series was found.

The reason for this difference is not clear. One possible explanation is that TTI illnesses are more likely to last longer than avoidable absences (as indexed by the FI and STI measures). Thus, they would be more likely to span more than one month. Such long-term illnesses would contribute not only to the current month but also the following one. Therefore, given that this type of illness may contribute to more than one TTI measure, the relationship is between the months is strengthened, and hence an existence of autocorrelations among the points.

This difference among dependent measures offers some support for the fact that our indices were measuring the two distinct types of absenteeism, avoidable and unavoidable.

The Future of Absenteeism Research and Absence-Control Policies

As discussed in the introduction, employee absenteeism has been perceived as a very complex phenomenon influenced by a variety of variables operating in the work environment. Researchers have accounted for some absenteeism as a reflection of psychological factors such as employee satisfaction. It has also been suggested that personal and demographic variables such as age, tenure and gender also ; significantly account for the rate and duration of absenteeism. In general however, for one proposition or another, each variable has been linked with the Withdrawal Theory and the need for employees to deal with organizational dissatisfactions by "withdrawing" from the workplace through excessive sick-leave use (Muchinsky, 1977). While the Withdrawal Theory may be reliable, given the inconsistency surrounding the effects of such psychological variables as worker satisfaction and the variable observations in studies involving personal and demographic variables, more recent research has supported the effects of organization-wide variables as the strongest predictors of absenteeism. In fact, as was discussed in the introduction, along with work-environment factors such as work autonomy, research has suggested that organization-wide factors (such as the specific structure of sick-leave policies themselves) were better predictors (farrell & Stamm, 1988).

Researchers propose that absence-control policies are an interesting area for future research and according to previously published literature reviews, (Farrell et al., 1988; Muchinsky, 1977), reliable scientific investigation has rendered the area very promising for explaining a significant proportion of variance associated with employee . absenteeism. Overall, most absence-control policies such as incentives, posters, feedback, and behaviour modification systems have been effective (Farrell, et al., 1988). Scientifically comparing absence-control policies in different organizational structures will be valuable for research in the applied setting.

Conclusion

This investigation found no evidence of the no-smoking policy's effect on absenteeism rates. One possible explanation is that sick-leave use is not a sensitive or accurate measure of the health benefits of no-smoking policies. Given that employee absenteeism is a complex, culturally-based phenomenon, it may not be a sensitive measure of employee wellness. If an accurate method of data collection existed, the quantification of such variables as employee comfort, productivity, aggression, and/or irritability, for example, might be better indicators of workplace improvements such as ridding the office air of cigarette smoke.

Had other dependent measures been employed to investigate the possible effects of the no-smoking policy, the investigation would have had to distribute questionnaires. However, it was not the intent of this investigation to evaluate the effects through the use of an ; obtrusive, qualitative approach. Since the no-smoking policy was introduced between three and six years ago, it seemed too ambitious to have employees rely on their recollections to report any changes in smoking behaviour or how they felt shortly after the policy was introduced. As well, there are other problems (such as response desirability) associated with soliciting opinions from surveys. This is particularly true if the issues are surrounded by strong social influence (such as the debate over smoker and non-smoker rights). By analyzing sick-leave use over a period of time, we obtained an unobtrusive measure of what we thought might be an indicator of employee wellness. Given the highly publicized relationship between short and long-term illness, comfort, and cigarette smoke, the investigation seemed to be a logical procedure.

In general, based on the apparent acceptance of the health and economic benefits of no-smoking policies and smoking cessation programs among public and private organizations, the intent of this investigation was to determine if the no-smoking policy had any affect on absenteeism. Given the clear and consistent observations of this study, strong evidence exists that the no-smoking policy should not be justified on the basis of reducing absenteeism.

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FOOTNOTES

- This article does not cite any scientific research supporting this claim.
- A 2-day criterion was chosen because (according to the General Service sick-leave policy) a 3 day absence requires employees to validate illnesses in the form of a medical certificate.
- All data analyses were performed using SPSS\PC Software.

Appendix A

TTI, FI and STI measures for The Department of Social Services

i.

SPSS/PC PRINTOUT OF TOTAL TIME, FREQUENCY AND SHORT TERM INDICES FOR THE DEPARTMENT OF SOCIAL SERVICES

Summaries of	TMINUS24 January, 1986			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Pop		.6667	.8226	117
DEPMEAS	1 TOTAL TIME INDEX	.6500	.8102	40
DEPMEAS	2 FREQUENCY INDEX	.6757	.8516	37
DEPMEAS	3 SHORT TERM INDEX	.6750	.8286	40
Total Cases	= 207			
Missing Cases	 90 OR 43.5 PCT. 			
Summaries of	TMINUS23 February, 1986			
Variable	Value Label	Mean		
For Entire Pop		.2521	.7060	117
DEPMEAS	1 TOTAL TIME INDEX 2 ERECUENCY INDEX		1.0215	40
DEPMEAS	2 FREQUENCY INDEX	.2162	.4793	37
DEPMEAS	3 SHORT TERM INDEX	.2000	.4641	40
Total Cases	= 207			
Missing Cases	= 90 OR 43.5 PCT.			
Summaries of	TMINUS22 March, 1986			
Variable			Std Dev	
For Entire Pop	ulation	.3205	.5889	117
DEPMEAS	1 TOTAL TIME INDEX	.3875		40
DEPMEAS	2 FREQUENCY INDEX	.2973	.5199	37
DEPMEAS	3 SHORT TERM INDEX	.2750	.5057	40
Total Cases				
Missing Cases	= 90 OR 43.5 PCT.			
Summaries of	TMINUS21 April, 1986			
Variable		Mean	Std Dev	Cases
For Entire Pop	ulation	.3605	.6844	147
DEPMEAS	1 TOTAL TIME INDEX	.4400	.8184	50
DEPMEAS	2 FREQUENCY INDEX	.2979	.5866	47
DEPMEAS	3 SHORT TERM INDEX	.3400	.6263	50
Total Cases	= 207			
Missing Cases	= 60 OR 29.0 PCT.			

Summaries of TMINUS20 May, 1986			
Variable Value Label		Std Dev	Cases
For Entire Population	. 5782	1.0398	147
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.7400	1.4682	50
DEPMEAS 2 FREQUENCY INDEX	.5319	.7475	47
DEPMEAS 3 SHORT TERM INDEX	.4600	.7060	50
Total Cases = 207 Missing Cases = 60 OR 29.0 PCT.			
Missing Cases = 60 OR 29.0 PCT.			
Summaries of TMINUS19 June, 1986			
Variable Value Label		Std Dev	
For Entire Population	.4014	1.1098	147
DEPMEAS 1 TOTAL TIME INDEX	.7800	1.7675	
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.2553	.4408	47
DEPMEAS 3 SHORT TERM INDEX	.1600	.3703	50
Total Cases = 207 Missing Cases = 60 OR 29.0 PCT.			
Missing Cases = 60 OR 29.0 PCT.			
Summaries of TMINUS18 July, 1986			
Variable Value Label		Std Dev	Cases
For Entire Population	.4400	.7348	150
DEPMEAS 1 TOTAL TIME INDEX	.4706	.8741	51
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.4375	.6812	48
DEPMEAS 3 SHORT TERM INDEX	.4118	.6380	51
Total Cases = 207			
Missing Cases = 57 OR 27.5 PCT.			
Summaries of TMINUS17 August, 1986			
Variable Value Label	Mean	Std Dev	
For Entire Population	.3301	. 5797	153
DEPMEAS 1 TOTAL TIME INDEX	.3173	.5690	52
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.3469		
DEPMEAS 3 SHORT TERM INDEX	.3269	.5848	52
Total Cases = 207			
Missing Cases = 54 OR 26.1 PCT.			

Summaries of	TMINUS16 September, 1986			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Pop	pulation		1.3341	153
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5288	2.2414	52
DEPMEAS	2 FREQUENCY INDEX	.1020	.3058	49
DEPMEAS	3 SHORT TERM INDEX	.0577	.2354	52
Total Cases	= 207 = 54 OR 26.1 PCT.			
Missing Cases	= 54 OR 26.1 PCT.			
Summaries of	TMINUS15 October, 1986			
Variable			Std Dev	
For Entire Pop	pulation	.8137	2.4319	153
DEPMEAS	1 TOTAL TIME INDEX	1.5673	4.0135	
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4898		
DEPMEAS	3 SHORT TERM INDEX	.3654	.5250	52
Total Cases	= 207			
Missing Cases	= 54 OR 26.1 PCT.			
Summaries of	TMINUS14 November, 1986			
Variable		Mean	Std Dev	Cases
For Entire Pop	oulation	.3962	.7315	159
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4259	.8655	54
DEPMEAS	2 FREQUENCY INDEX	.3922	.6657	
DEPMEAS	3 SHORT TERM INDEX	.3704	.6529	54
Total Cases	= 207			
Missing Cases	= 48 OR 23.2 PCT.			
Summaries of	TMINUS13 December, 1986			
Variable		Mean	Std Dev	Cases 1
For Entire Pop	oulation		1.0505	159
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.0000	1.4730	54
DEPMEAS	2 FREQUENCY INDEX	.6667	.7394	51
DEPMEAS	3 SHORT TERM INDEX	.5185	1.4730 .7394 .6934	54
Total C.ses	= 207			
Missing Cases	= 48 OR 23.2 PCT.			

Summaries of	TMINUS12 January, 1987			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.5714	.7580	161
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6981	.9575 .6366 .6369	53
DEPMEAS	2 FREQUENCY INDEX	.5185	.6366	54
DEPMEAS	3 SHORT TERM INDEX	.5000	.6369	54
Total Cases	= 183 = 22 OR 12.0 PCT.			
Missing Cases	= 22 OR 12.0 PCT.			
Summaries of	TMINUS11 February, 1987			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.5093	1.3387	161
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7170	1.9575	53
DEPMEAS	2 FREQUENCY INDEX	.4444	.9450	54
DEPMEAS	3 SHORT TERM INDEX	.3704	.8309	54
Total Cases	= 183			
Missing Cases	= 22 OR 12.0 PCT.			
Summaries of	TMINUS10 March, 1987			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.7733	1.8940	161
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.1981	3.1414 .6593 .6648	53
DEPMEAS	2 FREQUENCY INDEX	.5926	.6593	54
DEPMEAS	3 SHORT TERM INDEX	.5370	.6648	54
Total Cases	= 183			
Missing Cases	= 22 OR 12.0 PCT.			
Summaries of	TMINUS9 April, 1987			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.7065	1.1492	155
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.9118	1.6574	51
DEPMEAS	2 FREQUENCY INDEX	.6346	.7928	52
DEPMEAS	3 SHORT TERM INDEX	.5769	.7758	52
Total Cases	= 183 = 28 OR 15.3 PCT.			
Missing Cases	= 28 OR 15.3 PCT.			

	Value Label	Mean	Std Dev 1.0468	Case
For Entire Po			1.0468	15
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.8942	1.5318	5
DEPMEAS	2 FREQUENCY INDEX	.5000	.6934	5
DEPMEAS	3 SHORT TERM INDEX	.4245	.6309	5
Total Cases	. 183			
Missing Cases	= 25 OR 13.7 PCT.			
Summaries of	TMINUS7 June, 1987			
	Value Label	Mean	Std Dev	Case
For Entire Po	pulation	. 5633	1.1112	15
DEPMEAS	1 TOTAL TIME INDEX	.7885	1.6784	5
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4906	.7238	5
DEPMEAS	3 SHORT TERM INDEX	.4151	.6024	5
Total Cases	= 183 = 25 OR 13.7 PCT.			
Missing Cases	= 25 OR 13.7 PCT.			
Summaries of	TMINUS6 July, 1987			
Variable	Value Label		Std Dev	Cases
For Entire Po	pulation	.3892	.9587	15
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4904	1.3844	53
DEPMEAS	2 FREQUENCY INDEX	.3585		53
DEPMEAS	3 SHORT TERM INDEX	.3208	.6437	53
Total Cases				
Missing Cases	= 25 OR 13.7 PCT.			
Summaries of	TMINUS5 August, 1987			
	Value Label		Std Dev	
For Entire Po	pulation	.4224	.9740	161
DEDUCT C	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5660	1.5033 .5595 .5494	53
DEPMEAS	2 FREQUENCY INDEX	.3704	.5595	54
DEPMEAS				
DEPMEAS DEPMEAS	3 SHORT TERM INDEX	.3333	.5494	54
Total Cases		.3333	.5494	54

Summaries of TMINUS4 September, 1987			
Variable Value Label For Entire Population	Mean 7377	Std Dev 1.3000	
DEPMEAS 1 TOTAL TIME INDEX	.9352		
DEPMEAS 2 FREQUENCY INDEX	.6667	.8009	
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.6111	. 7376	54
Total Cases = 183 Missing Cases = 21 OR 11.5 PCT.			
Missing Cases = 21 OR 11.5 PCT.			
Summaries of TMINUS3 October, 1987			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.7593	1.5814	162
DEPMEAS 1 TOTAL TIME INDEX	1.0370	2.4299	54
DEPMEAS 2 FREQUENCY INDEX	.6481	.8935	54
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	. 5926	.8799	54
Total Cases = 183			
Total Cases = 183 Missing Cases = 21 OR 11.5 PCT.			
Summaries of TMINUS2 November, 1987			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population		1.2293	
DEDMEAS 1 TOTAL TIME INDEX	9907	1.9340	54
DEDMENC 2 EDEOUENCY INDEX	4259	5607	54
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.3148	.5697	54
Total Cases = 183 Missing Cases = 21 OR 11.5 PCT.			
Summaries of TMINUS1 December, 1987			
Variable Value Label		Std Dev	
For Entire Population	.6626	1.8912	163
DEPMEAS 1 TOTAL TIME INDEX	1.1091	3.0922	55
DEPMEAS 2 FREQUENCY INDEX	.4630	.6926	54
DEPMEAS 3 SHORT TERM INDEX	.4074	.6300	54
Total Cases = 183			
Missing Cases = 20 OR 10.9 PCT.			

Summaries of	TOPOLICY January, 1988			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.8727	1.9472	161
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.3100	3.1894	50
DEPMEAS	2 FREQUENCY INDEX	.7143	.9856	56
DEPMEAS	3 SHORT TERM INDEX	.6364	.8685	55
Total Cases	= 201 = 40 OR 19.9 PCT.			
Missing Cases	= 40 OR 19.9 PCT.			
Summaries of	TPLUS1 February, 1988			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	. 5217	1.8289	161
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.9400	3.1810	50
DEPMEAS	2 FREQUENCY INDEX	.3571	. 5197	56
		.3091	.4664	55
Total Cases	= 201 = 40 07 19.9 PCT.			
Missing Cases	= 40 0. 19.9 PCT.			
Summaries of	TPLUS2 March, 1988			
	Value Label	Mean	Std Dev 2.0046	Cases
For Entire Pop				
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.3500	3.3492	50
DEPMEAS	2 FREQUENCY INDEX	. 5714	.8281	56
		. 1727	. 7663	55
Tot'l Cases	= 201 = 40 OR 19.9 PCT.			
Missing Cases	= 40 OR 19.9 PCT.			
Summaries of	TPLUS3 April, 1988			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Pop	oulation	.6657	Std Dev 1.7318	178
DEPMEAS	1 TOTAL TILS INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.2273	2.9120	55
DEPMEAS	2 FREQUENCY INDEX	.4516	.6697	62
		.3770	. 5821	61
Total Cases	= 201 = 23 OR 11.4 PCT.			
Missing Cases	# 23 OR 11.4 PCT.			

Summaries of TPLUS4 May, 1988			
Variable Value Label	Mean	Std Dev	Capen
For Entire Population	.8062	2.0537	
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	1.4455	3.5220	55
DEPMEAS 2 FREQUENCY INDEX	.5565	.6147	62
DEPMEAS 3 SHORT TERM INDEX	.4836	.6147	61
Total Cases = 201			
Missing Cases = 23 OR 11.4 PCT.			
Summaries of TPLUS5 June, 1988			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.6854	1.8045	178
DEPMEAS 1 TOTAL TIME INDEX	.9818	2.9281	55
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.5645	.9342	62
DEPMEAS 3 SHORT TERM INDEX	.5410	.9412	61
Total Cases = 201			
Missing Cases = 23 OR 11.4 PCT.			
Summaries of TPLUS6 July, 1988			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.5899	1.3861	178
TOTAL TOTAL TATLEY			
DEPMEAS I TOTAL TIME INDEX	.9455	2.2846	
DEPMEAS 2 FREQUENCY INDEX	.9455	2.2846	
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.9455 .4677 .3934	2.2846 .6457 .6132	
Total Cases = 201	.9455 .4677 .3934	2.2846 .6457 .6132	
Total Cases = 201	.9455 .4677 .3934	2.2846 .6457 .6132	
DEPMENS 1. TOTAL TIME INDEX DEPMENS 2 FROUNCY INDEX DEPMENS 3 SHORT TEM INDEX Total Cases 201 Missing Cases 201 Missing Cases 201 Summaries of TPLUST August, 1988	.9455 .4677 .3934	2.2846 .6457 .6132	
Total Cases = 201 Missing Cases = 23 OR 11.4 PCT. Summaries of TPLUS7 August, 1988 Variable Value Label	Mean	.6457 .6132 Std Dev	62 61 Савев
Total Cases = 201 Missing Cases = 23 OR 11.4 PCT. Summaries of TPLUS7 August, 1988 Variable Value Label		.6457 .6132 Std Dev	62 61 Савев
Total Cases = 201 Missing Cases = 23 OR 11.4 PCT. Summaries of TPLUS7 August, 1988 Variable Value Label For Entire Population networks = 1 TOTAL THE INDEX	Mean .4803 .7727	.6457 .6132 Std Dev 1.7566 3.0166	62 61 Cases 178 55
Total Cases = 201 Missing Cases = 23 OR 11.4 PCT. Summaries of TPLUS7 August, 1988 Variable Value Label For Entire Population networks = 1 TOTAL THE INDEX	Mean .4803 .7727 .3710	.6457 .6132 Std Dev 1.7566 3.0166	62 61 Cases 178 55
Total Cases = 201 Missing Cases = 23 OR 11.4 PCT. Summaries of TPLUS7 August, 1988 Variable Value Label	Mean .4803	.6457 .6132 Std Dev 1.7566 .6333	62 61 Cases 178 55
Total Cases = 201 Missing Cases = 23 OR 11.4 PCT. Summaries of TPLUS7 August, 1988 Variable Value Label For Entire Population networks = 1 TOTAL THE INDEX	Mean .4803 .7727 .3710	.6457 .6132 Std Dev 1.7566 3.0166	62 61 Cases 178 55

	8 8		26.2	
	Value Label	Mean		
For Entire Po	pulation	. 5444	.8989	180
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX.	. 7636	1.3328	
DEPMEAS	2 FREQUENCY INDEX	. 4762	.6185	63
DEPMEAS	3 SHORT TERM INDEX.	.4194	.5881	62
Total Cases	= 201			
Missing Cases	= 21 OR 10.4 PCT.			
Summaries of	TPLUS9 October, 1988			
Variable	Value Label	Mean		
For Entire Po	pulation	. 5583	.7535	180
DEPMEAS	1 TOTAL TIME INDEX	.6455		
DEPMEAS	2 FREQUENCY INDEX	. 5238	.6440	63
DEPMEAS	3 SHORT TERM INDEX	.5161	.6464	62
Total Cases	= 201			
Missing Cases	# 21 OR 10.4 PCT.			
Summaries of	TPLUS10 November, 1988			
	Value Label	Mean	Std Dev	
For Entire Por	pulation	. 5222	.8601	180
DEPMEAS	1 TOTAL TIME INDEX	. 6979	1.1804	55
DEPMEAS DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX	.6909 .4921	1.1804 .7156	63
DEPMEAS DEPMEAS DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6999 .4921 .4032	1.1804 .7156 .6130	63
Total Cases	= 201	.6979 .4921 .4032	1.1804 .7156 .6130	63
Total Cases		.6999 .4921 .4032	1.1804 .7156 .6130	63
Total Cases Missing Cases	= 201 = 21 OR 10.4 PCT.	.6009 .4921 .4032	1.1804 .7156 .6130	63
Total Cases Missing Cases Summaries of Variable	<pre>201 21 OR 10.4 PCT. TPLUS11 December, 1988 Value Label</pre>	Mean	.7156 .6130 Std Dev	63 62 Cases
Total Cases Missing Cases Summaries of Variable	<pre>201 21 OR 10.4 PCT. TPLUS11 December, 1988 Value Label</pre>		.7156 .6130	63 62
Total Cases Missing Cases Summaries of Variable For Entire Poj DEPMEAS	201 21 OR 10.4 PCT. TPLUS11 December, 1988 Value Label vulation 1 TOTAL TIME INDEX	Mean .5083 .8091	.7156 .6130 Std Dev 1.2150 2.0081	63 62 Cases 180 55
Total Cases Missing Cases Summaries of Variable For Entire Pop DEPMEAS DEPMEAS	201 21 OR 10.4 PCT. TPLUS11 December, 1988 Value Label vulation 1 TOTAL TIME INDEX	Mean .5083 .8091	.7156 .6130 Std Dev 1.2150 2.0081 .6126	63 62 Cases 180 55 63
Total Cases Missing Cases Summaries of	201 21 OR 10.4 PCT. TPLUS11 December, 1988 Value Label pulation	Mean .5083 .8091	.7156 .6130 Std Dev 1.2150	63 62 Cases 180 55 63
Total Cases vissing Cases Summaries of Variable For Entire Pop DEPMEAS DEPMEAS DEPMEAS Total Cases	201 21 OR 10.4 PCT. TPLUS11 December, 1988 Value Label Julation 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	Mean .5083 .8091	.7156 .6130 Std Dev 1.2150 2.0081 .6126	63 62 Cases 180 55 63

Summaries of	TPLUS12 January, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po		.8112	1.2238	
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX		1.7086	63
DEPMEAS	2 FREQUENCY INDEX	.6935	.8606	62
DEPMEAS	3 SHORT TERM INDEX	.5714	.8174	63
Total Cases	= 209			
Missing Coses	= 21 OR 10.0 PCT.			
Summaries of	TPLUS13 February, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.4920	. 9155	188
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6270	1.3228	63
DEPMEAS	2 FREQUENCY INDEX	.4355	.6173	62
DEPMEAS	3 SHORT TERM INDEX	.4127	.6126	63
Total Cases	= 209			
Missing Cases	= 21 OR 10.0 PCT.			
Summaries of	TPLUS14 March, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.5670	1.1961	194
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7692	1.8458	65
DEPMEAS	2 FREQUENCY INDEX	.7692 .4844	.6665	64
DEPMEAS	3 SHORT TERM INDEX	.4462	.6381	65
Total Cases	= 209			
Missing Cases	= 15 OR 7.2 PCT.			
Summaries of	TPLUS15 April, 1989			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	. 5194	1.2830	206
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.8116	2.0239	
DEPMEAS	2 FREQUENCY INDEX	.3971	. 6263	68
	3 SHORT TERM INDEX	.3478	. 5898	69
DEPMEAS	o onone mar mount			
Total Cases				

Summaries of TPLUS16 May, 1989 Variable Value Label Mean Std Dev Cases For Entire Population .4976 .7910 206 1 TOTAL TIME INDEX DEPMEAS .6304 1.0629 69 DEPMEAS 2 FREQUENCY INDEX .4559 .6092 68 .4058 DEPMEAS 3 SHORT TERM INDEX .6019 69 Total Cases = 209 Missing Cases = 3 OR 1.4 PCT. Summaries of TPLUS17 June, 1989 Variable Value Label Mean Std Dev Cases For Entire Population .4126 206 .7552 1 TOTAL TIME INDEX .4928 DEPMEAS .9095 69 2 FREQUENCY INDEX DEPMEAS .3824 .6698 68 DEPMEAS 3 SHORT TERM INDEX .3623 .6636 69 Total Cases = 209 3 OR 1.4 PCT. Missing Cases = Summaries of TPLUS18 July, 1989 Variable Value Label Mean Std Dev Cases For Entire Population .4417 .7661 206 DEDMEAS 1 TOTAL TIME INDEX .5072 .9334 69 DEPMEAS 2 FREQUENCY INDEX .4191 .6725 68 DEPMEAS 3 SHORT TERM INDEX .3986 .6674 69 Total Cases = 209 Missing Cases = 3 OR 1.4 PCT. Summaries of TPLUS19 August, 1989 Variable Value Label Mean Std Dev Caces For Entire Population .6141 .9616 206 DEDWEAS 1 TOTAL TIME INDEX .7609 1.3246 69 DEPMEAS 2 FREQUENCY INDEX .5882 .7378 68 DEPMEAS 3 SHORT TERM INDEX .4928 .6779 69 Total Cases = 209 Missing Cases = 3 OR 1.4 PCT.

Summaries of	TPLUS20 September, 1985	9		
Variable		Mean	Std Dev	Cases
For Entire Pop	ulation	.4515	.8752	206
DEPMEAS	1 TOTAL TIME INDEX	. 5942	1.2286	69
DEPMEAS	2 FREQUENCY INDEX	.4118	.6519	68
DEPMEAS	3 SHORT TERM INDEX	.3478	.5898	69
Total Cases	= 209			
Missing Cases	= 3 OR 1.4 PCT.			
Summaries of	TPLUS21 October, 1989			
Variable		Mean	Std Dev	Cases
For Entire Pop	ulation	.5971	.8324	206
	1 TOTAL TIME INDEX		1.1898	69
DEPMEAS	2 FREQUENCY INDEX	.5588	.5829	68
DEPMEAS	3 SHORT TERM INDEX	. 5072	.5590	69
Total Cases	= 209			
Missing Cases	3 OR 1.4 PCT.			
Summaries of	TPLUS22 November, 1989			
Variable		Mean	Std Dev	Cases
For Entire Popu	ulation	.8301	1.8111	209
DEPMEAS	1 TOTAL TIME INDEX	1.3500	2.9134	70
DEPMEAS	2 FREQUENCY INDEX	.6087	.7320	69
DEPMEAS	3 SHORT TERM INDEX	. 5286	.6751	70
Total Cases	209			
Summaries of	TPLUS23 December, 1990			
Variable N		Mean	Std Dev	Cases .
For Entire Popu	ulation	.7536	2.6558	209 1
DEPMEAS	1 TOTAL TIME INDEX		4.4212	70
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4203	.7155	69
DEPMEAS	3 SHORT TERM INDEX	.3429	.6111	70
Total Cases	209			

Appendix B

TTI, FI and STI measure for The Department of Education

SPSS/PC PRINTOUT OF TOTAL TIME, FREQUENCY AND SHORT TERM INDICES FOR THE DEPARTMENT OF EDUCATION

Due to temporary selection criteria or missing value declarations, the following table is empty..

TMINUS24 DEPMEAS

Summaries of TMINUS23 April, 1986

Variable	Value	Label	Mean	Std Dev	Cases
For Entire	Populatio	n	.3913	.7338	115
DEPMEAS	1	TOTAL TIME INDEX	.3846	.7819	39
DEPMEAS	2	FREQUENCY INDEX	.4054	.7249	37
DEPMEAS	3	SHORT TERM INDEX	.3846	.7114	39
Total Cas	es =	177			
Missing Cas	es =	62 OR 35.0 PCT.			

Summaries of TMINUS22 May, 1986

Variable	Value	Label	Mean	Std Dev	Cases
For Entire	Populatio	n	.7000	2.0389	115
DEPMEAS	1	TOTAL TIME INDEX	1.0128	3.3609	39
DEPMEAS	2	FREQUENCY INDEX	.5676	.7280	37
DEPMEAS	3	SHORT TERM INDEX	.5128	.7208	39

Total Cases = 177 Missing Cases = 62 OR 35.0 PCT.

Summaries of TMINUS21 June, 1986

Variable	Value	Label	Mean	Std Dev	Cases
For Entire P	opulatio	n	.4870	1.4977	115
DEPMEAS	1	TOTAL TIME INDEX	.7949	2.4568	39
DEPMEAS	2	FREQUENCY INDEX	.3514	.5383	37
DEPMEAS	3	SHORT TERM INDEX	.3077	.5208	39
Total Case	S =	177			

Missing Cases = 62 OR 35.0 PCT.

Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	opulation	.2609	.4310	115
DEPMEAS	1 TOTAL TIME INDEX	.2308	.3948	39
DEPMEAS	2 FREQUENCY INDEX	.2703	.4502	37
DEPMEAS	3 SHORT TERM INDEX	.2821	.4559	39
Total Cases	= 1.7			
Missing Cases	= 62 OR 35.0 PCT.			
Summaries of	TMINUS19 August, 1986			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.3957	.8151	115
DEPMEAS	1 TOTAL TIME INDEX	. 5513		39
DEPMEAS	2 FREQUENCY INDEX	.3243	. 5299	37
DEPMEAS	3 SHORT TERM INDEX	.3077	.5691	39
Total Cases				
Missing Cases	= 62 OR 35.0 PCT.			
Summaries of	TMINUS18 September, 1986			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.2739	1.8886	115
DEPMEAS	1 TOTAL TIME INDEX	.6795	3.2128	39
DEPMEAS	2 FREQUENCY INDEX	.0811	.2767	37
DEPMEAS	3 SHORT TERM INDEX	.0513	.2235	39
Total Cases				
Missing Cases	= 62 OR 35.0 PCT.			
Summaries of	TMINUS17 October, 1986			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.5000	.8573	118
DEPMEAS	1 TOTAL TIME INDEX	.6000		40
DEPMEAS	2 FREQUENCY INDEX	.4474	.7604	38
DEPMEAS	3 SHORT TERM INDEX	.4500	.7143	40
Total Cases				
dissing Cases	59 OR 33.3 PCT.			

Summaries of TMINUS16 November, 1986 Variable Value Label Mean Std Day Cases For Entire Population .3898 .9960 118 DEPMEAS 1 TOTAL TIME INDEX .6000 1.4641 40 DEPMEAS FREQUENCY INDEX 2 .3158 .6619 38 3 SHORT TERM INDEX DEPMEAS .2500 .5883 40 Total Cases = 177 Missing Cases = 59 OR 33.3 PCT. Summaries of TMINUS15 December, 1986 Variable Value Label Mean Std Lev Cases For Entire Population .5470 1.01.3 117 DEPMEAS 1 TOTAL TIME INDEX .7179 39 1.4500 2 FREQUENCY INDEX .4737 DEPMEAS .7618 38 DEPMEAS ā SHORT TERM INDEX .4500 .6385 40 Total Cases = 177 Missing Cases = 60 OR 33.9 PCT. Summaries of TMINUS14 January, 1987 Variable Value Label Mean Std Dev Canes For Entire Population 1.0381 2.2314 118 DEPMEAS 1 TOTAL TIME INDEX 1.6625 3.6275 40 DEDMEAS 2 FREQUENCY INDEX 3 SHORT TERM INDEX .7632 .8522 38 DEPMEAS .6750 .6938 40 Total Cases = 177 Missing Cases = 59 OR 33.3 PCT. Summaries of TMINUS13 February, 1987 Variable Value Label Mean Std Dev Cases For Entire Population . 5297 1.9285 118 DEDMERS .8875 1 TOTAL TIME INDEX 3.1935 40 .3684 DEPMEAS 2 FREQUENCY INDEX .6334 38 DEPMEAS 3 SHORT TERM INDEX .3250 .6155 40 Total Cases -

Total Cases = 177 Missing Cases = 59 OR 33.3 PCT.

Summaries of By levels of	TMINUS12 March, 1987 DEPMEAS			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.6552	1.5721	116
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.9250	2.5559	40
DEPMEAS	2 FREQUENCY INDEX	.5263	.6035	38
DEPMEAS	3 SHORT TERM INDEX	.5000	.5575	38
Total Cases	= 143			
Missing Cases	= 27 OR 18.9 PCT.			
Summaries of	TMINUS11 April, 1987			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.8294	1.5429	126
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.0595	2.4550	42
DEPMEAS	2 FREQUENCY INDEX	.7619	.8500	42
DEPMEAS	3 SHORT TERM INDEX	.6667	.8500	42
Total Cases	= 143 = 17 OR 11.9 PCT.			
Missing Cases	= 17 OR 11.9 PCT.			
Summaries of	TMINUS10 May, 1987			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Pop	pulation	.5516	.9248	126
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7262		
DEPMEAS	2 FREQUENCY INDEX	.5000	.7408	42
DEPMEAS	3 SHORT TERM INDEX	.4286	.7373	42
Total Cases	= 143 = 17 OR 11.9 PCT.			
Missing Cases	= 17 OR 11.9 PCT.			
Summaries of	TMINUS9 June, 1987			1
	Value Label	Mean	Std Dev	Cases
For Entire Pop	oulation	.6825	2.2223	126
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.2619	3.7355	42
DEPMEAS	2 FREQUENCY INDEX	.4286	.5474	42
DEPMEAS	3 SHORT TERM INDEX	.3571	.5329	42
Total Cases	- 143			
Missing Cases	= 17 OR 11.9 PCT.			

Summaries of TMINUSS July, 1987 By levels of DEPMEAS Value Label Variable Mean Std Dev Cases For Entire Population .5873 1.7687 126 1 TOTAL TIME INDEX DEPMEAS 1.0476 2.9234 42 2 FREQUENCY INDEX DEDMEAS .4048 .6270 42 DEDMEAS 3 SHORT TERM INDEX .3095 .5174 42 Total Cases = 143 Missing Cases = 17 OR 11.9 PCT. Summaries of TMINUS7 August, 1987 Variable Value Label Mean Std Dev Cases For Entire Population .4206 .6585 126 1 TOTAL TIME INDEX .4762 DEPMEAS .7960 42 DEDMEAS 2 FREQUENCY INDEX .4286 5903 42 DEPMEAS 3 SHORT TERM INDEX .3571 .5768 42 Total Cases = 143 Missing Cases = 17 OR 11.9 PCT. Summaries of TMINUS6 September, 1987 Variable Value Label Mean Std Dev Cacos For Entire Population .5675 .7358 126 DEPMEAS 1 TOTAL TIME INDEX .7024 .9819 42 DEPMEAS 2 FREQUENCY J'IDEX .5476 .5927 42 3 SHORT TERM LIDEX .4524 42 DEPMEAS .5501 Total Cases = 143 17 OR 11.9 PCT. Missing Cases = Summaries of TMINUS5 October, 1987 Cases | Variable Value Label Mean Std Dev For Entire Population .5198 126 .7111 .6310 .9567 DEPMEAS 1 TOTAL TIME INDEX 42 DEPMEAS 2 FREQUENCY INDEX .4762 .5516 42 DEPMEAS 3 SHORT TERM INDEX .4524 .5501 42 Total Cases = 143 Missing Cases = 17 OR 11.9 PCT.

				Summaries of TMINUS4 November, 1987
R.F.	Case	Std Dev	Mean	Variable Value Label
27	12	.8238	. 5984	For Entire Population
13	4	.9813	.5984 .6744 .5714	DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX
	43	7373	.5714	DEDMEAS 2 FREQUENCY INDEX
12	43	.7373	.5476	DEDMERC 3 SHOPT TERM INDEX
~			10110	
				Total Cases = 143 Missing Cases = 16 OR 11.2 PCT.
				Missing Cases = 16 OR 11.2 PCT.
				Summaries of TMINUS3 December, 1987
		Std Dev		Variable Value Label
27	127	.8351	.5945	For Entire Population
13	43	1.0061	.6860	DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX
12	42	.7696	.5714	DEDMEAS 2 FREQUENCY INDEX
12	4 3	.7696	5238	DEDMERC 3 SHORT TERM INDEX
				DEFINITS C CHOIL FILL
				Total Cases = 143
				Missing Cases = 16 OR 11.2 PCT.
				Summaries of TMINUS2 January, 1988
		Std Dev		Variable Value Label
0	130	.8280	.5231	For Entire Population
16	46	1.0998	.6522	DEDMEAS 1 TOTAL TIME INDEX
2	42	6344	5000	DEDMEAS 2 ERECUENCY INDEX
2	42	.6270	.4048	DEPMEAS 3 SHORT TERM INDEX
				m-1-1 m 141
				Total Cases = 143
				Missing cases = 13 OR 5.1 PCI.
				Summaries of TMINUS1 February, 1988
s.	Cases	Std Dev		Variable Value Label
0 .	130	1.3485	.7308	For Entire Population
6	46	1,9588	1.0870	DEPMEAS 1 TOTAL TIME INDEX
				DEDMEAS 2 FREQUENCY INDEX
4		7726	4762	DEDMEAS 3 SHOPT TERM INDEX
-				
				Missing Cases = 13 OR 9.1 PCT.
	case 13	1.0998 .6344 .6270 Std Dev 1.3485 1.9588 .8281	.6522 .5000 .4048 Mean .7308	DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX 3 SHORT TEME INDEX Total Cases = 143 Missing Cases = 13 OR 9.1 PCT. Summaries of TMINUSI February, 1988 Variable Value Label

Summaries of TMINUS4 November, 1987

Summaries of TOPOLICY March, 1988			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.6731	.8253	130
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.8256 .6279 .5682	1.0402	43
DEPMEAS 2 FREQUENCY INDEX	.6279	.6909	43
DEPMEAS 3 SHORT TERM INDEX	.5682	.6954	44
Total Cases = 175 Missing Cases = 45 OR 25.7 PCT.			
Missing Cases = 45 OR 25.7 PCT.			
Summaries of TPLUS1 April, 1988			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.4664	1.0245	149
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.6100	1.5659	50
DEPMEAS 2 FREQUENCY INDEX	.4286	.6124	49
DEPMEAS 3 SHORT TERM INDEX	.3600	.6124	50
Total Cases = 175			
Missing Cases = 26 OR 14.9 PCT.			
Summaries of TPLUS2 May, 1988			
Variable Value Label		Std Dev	
For Entire Population	.7081	1.0464	149
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.8700	1.3470 .8792	50
DEPMEAS 2 FREQUENCY INDEX	.6531	.8792	49
DEPMEAS 3 SHORT TERM INDEX	.6000	.8330	50
Total Cases = 175			
Missing Cases = 26 OR 14.9 PCT.			
Summaries of TPLUS3 June, 1988			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.3658	.5624	149
DF.MEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.4500	.7089	50
DEPMEAS 2 FREQUENCY INDEX	.3265	.4738	49
DEPMEAS 3 SHORT TERM INDEX	.3200	.4712	50
Total Cases = 175 Missing Cases = 26 OR 14.9 PCT.			
Missing Cases = 26 OR 14.9 PCT.			

Summaries of TPLUS4 July, 198	8	
Variable Value Label	Mean Std Dev	Cases
For Entire Population	.3054 .6252	149
DEPMEAS 1 TOTAL TIME I DEPMEAS 2 FREQUENCY IN DEPMEAS 3 SHORT TERM I	NDEX .3700 .8318	50
DEPMEAS 2 FREQUENCY IN	DEX .2857 .5000 NDEX .2600 .4870	49
DEPMEAS 3 SHORT TERM I	NDEX .2600 .4870	50
Total Cases = 175		
Missing Cases = 26 OR 14.9	PCT.	
Summaries of TPLUS5 August, 198	8	
Variable Value Label	Mean Std Dev	Cases
For Entire Population	.3926 .6275	149
DEPMEAS 1 TOTAL TIME II	NDEX .4100 .7402	50
DEPMEAS 2 FREQUENCY IN	DEX .3878 .5707	49
DEPMEAS 2 FREQUENCY IN DEPMEAS 3 SHORT TERM IN	NDEX .3800 .5675	50
Total Cases = 175 Missing Cases = 26 OR 14.9 1		
Missing Cases = 26 OR 14.9 1	PCT.	
Summaries of TPLUS6 September	r, 1988	
Variable Value Label	Mean Std Dev	Cases
For Entire Population	.4262 .6404	149
DEPMEAS 1 TOTAL TIME IN DEPMEAS 2 FREQUENCY IN DEPMEAS 3 SHORT TERM IN	DEX .4300 .7072	50
DEPMEAS 2 FREQUENCY INI	DEX .4286 .6124	49
DEPMEAS 3 SHORT TERM IN	IDEX .4200 .6091	50
Total Cases = 175		
Missing Cases = 26 OR 14.9 H	PCT.	
Summaries of TPLUS7 October, 19	88	
Variable Value Label	Mean Std Dev	Cases i
For Entire Population	.6579 1.2172	152
		51
	IDEX .8431 1.8452	
DEPMEAS 1 TOTAL TIME IN DEPMEAS 2 FREQUENCY IND	DEX .8431 1.8452 DEX .6000 .8081	50
DEPMEAS 1 TOTAL TIME IN DEPMEAS 2 FREQUENCY IND DEPMEAS 3 SHORT TERM IN	DEX .8431 1.8452 DEX .6000 .8081 DEX .5294 .6117	
DEPMEAS 1 TOTAL TIME IN DEPMEAS 2 FREQUENCY INL DEPMEAS 3 SHORT TERM IN Total Cases = 175 Missing Cases = 23 OR 13.1 E	DEX .6000 .8081 DDEX .5294 .6117	50

Summaries of	TPLUS8 November, 1988			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	. 5968	.8975	155
DEPMEAS	1 TOTAL TIME INDEX	.6827	1,1204	52
DEPMEAS	2 FREQUENCY INDEX	.5686	.8063	
	3 SHORT TERM INDEX			
DEPMEAS		.5385	.7266	52
Total Cases	= 175 = 20 OR 11.4 PCT.			
Missing Cases	= 20 OR 11.4 PCT.			
Summaries of	TPLUS9 December, 1988			
Variable	Value Label	Mean	Std De	Cases
For Entire Po			1.2412	158
DEDMEAG	1 TOTAL TIME INDEX	7170	1.9892	53
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX	.3269		52
DEPMEAS	3 SHORT TERM INDEX	.2642	. 5244	53
		. 2042	. 5244	53
Total Cases	= 175			
Missing Cases	= 17 OR 9.7 PCT.			
Summaries of	TPLUS10 January, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.8481	1.4362	158
DEPMEAS	1 TOTAL TIME INDEX	1 1698	2.1793	53
DEDIARSC	2 FREQUENCY INDEX	.7308	.8882	
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6415		
		.0413	. /363	53
Total Cases	= 175 = 17 OR 9.7 PCT.			
Missing Cases	= 17 OR 9.7 PCT.			
Summaries of	TPLUS11 February, 1989			
Variable	Value Label	Mean	Std Dev	Cases i
For Entire Po	pulation	.6487	1.0490	158
DEPMEAS	1 TOTAL TIME INDEX	.8208	1.3626	53
DEPMEAS		.5769	.8710	52
DEPMEAS	3 SHORT TERM INDEX	.5472	.8220	53
Total Capag	- 175			
Total Cases	= 175 = 17 OR 9.7 PCT.			

Summaries of	TPLUS12 March, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.6485	1.2125	165
DEPMEAS	1 TOTAL TIME INDEX	.8182	1.7622	
DEPMEAS	2 FREQUENCY INDEX	.6071	.8241	56
DEPMEAS DEPMEAS DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5185	.7948	54
Total Cases	= 180			
Missing Cases	= 15 OR 8.3 PCT.			
Summaries of	TPLUS13 April, 1989			
Variable		Mean		
For Entire Pop	oulation	. 3772	.8222	171
DEPMEAS	1 TOTAL TIME INDEX		1.0768	
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.3448	.6636	
DEPMEAS	3 SHORT TERM INDEX	.3214	.6635	56
Total Cases	= 180			
Missing Cases	= 9 OR 5.0 PCT.			
Summaries of	TPLUS14 May, 1989			
Variable			Std Dev	Cases
For Entire Pop	oulation	.5029	.7544	171
DEPMEAS	1 TOTAL TIME INDEX	. 5439		
DEPMEAS	2 FREQUENCY INDEX	.4828		
DEPMEAS	3 SHORT TERM INDEX	.4821	.6322	56
Total Cases	= 180			
dissing Cases	= 9 OR 5.0 PCT.			
Summaries of	TPLUS15 June, 1989			
Variable		Mean		Cases
For Entire Pop	ulation	.4444	.8161	171
DEPMEAS	1 TOTAL TIMF INDEX	.5965	1.1551	57
DEPMEAS	2 FREQUENCY TDEX			58
DEPMEAS	3 SHORT TERM INDEX	.3393	.5486	56
Total Cases	= 180			
Missing Cases	= 9 OR 5.0 PCT.			

Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.4655		174
		60.0P	1,6893	
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6207		
DEPMEAS	2 FREQUENCY INDEX	.4237		
DEPMEAS	3 SHORT TERM INDEX	.3509	.5172	57
Total Cases	= 180			
Missing Cases	= 6 OR 3.3 PCT.			
Summaries of	TPLUS17 August, 1989			
	Value Label		Std Dev	
For Entire Po	pulation	.5230	1.0394	174
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6724	1.5688	58
DEPMEAS	2 FREQUENCY INDEX	.4576	.6248	59
DEPMEAS	3 SHORT TERM INDEX	.4386	.6273	57
Total Cases	= 180			
Missing Cases	= 6 OR 3.3 PCT.			
Summaries of	TPLUS18 September, 1989			
Variable	Value Label		Std Dev	
For Entire Po	pulation	.4435	1.0083	177
DEPMEAS	1 TOTAL TIME INDEX	.5847	1.4358	59
DEPMEAS	2 FREQUENCY INDEX	.3833		
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.3621	. 6933	58
Total Cases	= 180			
Missing Cases	= 180 = 3 OR 1.7 PCT.			
Summaries of	TPLUS19 October, 1989			
Variable	Value Label	Mean	Std Dev	Cases
m making ma	pulation	.8446	2.1293	177
For Entire Po		1 2002	3.4588	59
DEPMEAS	1 TOTAL TIME INDEX			
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX	.6000	.8068	60
DEPMEAS DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6000	.8068	60 58
DEPMEAS DEPMEAS DEPMEAS Total Cases	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6000	.8068	60 58

Variable Value Label Mean Std Dev Cases DEFMENS 1 TOTAL TIME INDEX 1.102 2.6670 55 DEFMENS 1 TOTAL TIME INDEX 1.102 2.6670 55 DEFMENS 1 TOTAL TIME INDEX 1.102 2.6670 55 DEFMENS 1 TOTAL TIME INDEX .4828 1.1584 58 Total Cames = 100 1.7 PCT. 50 56 Summaries of TPLUS21 December, 1989 Variable .6428 177 DEFMENS 1 TOTAL TIME INDEX .3644 .6602 55 DEFMENS 1 TOTAL TIME INDEX .3644 .6602 55 DEFMENS 1 TOTAL TIME INDEX .3644 .6602 55 DEFMENS 1 SOK 1.7 PCT. .5564 60 177 Summaries of TrLUS22 January, 1990 Variable Value Label Mean Std Dev Cases PORTIER POPUlation .6644 1.5051 177 DEFMENS 1 TOTAL TIME INDEX .3500 .6713 60 <tr< th=""><th>Summaries of TP</th><th>LUS20 November, 1989</th><th></th><th></th><th></th></tr<>	Summaries of TP	LUS20 November, 1989			
DEPMEAS 1 TOTAL THE INDEX 1.1102 2.6670 59 DEPMEAS 2 PHONENT ENDEX			Mean	Std Dev	Cases
Total Cases * 180 Missing Cases * 3 OR 1.7 PCT. Summaries of TPLUS21 December, 1989 Yariable Value Label EMPHEAS 1 TOTAL TIME INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3604 .5501 59 Total Cases * 160 Missing Cases * 160 Missing Cases * 160 Cases . Summaries of TPLUS22 January, 1990 Variable Value Label Mean .6644 1.9051 Cases . Total Cases * 160 .6644 .5553 59 DEPHEAS 1 TOTAL TIME INDEX .3200 .6713 59 DEPHEAS 3 SNORT TERM INDEX .5590 .6783 59 DEPHEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEPHEAS 1 TOTAL TIME INDEX .3448 .5478 59 DEPHEAS 1 TOTAL TIME INDEX .3448 .5478 59	For Entire Popula	tion	.7203	1.8238	177
Total Cases * 180 Missing Cases * 3 OR 1.7 PCT. Summaries of TPLUS21 December, 1989 Yariable Value Label EMPHEAS 1 TOTAL TIME INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3604 .5501 59 Total Cases * 160 Missing Cases * 160 Missing Cases * 160 Cases . Summaries of TPLUS22 January, 1990 Variable Value Label Mean .6644 1.9051 Cases . Total Cases * 160 .6644 .5553 59 DEPHEAS 1 TOTAL TIME INDEX .3200 .6713 59 DEPHEAS 3 SNORT TERM INDEX .5590 .6783 59 DEPHEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEPHEAS 1 TOTAL TIME INDEX .3448 .5478 59 DEPHEAS 1 TOTAL TIME INDEX .3448 .5478 59	DEPMEAS	1 TOTAL TIME INDEX	1.1102	2.6670	59
Total Cases * 180 Missing Cases * 3 OR 1.7 PCT. Summaries of TPLUS21 December, 1989 Yariable Value Label EMPHEAS 1 TOTAL TIME INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3644 .6602 59 DESPHEAS 2 PTROUNCY INDEX .3604 .5501 59 Total Cases * 160 Missing Cases * 160 Missing Cases * 160 Cases . Summaries of TPLUS22 January, 1990 Variable Value Label Mean .6644 1.9051 Cases . Total Cases * 160 .6644 .5553 59 DEPHEAS 1 TOTAL TIME INDEX .3200 .6713 59 DEPHEAS 3 SNORT TERM INDEX .5590 .6783 59 DEPHEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEPHEAS 1 TOTAL TIME INDEX .3448 .5478 59 DEPHEAS 1 TOTAL TIME INDEX .3448 .5478 59	DEPMEAS	2 FREQUENCY INDEX	.5667	1.1842	60
Summaries of TPLUS21 December, 1989 Variable Value Label Mean Std Dev Cases For Entire Population Joint TERM INDEX Joint Consest DEFMEAS 1 TOTAL TIME INDEX JOINT CONSERVATION OF CONSERVAT	DEPMEAS	3 SHORT TERM INDEX	.4828	1.1584	58
Summaries of TPLUS21 December, 1989 Variable Value Label Mean Std Dev Cases For Entire Population Joint TERM INDEX Joint Consest DEFMEAS 1 TOTAL TIME INDEX JOINT CONSERVATION OF CONSERVAT	Total Cases =	180			
Variable Value Label Mean Std Dev Cases For Entire Population	Missing Cases =	3 OR 1.7 PCT.			
Por Entire Population .3249 .6745 1777 DEFMENS 1 TOTAL TIME INDEX .3544 .6602 59 DEFMENS 3 SEGUENCY INDEX .3541 .5664 .501 59 Total Cases = 160 N.6 .6713 59 .576 .5664 1.9051 177 Variable Value Label Mean .6664 1.9051 177 DEFMENS 1 TOTAL TIME INDEX .3220 .31263 59 DEFMENS 2 PROUNCY INDEX .3690 .6713 58 Total Cases = 100 .70 .5633 177 DEFMENS 1 TOTAL TIME INDEX .3664 .5653 177 DEFMENS 2 FREQUENCY INDEX .5643 .5653 177 <td>Summaries of TPI</td> <td>LUS21 December, 1989</td> <td></td> <td></td> <td></td>	Summaries of TPI	LUS21 December, 1989			
DEPMEAS 1 TOTAL THE INDEX			Mean	Std Dev	Cases
DEPMEAS 2 FREQUENCY INDEX .3167 .5964 60 DEPMEAS 3 SHORT TERM INDEX .2931 .5301 58 Total Cases 1 00 1.7 PCT. Summaries of TrLU522 January 1990 Variable Value Label Mean 5td Dev Cases For Entire Population .6644 1.9051 177 DEPMEAS 1 TOTAL TIME INDEX .0664 .6013 59 DEPMEAS 2 FREQUENCY INDEX .0690 .6713 59 Total Cases 100 Missing Cases = 100 .6713 59 Variable Value Label Mean 5td Dev Cases For Entire Population .3644 .6005 59 DEFMEAS 1 TOTAL TIME INDEX .3464 .6005 59 DEFMEAS 1 FOR LABEL .9643 .6005 59 DEFMEAS 1 FREQUENCY INDEX .3448 .5478 55 Total Cases 2 FREQUENCY INDEX .3448 .5478 55 DEFMEAS 1 FOR TERM INDEX .3448 .5478 55	For Entire Populat	tion	.3249	.6745	
Tichal Cases = 160 Missing Cases = 3 OR 1.7 PCT. Summaries of TrUUS22 January, 1990 Variable Value Label Mean Std Dev Cases For Entire Population	DEPMEAS	1 TOTAL TIME INDEX	.3644	.8602	59
Tichal Cases = 160 Missing Cases = 3 OR 1.7 PCT. Summaries of TrUUS22 January, 1990 Variable Value Label Mean Std Dev Cases For Entire Population	DEPMEAS	2 FREQUENCY INDEX	.3167	.5964	60
Summaries of TFUUS22 January, 1990 Variable Value Label Mean Std Dev Cases For Brite Population 1.6644 1.9051 177 DEPWEAS 1 FORQUENCY INDEX 7000 .6713 60 DEPWEAS 3 SHORT TEEM INDEX 7000 .6713 60 DEPWEAS 3 SHORT TEEM INDEX 7000 .6783 58 Total Cases 180 Missing Cases 3 0R 1.7 PCT. Summaries of TFUUS23 February, 1990 Variable Value Label Mean Std Dev Cases 1 For Briter Population .3644 .6605 59 DEFWEAS 1 FORGLY INDEX .3643 .6005 59 DEFWEAS 2 FROUNCY INDEX .3643 .6505 59 DEFWEAS 3 SHORT TEEM INDEX .3644 .5478 55 DEFWEAS 3 SHORT TEEM INDEX .3448 .5478 55	DEPMEAS	3 SHORT TERM INDEX	.2931	.5301	58
Summaries of TFUUS22 January, 1990 Variable Value Label Mean Std Dev Cases For Brite Population 1.6644 1.9051 177 DEPWEAS 1 FORQUENCY INDEX 7000 .6713 60 DEPWEAS 3 SHORT TEEM INDEX 7000 .6713 60 DEPWEAS 3 SHORT TEEM INDEX 7000 .6783 58 Total Cases 180 Missing Cases 3 0R 1.7 PCT. Summaries of TFUUS23 February, 1990 Variable Value Label Mean Std Dev Cases 1 For Briter Population .3644 .6605 59 DEFWEAS 1 FORGLY INDEX .3643 .6005 59 DEFWEAS 2 FROUNCY INDEX .3643 .6505 59 DEFWEAS 3 SHORT TEEM INDEX .3644 .5478 55 DEFWEAS 3 SHORT TEEM INDEX .3448 .5478 55	Total Cases =	160			
Variable Value Label Mean Std Dev Cases For Knire Population 1077L TIME INDEX .8644 1.9051 177 DEFMEAS 1 TOTAL TIME INDEX .8644 .1051 177 DEFMEAS 2 FREQUENCY INDEX .7000 .6713 60 DEFMEAS 3 SHORT TERM INDEX .5690 .6783 59 Total Cases = 100 1.7 PCT. Summaries of TPLU523 February, 1590 Variable Value Label Mean .1644 .1653 177 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 177 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 177 DEFMEAS 2 FREQUENCY INDEX .3644 .6005 59 177 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 177 DEFMEAS 2 FREQUENCY INDEX .3448 .5478 58	Missing Cases =	3 OR 1.7 PCT.			
For Entire Population .6644 1.9051 1777 DEPMEAS 1 707AL TIME INDEX 1.3220 3.1263 59 DEPMEAS 2 FREQUENCY INDEX .3220 .6713 59 DEPMEAS 2 FREQUENCY INDEX .3000 .6713 59 DEPMEAS 3 SHORT TERN INDEX .5690 .6713 59 Total Cases = 100 1.7 PCT. .5690 .6783 50 Summaries of TPLU523 February, 1990 Variable Value Label Mean .5643 .177 DEPMEAS 1 TOTAL TIME INDEX .3644 .5653 177 DEPMEAS 2 FREQUENCY INDEX .3644 .6005 59 DEFMEAS 2 FREQUENCY INDEX .3644 .6005 59 DEFMEAS 2 FREQUENCY INDEX .3644 .5478 56 DEFMEAS 2 FREQUENCY INDEX .3448 .5478 56	Summaries of TPI	US22 January, 1990			
DEFMEAS 1 TOTAL TIME INDEX 1.3220 3.1263 59 DEFMEAS 2 PREQUENCY INDEX .7000 .6713 60 Missing Cases 100 Missing Cases 3 OR 1.7 PCT. Summaries of TPLU523 February, 1990 Variable Value Label Maan Std Dev Cases 1 For Entire Population .3644 .6005 59 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 2 FRQUENCY INDEX .3644 .6005 59 DEFMEAS 3 SHORT TEAM INDEX .3644 .5478 58 DEFMEAS 3 SHORT TEAM INDEX .3448 .5478 58				Std Dev	Cases
Total Cases = 180 Missing Cases = 3 OR 1.7 PCT. Summaries of TPLUS23 Pebruary, 1990 Vuriable Value Label Mean Std Dev Cases i For Entire Population .3644 .6005 59 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 3 SHORT TERM INDEX .3648 .5578 58 DEFMEAS 3 SHORT TERM INDEX .3448 .5478 58	For Entire Populat	ion	.8644	1.9051	177
Total Cases = 180 Missing Cases = 3 OR 1.7 PCT. Summaries of TPLUS23 Pebruary, 1990 Vuriable Value Label Mean Std Dev Cases i For Entire Population .3644 .6005 59 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 3 SHORT TERM INDEX .3648 .5578 58 DEFMEAS 3 SHORT TERM INDEX .3448 .5478 58	DEPMEAS	1 TOTAL TIME INDEX	1.3220	3.1263	59
Total Cases = 180 Missing Cases = 3 OR 1.7 PCT. Summaries of TPLUS23 Pebruary, 1990 Vuriable Value Label Mean Std Dev Cases i For Entire Population .3644 .6005 59 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 3 SHORT TERM INDEX .3648 .5578 58 DEFMEAS 3 SHORT TERM INDEX .3448 .5478 58	DEPMEAS	2 FREQUENCY INDEX	.7000	.6713	60
Summaries of TPLUS23 February, 1990 Variable Value Label Mean Std Day Cases i For Entire Population .3644 .5653 177 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 2 FRQUENCY INDEX .3644 .5478 58 DEFMEAS 3 SHORT TERM INDEX .3448 .5478 58	DEPMEAS	3 SHORT TERM INDEX	.5690	.6783	58
Summaries of TPLUS23 February, 1990 Variable Value Label Mean Std Day Cases i For Entire Population .3644 .5653 177 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 2 FRQUENCY INDEX .3644 .5478 58 DEFMEAS 3 SHORT TERM INDEX .3448 .5478 58	Total Cases =	180			
Variable Value Label Mean Std Dev Cases For Entire Population	Missing Cases =	3 OR 1.7 PCT.			
For Entire Population .3644 .5653 177 DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 2 FREQUENCY INDEX .3643 .5552 60 DEFMEAS 3 SMORT TERM INDEX .3448 .5478 58 Total Cause = .30 .3448 .5478 58	Summaries of TPL	US23 February, 1990			
DEFMEAS 1 TOTAL TIME INDEX .3644 .6005 59 DEFMEAS 2 FREQUENCY INDEX .3833 .5552 60 DEFMEAS 3 SHORT TEEM INDEX .3448 .5478 58 Total Camps = 180 .3448 .5478 58	Variable Valu	e Label	Mean	Std Dev	Cases i
Total Cases = 180	For Entire Populat	ion	.3644	.5653	177
Total Cases = 180	DEPMEAS	1 TOTAL TIME INDEX	.3644	.6005	59
Total Cases = 180	DEPMEAS	2 FREQUENCY INDEX	.3833	.5552	60
Total Cases = 180 Missing Cases = 3 OR 1.7 PCT.	DEPMEAS	3 SHORT TERM INDEX		.5478	58
Missing Cases = 3 OR 1.7 PCT.	Total Cases =	180			
	Missing Cases =	3 OR 1.7 PCT.			

Appendix C

TTI, FI and STI for The Department of Finance

SPSS/PC PRINTOUT OF TOTAL TIME, FREQUENCY AND SHORT TERM INDICES FOR THE DEPARTMENT OF FINANCE

Summaries of By levels of	TMINUS24 April, 1989 DEPMEAS			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.3613	.7418	238
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4304	1.0055	79
DEPMEAS	2 FREQUENCY INDEX	.3375	.5941	80
DEPMEAS	3 SHORT TERM INDEX	.3165	.5941	79
Total Cases	= 284			
Missing Cases	= 46 OR 16.2 PCT.			
Summaries of	TMINUS23 May, 1989			
	Value Label	Mean	Std Dev	Cases
For Entire Pop	pulation	.6239	1.2343	238
DEPMEAS	1 TOTAL TIME INDEX	.7911	1.8753 .7436 .7136	79
DEPMEAS	2 FREQUENCY INDEX	.5625	.7436	80
DEPMEAS	3 SHORT TERM INDEX	.5190	.7136	79
Total Cases	= 284			
Missing Cases	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX = 284 = 46 OR 16.2 PCT.			
Summaries of	TMINUS22 June, 1989			
	Value Label	Mean	Std Dev	Cases
For Entire Pop	oulation	.4793	.7068	241
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5688	.6814	80
DEPMEAS	2 FREQUENCY INDEX	.4691	.6141	81
DEPMEAS	3 SHORT TERM INDEX	.4000	.5868	80
Total Cases	= 284			
Missing Cases	= 284 = 43 OR 15.1 PCT.			
Summaries of	TMINUS21 July, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entir: Pop	oulation	.4336	1.2246	241
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7063	1.9270	80
DEPMEAS	2 FREQUENCY INDEX	.3210	.6088	81
DEPMEAS	3 SHORT TERM INDEX	.2750	. 5948	80
Total Cases				
	= 43 OR 15.1 PCT.			

Summaries of TMINUS20 August, 1989			
Variable Value Label For Entire Population	Mean .5512	Std Dev 1.0698	Cases 244
DEPMEAS 1 TOTAL TIME INDEX	.7222	1.6125	81
DEPMEAS 2 FREQUENCY INDEX	.5000	. 7071	82
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.4321		81
Total Cases = 284 Missing Cases = 40 OR 14.1 PCT.			
Missing Cases = 40 OR 14.1 PCT.			
Summaries of TMINUS19 September, 1989			
Variable Value Label	Mean		Cases
For Entire Population	.7251	1.9895	247
DEPMEAS 1 TOTAL TIME INDEX		3.2512	82
DEDMEAS 2 FREQUENCY INDEX	.5337	.7510	83
DEPMEAS 3 SHORT TERM INDEX	.4671	.7536	82
Total Cases = 284 Missing Cases = 37 OR 13.0 PCT.			
Missing Cases = 37 OR 13.0 PCT.			
Summaries of TMINUS18 October, 1989			
Variable Value Label		Std Dev	
For Entire Population	.8880	2.2297	250
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX		3.6388	83
DEPMEAS 2 FREQUENCY INDEX	.6548	.8430	84
DEPMEAS 3 SHORT TERM INDEX	.5301	.7705	83
Total Cares = 284 Missing Cases = 34 OR 12.0 PCT.			
Missing Cases = 34 OR 12.0 PCT.			
Summaries of TMINUS17 November, 1989			
Variable Value Label	Mean	Std Dev	Cases i
For Entire Population	.4880	.7643	250
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX	. 5783	. 9483	
DEPMEAS 2 FREQUENCY INDEX	.4583	.6550	
DEPMEAS 3 SHORT TERM INDEX	.4277	.6539	83
Total Cases = 284			
Missing Cases = 34 OR 12.0 PCT.			

Summaries of	TMINUS16 December, 1989			
	Value Label	Mean		Cases
For Entire Po	pulation	.4760	.7627	250
DEPMEAS	1 TOTAL TIME INDEX	.5181		83
DEPMEAS	2 FREQUENCY INDEX	.4762	.7024	84
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4337	.6661	83
Total Cases Missing Cases	= 284			
Missing Cases	= 34 OR 12.0 PCT.			
Summaries of	TMINUS15 January, 1990			
Variable		Mean	Std Dev	Cases
For Entire Po	pulation	.6917	1.4364	253
DEPMEAS	1 TOTAL TIME INDEX	1.0000		84
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5882	.6951	85
DEPMEAS	3 SHORT TERM INDEX	.4881	.6676	84
Total Cases	= 284			
Missing Cases	= 31 OR 10.9 PCT.			
Summaries of	TMINUS14 February, 1990			
Variable		Mean		Cases
For Entire Pop	pulation	.7412	1.2157	255
DEPMEAS	1 TOTAL TIME INDEX		1.6730	84
DEPMEAS	2 FREQUENCY INDEX	.6744	.9260	86
DEPMEAS	3 SHORT TERM INDEX	.6000	.8756	85
Total Cases				
Missing Cases	= 29 OR 10.2 PCT.			
Summaries of	TMINUS13 March, 1990			
Variable		Mean	Std Dev	Cases ;
For Entire Pop	pulation	.6745	1.3071	255
DEPMEAS DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX		2.0024	
DEPMEAS	2 FREQUENCY INDEX	.6047	.7712	86
DEPMEAS	3 SHORT TERM INDEX	.5412	.7328	85
Total Cases	= 284			
Missing Cases	= 29 OR 10.2 PCT.			

Summaries of IMINUSI2 April, 1990			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	4970	1.0225	269
FOI BHEILE FOPULACION	.4070	1.0225	209
DEPMEAS 1 TOTAL TIME INDEX	6742	1.5394	
DEPHENO 2 EDECUENCY INDEX	4333	1.3334	90
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	. 4333	.6369	90
DEPMEAS 3 SHORT TERM INDEX	. 3556	. 5866	90
Total Cases = 279			
Total Cases = 279 Missing Cases = 10 OR 3.6 PCT.			
Summaries of TMINUS11 May, 1990			
Variable Value Label	Maan	Std Dev	Cases
For Entire Population	. 7193	1.5604	269
		200000	
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.9494 .6222 .5889	2.5103	89
PERMENCY INDEX	. 6222	.7123	90
DEDWERS 3 SHORT TERM INDEX	5889	.7173	90
			50
Total Cases = 279			
Missing Cases = 10 OR 3.6 PCT.			
Summaries of TMINUS10 June, 1990			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.7305	1.4909	269
DEPMEAS 1 TOTAL TIME INDEX	1.0281	2.3359	89
DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.6222	2.3359 .7872 .7368	90
DEPMEAS 3 SHORT TERM INDEX	. 5444	.7368	90
Tetal Cases - 279			
Total Cases = 279 Missing Cases = 10 OR 3.6 PCT.			
Missing cases # 10 OK 5.0 FCI.			
Summaries of TMINUS9 July, 1990			
Variable Value Label	Mean		Cases
For Entire Population	.4108	1.0310	269
DEPMEAS 1 TOTAL TIME INDEX	. 5449	1.4841	89
DEPMEAS 2 FREQUENCY INDEX	.3778	.7728	90
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.3111		90
Total Cases = 279			
Missing Cases = 10 OR 3.6 PCT.			
hassing cases - 10 ok sie ferr			

Summaries of TMINUS12 April, 1990



Summaries of	TMINUS8 August, 1990			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po		.6635		266
DEPMEAS	1 TOTAL TIME INDEX	.9375		
DEPMEAS	2 FREQUENCY INDEX	.5506	.7073	89
DEPMEAS DEPMEAS	3 SHORT TERM INDEX	.5056	.6763	89
Total Cases	= 279			
Missing Cases	= 13 OR 4.7 PCT.			
Summaries of	TMINUS7 September, 1990			
Variable		Mean		Cases
For Entire Po	pulation	.6278	.8404	266
DEPMEAS	1 TOTAL TIME INDEX		1.1089	88
DEPMEAS	2 FREQUENCY INDEX	. 5955		89
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5281	.6412	89
Total Cases				
Missing Cases	= 13 OR 4.7 PCT.			
Summaries of	TMINUS6 October, 1990			
Variable		Mean		Cases
For Entire Po	pulation	.6786	1.0312	266
DEPMEAS	1 TOTAL TIME INDEX	.8125	1.4270	88
DEPMEAS	2 FREQUENCY INDEX	.6517		89
DEPMEAS	3 SHORT TERM INDEX	.5730	.7368	89
Total Cases	= 279			
Missing Cases	= 13 OR 4.7 PCT.			
Summaries of	TMINUS5 November, 1990			
Variable	Value Label	Mean	Std Dev	Cases ;
For Entire Po		.6747	1.1841	269
DEPMEAS	1 TOTAL TIME INDEX	.9831	1.7717	89
DEPMEAS	2 FREQUENCY INDEX	. 5778	.7340	90
DEPMEAS	3 SHORT TERM INDEX	.4667	.6569	90
Total Cases	= 279			
Missing Cases	= 10 OR 3.6 PCT.			

Summaries of	TMINUS4 December, 199	0		
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.6710		269
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.9157	2.3138	
DEPMEAS	2 FREQUENCY INDEX	. 5778	.8609	90
DEPMEAS	3 SHORT TERM INDEX	. 5222	.8510	
Total Cases	= 279			
Missing Cases	= 10 OR 3.6 PCT.			
Summaries of	TMINUS3 January, 1991			
	Value Label	Mean	Std Dev	
For Entire Po	pulation	.7621	1.7030	269
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.2022	2.7362	89
DEPMEAS	2 FREQUENCY INDEX	.6000	.7465	90
DEPMEAS	3 SHORT TERM INDEX	.4889	.6909	90
Total Cases	= 279			
Missing Cases	= 10 OR 3.6 PCT.			
Summaries of	TMINUS2 February, 1991			
	Value Label		Std Dev	Cases
For Entire Po	pulation	.8442	1.5378	269
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.2416	2.4134	89
DEPMEAS	2 FREQUENCY INDEX	.6811	.7430	90
		.6144	.7563	90
Total Cases	= 279			
Missing Cases	= 10 OR 3.6 PCT.			
Summaries of	TMINUS1 March, 1991			
Variable	Value Label	Mean		Cases
For Entire Po	pulation	. 5074	.8767	269
DEPMEAS	1 TOTAL TIME INDEX	.6573	1.2004	89
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4667		90
		.4000	.6325	90
DEPMEAS	3 SHORT TERM TRUEA		10585	
DEPMEAS Total Cases			10525	

	Value Label	Mean		
For Entire Po	pulation	.6109	.8583	275
	1 TOTAL TIME INDEX	.7473		
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	. 5652	.7001	92
DEPMEAS	3 SHORT TERM INDEX	. 5217		92
Total Cases	= 292			
Missing Cases	= 17 OR 5.8 PCT.			
Summaries of	TPLUS1 May, 1991			
	Value Label		Std Dev	Cases
For Entire Po	pulation	.6911	1.0983	280
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.8641	1.6360	92
DEPMEAS	2 FREQUENCY INDEX	.6277		94
DEPMEAS	3 SHORT TERM INDEX	.5851	.6785	94
Total Cases	= 292			
Missing Cases	= 12 OR 4.1 PCT.			
Summaries of	TPLUS2 June, 1991			
	Value Label		Std Dev	
For Entire Pop	pulation	.6413	1.4197	283
DEPMEAS	1 TOTAL TIME INDEX	.9301	2.2392	93
DEPMEAS	2 FREQUENCY INDEX	. 5263	. 7122	95
DEPMEAS	3 SHORT TERM INDEX	.4737	.7122	95
Total Cases	= 292 = 9 OR 3.1 PCT.			
Missing Cases	= 9 OR 3.1 PCT.			
Summaries of	TPLUS3 July, 1991			
	Value Label	Mean	Std Dev	Cases
For Entire Pop	pulation	.6661	1.8866	283
DEPMEAS	1 TOTAL TIME INDEX	1.1452		93
DEPMEAS	2 FREQUENCY INDEX	.4737	.6971	95
DEPMEAS	3 SHORT TERM INDEX	.3895	.6239	95
Total Cases	= 292 = 9 OR 3.1 PCT.			

Variable Value Label Mean Std Dev Cases For Entire Population	Summaries of	TPLUS4 August, 1991			
For Entire Population .643 2.3023 283 DEFMEAS 1 TOTAL THE INDEX .6643 2.3023 283 DEFMEAS 2 FREQUENCY INDEX .4421 .7851 95 Total Cases 292 Missing Cases 9 0R 3.1 PCT. Summaries of TPLUBS Ceptember, 1991 Variable Value Label Mean Std Dov Cases For Entire Population .7036 1.4335 280 DEFMEAS 2 FREQUENCY INDEX .5213 .6391 94 Total Cases 2 32 Missing Cases 1 2 0R 4.1 PCT. Summaries of TPLUBS October, 1991 Variable Value Label Mean Std Dov Cases For Entire Population .7446 1.4002 280 DEFMEAS 1 TOTAL THE INDEX .5523 .6391 94 Total Cases 2 32 Missing Cases 1 2 0R 4.1 PCT. Summaries of TPLUSE October, 1991 Variable Value Label Mean Std Dov Cases For Entire Population .7446 1.4002 280 DEFMEAS 2 FREQUENCY INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .6517 94 DEFMEAS 2 FREQUENCY INDEX .5000 .6517 94 DEFMEAS 3 SHORT TEM INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .6517 94 DEFMEAS 3 SHORT TEM INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .6517 94 DEFMEAS 3 SHORT TEM INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .6517 94 DEFMEAS 1 TOTAL THE INDEX .5000 .517 94 DEFMEAS 3 SHORT TEM INDEX .5000 .514 94 DEFMEAS 1 TOTAL THE INDEX .5000 .514 94 DEFMEAS 1 TOTAL THE INDEX .546 .542 94	Variable	Value Label	Mean	Std Dov	Canan
Total Cases = 292 Missing Cases = 9 OR 3.1 PCT. Summaries of TPLUBS Ceptember, 1991 Variable Value Label For Entire Population	For Entire Po	pulation	.6943	2.3023	
Total Cases = 292 Missing Cases = 9 OR 3.1 PCT. Summaries of TPLUBS Ceptember, 1991 Variable Value Label For Entire Population	DEPMEAS	1 TOTAL TIME INDEX	1.2957	3.8180	93
Total Cases = 292 Missing Cases = 9 OR 3.1 PCT. Summaries of TPLUBS Ceptember, 1991 Variable Value Label For Entire Population	DEPMEAS	2 FREQUENCY INDEX	.4421	7951	05
Summaries of TPLUSS Ceptember, 1991 Variable Value Label	DEPMEAS	3 SHORT TERM INDEX	.3579	.6829	95
Summaries of TPLUSS Ceptember, 1991 Variable Value Label	Total Cases	= 292			
Variable Value Label Mean Std Dov Cases For Entire Population .7034 1.4535 280 DEFMEAS 1 FFCUENCY INDEX .7036 1.4535 280 DEFMEAS 2 FFECUENCY INDEX .5057 .7379 94 DEFMEAS 3 SIGKT FERM INDEX .5557 .7379 94 Total Cases = 232	Missing Cases	= 9 OR 3.1 PCT.			
For Entire Population .7036 1.4335 280 DEFMENAS 1 FORDLWTHE HUDEX .60507 2.993 93 DEFMENAS 3 SHORT TERM INDEX .50507 .2991 93 DEFMENAS 3 SHORT TERM INDEX .50507 .2991 94 Total Cases = 292 .5213 .6891 94 JERMENAS 12 OR 4.1 PCT. .5213 .6891 Summaries of TPLUSSE October, 1991 Variable Mean 5td Dev Cases For Entire Population .7446 1.4002 280 DEPMENS 1 TOTAL TIME INDEX .6064 .7817 94 DEPMENS 2 FRACUMENT INDEX .6064 .6317 94 DEPMENS 3 SHORT TEM INDEX .5000 .6517 94 DEPMENS 12 OR 4.1 PCT. .5000 .6517 94 Summaries of TPLUST November, 1991 .5000 .6517 94 Variable Value Label Mean .604 .9991 280 DEPMENS 1 TOTAL TIME INDEX .6364 .5991 .280 DEPMENS 1 TOTAL TIME INDEX .6146 .991 .280 DEPMENS 1 TOTAL TIME INDEX .6246 .6342 <td>Summaries of</td> <td>TPLUS5 Ceptember, 1991</td> <td></td> <td></td> <td></td>	Summaries of	TPLUS5 Ceptember, 1991			
For Entire Population .7016 1.4335 2800 DEFMEAS 1 TOTAL TIME INDEX 1.0000 2.2991 92 DEFMEAS 2 FEQUENCY INDEX .5957 .7379 94 DEFMEAS 3 SIGKT FEM INDEX .5957 .7379 94 TOCAL Cases 3 SIGKT FEM INDEX .5957 .7379 94 TOCAL Cases 3 SIGKT FEM INDEX .5213 .6991 94 TOCAL Cases 12 OR 4.1 PCT. .6991 94 Variable Value Label Mean 5td Dev Cases For Entire Population .7446 1.4002 280 DEFMEAS 1 FMCUNCY INDEX .6504 .7819 94 Total Cases 12 OR 4.1 PCT. .5000 .6317 94 Total Cases 12 OR 4.1 PCT. .5000 .6317 280 DEFMEAS 1 TOTAL TIME INDEX .604 .5931 280 DEFMEAS 1 TOTAL TIME INDEX .6104 .5931 280 DEFME	Variable	Value Label	Mean	Std Dev	Cases
DEPREAS 2 FREQUENCY INDEX .5957 .7375 94 DEPREAS 3 SIGKT TERM INDEX .5913 .6991 94 Total Cases 222 Missing Cases 12 0R 4.1 PCT. Summaries of TPLUS& October, 1991 Variable Value Label Mean 5td Dev Cases For Entire Population .7446 1.4002 2800 DEPREAS 1 TOTAL TIME INDEX .6064 .1217 94 DEPREAS 2 FREQUENCY INDEX .6064 .1217 94 DEPREAS 1 TOTAL TIME INDEX .5000 .6517 94 Total Cases = 222 Missing Cases 12 0R 4.1 PCT. Summaries of TPLUST November, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6504 .5951 280 DEPREAS 1 TOTAL TIME INDEX .5604 .5951 280 DEPREAS 3 SHORT TERM INDEX .5604 .5951 280 DEPREAS 1 TOTAL TIME INDEX .5604 .5951 280 DEPREAS 1 TOTAL TIME INDEX .5604 .6342 94 Total Cases = 252	For Entire Po	pulation	.7036	1.4535	280
Total Cases = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TFLUSE October, 1991 Variable Value Label - 7446 1.4002 280 DEPMEAS 1 TOTAL TIME HDEX .6066 .7819 92 DEPMEAS 2 FREQUENCY INDEX .6066 .7819 94 Total Cases = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TFLUST November, 1991 Variable Value Label - 6304 .5931 280 DEPMEAS 1 TOTAL TIME HDEX .604 .5931 280 DEPMEAS 2 FREQUENCY INDEX .5426 .6034 92 DEPMEAS 1 FOR THE HDEX .5426 .6034 92 DEPMEAS 3 SHORT TEMP HDEX .5426 .6034 94 DEPMEAS 3 SHORT TEMP HDEX .5426 .6034 94		1 TOTAL TIME INDEX		2.2991	92
Total Cases = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TFLUSE October, 1991 Variable Value Label - 7446 1.4002 280 DEPMEAS 1 TOTAL TIME HDEX .6066 .7819 92 DEPMEAS 2 FREQUENCY INDEX .6066 .7819 94 Total Cases = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TFLUST November, 1991 Variable Value Label - 6304 .5931 280 DEPMEAS 1 TOTAL TIME HDEX .604 .5931 280 DEPMEAS 2 FREQUENCY INDEX .5426 .6034 92 DEPMEAS 1 FOR THE HDEX .5426 .6034 92 DEPMEAS 3 SHORT TEMP HDEX .5426 .6034 94 DEPMEAS 3 SHORT TEMP HDEX .5426 .6034 94		2 FREQUENCY INDEX	. 5957	.7379	94
Summaries of TFLUS6 October, 1991 Variable Value Label Mean Std Dev Cases For Entire Population 1.1358 2.1928 92 DEFMEAS 1 TOTAL TIME INDEX .5000 .6517 94 Total Cases 292 Missing Cases 1 12 OR 4.1 PCT. Summaries of TFLUS7 November, 1991 Variable Value Label Mean Std Dev Cases .5000 .6517 94 Summaries of TFLUS7 November, 1991 Variable Value Label .5000 .5991 280 DEPMEAS 1 TOTAL TIME INDEX .5426 .5019 280 DEPMEAS 2 FREQUENCY INDEX .5426 .5032 92 DEPMEAS 3 SNORT TEM INDEX .5456 92 DEPMEAS 3 SNORT TEM INDEX .5456 92 DEPMEAS 3 SNORT TEM INDEX .5451 .5032 94	DEPMEAS	3 SHORT TERM INDEX	. 5213	.6991	94
Summaries of TFLUS6 October, 1991 Variable Value Label Mean Std Dev Cases For Entire Population 1.1358 2.1928 92 DEFMEAS 1 TOTAL TIME INDEX .5000 .6517 94 Total Cases 292 Missing Cases 1 12 OR 4.1 PCT. Summaries of TFLUS7 November, 1991 Variable Value Label Mean Std Dev Cases .5000 .6517 94 Summaries of TFLUS7 November, 1991 Variable Value Label .5000 .5991 280 DEPMEAS 1 TOTAL TIME INDEX .5426 .5019 280 DEPMEAS 2 FREQUENCY INDEX .5426 .5032 92 DEPMEAS 3 SNORT TEM INDEX .5456 92 DEPMEAS 3 SNORT TEM INDEX .5456 92 DEPMEAS 3 SNORT TEM INDEX .5451 .5032 94	Total Cases	= 292			
Variable Value Label Mean Std Dev Cases For Entire Population 7446 1.4002 280 DEPMEAS 1 TOTAL TIME INDEX 1.135 2.1328 92 DEPMEAS 2 FREQUENCY INDEX .6064 .7317 94 DEPMEAS 3 SHORT FEEM INDEX .5000 .6517 94 Total Cases = 222 Missing Cases = 12 OR 4.1 PCT. Summaries of TPLUST November, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6304 .9991 280 DEPMEAS 1 TOTAL TIME INDEX .5426 .6503 92 DEPMEAS 2 FREQUENCY INDEX .5426 .6514 92 DEPMEAS 3 SHORT FEM INDEX .5451 .6342 94 Total Cases = 222	Missing Cases	= 12 OR 4.1 PCT.			
For Entire Population .7446 1.4002 2800 DEBMEMS 1 TOTAL TIME INDEX 1.1352 1.936 92 DEBMEMS 1 FROUNCY INDEX 6.054 7.217 94 DEBMEMS 3 SHORT TERM INDEX 5.000 .6517 94 Total Cames = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TPLUST November, 1991 Variable .6304 .5931 280 DEPMEMS 1 TOTAL TIME INDEX .6304 .5931 280 .6304 .9911 280 DEPMEMS 1 TOTAL TIME INDEX .6454 .6342 94 DEPMEMS 1 TOTAL TIME INDEX .4524 .6504 .6342 94 DEPMEMS 2 FREQUENCY INDEX .5425 .6504 .94 .94 DEPMEMS 3 SHORT TERM INDEX .4651 .6342 94	Summaries of	TPLUS6 October, 1991			
POT ENLITE POPULATION	Variable	Value Label	Mean	Std Dev	Cases
DEPHEAS 2 FRAQUENCY INDEX .6064 .7217 94 DEPHEAS 3 SHORT TERM INDEX .5000 .6517 94 Total Canes = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TPLUS7 November, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6304 .9991 280 DEPHEAS 1 TOTAL TIME INDEX .5426 .6503 92 DEPHEAS 2 FRAQUENCY INDEX .5426 .6514 92 DEPHEAS 3 SHORT TERM INDEX .4661 .6342 94 Total Cases = 292	For Entire Po	pulation	.7446	1.4002	280
DEPHEAS 2 FRAQUENCY INDEX .6064 .7217 94 DEPHEAS 3 SHORT TERM INDEX .5000 .6517 94 Total Canes = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TPLUS7 November, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6304 .9991 280 DEPHEAS 1 TOTAL TIME INDEX .5426 .6503 92 DEPHEAS 2 FRAQUENCY INDEX .5426 .6514 92 DEPHEAS 3 SHORT TERM INDEX .4661 .6342 94 Total Cases = 292	DEPMEAS	1 TOTAL TIME INDEX	1.1359	2.1928	92
Total Cases = 292 Missing Cases = 12 OR 4.1 PCT. Summaries of TPLUS7 November, 1991 Variable Value Label Mean Std Dev Cases ; For Entire Population .6304 .5991 280 DEPMENS 1 TOTAL TIME INDEX .5425 .6503 94 DEFMENS 3 SHORT TEEM INDEX .5425 .6503 94 DEFMENS 3 SHORT TEEM INDEX .4651 .6342 94 Total Cases = 292	DEPMEAS	2 FREQUENCY INDEX	.6064	.7217	94
Missing Cases = 12 OR 4.1 PCT. Summaries of TPLUS7 November, 1991 Variable Value Label Mean Std Dev Cases ; For Entire Population .6304 .9991 280 DESPHEAS 1 TOTAL TIME INDEX .5426 .6503 DESPHEAS 2 FRGUENCY INDEX .5426 .6514 92 DESPHEAS 3 SHORT TEEM INDEX .4661 .6342 94 Total Cases = 292	DEPMEAS	3 SHORT TERM INDEX	. 5000	.6517	94
Summaries of TPLUS7 November, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6304 .9991 280 DEPMEAS 1 TOTAL TIME INDEX .6859 1.4546 92 DEPMEAS 3 SUCR TERM INDEX .5426 .6503 94 DEPMEAS 3 SUCR TERM INDEX .4661 .6342 94 Total Cases = 292	Total Cases	= 292			
Variable Value Label Mean Std Dev Cases Cases For Entire Population .6304 .9991 280 DESMENS 1 TOTAL TIME INDEX .6859 1.4546 92 DESMENS 2 FREQUENCY INDEX .5426 .6503 94 DESMENS 3 SHORY TEM INDEX .5426 .6503 94 DESMENS 1 SHORY TEM INDEX .4661 .6342 94 Total Cases 222 2 	Missing Cases	= 12 OR 4.1 PCT.			
For Entire Population .6304 .9991 280 DEPMEAS 1 TOTAL TIME INDEX .8859 1.4846 92 DEPMEAS 2 FREQUENCY INDEX .5426 .6503 94 DEPMEAS 3 SUCKT TEMM INDEX .4661 .6342 94 Total Cases 2 22 	Summaries of	TPLUS7 November, 1991			
For Entire Population .6304 .9991 280 DEPMEAS 1 TOTAL THME INDEX .8859 1.4546 92 DEPMEAS 2 FREQUENCY INDEX .5426 .6503 94 DEPMEAS 3 SHORT TEAM INDEX .4661 .6342 94 Total Cases 2 22 			Mean	Std Dev	Cases i
DEPMERAS 2 FREQUENCY INDEX .5426 .6503 94 DEPMERS 3 SHORT TERM INDEX .4661 .6342 94 Total Cases = 292	For Entire Po	pulation	.6304	.9991	280
DEPMERAS 2 FREQUENCY INDEX .5426 .6503 94 DEPMERS 3 SHORT TERM INDEX .4661 .6342 94 Total Cases = 292	DEPMEAS	1 TOTAL TIME INDEX	.8859	1.4546	92
Total Cases = 292	DEPMEAS	2 FREQUENCY INDEX			
Total Cases = 292 Missing Cases = 12 OR 4.1 PCT.	DEPMEAS	3 SHORT TERM INDEX	.4681	.6342	94
Missing Cases = 12 OR 4.1 PCT.	Total Cases	= 292			
	Missing Cases	= 12 OR 4.1 PCT.			

Summaries of	TPLUS8 December, 1991			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po		.5179	.8918	280
DEPMEAS	1 TOTAL TIME INDEX	.6630	1.1978	92
DEPMEAS	2 FREQUENCY INDEX	.4681	.6987	94
DEPMEAS	3 SHORT TERM INDEX	.4255	.6798	94
Total Cases	= 292			
Missing Cases	= 12 OR 4.1 PCT.			
Summaries of	TPLUS9 January, 1992			
	Value Label		Std Dev	
For Entire Po	pulation	.5482	1.3462	280
DEPMEAS	1 TOTAL TIME INDEX	.8533	2.1529	92
DEPMEAS	2 FREQUENCY INDEX	.4255	.6306	94
DEPMEAS	3 SHORT TERM INDEX	.3723	.6044	94
Total Cases	- 292			
Missing Cases	= 12 OR 4.1 PCT.			
Summaries of	TPLUS10 February, 1992			
Variable		Mean	Std Dev	Cases
For Entire Po	pulation	.4589	.9852	280
DEPMEAS	1 TOTAL TIME INDEX	.7011		92
DEPMEAS	2 FREQUENCY INDEX	.3723	.5677	94
DEPMEAS	3 SHORT TERM INDEX	.3085	. 5293	94
Total Cases	= 292 = 12 OR 4.1 PCT.			
Missing Cases	= 12 OR 4.1 PCT.			
Summaries of	TPLUS11 March, 1992			
Variable	Value Label	Mean	Std Dev	Cases i
For Entire Po		.6304	1.3652	280
DEPMEAS	1 TOTAL TIME INDEX	.9185		92
DEPMEAS	2 FREQUENCY INDEX	. 5213	.6677	94
DEPMEAS	3 SHORT TERM INDEX	.4574	.6503	94
Total Cases	= 292			
Missing Cases	= 12 OR 4.1 PCT.			

Summaries of	TPLUS12 April, 1992			
	Value Label	Mean	Std Dev .9410	Cases
For Entire Po	pulation	.6390	.9410	277
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7033	1.1229	91
DEPMEAS	2 FREQUENCY INDEX	.6237	.8459	93
DEPMEAS	3 SHORT TERM INDEX	. 5914	.8459	93
Total Cases	= 289 = 12 OR 4.2 PCT.			
Missing Cases	= 12 OR 4.2 PCT.			
Summaries of	TPLUS13 May, 1992			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.6375	.9587	280
DEPMEAS	1 TOTAL TIME INDEX		1.3313	92
DEPMEAS	2 FREQUENCY INDEX	.5851	.7245	94
DEPMEAS	3 SHORT TERM INDEX	.5106	.6679	94
Total Cases	= 289 = 9 OR 3.1 PCT.			
Missing Cases	= 9 OR 3.1 PCT.			
Summaries of	TPLUS14 June, 1992			
Variable	Value Label	Mean	Std Dev 1.0558	Cases
For Entire Po	pulation	.6036	1.0558	280
DEPMEAS	1 TOTAL TIME INDEX	.7391	1.5397 .7276 .6836	92
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5532	.7276	94
DEPMEAS	3 SHORT TERM INDEX	. 5213	.6836	94
Total Cases	= 289			
Missing Cases	= 9 OR 3.1 PCT.			
Summaries of	TPLUS15 July, 1992			
	Value Label	Mean	Std Dev	Cases i
For Entire Po	pulation	.6821	1.7757	280
DEPMEAS	1 TOTAL TIME INDEX	1.0435	2.9067	92
DEPMEAS	2 FREQUENCY INDEX 3 SHORY TERM INDEX	.5426	.7134	94
DEPMEAS	3 SHORT' TERM INDEX	.4681	.6987	94
Total Cases	= 289			
Missing Cases	= 9 OR 3.1 PCT.			

Summaries of	TPLUS16 August, 1992			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po		. 3893	.7395	
DEPMEAS	1 TOTAL TIME INDEX	.4565	.9540	92
DEPMEAS	2 FREQUENCY INDEX	. 3723	.6390	94
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.3404	.5783	94
Total Cases	s = 289			
Missing Cases	9 OR 3.1 PCT.			
Summaries of	TPLUS17 September, 1992			
	Value Label	Mean	Std Dev	
For Entire Po	pulation	.6516	1.0128	277
DEPMEAS	1 TOTAL TIME INDEX	.8077	1.3840	
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	. 6022	.76"1	
DEPMEAS	3 SHORT TERM INDEX	. 5484	.75>2	93
Total Cases	= 289			
Missing Cases	= 12 OR 4.2 PCT.			
Summaries of	TPLUS18 October, 1992			
Variable		Mean	Std Dev	Cases
For Entire Po	pulation	. 5686	1.6321	277
DEPMEAS	1 TOTAL TIME INDEX	. 9066	2.6935	91
DEPMEAS		.4301	.6150	93
DEPMEAS	3 SHORT TERM INDEX	. 3763	.5882	93
Total Cases	= 289			
Missing Cases	= 12 OR 4.2 PCT.			
Summaries of	TPLUS19 November, 1992	2		
Variable	Value Label	Mean	Std Dev	Cases 1
For Entire Pop	pulation	.6911		280
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.0054	2.7809	92
DEPMEAS	2 FREQUENCY INDEX	. 5638	.7267	94
DEPMEAS	3 SHORT TERM INDEX	. 5106	.7146	94
Total Cases	= 289 = 9 OR 3.1 PCT.			
Missing Cases	= 9 OR 3.1 PCT.			

Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.6821	1.4807	280
DEPMEAS 1 TOTAL TIME INDEX	.8804	2.3410	92
DEPMEAS 2 FREQUENCY INDEX	. 5957	.7665	94
DEPMEAS 3 SHORT TERM INDEX	. 5745		
Total Cases = 289			
Missing Cases = 9 OR 3.1 PCT.			
Summaries of TPLUS21 January, 1993			
Variable Value Label	Mean		Cases
For Entire Population	.6982	1.1659	280
DEPMEAS 1 TOTAL TIME INDEX	1.0272	1.7718	92
DEPMEAS 2 FREQUENCY INDEX	. 5745	.6638	94
DEPMEAS 3 SHORT TERM INDEX	. 5000	.6350	94
Total Cases = 289 Missing Cases = 9 OR 3.1 PCT.			
Missing Cases = 9 OR 3.1 PCT.			
Summaries of TPLUS22 February, 1993			
Variable Value Label	Mean	Std Dev	Cases
	Mean .5571	Std Dev 1.3083	Cases 280
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX	.5571		280
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX	.5571	1.3083	280
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX	.5571	1.3083	280
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX Total Cases = 289	.5571 .8804 .4574	1.3083 2.0654 .6666	280 92 94
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.5571 .8804 .4574	1.3083 2.0654 .6666	280 92 94
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX Total Cases = 289	.5571 .8804 .4574	1.3083 2.0654 .6666	280 92 94
Variable Value Label For Entire Population DERMMAS 1 TOTAL TIME INDEX DERMAS 2 FREQUENCY INDEX DERMEAS 3 SHORT TERM INDEX Total Cames 249 Missing Cases 9 0R 3.1 FCT. Summaries of TPLU523 March, 1993	.5571 .8804 .4574	1.3083 2.0654 .6666 .5966	280 92 94 94
Variable Value Label Por Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TEAM INDEX Total Cases 289 dissing Cases 9 OR 3.1 PCT. Summaries of TPLU523 March, 1993 Variable Value Label	.5571 .8804 .4574 .3404	1.3083 2.0654 .6666 .5966	280 92 94 94
Variable Value Label Por Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM HODEX Total Cases 209 Hissing Cases 9 OR 3.1 PCT. Summarites of TPLUS23 March, 1993 Variable Value Label Por Entire Population DEPMEAS 1 TOTAL TIME INDEX	.5571 .8804 .4574 .3404 Mean	1.3083 2.0654 .6666 .5966 Std Dev	280 92 94 94 94
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX Total Cases = 289 Missing Cases = 9 OR 3.1 PCT. Summaries of TPLUS23 March, 1993 Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 1 TOTAL TIME INDEX	.5571 .8804 .4574 .3404 Mean .7000	1.3083 2.0654 .6666 .5966 Std Dev 1.4184	280 92 94 94 94 94 04 94 04 94 04 94 04 94 04 92
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX Total Cames = 289 Missing Cames = 9 OR 3.1 PCT. Summarises of TPLUS23 March, 1993 Variable Value Label Por Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 1 FORAL TIME INDEX	.5571 .8804 .4574 .3404 Mean .7000 .9130	1.3083 2.0654 .6666 .5966 Std Dev 1.4184 2.1884	280 92 94 94 94 94 Cases 280 92 94
Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX Total Cases = 289 Missing Cases = 9 OR 3.1 PCT. Summaries of TPLUS23 March, 1993 Variable Value Label For Entire Population DEPMEAS 1 TOTAL TIME INDEX DEPMEAS 1 TOTAL TIME INDEX	.5571 .8804 .4574 .3404 Mean .7000 .9130 .6170	1.3083 2.0654 .6666 .5966 Std Dev 1.4184 2.1884 .8179	280 92 94 94 94 94 Cases 280 92 94

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Appendix D

TTI, FI and STI measures for The Department of Employment and Labour Relations SPSS/PC PRINTOUT OF TOTAL TIME, FREQUENCY AND SHORT TERM INDICES FOR THE DEPARTMENT OF EMPLOYMENT AND LABOUR RELATION

Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	opulation	.6193	1.3288	176
DEPMEAS	1 TOTAL TIME INDEX	.8448	1.3288 2.0989	58
DEPMEAS	2 FREQUENCY INDEX	. 5333	7003	60
DEDMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	. 5333	.6554	58
Total Cases	= 239			
Missing Cases	s = 63 OR 26.4 PCT.			
Summaries of	TMINUS23 May, 1989			
	Value Label	Mean		
For Entire Po	opulation	. 5540	.7319	176
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	. 5948		
DEPMEAS	2 FREQUENCY INDEX	. 5333	.6756	60
DEPMEAS	3 SHORT TERM INDEX	. 5345	.6547	58
Total Cases	3 = 239			
Missing Cases	= 63 OR 26.4 PCT.			
Summaries of	TMINUS22 June, 1989			
Variable	Value Label		Std Dev	
Variable	Value Label		Std Dev .8419	179
Variable For Entire Po	Value Label opulation	.7626	.8419	179
Variable For Entire Po	Value Label opulation	.7626	.8419	179
Variable For Entire Po	Value Label	.7626	.8419	179
Variable For Entire Po DE: MEAS DEPMEAS DEPMEAS	Value Label pulation 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7626	.8419	179
Variable For Entire Po DE: MEAS DEPMEAS DEPMEAS	Value Label opulation	.7626	.8419	179
Variable For Entire Po DELMEAS DEPMEAS DEPMEAS Total Cases Missing Cases	Value Label pulation 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7626	.8419	179
Variable For Entire PC DELMEAS DEPMEAS Total Cases Missing Cases Summaries of	Value Label pultion 1 TOTAL THE INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX 2 239 2 60 OR 25.1 PCT. TMINUS21 July, 1989	.7626 .9576 .6885 .6441	.8419 1.1306 .6466 .6369	179 59 61 59
Variable For Entire Po DELMEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Variable	Value Label pulation 1 TOTAL THE INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX 4 239 6 00 OR 25.1 PCT. TMINUS21 July, 1989 Value Label	. 7626 . 9576 . 6885 . 6441 Mean	.8419 1.1306 .6466 .6369 Std Dev	179 59 61 59 Cases
Variable For Entire Po DELMEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Variable	Value Label pulation 1 TOTAL THE INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX 4 239 6 00 OR 25.1 PCT. TMINUS21 July, 1989 Value Label	.7626 .9576 .6885 .6441 Mean .4886	.8419 1.1306 .6466 .6369 Std Dev .7873	179 59 61 59 59 Cases 176
Variable For Entire Po DE.MEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Variable For Entire Po	Value Label pulation 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SNORT TERM INDEX 4 219 6 00 OR 25.1 PCT. TMINUSC1 July, 1989 Value Label pulation 1 TOTAL TIME INDEX	.7626 .9576 .6885 .6441 .4886 .5690	.8419 1.1306 .6466 .6369 Std Dev .7873	179 59 61 59 Cases 176 58
Variable For Entire Pc DELMEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Variable For Entire Pc DEPMEAS	Value Label pulation 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SNORT TERM INDEX 4 219 6 00 OR 25.1 PCT. TMINUSC1 July, 1989 Value Label pulation 1 TOTAL TIME INDEX	.7626 .9576 .6885 .6441 .4886 .5690	.8419 1.1306 .6466 .6369 Std Dev .7873 1.0490 .6223	179 59 61 59 Cases 176 58 60
Variable For Entire Pc DE: MEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Variable For Entire Pc DEPMEAS	Value Label pulation 1 TOTAL THE INDEX 2 FREQUENCY INDEX 3 SNGRT TERM INDEX 5 60 OR 25.1 PCT. TMINUS21 July, 1989 value Label pulation	.7626 .9576 .6885 .6441 .4886 .5690	.8419 1.1306 .6466 .6369 Std Dev .7873 1.0490 .6223	179 59 61 59 Cases 176 58 60
Variable For Entire Fo DE:MEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Variable For Entire Fo DEPMEAS DEPMEAS DEPMEAS Total Cases	Value Label pulation 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX 4 60 OR 25.1 PCT. TMINU521 July, 1989 Value Label pulation 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.7626 .9576 .6885 .6441 .4886 .5690	.8419 1.1306 .6466 .6369 Std Dev .7873 1.0490 .6223	179 59 61 59 Cases 176 58 60

Summaries of	TMINUS20 August, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.7291	1.3167	179
DEPMEAS	1 TOTAL TIME INDEX	1.0085	1.9859	59
DEPMEAS	2 FREQUENCY INDEX	.6129	.7758	62
DEPMEAS	3 SHORT TERM INDEX	.5690	.7972	58
Total Cases	= 239			
Missing Cases	= 60 OR 25.1 PCT.			
Summaries of	TMINUS19 September, 1989			
Variable		Mean		Cases
For Entire Po	pulation	.5615	.9768	179
DEPMEAS	1 TOTAL TIME INDEX	.7881	1.3747	59
DEPMEAS	2 FREQUENCY INDEX	.5000	.7186	62
DEPMEAS	3 SHORT TERM INDEX	.3966	.6473	58
Total Cases Missing Cases	= 239			
Missing Cases	= 60 OR 25.1 PCT.			
Summaries of	TMINUS18 October, 1989			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Pop	oulation	.5754	.9605	179
DEPMEAS	1 TOTAL TIME INDEX	.7458		59
DEPMEAS	2 FREQUENCY INDEX	.5161	.7184	62
DEPMEAS	3 SHORT TERM INDEX	.4655	.6810	58
Total Cases Missing Cases	= 239			
Missing Cases	= 60 OR 25.1 PCT.			
Summaries of	TMINUS17 November, 1989			
Variable	Value Label	Mean	Std Dev	Cases i
For Entire Pop	oulation	.7363	1.2165	182
DEPMEAS	1 TOTAL TIME INDEX	1.0333	1.8614	60
DEPMEAS	2 FREQUENCY INDEX	.6190	.7055	63
DEPMEAS	3 SHORT TERM INDEX	.5593	.6505	59
Total Cases				
Missing Cases	= 57 OR 23.8 PCT.			

Summaries of					
	TMINUS16	December, 1989			
Variable	Value La	bel	Mean	Std Dev	Cases
For Entire Po	pulation		.6099		
and a second second					
DEPMEAS	1 10	TAL TIME INDEX EQUENCY INDEX DRT TERM INDEX	.8000		
DEPMEAS	2 FR	EQUENCY INDEX	.5397	.7145	
DEPMEAS	3 SH0	ORT TERM INDEX	.4915	.7040	59
Total Cases	= 239	OR 23.8 PCT.			
tissing Cases	= 57	OR 23.8 PCT.			
Summaries of	TMINUS15	January, 1990			
Jariable	Value Lak	bel	Mean	Std Dev	Canes
For Entire Po	pulation		.7713	1.4998	188
EPMEAS	1 TO	TAL TIME INDEX EQUENCY INDEX ORT TERM INDEX	1.2742	2.3253	62
DEPMEAS	2 FRI	EQUENCY INDEX	.5846	.7684	65
DEPMEAS	3 SH0	ORT TERM INDEX	.4590	.6970	61
Total Cases	= 239				
lissing Cases	a 51	OR 21.3 PCT.			
Summaries of	TMINUS14	February, 1990			
/ariable	Value Lab	bel	Mean	Std Dev	Cases
/ariable	Value Lab	bel		Std Dev 1.6701	
Variable For Entire Po	Value Lab pulation	bel	.6990	1.6701	191
Variable For Entire Po	Value Lab pulation	bel	.6990	1.6701	191
Variable For Entire Po	Value Lab pulation	bel	.6990	1.6701 2.7113 .7045	191 63 66
Variable For Entire Po	Value Lab pulation 1 TOT 2 FRH 3 SHC	Del TAL TIME INDEX SQUENCY INDEX DRT TERM INDEX	.6990	1.6701 2.7113 .7045	191 63 66
Variable For Entire Po DEPMEAS DEPMEAS DEPMEAS Total Cases	Value Lab pulation 1 TON 2 FRH 3 SHG = 239	Del TAL TIME INDEX SQUENCY INDEX DRT TERM INDEX	.6990	1.6701 2.7113 .7045	191 63 66
Variable For Entire Po DEPMEAS DEPMEAS DEPMEAS Total Cases Missing Cases	Value Lab pulation 1 TOT 2 FRE 3 SHC = 239 = 48	Del FAL TIME INDEX SQUENCY INDEX DRT TERM INDEX	.6990	1.6701 2.7113 .7045	191 63 66
Jariable For Entire Po DEPMEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Jariable	Value Lah pulation 1 TO7 2 FRI 3 SHO = 239 = 48 TMINUS13 Value Lah	Del TAL TIME INDEX SQUENCY INDEX SRT TERM INDEX OR 20.1 PCT. March, 1990	.6990 1.0873 .5606 .4516	1.6701 2.7113 .7045	191 63 66 62 Cases
Variable For Entire Po DEPMEAS DEPMEAS DEPMEAS Total Cases Nissing Cases Summaries of Variable	Value Lah pulation 1 TO7 2 FRI 3 SHO = 239 = 48 TMINUS13 Value Lah	Del TAL TIME INDEX SQUENCY INDEX SRT TERM INDEX OR 20.1 PCT. March, 1990	.6990 1.0873 .5606 .4516 Mean	1.6701 2.7113 .7045 .6697	191 63 66 62 Cases
Variable For Entire PC DEPMEAS DEPMEAS Total Cases Hissing Cases Nummaries of Variable For Entire Pc	Value Lah pulation 1 TO7 2 FRI 3 SHG = 239 = 48 TMINUS13 Value Lah pulation	Del TAL TIME INDEX SQUENCY INDEX OR 20.1 PCT. March, 1990 Del	.6990 1.0873 .5606 .4516 Mean .7513	1.6701 2.7113 .7045 .6697 Std Dev 1.8201 2.9713	191 63 66 62 Cases 191 63
Variable For Entire PC DEPMEAS DEPMEAS Total Cases Hissing Cases Nummaries of Variable For Entire Pc	Value Lah pulation 1 TO7 2 FRI 3 SHG = 239 = 48 TMINUS13 Value Lah pulation	Del TAL TIME INDEX SQUENCY INDEX OR 20.1 PCT. March, 1990 Del	.6990 1.0873 .5606 .4516 Mean .7513	1.6701 2.7113 .7045 .6697 Std Dev 1.8201 2.9713	191 63 66 62 Cases 191 63
Variable For Entire PC DEPMEAS DEPMEAS Total Cases Hissing Cases Nummaries of Variable For Entire Pc	Value Lah pulation 1 TO7 2 FRI 3 SHG = 239 = 48 TMINUS13 Value Lah pulation	Del TAL TIME INDEX SQUENCY INDEX SRT TERM INDEX OR 20.1 PCT. March, 1990	.6990 1.0873 .5606 .4516 Mean .7513	1.6701 2.7113 .7045 .6697 Std Dev 1.8201 2.9713 .7417	191 63 66 62 Cases 191 63 66
Variable For Entire Pc DEPMEAS DEPMEAS DEPMEAS Total Cases Missing Cases Summaries of Variable For Entire Pc DEPMEAS DEPMEAS DEPMEAS DEPMEAS DEPMEAS	Value Lab pulation 1 TO 2 FRH 3 SHG = 239 = 48 TMINUS13 Value Lab pulation 1 TOT 2 FRH 3 SHG = 239	Del TAL TIME INDEX SQUENCY INDEX OR 20.1 PCT. March, 1990 Del	.6990 1.0873 .5606 .4516 Mean .7513	1.6701 2.7113 .7045 .6697 Std Dev 1.8201 2.9713 .7417	191 63 66 62 Cases 191 63 66

Summaries of	TMINUS12 April, 1990			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.4864	1.1250	221
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6554	1.6797	74
DEPMEAS	2 FREQUENCY INDEX	.4384	.7262	73
DEPMEAS	3 SHORT TERM INDEX	.3649	.6532	74
Total Cases	= 229 = 8 OR 3.5 PCT.			
Missing Cases	= 8 OR 3.5 PCT.			
Summaries of	TMINUS11 May, 1990			
Variable		Mean	Std Dev	Cases
For Entire Po	pulation	.6516	1.0173	221
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.8784	1.4870	
DEPMEAS	2 FREQUENCY INDEX	.5616	.6452	73
DEPMEAS	3 SHORT TERM INDEX	.5135	.6462	74
Total Cases	= 229			
Missing Cases	# 8 OR 3.5 PCT.			
Summaries of	TMINUS10 June, 1990			
Variable			Std Dev	
For Entire Pop	pulation	.4932	1.4736	221
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6757	2.3950	74
DEPMEAS	2 FREQUENCY INDEX	.4384	.6452	73
DEPMEAS	3 SHORT TERM INDEX	.3649	. 5869	74 .
Total Cases	= 229 = 8 OR 3.5 PCT.			
Missing Cases	# 8 OR 3.5 PCT.			
Summaries of	TMINUS9 July, 1990			
Variable	Value Label	Mean	Std Dev	Cases 1
For Entire Pop	pulation	.5893	1.7102	224
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.9467	2.7700	
DEPMEAS	2 FREQUENCY INDEX	.4459	.7050	74
DEPMEAS	3 SHORT TERM INDEX	.3733	.6733	75
Total Cases	= 229			
Missing Cases	= 5 OR 2.2 PCT.			

Summaries of TMINUS8 August, 1990			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.7768	1.7614	224
DEPMEAS 1 TOTAL TIME INDEX	1.1733	2.8182	75
DEPMEAS 2 FREQUENCY INDEX	.6216	.7887	74
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	. 5333	.7413	
Total Cases = 229			
Missing Cases = 5 OR 2.2 PCT.			
Summaries of TMINUS7 September, 1990			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	1.0045	1.9983	224
DEPMEAS 1 TOTAL TIME INDEX	1.6933	3.2162	
DEPMEAS 2 FREQUENCY INDEX	.7297	.7271	74
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.5867	.6595	75
Total Cases = 229			
Missing Cases = 5 OR 2.2 PCT.			
Summaries of TMINUS6 October, 1990			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.9129	2.6091	224
DEPMEAS 1 TOTAL TIME INDEX		4.2966	75
DEPMEAS 2 FREQUENCY INDEX	. 5541	.6853	74
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.4000	.6576	75
Total Cases = 229			
Missing Cases = 5 OR 2.2 PCT.			
Summaries of TMINUS5 November, 1990			
Variable Value Label	Mean	Std Dev	Cases i
For Entire Population	.7969	2.1766	224
DEPMEAS 1 TOTAL TIME INDEX	1.3800		75
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.5541	.6650	74
DEPMEAS 3 SHORT TERM INDEX	.4533	. 5994	75
Total Cases = 229			
Missing Cases = 5 OR 2.2 PCT.			

Summaries of	TMINUS4 December, 1990			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Pop		.6205	.9077	224
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	.8000	1.1912	75
DEPMEAS	2 FREQUENCY INDEX	.5676	.7230	74
DEPMEAS	3 SHORT TERM INDEX	.4933	.7047	75
Total Cases	= 229			
Missing Cases	= 5 OR 2.2 PCT.			
Summaries of	TMINUS3 January, 1991			
Variable	Value Label	Mean	Std Dev	
For Entire Pop	oulation	.8259	1.0237	224
DEPMEAS	1 TOTAL TIME INDEX	1.0800	1.3706	
DEPMEAS	2 FREQUENCY INDEX	.7432	.7774	74
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6533	.7622	75
Total Cases				
Missing Cases	= 5 OR 2.2 PCT.			
Summaries of	TMINUS2 February, 1991			
Variable			Std Dev	Cases
For Entire Pop	ulation	.8705	1.1671	224
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX	1.2267	1.6507	75
DEPMEAS	2 FREQUENCY INDEX	.7703	.8032	74
DEPMEAS	3 SHORT TERM INDEX	.6133	.7333	75
Total Cases	= 229 = 5 OR 2.2 PCT.			
Missing Cases	= 5 OR 2.2 PCT.			
Summaries of	TMINUS1 March, 1991			
Variable	Value Label	Mean	Std Dev	Cases i
For Entire Pop	ulation	.7165	1.5701	224
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX		2.4736	
DEPMEAS	2 FREQUENCY INDEX	.5811	.7586	74
DEPMEAS	3 SHORT TERM INDEX	.4533	.7031	75
Total Cases	= 229			
Missing Cases	= 5 OR 2.2 PCT.			

Variable Value Label Mean Std Day Came DEPMEAS 1 TOTAL TIME INDEX 1.1216 2.4534 75 DEPMEAS 1 TOTAL TIME INDEX 1.1216 2.4534 74 DEPMEAS 1 TOTAL TIME INDEX 1.1216 2.4534 74 DEPMEAS 2 SHORT TERM INDEX 1.650 7.333 75 Total Cases = 250 Mussing Cases = 26 CM 10.4 PCT. Std Day Cases Summaries of TPLUSI May, 1991 Mean Std Day Cases For Entire Population .926 .6234 .8433 76 DERMEAS 1 TOTAL TIME INDEX .4145 .1765 .4313 DERMEAS 2 FREQUENCY INDEX .6234 .8530 77 Total Cases = 21 OK 8.4 PCT. .526 .6811 76 Summaries of TPLUS2 June, 1991 .4343 .6795 .77 .5526 .6811 76 DERMEAS 1 <th>Summaries of TOPOLICY A</th> <th>pril, 1991</th> <th></th> <th></th> <th></th>	Summaries of TOPOLICY A	pril, 1991			
For Entire Population .7614 1.5474 2224 DEPMEAS 1 TOTAL TIME INDEX .1.1216 2.4514 75 DEPMEAS 2 FREQUENCY INDEX .41131 .7313 75 DEPMEAS 3 FRORT TERM INDEX .6131 .7313 75 Total Cases = 250 R 10.4 PCT. .5600 .7396 75 Winsing Cases = 26 OR 10.4 PCT. .5600 .7396 75 Summaries of TFLUDS1 May, 1991 .9226 1.9961 .229 .269 .229 DEPMEAS 1 FOTAL TIME INDEX .4145 .1785 76 DEPMEAS 1 FOTAL TIME INDEX .4145 .1785 76 DEPMEAS 1 FOTAL TIME INDEX .4145 .6175 77 Total Cases = 210 R 8.4 PCT. .5526 .6811 76 Summaries of TFLUS2 June, 1991 .5266 .6811 76 .6795 77 Total Cases = 210 R 8.4 PCT. .5526 .6811 76 .6795 77			Mean	Std Dev	Cagoo
Total Cases = 250 Missing Cases = 26 OR 10.4 PCT. Summaries of TPLUS1 May, 1991 Veriable Value Label			. 7634	1.5474	224
Total Cases = 250 Missing Cases = 26 OR 10.4 PCT. Summaries of TPLUS1 May, 1991 Veriable Value Label	DEDMEAS 1 TOTAL	TIME INDEX	1 1216	7 4574	
Total Cases = 250 Missing Cases = 26 OR 10.4 PCT. Summaries of TPLUS1 May, 1991 Veriable Value Label	DEDMEAS 2 FREOU	ENCY INDEX	6122		
Total Cases = 250 Missing Cases = 26 OR 10.4 PCT. Summaries of TPLUS1 May, 1991 Veriable Value Label	DEDMENC 3 CHOPT	TEDM INDEY	5600		/5
Missing Cases = 26 OR 10.4 PCT. Summaries of TPLUE1 May, 1991 Variable Value Label presentine Population	DEPHEAS 3 SHORT	TENN INDEA	. 5600	.7396	75
Summaries of TPLUS1 May, 1991 Variable Value Label	Total Cases = 250				
Variable For Entire Population Mean Std Dev 2925 Std Dev 1,9215 Cages 2926 Cages 2927 Cages 2928 Cages 2928 Cages 2928 Cages 2928 Cages 2928 Cages 2929 Cages 2929 Cages 2929 Cages 2929 Cages 2929 <thcages 2929<="" th=""> <thcages< td=""><td>Missing Cases = 26 OR</td><td>10.4 PCT.</td><td></td><td></td><td></td></thcages<></thcages>	Missing Cases = 26 OR	10.4 PCT.			
For Entire Population .9236 1.9961 2239 DEPMEAS 1 FFFOURENCY INDEX .41415 3.756 .4433 DEPMEAS 1 FFFOURENCY INDEX .7368 .4433 76 DEPMEAS 3 FHOUTENCY INDEX .7368 .4433 76 DEPMEAS 3 FHOUTENCY INDEX .6234 .8590 77 Total Cases = 210 0 8.4 PCT. . . . Summaries of TPLUS2 June, 1991 . .	Summaries of TPLUS1 Ma	y, 1991			
DEPMEMS 1 TOTAL TIME INDEX 1.4145 3.1785 76 DEPMEMS 2 FEQUENCY INDEX 1.6234 48590 77 TOTAL Cases 250 Missing Cases 210 R 8.4 PCT. Summaries of TPLU52 June, 1991 Variable Value Label Mean Std Dev Cases POFE BRIF POPUlation 7751 1.7449 229 DEPMEMS 2 FERGUENCY INDEX 5526 6811 76 DEPMEMS 2 FROQUENCY INDEX 5526 6811 76 DEPMEMS 3 SHORT TERM INDEX 5456 6811 76 DEPMEMS 3 SHORT TERM INDEX 5456 6811 76 DEPMEMS 2 PROVENCY INDEX 5526 681 76 DEPMEMS 2 PROVENCY INDEX 5556 681 76 DESMEMS 2 PROVENCY INDEX 556 681 76 DESMEMS 1 TOTAL TIME INDEX 1.908 3.7154 76 DEFMEMS 1 FORT TERM INDEX 1.908 6624 77 TOTAL Cases 2 PROVENCY INDEX 1.596 6224 77 TOTAL Cases 2 PROVENCY INDEX 1.596 6234 77			Mean	Std Dev	Cases
DEFMERAS 3 SHORT TERM INDEX .6234 .8590 77 Total Cases = 250 Missing Cases = 21 OR 8.4 PCT. Summaries of TPLUS2 June, 1991 Variable Value Label Mean Std Dev Cases POF Entir Population .7751 1.7449 229 DEFMERAS 1 TOTAL TIME INDEX .5256 .6811 76 DEFMERAS 2 PEROUENT INDEX .5256 .6811 76 DEFMERAS 3 SHORT TERM INDEX .5256 .6812 77 Total Cases = 210 R 8.4 PCT. Dummaries of TPLUS3 July, 1991 Variable Value Label 6641 2.2383 Cases DEFMERAS 1 TOTAL TIME INDEX .3967 .6546 76 DEFMERAS 1 TOTAL TIME INDEX .3967 .6546 76 DEFMERAS 3 SHORT TERM INDEX .3967 .6547 77 Total Cases = 27 REQUENCY INDEX .3967 .6547 77 Total Cases = 27 REQUENCY INDEX .3967 .6547 77 Total Cases = 27 REQUENCY INDEX .3567 .6234 77 Total Cases = 250	For Entire Population		.9236	1.9961	229
DEPMEARS 3 SHORT TERM INDEX .6234 .8590 77 Total Cases = 250 Hissing Cases = 21 OR 8.4 PCT. Summaries of TPLUS2 June, 1991 Variable Value Label Mean Std Dev Cases POR Entir Population .7751 1.7449 229 DEPMEARS 1 TOTAL THE INDEX 1.3224 2.6044 76 DEPMEARS 2 PERCURY INDEX .5526 .6811 76 DEPMEARS 3 SHORT TERM INDEX .5526 .6812 77 Total Cases = 250 Greater and the second	DEPMEAS 1 TOTAL	TIME INDEX	1,4145	3.1785	76
DEFMERAS 3 SHORT TERM INDEX .6234 .8590 77 Total Cases = 250 Missing Cases = 21 OR 8.4 PCT. Summaries of TPLUS2 June, 1991 Variable Value Label Mean Std Dev Cases POF Entir Population .7751 1.7449 229 DEFMERAS 1 TOTAL TIME INDEX .5256 .6811 76 DEFMERAS 2 PEROUENT INDEX .5256 .6811 76 DEFMERAS 3 SHORT TERM INDEX .5256 .6812 77 Total Cases = 210 R 8.4 PCT. Dummaries of TPLUS3 July, 1991 Variable Value Label 6641 2.2383 Cases DEFMERAS 1 TOTAL TIME INDEX .3967 .6546 76 DEFMERAS 1 TOTAL TIME INDEX .3967 .6546 76 DEFMERAS 3 SHORT TERM INDEX .3967 .6547 77 Total Cases = 27 REQUENCY INDEX .3967 .6547 77 Total Cases = 27 REQUENCY INDEX .3967 .6547 77 Total Cases = 27 REQUENCY INDEX .3567 .6234 77 Total Cases = 250	DEPMEAS 2 FREOU	ENCY INDEX	7368	9433	76
<pre>Missing Cases = 21 OR 8.4 PCT. Summaries of TPLUS2 June, 1991 Variable Value Label</pre>	DEPMEAS 3 SHORT	TERM INDEX	.6234		
Nissing Cases = 21 OR 8.4 PCT. Summaries of TPLUS2 June, 1991 Variable Value Label					
Summaries of TPLUS2 June, 1991 Variable Value Label Mean Std Dev Cares For Shire Population 1 105 INDEX 1.3224 2.4044 76 DERMEAS 1 TOTAL TIME INDEX 1.3224 2.4044 76 DERMEAS 3 SHORT TERM INDEX 5.526 2.4044 76 Total Cares = 250 Missing Cares = 210K 8.4 PCT. Summaries of TPLUS3 July, 1991 Variable Value Label 6.441 2.3363 229 DERMEAS 1 TOTAL TIME INDEX 1.908 3.7154 76 DERMEAS 1 TOTAL TIME INDEX 1.908 3.7154 76 DERMEAS 1 TOTAL TIME INDEX 1.908 3.7154 76 DERMEAS 3 SHORT TERM INDEX 3.506 6.214 77 Total Cares = 250	local cases = 250				
Variable Value Label Mean Std Dev Cages For Entire Population 11,7459 229 EDEMEAS 1 TOTAL TIME INDEX 1.3224 2.0044 76 DEEMEAS 2 PERQUENCY INDEX .5526 .6811 76 DEEMEAS 3 SHORT TERM INDEX .4545 .6795 77 Total Cases = 250 Wissing Cases = 21 OR 8.4 PCT. Summarise of TPLUS3 July, 1991 Ariable Value Label Mean Std Dev Cases For Entire Population .6441 2.2383 229 DEFMEAS 1 TOTAL TIME INDEX .1908 3.7354 76 DEFMEAS 1 FOTAL TIME INDEX .3506 .6214 77 Total Cases = 250 Total Cases = 2 PERQUENCY INDEX .3506 .6214 77 Total Cases = 2 PERQUENCY INDEX .3506 .6214 77	hisbing cases = 21 or	0.4 FCI.			
For Entire Population .7751 1.7449 229 DEPMEAS 1 TOTAL TIME INDEX 1.3224 269 DEPMEAS 1 FROUENCY INDEX 1.526 26914 76 DEPMEAS 3 SHORT TEM INDEX .5526 26914 76 Total Cases 3 SHORT TEM INDEX .4545 .6795 77 Total Cases 21 OK 8.4 PCT. .4545 .6795 229 Summaries of TPLUS3 July, 1991 Variable .6441 2.383 229 DEFMEAS 1 TOTAL TIME INDEX .1908 .7134 76 DEFMEAS 2 PREQUENCY INDEX .3947 .6546 76 DEFMEAS 1 TOTAL TIME INDEX .1908 .7134 76 DEFMEAS 2 PREQUENCY INDEX .3947 .6546 77 Total Cases 2 PREQUENCY INDEX .3947 .6544 77 Total Cases 2 SHORT TEM INDEX .3506 .6214 77	Summaries of TPLUS2 J	une, 1991			
DEFMEAS 1 TOTAL TIME INDEX 1.3224 2.8044 76 DEFMEAS 2 FREQUENCY INDEX .5526 .8011 76 Nissing Cases = 250 Missing Cases = 21 OR 8.4 PCT. Summaries of TPLUS3 July, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6441 2.2183 229 DEFMEAS 1 TOTAL TIME INDEX .3947 .6546 76 DEFMEAS 2 PREQUENCY INDEX .3947 .6546 77 Total Cases = 250 Total Cases = 250	Variable Value Label		Mean	Std Dev	Cases
Total Cases = 250 Missing Cases = 21 OR 8.4 PCT. Summaries of TPLUS3 July, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6441 2.2363 229 DEFMERS 1 TOTAL TIME INDEX 1.1908 3.7354 76 DEFMERS 2 PREQUENCY INDEX .3947 .6546 76 DEFMERS 3 SHORT TEFM INDEX .3506 .6214 77 Total Cases = 250	For Entire Population		. 7751	1.7449	229
Total Cases = 250 Missing Cases = 21 OR 8.4 PCT. Summaries of TPLUS3 July, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .6441 2.2363 229 DEFMERS 1 TOTAL TIME INDEX 1.1908 3.7354 76 DEFMERS 2 PREQUENCY INDEX .3947 .6546 76 DEFMERS 3 SHORT TEFM INDEX .3506 .6214 77 Total Cases = 250	DEDMEAS 1 TOTAL	TIME INDEX	1 3224	2 8044	76
Total Cases = 250 dissing Cases = 21 OR 8.4 PCT. Summaries of TPLUS3 July, 1991 Ariable Value Label Mean Std Dev Cases For Entire Population .6441 2.2363 229 DEFMERS 1 TOTAL TIME INDEX .1908 3.7354 76 SEMMERS 2 PREQUENCY INDEX .3947 .6546 76 DEFMERS 3 SHORT TERM INDEX .3506 .6214 77 Total Cases = 250	DEDMENC 2 EDECUL	ENCY INDEX	5536	6011	76
Total Cases = 250 dissing Cases = 21 OR 8.4 PCT. Summaries of TPLUS3 July, 1991 Ariable Value Label Mean Std Dev Cases For Entire Population .6441 2.2363 229 DEFMERS 1 TOTAL TIME INDEX .1908 3.7354 76 SEMMERS 2 PREQUENCY INDEX .3947 .6546 76 DEFMERS 3 SHORT TERM INDEX .3506 .6214 77 Total Cases = 250	DEDMEAS 3 SHORT	TERM INDEX	4545	6705	70
Kissing Cases = 21 OK 8.4 PCT. Summaries of TPLUS3 July, 1991 /ariable Value Label Mean Std Dev Cases por Entire Population .6441 2.2383 229 SEMMEAS 1 TOTAL TIME INDEX .1908 3.7354 76 SEMMEAS 2 PREQUENCY INDEX .3947 .6548 76 SEMMEAS 3 SHORT TERM INDEX .3566 .6234 77 Total Cases = 250		IBRA INDEA	.4545	.0795	11
Summaries of TPLUS3 July, 1991 Jariable Value Label Mean Std Dev Cases For Entire Population .6441 2.2183 229 DEFMEAS 1 TOTAL TIME INDEX .1908 3.7154 76 SEMMEAS 2 PREQUENCY INDEX .3947 .6546 DEFMEAS 3 SHORT TERM INDEX .3505 .6214 77 Total Cases 250	Total Cases = 250				
Variable Value Label Mean Std Dev Cases For Entire Population	Missing Cases = 21 OR	8.4 PCT.			
For Entire Population .6441 2.2183 229 DEFMEAs 1 TOTAL TIME INDEX 1.1908 3.7154 76 DEFMEAs 2 PREQUENCY INDEX .3947 .6544 76 DEFMEAs 3 SHORT TERM INDEX .3947 .6544 77 Total Cases 2 SHORT TERM INDEX .3505 .6214 77	Summaries of TPLUS3 J	uly, 1991			
DEFMEAS 1 TOTAL TIME INDEX 1.1908 3.7154 76 DEFMEAS 2 PREQUENCY INDEX .3947 .6548 76 DEFMEAS 3 SHORT TERM INDEX .3506 .6234 77 Total Cases = 250			Mean	Std Dev	Cases
DEPMEAS 2 FREQUENCY INDEX .3947 .6548 76 DEPMEAS 3 SHORT TERM INDEX .3506 .6234 77 Total Caseg = 250	For Entire Population				
DEPMEAS 2 FREQUENCY INDEX .3947 .6548 76 DEPMEAS 3 SHORT TERM INDEX .3506 .6234 77 Total Caseg = 250	EPMEAS 1 TOTAL	TIME INDEX	1.1908	3.7354	76
Total Cases = 250	DEPMEAS 2 FREOU	ENCY INDEX	3947	6548	76
Total Cases = 250	DEPMEAS 3 SHORT	TERM INDEX	.3506	.6234	77
liceing Cases - 21 OP 8 4 DCT	Total Cases - 250				
	Hissing Cases - 21 OP	A DOT			

Summaries of TOPOLICY April 1991

Summaries of TPLUS4 August, 1991			
Variable Value Label	Mean		Cases
For Entire Population	.6659	1.8139	229
DEPMEAS 1 TOTAL TIME INDEX	1.0855	2.9079	76
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.5000	.8246	76
DEPMEAS 3 SHORT TERM INDEX	.4156	.7669	77
Total Cases = 250			
Missing Cases = 21 OR 8.4 PCT.			
Summaries of TPLUS5 September, 1991			
Variable Value Label	Mean	Std Dev	
For Entire Population	.9105	2.0963	229
DEPMEAS 1 TOTAL TIME INDEX		3.3794	
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.6447	.7951	76
DEPMEAS 3 SHORT TERM INDEX	.4935	.7543	77
Total Cases = 250			
Missing Cases = 21 OR 8.4 PCT.			
Summaries of TPLUS6 October, 1991			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	. 7638	1.9927	235
DEPMEAS 1 TOTAL TIME INDEX		3.2485	78
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	. 5513	.7498	
DEPMEAS 3 SHORT TERM INDEX	.4304	.6921	79
Total Cases = 250			
Missing Cases = 15 OR 6.0 PCT.			
Summaries of TPLUS7 November, 1991			
Variable Value Label	Mean	Std Dev	Cases
For Entire Population	.6765	1.9504	238
DEPMEAS 1 TOTAL TIME INDEX	1.0886		75
DEPMEAS 2 FREQUENCY INDEX DEPMEAS 3 SHORT TERM INDEX	.4937	.7138	
DEPMEAS 3 SHORT TERM INDEX	.4500	.7098	80
Total Cases = 250 Missing Cases = 12 OR 4.8 PCT.			

Summaries of TPLUS8 December, 1991 Variable Value Label Mean Std Dev Cases For Entire Population .7584 2.2589 238 DEPMEAS 1 TOTAL TIME INDEX 1.2975 3.7813 79 2 FREQUENCY INDEX DEPMEAS .5190 .6173 79 DEPMEAS 3 SHORT TERM INDEX .4625 .6151 80 Total Cases = 250 Missing Cases = 12 OR 4.8 PCT. Summaries of TPLUS9 January, 1992 Variable Value Label Mean Std Dev Cases For Entire Population .9606 2.7714 241 DEPMEAS 1 TOTAL TIME INDEX 1.7813 4.6100 80 .5875 DEDMEAS 2 FREQUENCY INDEX .7238 80 DEPMEAS 3 SHORT TERM INDEX .5185 .7265 81 Total Cases = 250 Missing Cases = 9 OR 3.6 PCT. Summaries of TPLUS10 February, 1992 Variable Value Label Mean Std Dev Cagen For Entire Population .7344 1.8591 241 DEPMEAS 1 TOTAL TIME INDEX 1.2125 2.9977 80 DEPMEAS 2 FREQUENCY INDEX .5375 .7786 80 DEPMEA. 3 SHORT TERM INDEX .4568 .7425 81 Total Cases = 250 Missing Cases = 9 OR 3.6 PCT. Summaries of TPLUS11 March, 1992 Std Dev Cases | Variable Value Label Mean For Entire Population .8921 2.1146 241 1 TOTAL TIME INDEX 1.4625 80 DEDMERS 3.4492 .6625 .7786 DEPMEAS 2 FREQUENCY INDEX 80 DEPMEAS 3 SHORT TERM INDEX .5556 .7583 81 Total Cases = 250 9 OR 3.6 PCT. Missing Cases =

Summaries of	TPLUS12 April, 1992			
	Value Label	Mean		Cases
For Entire Pop	oulation	.7350	2.1620	234
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.2436	3.5123	
DEPMEAS	2 FREQUENCY INDEX	.5128		78
DEPMEAS	3 SHORT TERM INDEX	.4487	.8320	78
Total Cases	= 252			
Missing Cases	= 18 OR 7.1 PCT.			
Summaries of	TPLUS13 May, 1992			
Variable		Mean	Std Dev	Cases
For Entire Pop	ulation	.6474	1.5282	234
DEPMEAS	1 TOTAL TIME INDEX		2.4574	78
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	. 5256		78
DEPMEAS	3 SHORT TERM INDEX	.4744	.6591	78
Total Cases	= 252			
Missing Cases	= 18 OR 7.1 PCT.			
Summaries of	TPLUS14 June, 1992			
Variable	Value Label		Std Dev	Cases
For Entire Pop		.5321	1.5469	234
DEPMEAS DEPMEAS	1 TOTAL TIME INDEX	.8141	2.5356	78
DEPMEAS	2 FREQUENCY INDEX	.4103	. 5907	78
DEPMEAS	3 SHORT TERM INDEX	.3718	. 5835	78
Total Cases	= 252			
Missing Cases	= 18 OR 7.1 PCT.			
Summaries of	TPLUS15 July, 1992			
Variable	Value Label	Mean	Std Dev	Cases 1
For Entire Pop	ulation	.7089	1.9888	237
DEPMEAS	1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX	1.2785	3.2863	79
DEPMEAS	2 FREQUENCY INDEX	.4810	.6173	79
		.3671	. 5353	79
Total Cases	= 252 = 15 OR 6.0 PCT.			
Missing Cases	= 15 OR 6.0 PCT.			

Summaries of	TPLUS16 August, 1992			
	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.7125	1.9733	240
DEPMEAS	1 TOTAL TIME INDEX	1.2250		80
DEPMEAS	2 FREQUENCY INDEX	.5000	.6936	80
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.4125	.6501	80
Total Cases	= 252			
Missing Cases	= 12 OR 4.8 PCT.			
Summaries of	TPLUS17 September, 1992			
Variable	Value Label	Mean		Cases
For Entire Po	pulation	.7500	1.4113	240
DEPMEAS	1 TOTAL TIME INDEX		2.2082	80
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6000		80
DEPMEAS	3 SHORT TERM INDEX	.5000	.6364	80
Total Cases	= 252			
Missing Cases	= 12 OR 4.8 PCT.			
Summaries of	TPLUS18 October, 1992			
Variable		Mean	Std Dev	Cases
For Entire Po	pulation	.7604	1.5949	240
DEPMEAS	1 TOTAL TIME INDEX		2.5417	80
DEPMEAS	2 FREQUENCY INDEX	.5750		80
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.5000	.6751	80
Total Cases	= 252			
Missing Cases	= 12 OR 4.8 PCT.			
Summaries of	TPLUS19 November, 1992			
Variable	Value Label	Mean	Std Dev	Cases
For Entire Po	pulation	.8104	1.4602	240
DEPMEAS	1 TOTAL TIME INDEX	1.0938	2.1657	80
DEPMEAS	2 FREQUENCY INDEX 3 SHORT TERM INDEX	.6875	.9084	80
DEPMEAS	3 SHORT TERM INDEX	.6500	.9015	80
Total Cases	= 252			
	= 12 OR 4.8%			

Summaries of TPLUS20 December, 1992 Variable Value Label Mean Std Dev Cases For Entire Population .9250 1.4130 240 DEPMEAS 1 TOTAL TIME INDEX 1.3625 2.2190 80 DEDMEAS 2 FREQUENCY INDEX .7625 .6413 80 3 SHORT TERM INDEX .6500 .6384 80 DEPMEAS Total Cases = 252 12 OR 4.8 PCT. Missing Cases = Summaries of TPLUS21 January, 1993 Variable Value Label Mean Std Dev Cases For Entire Population .7500 1.6886 240 2.6906 DEPMEAS 1 TOTAL TIME INDEX 1.2125 00 . 5750 .7425 2 FREQUENCY INDEX 80 DEPMEAS 3 SHORT TERM INDEX .4625 .7106 80 DEPMEAS Total Cases = 252 Missing Cases = 12 OR 4.8 PCT. Summaries of TPLUS22 February, 1993 Value Label Mean Std Dev Cases Variable For Entire Population .7542 1.1471 240 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX DEPMEAS 1.0375 1,7021 80 DEPMEAS .6625 .6925 00 DEPMEAS .5625 . 5907 80 Total Cases = 252 Missing Cases = 12 OR 4.8 PCT. Summaries of TPLUS23 March, 1993 Cases I Variable Value Label Mean Std Dev .7417 For Entire Population 1.7163 240 DEPMEAS 1 TOTAL TIME INDEX 1.1625 2.6835 80 .5750 DEPMEAS 2 FREQUENCY INDEX .8535 80 DEPMEAS 3 SHORT TERM INDEX .4075 .8418 80 Total Cases = 252 Missing Cases = 12 OR 4.8 PCT.

Appendix E

TTI, FI and STI measures for All Departments Combined SPSS/PC PRINTOUTS OF TOTAL TIME, FREQUENCY AND SHORT TERM INDICES FOR ALL DEPARTMENTS COMBINED

NOTE: "." SIGNIFIES THE LOCATION OF THE MEANS

Summaries of TMINUS24 Variable Value Label Mean Std Dev Cases For Entire Population 5141 .9982 531 DEDMEAS 1 TOTAL TIME INDEX * .6158 1.4329 177 2 FREQUENCY INDEX * .4746 .6996 DEDMEAG 177 DEPMEAS 3 SHORT TERM INDEX .6650 177 Total Cases = 907 Missing Cases = 376 OR 41.5 PCT. Summaries of TMINUS23 Variable Value Label Mean Std Dev Cases For Entire Population .4961 .9538 646 DEPMEAS 1 TOTAL TIME INDEX + .5810 1.3431 216 DEPMEAS 2 FREQUENCY INDEX * .4673 .6895 214 3 SHORT TERM INDEX DEPMEAS .6655 216 Total Cases = 907 Missing Cases = 251 OR 28.8 PCT. Summaries of TMINUS22 Variable Value Label Mean Std Dev Cases For Entire Population .5675 1.0932 652 • .7202 DEPMEAS 1 TOTAL TIME INDEX 1.6600 218 DEPMEAS 2 FREQUENCY INDEX * .5185 .6395 216 DEDMEAS 3 SHORT TERM INDEX + .4633 .6229 218 Total Cases = 907 Missing Cases * 255 OR 28.1 PCT. Summaries of TMINUS21 Value Label Mean Std Dev Variable Cases For Entire Population .4411 679 1.0823 1 TOTAL TIME INDEX * .6278 DEPMEAS 1.6587 227 2 FREQUENCY INDEX * .3556 DEPMEAS .5960 225 DEPMEAS 3 SHORT TERM INDEX * .3392 . 5982 227

Total Cases = 907 Missing Cases = 22F OR 25.1 PCT. i

Summarian of THINNE? Variable Value Label Mean Std Dev Cases For Entire Population . 5547 1.0687 685 DEPMEAS 1 TOTAL TIME INDEX * .7162 1.5708 229 DEPMEAS 2 FREQUENCY INDEX * .5000 .7055 228 DEPMEAS 3 SHORT TERM INDEX * .4474 .6516 228 Total Cases = 907 222 OR 24.5 PCT. Missing Cases = Summaries of TMINUS19 Variable Value Label Mean Std Dev Cases For Entire Population . 5583 1.4339 GBB DEDMERS 1 TOTAL TIME INDEX 2 FREQUENCY INDEX * .8848 2.2731 230 DEDWERS * .4336 .6617 229 3 SHORT TERM INDEX * .3550 DEPMEAS .6353 229 Total Cases = 907 219 OR 24.1 PCT. Missing Cases = Summaries of TMINUS18 Variable Value Label Mean Std Dev Casos For Entire Population .6088 1.6671 694 DEPMEAS 1 TOTAL TIME INDEX * .9375 2.6810 232 * .4805 .7333 DEPMEAS 2 FREQUENCY INDEX 231 DEPMEAS 3 SHORT TERM INDEX .6716 231 907 Total Cases = Missing Cases = 213 OR 23.5 PCT. Summaries of TMINUS17 Value Label Mean Std Dev Variable Canes For Entire Population .5199 .8969 703 DEPMEAS 1 TOTAL TIME INDEX * .6404 1.2297 235 DEPMEAS 2 FREQUENCY INDEX * .4765 .6780 234 DEPMEAS 3 SHORT TERM INDEX * .4423 .6501 234 Total Cases = 907 Missing Cases = 204 OR 22.5 PCT.

Summaries of TMINUS16 Value Label Mean Std Dev Cases Variable .4431 1.0178 For Entire Population 703 1 TOTAL TIME INDEX * .6064 1.5048 235 DEPMEAS 2 FREQUENCY INDEX * .3889 .6538 234 DEPMEAS 3 SHORT TERM INDEX * .3333 DEPMEAS .6146 234 Total Cases = 907 Missing Cases = 204 OR 22.5 PCT. Summaries of TMINUS15 Value Label Mean Std Dev Cases Variable For Entire Population .7152 1.6632 711 1 TOTAL TIME INDEX * 1.1498 2.6684 237 DEPMEAS 2 FREQUENCY INDEX * .5485 .7092 237 DEPMEAS DEPMEAS 3 SHORT TERM INDEX .6398 237 907 Total Cases = 196 OR 21.6 PCT. Missing Cases = Summaries of TMINUS14 Mean Std Dov Cases Variable Value Label .7026 For Entire Population 1.4891 723 DEPMEAS 1 TOTAL TIME INDEX * .9876 2.3067 241 * .5975 * .5228 DEPMEAS 2 FREQUENCY INDEX .8113 241 3 SHORT TERM INDEX .7531 241 DEDMEAS 907 Total Cases = Missing Cases = 184 OR 20.3 PCT. Summaries of TMINUS13 Value Label Mean Std Dev Cases Variable For Entire Population .6833 1.5240 723 * .9710 1 TOTAL TIME INDEX 2.4112 241 DEPMEAS .7379 DEPMEAS 2 FREQUENCY INDEX * .5809 241 DEPMEAS 3 SHORT TERM INDEX * . 4979 7078 241 Total Cases = 907 Missing Cases = 184 OR 20.3 PCT.

Summaries of TMINUS12 Variable Value Label Mean Std Dev Cases For Entire Population .5300 1.1065 767 DEPMEAS 1 TOTAL TIME INDEX * .7129 1.6793 256 DEPMEAS 2 FREQUENCY INDEX * .4667 * .4102 .6565 255 DEPMEAS 3 SHORT TERM INDEX .6134 256 Total Cases = 834 Missing Cases = 67 OR 8.0 PCT. Summaries of TMINUS11 Variable Value Label Mean Std Dev Cases For Entire Population .6744 1.3776 777 1 TOTAL TIME INDEX * .8992 DEDMEAS 2.1294 258 DEPMEAS 2 FREQUENCY INDEX 3 SHORT TERM INDEX * .5907 .7741 259 * .5346 DEPMEAS .7158 260 Total Cases = 834 Missing Cases = 57 OR 6.8 PCT. Summaries of TMINUS10 Variable Value Label Mean Std Dev Cases For Entire Population .6429 1.5082 777 DEPMEAS 1 TOTAL TIME INDEX * .9128 2.4024 258 DEPMEAS 2 FREQUENCY INDEX .5444
.4731 .7159 259 3 SHORT TERM INDEX DEPMEAS .6830 260 Total Cases = 834 Missing Cases = 57 OR 6.8 PCT. Summaries of TMINUS9 Value Label Mean Std Dev Cases Variable For Entire Population .5659 1.5128 774 1 TOTAL TIME INDEX 2 FREQUENCY INDEX *.8521 2.4104 257 DEDMEAS +.4574 .7275 258 DEPMEAS 3 SHORT TERM INDEX DEPMEAS *.3900 .6636 259 Total Cases = 834

Missing Cases = 60 OR 7.2 PCT.

Summaries of TMINUS8 Value Label Mean Std Dev Cases Variable For Entire Population .6718 1.5423 774 1 TOTAL TIME INDEX * 1.0156 2.4578 257 DEPMEAS 2 FREQUENCY INDEX * .5368 .7164 DEPMEAS 258 * .4653 DEPMEAS 3 SHORT TERM INDEX .6653 259 834 Total Cases = 60 OR 7.2 PCT. Missing Cases = Summaries of TMINUS7 Variable Value Label Mean Std Dev Cases For Entire Population .6899 1.3267 774 1 TOTAL TIME INDEX * .9922 2.0700 DEPMEAS 257 2 FREQUENCY INDEX * .5853 . 6964 DEPMEAS 258 3 SHORT TERM INDEX * .4942 .6310 259 DEPMEAS 834 Total Cases = 60 OR 7.2 PCT. Missing Cases = Summaries of TMINUS6 Variable Value Label Mean Std Dev Cases For Entire Population .6693 1.6241 774 1 TOTAL TIME INDEX 2.6119 DEPMEAS * 1.0117 257 2 FREQUENCY INDEX 3 SHORT TERM INDEX * .5465 * .4517 .7111 DEPMEAS 258 DEDMEAS .6710 259 Total Cases = 834 Missing Cases = 60 OR 7.2 PCT. Summaries of TMINUSS Value Label Mean Std Dev Cases Variable For Entire Population .6327 1.4609 780 DEPMEAS 1 TOTAL TIME INDEX * .9556 2.3429 259 .6546 DEPMEAS 2 FREQUENCY INDEX * .5115 * .4330 260 3 SHORT TERM INDEX DEPMEAS .6015 261 Total Cases = 834 Missing Cases = 54 OR 6.5 PCT.

Summaries of TMINUS4 Value Label Variable Mean Std Dev Cases For Entire Population .6586 1.2150 782 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 3 SHORT TERM INDEX DEPMEAS * .8467 1.7812 261 DEPMEAS + .5923 .7879 260 * .5364 DEPMEAS .7669 261 Total Cases = 834 Missing Cases = 52 OR 6.2 PCT. Summaries of TMINUS3 Variable Value Label Mean Std Dev Cases For Entire Population .7526 1.3886 782 DEPMEAS 1 TOTAL TIME LUDEX * 1.0479 2.1133 261 .7895 DEDMEAS 2 FREQUENCY INDEX * .6462 * .5632 260 DEPMEAS 3 SHORT TERM INDEX .7550 261 Total Cases = 834 Missing Cases = 52 OR 6 2 PCT. Summaries of TMINUS2 Value Label Mean Std Dev Cases Variable .7434 For Entire Population 1.2809 785 DEPMEAS 1 TOTAL TIME INDEX * 1.0833 1.9300 264 * .6242 * .5184 DEPMEAS 2 FREQUENCY INDEX .7208 260 DEPMEAS 3 SHORT TERM INDEX .6927 261 834 Total Cases = Missing Cases = 49 OR 5.9 PCT. Summaries of TMINUS1 Value Label Mean Std Dev Cases Variable For Entire Population .6361 1.4173 786 1 TOTAL TIME INDEX * .9547 2.2023 265 DEPMEAS .7270 2 FREQUENCY INDEX DEPMEAS * .5192 260 + .4291 DEPMEAS 3 SHORT TERM INDEX .6735 261 Total Cases = 834 Missing Cases = 48 OR 5.8 PCT.

Summaries of TOPOLICY (Policy introduced) Value Label Mean Std Dev Variable Cases For Entire Population .7177 1.3500 790 1 TOTAL TIME INDEX * .9757 2.0762 DEPMEAS 258 * .6. 3 2 FREQUENCY INDEX .7737 266 DEPMEAS 3 SHORT TERM INDEX DEPMEAS * .5639 .7408 266 Total Cases = 918 Missing Cases = 128 OR 13.9 PCT. Summaries of TPLUS1 Value Label Mean Std Dev Variable Cases For Entire Population .6819 1.5479 819 1 TOTAL TIME INDEX * .9869 2.4781 268 DEPMEAS 2 FREQUENCY INDEX * .5673 .7436 275 DEPMEAS * .5000 DEDMEAS 3 SHORT TERM INDEX .6902 276 918 Total Cases = 99 OR 10.8 PCT. Missing Cases = Summaries of TPLUS2 Mean Std Dev Cases Variable Value Label / For Entire Population .7178 1.5881 822 DEPMEAS 1 TOTAL TIME INDEX * 1.1078 2.5200 269 DEPMEAS 2 FREQUENCY INDEX * .5652 .7576 276 DEPMEAS 3 SHORT TERM INDEX * .4910 .7353 277 918 Total Cases = 96 OR 10.5 PCT. Missing Cases = Summaries of TPLUS3 Variable Value Label Mean Std Dev Cases For Entire Population 1.8063 .6067 839 1 TOTAL TIME INDEX * 1.0474 2.9898 274 DEPMEAS 2 FREQUENCY INDEX * .4220 * .3640 .6447 DEPMEAS 282 DEPMEAS 3 SHORT TERM INDEX 5880 283 Total Cases = 918 Missing Cases = 79 OR 8.6%

Summaries of TPLUS4 Value Label Mean Std Dev Variable Cases For Entire Population .6412 1.9147 839 DEPMEAS 1 TOTAL TIME INDEX 2 FREQUENCY INDEX * 1.0985 3.1541 274 DEPMEAS * .4557 .7250 282 + .3834 3 SHORT TERM INDEX DEPMEAS .6595 283 Missing Cases = 70 7º OR 8.6 PCT. Summaries of TPLUSS Value Label Mean Std Dev Cases Variable .7010 For Entire Population 1.6416 836 1 TOTAL TIME INDEX * 1.0549 2.6228 DEPMEAS 273 DEPMEAS 2 FREQUENCY INDEX * .5658 .7770 281 .4929 DEPMEAS 3 SHORT TERM INDEX .7510 282 Total Cases = 918 82 OR 8.9 PCT.2 Missing Cases = Summaries of TPLUSS Variable Value Label Mean Std Dev Canen For Entire Population .6609 1.4993 842 DEPMEAS 1 TOTAL TIME INDEX * 1.0200 2.4030 275 DEPMEAS 2 FREQUENCY INDEX * .5300 * .4437 .6957 283 3 SHORT TERM INDEX .6460 284 DEPMEAS Missing Cases = 918 76 OR 8.3 PCT. Summaries of TPLUS7 Variable Value Label Mean Std Dev Cases i For Entire Population .6167 1.5190 848 DEPMEAS 1 TOTAL TIME INDEX .9134 2.4524 277 DEPMEAS 2 FREQUENCY INDEX 3 SHORT TERM INDEX .5018 .6952 285 * .4441 .6505 286 DEPMEAS

Total Cases = 918 Missing Cases = 70 OR 7.6 PCT.

Summaries of TPLUS8 Value Label Mean Std Dev Cases Variable .6049 1.4160 853 For Entire Population 1 TOTAL TIME INDEX DEPMEAS * .8669 2.2694 278 2 FREQUENCY INDEX * .5017 .6787 DEPMEAS 287 .6504 DEPMEAS 3 SHORT TERM INDEX * .4549 288 Missing Cases = 918 65 OR 7.1 PCT. Summaries of TPLUS9 Variable Value Label Mean Std Dev Cases For Entire Population 1.7829 .6455 859 DEPMEAS 1 TOTAL TIME INDEX * 1.0518 2.9436 280 * .4740 .6510 DEDMEAS 2 FREQUENCY INDEX 289 * .4241 3 SHORT TERM INDEX .6412 DEPMEAS 290 Total Cases = 918 Missing Cases = 59 OR 6.4 PCT. Summaries of TPLUS10 Value Label Mean Std Dev Cases Variable For Entire Population .6211 1.3557 859 DEPMEAS 1 TOTAL TIME INDEX * .9339 2.1218 280 .7318 DEPMEAS 2 FREQUENCY INDEX * .5087 289 DEPMEAS 3 SHORT TERM INDEX * .4310 .6580 290 Missing Cases = 918 59 OR 6.4 PCT. Summaries of TPLUS11 Value Label Std Dev Cases Variable Mean For Entire Population .6816 1.5447 859 1 TOTAL TIME INDEX DEDMEAS * 1.0339 2.4706 280 2 FREQUENCY INDEX * .5467 * .4759 .7303 DEPMEAS 289 3 SHORT TERM INDEX DEPMEAS .6918 290 Total Cases = 918 Missing Cases = 59 OR 6.4 PCT.

Summaries of TPLUS12 Value Label Variable Mean Std Dev Cases For Entire Population .7043 1.4676 864 1 TOTAL TIME INDEX * .9739 DEPMEAS 2.2345 287 2 FREQUENCY INDEX * .6055 .8437 DEPMEAS 289 DEPMEAS 3 SHORT TERM INDEX * .5347 .8214 288 932 Total Cases = Missing Cases = 68 OR 7.3 PCT. Summaries of TPLUS13 Value Label Mean Std Dev Cases Variable For Entire Population . 5578 1.1141 873 1 TOTAL TIME INDEX 2 FREQUENCY INDEX * .7414 DEPMEAS 1.6727 290 * .4897 .6810 DEPMEAS 292 3 SHORT TERM INDEX DEPMEAS .4433 .6534 291 932 Total Cases = 59 OR 6.3 PCT. Missing Cases = Summaries of TPLUS14 Variable Value Label Mean Std Dev Cases For Entire Population . 5569 1.1897 879 DEPMEAS 1 TOTAL TIME INDEX * .7277 1.8348 292 DEPMEAS 2 FREQUENCY INDEX .4864 .6698 294 3 SHORT TERM INDEX * .4573 .6376 293 DEPMEAS Total Cases = 932 Missing Cases = 53 OR 5.7 PCT. Summaries of TPLUS15 Value Label Mean Std Dev Cases Variable For Entire Population .6063 1.5957 894 1 TOTAL TIME INDEX * .9663 2.5878 297 DEDWERS 2 FREQUENCY INDEX .6461 * .4649 299 DEPMEAS 3 SHORT TERM INDEX .6054 298 DEPMEAS Total Cases = 932 Missing Cases = 38 38 OR 4.1 PCT.

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Summaries of TPLUS16 Variable Value Label Mean Std Dev Cases For Entire Population .5150 1.2612 900 DEDWERS 1 TOTAL TIME INDEX * .7341 1.9879 299 DEPMEAS 2 FREQUENCY INDEX * .4352 .6480 301 DEPMEAS 3 SHORT TERM INDEX * .3767 .5910 300 Total Cases = 932 32 OR 3.4 PCT. Missing Cases = Summaries of TPLUS17 Value Label Mean Std Dev Cases Variable For Entire Population .5981 1.0965 897 DEDMEAS 1 TOTAL TIME INDEX * .8003 1.6116 298 2 FREQUENCY INDEX 3 SHORT TERM INDEX * .5233 .7055 300 DEPMEAS * .4716 DEPMEAS .6818 299 Missing Cases = 35 35 OR 3.8 PCT. Summaries of TPLUS18 Variable Value Label Mean Std Dev Cases For Entire Population .5661 1.3578 900 1 TOTAL TIME INDEX * .8311 2.1400 DEPMEAS 299 2 FREQUENCY INDEX .6694 DEPMEAS * .4568 301 3 SHORT TERM INDEX * .4117 DEPMEAS .6502 300 Total Cases = 932 Missing Cases = 32 OR 3.4 PCT. Summaries of TPLUS19 Cases i Variable Value Label Mean Std Dev For Entire Population .7353 1.6032 903 DEPMEAS 1 TOTAL TIME INDEX * 1.0500 2.5213 300 DEPMEAS 2 FREQUENCY INDEX * .6093 . 7943 302 DEPMEAS 3 SHORT TERM INDEX * .5482 .7801 301 Total Cases = 932 Missing Cases = 29 29 OR 3.1 PCT.

Summaries of TPLUS20 Value Label Mean Std Dev Cases Variable For Entire Population .7016 1.4346 903 * .9883 * .5927 * .5249 DEPMEAS 1 TOTAL TIME INDEX 2 FREQUENCY INDEX 2.1844 300 DEPMEAS .8210 302 DEPMEAS 3 SHORT TERM INDEX . 7939 301 Total Cases = 932 Missing Cases = 29 OR 3.1 PCT. Summaries of TPLUS21 Variable Value Label Mean Std Dev Cases For Entire Population .6157 1.2024 903 DEDMEAS 1 TOTAL TIME INDEX * .8767 1.8515 300 . 6607 DEPMEAS 2 FREQUENCY INDEX * .5199 302 * .4518 DEPMEAS 3 SHORT TERM INDEX . 6233 301 Total Cases = 932 Missing Cases = 29 OR 3.1 PCT. Summaries of TPLUS22 Value Label Mean Std Dev Cases Variable For Entire Population .7323 1.5330 906 DEPMEAS 1 TOTAL TIME INDEX * 1.1179 2.4369 301 DEPMEAS 2 FREQUENCY INDEX * .5941 * .4868 .6931 303 DEPMEAS 3 SHORT TERM INDEX .6608 302 Total Cases = 932 Missing Cases = 26 OR 2.8 PCT. Missing Cases = Summaries of TPLUS23 Std Dev Cases Variable Value Label Mean 1.7614 For Entire Population .6578 906 1 TOTAL TIME INDEX * 1.0066 2.8390 301 DEPMEAS 2 FREQUENCY INDEX 3 SHORT TERM INDEX * .5149 .7627 DEPMEAS 303 .7265 DEPMEAS 302 Total Cases = 932 Missing Cases = 26 OR 2.8 PCT. 1. 2.

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