HEALTH CARE SELF-SELECTION IN A MULTIPLE OPTION CORPORATE BENEFIT PROGRAM

by

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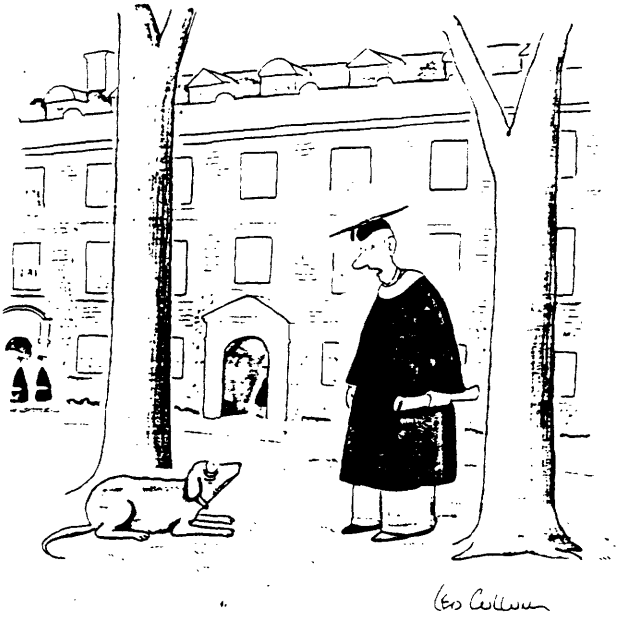
Jocko, the wait is over!



"Thanks for waiting for me, Jocko, but I still can't play. I've decided to go for a Ph.D."

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ABSTRACT

Although proponents of alternative health care systems (HMOs) have touted the potential savings created by increased competition, actual savings have failed to match expectations. Annual health care budgets at many corporations continue to rise at a rate which exceeds that seen by the federal government. Some companies have responded to these pressures by adding multiple option benefit programs to satisfy their employees' health care needs.

The availability of multiple plans has complicated the decision which consumers must make. As open enrollment occurs on an annual basis, a choice of health care coverage must be made each year. While some consumers choose to remain in the same plan, others change from one option to another. Those individuals who change plans may do so to save money or to seek services otherwise not available through their current plan. This study has examined the frequency of such plan changes or switches, and the factors which account for them.

Under certain circumstances, a special form of self-selection, known as adverse selection, may occur. In a community rating environment, adverse selection can drive a continuing escalation of health care costs. This study examines the implications of self-selection in a community rating environment.

A large southwestern utility company operating under such an environment was selected for this study. The comprehensive database maintained by the company allowed an integrated analysis in which factors previously studied separately could be examined simultaneously in a consistent manner.

Although Neipp and Zeckhauser have suggested that people persist in their health care arrangements, the findings at this location show that nearly half (47%) of all individuals changed their health care coverage during the 3 year study period and nearly one-seventh (14%) switched plans 2 or more times during the same period. In addition, specific plan-switching patterns were found to be associated with distinctive profiles of health care utilization. For example, dependent males (under 18 years of age) who switched from an HMO to the company sponsored indemnity plan had almost 7.5 times the total health expenditures than dependent males who switched to HMOs, and almost twice that of their non-switching counterparts. Other plan-switching sequences were associated with interesting patterns in the usage of obstetrical and mental health services.

The results of this study are relevant not only to a theoretical understanding of self-selection, but to practical problems of maintaining employee satisfaction with health care programs through effective marketing strategies and appropriate benefit design.

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CHAPTER I

INTRODUCTION

I. ISSUE

The decision surrounding the selection of health care insurance is one of the most important individual choices made under uncertainty (Ellis 1985). However, why individuals make changes in their health care coverage is not well understood. This study examines the existence of switching populations, reasons for switching, and whether there are specific categories of switchers which can be identified. By identifying factors which underlie health care selection, this thesis not only helps in understanding self-selection, but also helps organizations maintain employee satisfaction with health care programs through effective marketing strategies and appropriate benefit design.

The implications of self-selection in a community rating environment are considerable. If the current system remains unchecked (i.e. no negative feedback to deter or stop the positive loop[1]), then costs associated with health

[1]the positive loop consists of the following variables: company costs per covered individual, company premiums per individual, company payments to HMO per covered individual, individual HMO premium payments, HMO risk pool, Indemnity risk pool and total company costs. The HMO's actual costs are removed from the equation when community rating methods are used.

care benefits will continue to rise until they can no longer be supported by most companies.

Therefore, this study was undertaken to provide additional insight on the frequency of switching, the reasons for switching, and the potential implications of these findings for policy makers and corporate benefit managers.

II. BACKGROUND

In 1960, the United States was spending approximately 5.3% of its gross national product (GNP) on health care (AMA 1987). By 1970, this figure had risen to 7.6% (AMA 1987). In an effort to control rising health care costs, congress passed the Health Maintenance Organization (HMO) Act in 1973. However, by 1987, the percentage of the GNP devoted to health care had risen to 11.5%, and current estimates for the year 2000 approach 15% (HCFA 1987).

The HMO Act was designed to promote the creation of Health Maintenance Organizations--competitive alternatives to the fee-for-service health care delivery system. HMOs differ from the fee-for-service system in many ways, although the major differing factor is the reimbursement mechanism. HMOs use prospective payment systems, whereas

fee-for-service systems are paid per service retrospectively, or after the care has been rendered. Indemnity insurance plans, which encompass most company sponsored plans, are based on a retrospective fee-for-service system. While both systems provide inpatient hospitalization coverage, outpatient services are usually fee-for-service for indemnity subscribers whereas HMOs provide outpatient services for the prepaid amount.

The HMO Act promoted competition by mandating "dual choice." Dual choice required employers who offer health plans as a benefit to allow their employees to apply these benefits to HMO membership (McNeil 1975).[2] By inducing competition in this manner, HMOs were to help reduce total health care expenditures.

Unfortunately, as is the case with most government expenditures for health care, corporate health care costs have also increased dramatically. The health care budgets and projections for a large utility company for the years 1987 through 1992 are presented in Figure 1. This graph shows a 22% annual increase in the cost of providing health care for its employees.

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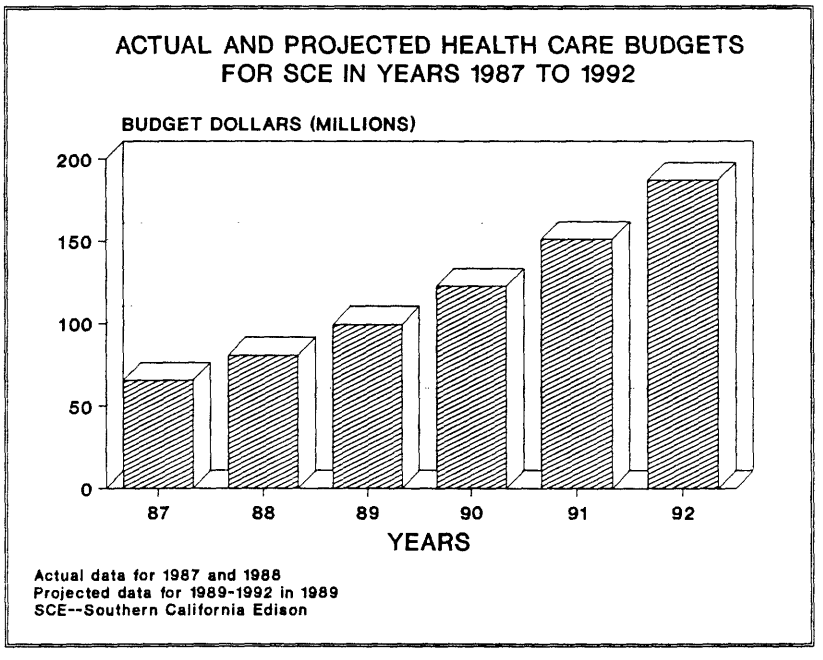
[2]employers with less than 25 employees were excluded.

FIGURE 1



Most corporate attempts to curb health care spending have been ineffective, at best. Some observers have even suggested that companies have little concern for the costs of employee health care benefits (Sapolsky 1981). One reason for this apparent lack of concern is that companies who self-insure are now having to compete for their employees' health care premium dollars. In response to competitive pressures form both federal mandates and consumer demands, companies are now offering a wide variety of health care benefits for their employees. Many companies continue to add plans and benefits to their health care menu to satisfy those who prefer a choice of locations, doctors,

prices, facilities, or structures. In a time of budget cuts and cost containment strategies, these demands are becoming much harder to meet and the complexity and numbers of these additions have left many consumers unable to decide which plan to choose.

While this complexity leads many consumers to select a plan which may not suit their needs, others are able to take advantage of this opportunity and select a plan which may better meet their health care needs.[3] For some, this means they remain in the same plan, be it an indemnity plan or an HMO. For others, the complexity leads to changes in plans--changes from one HMO to a different HMO, from an indemnity plan to an HMO, or from an HMO to an indemnity plan. Changes like these could create an imbalance in the risk sharing of the insured populations. This imbalance has the potential to produce serious consequences for our current medical system.

When open enrollment occurs, a multi-step decision process occurs.[4] Although most plans provide basic levels

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[3]personal interviews with corporate managers and employees

[4]Open enrollment is another facet of the HMO Act of 1973. This requirement provides an annual opportunity for individuals to enroll in a health care option of their choice.

of health and hospitalization insurance, there are often slight differences in the benefits available from one plan to another, beyond premium cost. If choices are made based upon service need, then plans which offer specific services which are not covered elsewhere may also receive a higher risk population for those services. For example, if an infertility program is covered in one plan but only offered at additional expenses through others, then patients with infertility concerns may well choose that plan during the next open enrollment period.

Given numerous health care options and little or no cost associated with switching health care plans; rational[5], informed consumers are likely to change plans whenever it is in their perceived interest to do so. These consumers, using private information about their expected health care needs, will make decisions which will affect health care costs for their organizations. Unless employers have access to this same information or can price discriminate between individuals, their ability to cost-shift or cross-subsidize health care plans becomes limited.

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[5]for the purposes of this paper, rational will be defined as the behavior of choosing a health plan on the basis of seeking cost savings or specific services.

Although HMOs are recruiting larger portions of corporate populations, the cost savings touted by many proponents have not yet been realized. One explanation for this is that consumers select health plans according to their economic and health care needs, thereby removing the company's ability to adequately cross-subsidize high risk populations. When self-selective behavior is combined with a financial rating system such as that in community rating mechanisms[6], a positive feedback loop exists and costs will continue to escalate. The financial arrangement between many HMOs and companies offers little hope of adequately spreading the financial risk associated with the provision of health care across our society.

The thesis is organized as follows: Chapter 2 discusses the concepts of self-selection, the reasons for switching health care plans, and implications of these topics. Chapter 3 develops the research design and questions. Chapter 4 contains the methodology used for this thesis including site selection, descriptions of data and plan characteristics, analysis with test descriptions and a predictive model. Results are then presented in chapter 5,

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[6]Community and experience are the two basic rating methods. Experience rating determines the price based upon previous experience for a particular group or individual. Community rating, on the other hand, bases price on the average costs for the entire community served.

and chapter 6 contains a discussion of the results, and conclusions. Chapter 7 contains the suggestions for further research and the appendices and bibliography follow.

CHAPTER II

LITERATURE REVIEW

Many years have passed since the introduction of the HMO Act in 1973. HMOs have been shown to deliver acceptable quality of care with reduced hospitalization rates thereby reducing costs of health care for their subscribers (Luft 1987). However, the cost savings which proponents suggested have yet to reach purchasers of HMO services such as the federal government and private corporations.

One factor which could account for this discrepancy is self-selection of health care plans by subscribers. This factor has even greater implications when combined with a community rating reimbursement mechanism. This chapter will discuss the available literature on these topics. The self-selection literature includes definitions, the existence of self-selection, and reasons for self-selective behavior. Rating schemes and alternatives will then briefly be discussed, followed by a review of the implications of these concepts.

I. SELF-SELECTION

I.A. Consumer Directed Self-selection

What is meant by switching and self-selection? For the purposes of this study, switches are defined as voluntary changes in health care coverage which result in the selection of a new plan. Voluntary switching implies self-selection. In fact, since HMOs must voluntarily enroll their members, HMO enrollment is, in itself, self-selective.

Occasionally, when people change health plans, the change is not voluntary. When an individual loses his/her job, moves away from the service area of a particular plan, or transfers to another company, an involuntary change in health care coverage occurs. It is important to distinguish these changes from those which occur when an individual changes voluntarily. The voluntary switch might be amenable to certain benefit or policy modifications.

Self-selection is the non-random selection of a plan which may affect health care costs when "...some, perhaps unknown, factor about the insured population influencing service use and costs is not factored into the calculation of the payment" (Wilensky 1986). This type of behavior

could well lead to the following biases described by Wilensky and Rossiter (1986):

> Bias in patient self selection is said to be adverse when higher than average expected risks are enrolled for a prospective capitated payment. Favorable selection is said to occur when lower than average risks enroll.

For example, it is often suggested in the literature that younger, healthier people join HMOs (favorable selection) whereas older, more unhealthy, individuals use indemnity plans (adverse selection). While many suggest that selection bias occurs (see appendix A), others have found cases where this is not true (Neipp and Zeckhauser 1985).

On the other hand, the opposite scenario which has not been the subject of much debate can also be constructed. Healthy individuals, the bulk of most populations, may default into the indemnity plan, while individuals who expect to use a large number of outpatient services may select an HMO. For example, families with small children may select an HMO because the per visit out-of-pocket expense is substantially lower than that of the indemnity plan.

An important point to note in such an example is the difference in magnitude between outpatient and inpatient expenditures. While a population may require more

outpatient services per year, the cost of a single inpatient episode could be more than 100 times the amount than for all outpatient services combined. Therefore we must be cautious when considering the utilization statistics of a given population.

Although many studies have attempted to show that adverse selection occurs (Appendix A), most were inconclusive or found no evidence of selection bias. The majority of these studies address only those individuals selecting an HMO from an indemnity plan and not individuals switching between health care plans more generally (i.e. from HMO to HMO, HMO to indemnity, or vice versa). In all cases however, time series data pertinent to the proposed study either were not available or were not analyzed.

The literature debate about adverse self-selection is unresolved. HMOs allege that it doesn't occur, and corporate indemnity plans vow that adverse selection will limit the days remaining that health care will be provided as a benefit. With a careful review of the literature, one would be hard pressed to say that adverse selection does not occur. However, while there may be some agreement as to whether or not adverse selection occurs, there is certainly no agreement as to the amount or direction.

I.B. Externally Directed Self-selection

In general, "cream skimming" and "sludge passing" occurs when health plans attempt to influence consumer's selection by placing incentives which will induce a specific behavior. Cream skimming has been defined as the ability to attract the lowest risk population, whereas sludge passing is the ability to deter high risk populations. Newhouse (1982) suggests that selection biases are not only caused by the patient. Specific selection of low-risk patients may be performed by prepaid medical plans. This can be accomplished by a determination of person-specific predictable portions of risk and "efforts to persuade higher than average risks to disenroll," in effect, introducing additional external forces on an individual's selection of health care.

Examples of these forces can be found throughout the literature. Cream skimming may be found when an HMO offers well baby care under the assumption that the younger and healthier families will be attracted because of the benefit and will be lower overall risks to the HMO. Sludge passing, on the other hand, can be represented by the following example. A mother has a sick child in need of medical care. If there is inadequate parking at her plan's medical facility, the wait in the waiting room is quite long, a

series of allied health professionals see the child before a physician is called and when the physician does arrive, he/she treats the mother impersonally, the likelihood that the arrangement will continue the following year is fairly remote. Due to the mandatory open enrollment periods, these patients will obtain coverage from an unsuspecting plan during the next sign-up period. However, the fact that the patient's initial plan was able to deter the patient from re-enrolling, by whatever means, is an example of sludge passing.

II. FREQUENCY OF SWITCHING

Neipp and Zeckhauser's work (1985) on "persistence" at both the Polaroid Corporation and Harvard University suggests that people stay with their health care arrangements and do not often switch. They found that 97% of consumers at Polaroid and Harvard remained in the same health care plan for the years 1984-1985. This short time period limits the study's ability to determine the extent of switching. Although no empirical studies have been found which indicate that switching is prevalent, interviews with company employees suggest that switching might not be so uncommon.

On the other hand, Ellis' work (1985) on employee health care plan choice suggests that consumers may be willing to change within a specific type of coverage (within indemnity plans or within HMOs). However, his study does not incorporate time series data; the health plan options analyzed consisted of only three indemnity plans (HMO membership was so low it was excluded); and the locations selected limited the ability to adequately represent both members and their dependents.[7]

III. REASONS FOR SWITCHING

The literature suggests many reasons why individuals might enroll or disenroll from a health care plan. Reasons for voluntary switches will be considered as follows: those topics likely to affect the risk-sharing pool, such as 1) ECONOMIC REASONS, and 2) SERVICE REQUIREMENTS; and those unlikely to affect the risk-sharing pool such as 3) DISSATISFACTION, and 4) EXPERIMENTATION.

For the purposes of this study, "rational" switching will encompass the purchase of a health care plan which will

[7]The locations studied provided the opportunity for changing as a family unit but would not permit interfamily changes.

minimize the costs for a covered individual. We can define this cost minimization in two forms. The first is for those individuals seeking a reduction in their premiums, expected out-of-pocket expenses or other associated costs. The second occurs when individuals select coverage based upon a required (or expected) service need.

III.A. Economic Reasons

III.A.1. Expenses

III.A.1.a. Direct expenses

If rational, a purchase decision should be made at the point at which the marginal benefit outweighs the marginal cost for the expected services. Although costs and benefits vary from individual to individual, direct costs typically include: the premium, which is often deducted from the monthly paycheck of the member; the deductible, or those costs which must be paid by the subscriber before the insurance begins its coverage; and the copayment, which is that fraction of costs beyond the deductible borne by the

subscriber. The "out-of-pocket expenses" usually refer to the deductible, copayment, or other nuisance fee.[8]

Many papers in the literature suggest that the impact of the premium expense should be discounted since individuals often are unaware of the payment or amount. This is because consumers are divorced from physically making the payment. While this might be true for many, the number of knowledgeable consumers who are aware of their health care costs is growing rapidly.

The financial loss hypothesis is directed at the economics of the health care decision (Berki 1971). This suggests that individuals will enroll "...in a plan which, other things being equal, reduces the financial costs of utilization" (Berki 1971). In other words, consumers will try to minimize costs while selecting a plan which provides the benefits they need or believe they will need.

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[8]This is usually seen as a $2.00 or $5.00 fee at the time of the visit.

III.A.1.b. Indirect Expenses

III.A.1.b.(1). Transition costs

For individuals making decisions each year on their health care arrangements, the decision to change from one plan to another can involve many costs other than just those suggested above. A health care change typically involves severing a physician-patient relationship and shopping for new care-givers at both emotional and economic expense. The change might also involve further driving distances or increased paperwork.

The literature has suggested various theories on transition costs. Luft (1987) has stated that those individuals who are the highest utilizers of health services are more likely to have close patient-physician relationships and therefore have very high transition costs associated with breaking these bonds. It has also been suggested that individuals with high health service utilization will migrate towards health care coverage which has the lowest per visit cost. These are not mutually exclusive, however, the per visit cost is often lowest in the HMO.

III.A.1.b.(2). Convenience costs

When dependents are involved in the health care equation, personal interviews with company employees and the general public suggest that care issues tend to become skewed toward care for dependents. That is, if the family is required to make health care decisions as a unit rather than as individuals, the health care decision generally is in support of that decision most convenient for the dependents. Convenience might refer to the selection of a health plan which would provide the closest, fastest and "best" medical care for the dependents. This would include such factors as parking and proximity. This suggests that while there might be convenient access for the member at their work location, decisions are often made for the spouse and/or children at home.

III.A.2. Benefits of Health Care

The benefits of health care are more intangible. While good health may seem the obvious benefit derived from health care, other benefits including convenience, "quality medical

care", plan and provider satisfaction, and health status have all been considered as benefits.[9]

III.B. Service Requirements

Another influence on the choice of a health care plan which isn't directly related to out-of-pocket expenses or premiums occurs when individuals change plans because of a particular service requirement or perceived need. Certainly it could be said that these services might also be purchased outside of the normal range of services which their previous plan covered; however, this would probably occur at significant financial cost. While arguments could be made that these are also economic decisions like the out-of-pocket and premium decisions, they will be considered separate issues for now. Changes made for specific service requirements will therefore be examined.

By service requirements, it is meant that a switch occurs based upon a difference in the benefit coverage between the previous and the newly selected health plan. Enthoven (1980) described a family which had a choice between a low-premium plan with high copayments and an HMO

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[9]personal interviews with company employees

with a high premium but comprehensive coverage. The family chose the low premium option until they learned that all four of their children required open heart surgery. During the next enrollment period, the family switched to the comprehensive coverage for the surgery. The following open enrollment period, the family returned to the low-premium option. While this might seem a rather drastic example, it does provide an example of rational purchasing of health care. It also suggests that in situations which allow dependents to switch independently from the employee, dependent care may require separate analysis. Neipp and Zeckhauser (1985) later categorized this as opportunistic switching.

The literature on specific service utilization is inconclusive. Berki (1977) has found that while demographic differences exist between populations that select HMOs and those who do not, no significant differences were found in prior health care service utilization. Lewis (1984), on the other hand, in a comparison of data from six months of ambulatory services, found that the HMO population made significantly more visits than their disenrolled counterparts. Welch and Frank (1986) used a national data set to examine the variation between HMO enrollees and conventional insurees. No significant differences were found in their analysis of the number of medical conditions

or health status. Since many HMOs are reluctant to release data, adequate comparisons of utilization have been few.

III.B.1. Perceived Needs

The majority of service needs or requirements are expected or perceived needs. These perceptions may be based upon previous need (i.e. chronic conditions) or expected need, as in the case of pregnancy and well-baby care. However, Ellis (1985) suggests that some consumers are poor forecasters of the future quantity and type of medical care. There is also evidence that consumers misperceive dollars spent on services the previous year (Ellis 1985).

In the face of a competitive market, some consumers identify specific service needs and the dollar amounts associated with this care to more appropriately select the health plan which will maximize benefits and minimize cost.[10] Bice (1975) has suggested the risk perception hypothesis to describe this phenomenon. This theory states that the higher a person's subjectively perceived need for medical care, the more likely it is that the individual will select a plan which offers the more comprehensive, more accessible benefit package, when all else is constant.

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[10]personal interviews with company employees making health care switches.

III.C. Dissatisfaction

In a study by Sorensen and Wersinger (1981), disenrollees were found to have much higher levels of dissatisfaction than their counterparts who remained in the HMO. Lewis (1984) suggests that the reasons for disenrollment involve differing medical needs. There does not appear to be a consensus as to the reasons for disenrollment from an HMO to an indemnity plan, nor is there agreement on reasons for a change from indemnity to HMO. The findings which do appear consistent throughout the literature are that the people who change to an HMO are likely to be female, younger, and have large families. Consumers who change from an HMO to the indemnity plan tend to have been with their employer (and the HMO as well) for a shorter period, and are more likely to be female.

Hirschman's exit, voice, and loyalty concept (1970) has also been brought into the health care arena. In the terms of the literature today, "exit" would be "disenrollment." "Voice" could be seen as labor negotiations over health care benefits and increased use of patient advocate or complaint departments. "Loyalty", on the other hand, might be best described when people use the voice option to improve their

surroundings and remain in their company's health plan. Loyalty may also be an important factor in Neipp and Zeckhauser's persistence theory.

The concepts of voice and loyalty as Hirschman has suggested describe the majority of the employees at most large corporations. When a major problem arises, either discussions are undertaken to arrive at a solution or a strike ensues. A strike over health care benefits might be perceived as part "voice" and part "loyalty" for this could be used to improve the state of affairs at the organization. At many companies where there is self-insurance, many people feel compelled to stay within the company's plan out of their feelings of loyalty.[11] Still others with whom we have spoken suggest that the possibility of internal knowledge and breaks in confidentiality are so great that they would prefer pay for all services out-of-pocket.

III.D. EXPERIMENTATION

Many articles have been written about disenrollment from prepaid group practices or HMOs. Mechanic, Weiss and Cleary (1983) found that individuals who disenrolled did so

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[11]personal interviews with company employees

because they were less likely to have adequate knowledge of the prepaid group practices' actual operation prior to selection of that plan. We might consider these individuals "experimenting" with different plans while they are learning which is best for them.

Although presenting such low figures for the switching population, Neipp and Zeckhauser (1985) have given reasons why people might change their health care arrangement. The first two reasons given are that an individual is learning about a plan or learning about himself. Another occurs when the consumer has a change in preference.

When an individual is learning about a plan or one's self, there is often experimentation. As people learn more about themselves and their needs and preferences, they may try different health care options to determine which plan is best for them. This "taste test" behavior combines Neipp and Zeckhauser's reasons given above.

IV. EFFECTS OF SWITCHING

IV.A. Start-up Phenomenon

The start-up phenomenon refers to the increase in health care utilization due to re-establishing a medical record and base line medical information associated with the adoption of a new health plan. While no literature has successfully quantified this phenomenon, the concept could prove to be a major concern. When one considers that if people are changing health care arrangements with any frequency, not only does this present the possibility of increased costs due to this start-up phenomenon, but this also raises concerns about the lack of continuity of care.

IV.B. Health care dynamics

If, as Lairson (1987) suggests, a company's younger and healthier employees switch to an HMO, leaving the supposedly older, more costly contracts in the indemnity plan, then the average cost to provide health care for the remaining population increases. If the costs of the HMO are based upon the average figure for the more costly company contracts, then it also follows that the potential savings

for these healthier individuals will not be able to cross-subsidize the more costly contracts.

In an environment where both adverse selection and community rating mechanisms exist, a positive feedback loop is created which will continue to escalate costs. Unless the actual costs associated with the provision of health care are those paid, then the loop will continue and HMOs will appreciate increasing premiums without seeing the increasing costs associated with the higher risk population.

V. SUMMARY

It has been suggested that health care changes are not a common occurrence. It has also been suggested that people are not rational buyers of health care. However, it has been the author's experience that certain categories of individuals contradict both of these theories.

The persistence phenomenon suggests that roughly 97% of employees remain in the same health plan (Neipp and Zeckhauser 1985). However, the study which produced these findings excluded dependent care. Another concern about these findings is that they are the results from a single open enrollment period. That is, these are the results of

one year. If these findings are extrapolated to five and ten year persistence rates, at five years only 85% ($.97^5$) of the original group remains, at ten years the numbers fall to approximately 74% ($.97^{10}$) and at 20 years the figures fall to 54% ($.97^{20}$).

However, if one assumes that switching might occur, and that switching could induce the start-up phenomenon, and that some switching occurs because of cream skimming and sludge passing, then it follows that switching could lead to increased costs depending on the magnitude of the switching population, their health care needs, and the payment mechanisms in place.

In fact, in a dynamic system such as the health care industry today, when self-selection and inappropriate rating schemes are used without corrective capabilities, a positive feedback loop exists which will continue an escalating cost cycle. Unless corrected, this loop will continue its upward spiral until the expense can no longer be maintained and health care will cease to be corporate benefit.

Although efforts to control health care costs have not yet proven successful, Luft (1986) has suggested creating mandatory basic benefit packages, periodic open enrollments and payment adjustments in order to control rising health

care costs. The payment adjustments would be based upon risk differentials between populations. These could work as a negative factor to assist in the control of the positive feedback loops described.

Another suggestion comes from Enthoven (1978, 1989). He has suggested an alternative cost-saving plan, called the "Consumer Choice Health Plan (CCHP)." Under this plan, various tax incentives are used to promote proper allocation of resources. The relevance here, aside from the national encouragement for such a plan, is that Enthoven suggests that in the CCHP a "tax credit at 60 per cent of actuarial cost would limit the potential for people to manipulate the system to their advantage by taking a minimum-cost 'catastrophic insurance' plan when they expect to be healthy, and then switching to a full-benefit plan when they anticipated elective surgical procedures or pregnancy."

Given the political climate surrounding health care, it is unclear if any of these corrective measures will be implemented on a national basis. However, some companies, concerned about their own viability, are researching each alternative closely.

CHAPTER III

RESEARCH DESIGN

In this chapter, the discussion will focus on designing a study show whether or not switching occurs, the reasons for switching, and the potential implications of switching. The central hypothesis will be given first, with the supporting hypotheses following.

The supporting hypotheses will consider the frequency of switching, followed by the reasons for switching. The section related to the reasons for switching will focus on the two aspects discussed earlier, cost saving and service seeking switches.

I. CENTRAL HYPOTHESES

The central hypothesis of this thesis is as follows:

> H_1: Individuals with expected health care requirements will change plans in an effort to maximize benefits or minimize costs. Or, more simply, individuals change health plans when it is their best interest to do so.

This hypothesis might be verified by searching specific insured populations for whether switching occurs over time and if so, whether it arises for cost-saving or service-

seeking reasons. With limited resources and time, a retrospective design would seem most appropriate and most cost-effective. Therefore, we might begin with the assumption that such populations exist, and that historical data could be collected on employment, plan membership, medical claims information, and preferably interview data from the switching population.

In order to examine the existence of switching populations and their reasons for switching, each could be developed into a hypothesis with supporting research questions.

II. FREQUENCY OF SWITCHING

To examine whether health care plan switching is common, the frequency of voluntary switches shall be determined. Information required to estimate switching frequencies include historical data per covered individual on voluntary changes in health plans from one year to the next. Such changes could be determined as follows. If employment information were available that included address, work location, and dates of employment and eligibility, then any change in plan membership which occurred during a period in which all of the employment information is voluntary.

This classification allows for exclusion of individuals who left an employer, moved out of the service area, changed to student status, were part-time employees, or individuals who had died.

This data could then be analyzed to show the numbers of switches which occurred per individual during a study period or for the population to determine whether or not switching occurs and the extent of involvement.

The answer to this would provide information on the potential importance of switching on the risk pool. That is, if switching does not occur, it probably would not pose any concerns. If it does occur, we need to know the extent of the population involved and determine the potential implications.

III. REASONS FOR SWITCHING

The focus for this study includes the factors which affect the sharing of risk between health plans. As discussed earlier, reasons related to costs and service

requirements are most likely to alter the risk pool and therefore need to be determined.

A survey of switchers is one way to assess reasons for switching. However, since many people are likely to be unable to remember why, or when a change was made, additional information is required for verification.

In particular, data on historical plan descriptions and costs, medical claims information, employment and eligibility information, are used to validate interviews of the switching population.

III.A. Cost Saving Switches

Three hypotheses on whether consumers switch health care plans for cost saving reasons are tested:

H_1: The incidence of switching is affected by changes in premiums. In particular, as premiums increase, switching away from the increase would be expected.

H_2: The copayment amounts are different between those who switch and those who don't. Here we might expect copayment amounts to be lower than the controls for those individuals switching from an indemnity plan to an HMO if those individuals selecting HMOs are healthier and higher than the controls for those individuals returning to the indemnity plan from an HMO.

H_3: The deductible amounts are different between those who switch and those who don't. Here we might expect deductible amounts to be lower than the controls for those individuals switching from an indemnity plan to an HMO if those individuals selecting HMOs are healthier and higher than the controls for those individuals returning to the indemnity plan from an HMO.

In order to determine whether switching occurs because of cost factors, medical claims data and plan information are examined. Switches to save costs are defined as switches which provide a reduction in expenditures to the covered individual. To determine whether this type of switch occurs, premium differences between the original plan and the selected plan are compared along with the deductible and copayment. Historical plan data are gathered from materials made available to individuals during the applicable open enrollment periods.

Each of the above hypotheses can be tested more precisely by examining the type of switch. Two switching samples are identified: individuals who switch from the indemnity plan to an HMO, and those who switch from the HMO to the indemnity plan.

Copayment and deductible amounts would increase for individuals using a higher number or more expensive services. Therefore, if we assume that more healthy

consumers switch to HMOs, we would expect their copayments and deductibles to be significantly lower than non-switchers. On the other hand, those returning to the indemnity plan may have confounding factors affecting their data. Not only might the individual be making the switch based upon a specific need (whether to save money or use a specific service) which would create higher figures, but their return might induce the start-up effect which would also affect the data.

III.B. Service Seeking Switches

As there are many services which may be considered, those which are most representative of health care costs should be examined. These services include obstetrical, mental health, inpatient, surgical, non-network provider use, SCE physician use, and prescriptive utilization. We test whether there are differences in the number of claims for each of these services and the dollar amounts charged. The following hypothesis is posed:

H_4: There are differences in dollar amounts charged or number of claims used for *Y* service between groups that switch and those that don't.

where *Y* is each of the following respectively: obstetrical, mental health, inpatient, surgical, outside physician use, and inside physician use.

Expectations are that the null hypothesis would be rejected based upon the findings for the majority of these figures being lower for the population switching to the HMO. This will probably have an exception. Given the well-baby care provided at HMOs, we expect to see higher figures for obstetrical care for those individuals going to HMOs. This, presumably, is a tradeoff offered by the HMO to attract individuals with lower total health care costs. Examples of reasons for individuals switching from an indemnity plan to an HMO are that specific outpatient services are available at lower out-of-pocket expense to the patient.

The service seeking switches could be determined by examining claims data and interviewing switchers.

Specific services received greater depth of coverage in an indemnity plan than in HMOs. We examine whether specific services are being used to a greater extent by individuals switching to a particular plan, since this implies that switches are made to satisfy the demand for a particular service.

Both cost saving and service seeking motives are tested using data analysis based on historical medical claims and eligibility data. However, an even stronger case could be made if individuals would tell us why they were about to make a switch prior to the switch itself. As this is designed to be a retrospective analysis, individuals could be asked why they made a particular switch. Recall would not be expected to be 100% but responses would allow additional confirmation of the claims and eligibility data. Expected responses might be that individuals who switched from the indemnity plan to an HMO suggest that they had switched based on the cost savings and service availability for dependent care. Therefore, survey information should be collected to provide additional support for this hypothesis.

Specific research questions which could address these events include:

Why are changes in coverage made?

Are there specific service requirements of switchers, and do these requirements change depending on the pattern of switch (HMO to Indemnity, HMO to HMO, Indemnity to HMO)?

The answers to these would provide guidance to both benefit managers and rate setters. If switching does alter risk sharing, then benefit managers may decide to respond to

specific reasons for switching and rate setters may want to re-evaluate the mechanisms by which reimbursements are made.

An example might come from well baby care. If younger, healthier individuals switch to HMOs for well baby care, then their potentially lower costs would have been passed to the HMO as would their premiums, thereby increasing the overall cost per covered individual at the company. If so, corporate benefit managers may wish to add coverage for well baby care to attract and maintain the lower cost individuals. On the other hand, if the sociodemographic characteristics of the plans are so different that a comparable risk sharing arrangement is not feasible, then rate setters may need to incorporate these differences into the payment and rating mechanisms.

Specific categories of beneficiaries which might also be identified from data include members, dependents, women in childbearing ages, children for well-baby care, elderly and the Medicare population. We might also learn from differences within and between each of the groups. We can formulate a hypothesis based upon these beneficiaries:

H_5: Specific categories of beneficiaries, because of their special health care needs, will be most likely to switch.

If there are groups whose cost or service needs are unmet, it might be desirable to add a benefit modification to maintain satisfaction among the employees and subscribers.

In addition to the above listed questions, the following should also be posed to help identify or predict the switching population and any possible effects which their actions may have on both the current and future medical system:

4) Does the likelihood of change depend on previous utilization or service need?

5) Are previous "switchers" more or less likely to change?

Numbers 4 and 5 offer the capability to predict future switching behavior.

6) Are "switchers" the highest utilizers of health care compared to their non-switching age-sex adjusted counterparts?

7) Are "switchers" the most expensive utilizers of health care compared to their non-switching age-sex adjusted counterparts?

Numbers 6 and 7 may provide insight as to future budgeting concerns.

8) Are "switchers" demographically different from their non-switching counterparts?

9) What do these change patterns suggest about the demographic characteristics about each of the options in the future?

10) What do the migration patterns suggest about future patterns?

This final group of research questions (8, 9, and 10) could be the most helpful for long-term corrective factors. Rate setters, policy makers and plan managers could benefit from this information. These will assist in the planning and design of benefits packages. Also important, in light of current legislative concern about unfunded corporate pension liabilities, are the possible implications with respect to such liabilities.

These questions also raise other issues. For example, how often do people switch? Are their reasons different each time? Are switches based only on an individual's perceived expected costs (both out-of-pocket expenses and premium payments) or are there other reasons (location, preference of doctor, facility choice, service availability, etc.) that dictate this decision? To what extent do these other reasons factor into the decision process? Do these reasons change over time? Are these reasons learned behavior? Are populations making the same change (e.g. from indemnity to HMO) doing so for the same reasons? What are the reasons for switching from an indemnity plan to an HMO--are they based on cost issues and location; are service and satisfaction reasons to switch from HMO to indemnity; are doctor preferences and quality the reasons to change from HMO to HMO?

Do members of the same family make changes different from those of the head of the household? Are these differences within families due to location? If not, what other factors could be involved? Are their reasons amenable to change? What services are most utilized by these switchers? What are the health needs of the switchers? What is the nature of their expense experience? What is the nature of their utilization experience?

Specific diagnostic groups should also be analyzed to determine whether there are differences in utilization of specific services. For example, diabetics, rheumatoid arthritics, individuals with infertility concerns, and pregnancies should all be examined as these groups have specific utilization needs. The patterns of coverage and utilization for these individuals might provide a new understanding on the use and selection of health care within a multi-option setting.

Also in need of consideration are the administrative expenses which might be associated with switching. What costs, if any, should be borne by the switchers? by the employee pool? Are there policies that might alter this behavior?

CHAPTER IV

METHODOLOGY

This chapter will discuss the research design used to test the hypotheses discussed earlier. Specific areas that will be addressed will include Site Requirements (including site selection and plan characteristics), Data Requirements and Collection (Employee Information System, Eligibility System, ClaimFacts System, and telephone survey), Sample Selection, Analysis, and the presentation of a multivariate Model.

I. SITE REQUIREMENTS

In order to test the hypotheses discussed above, a location was needed with specific characteristics. Critical data (medical claims, employment history, plan and eligibility information) must have been collected for more than three years. Due to the unknown nature and size of the switching populations, it was felt that a large employee database would provide the highest probability of finding these events. Along with size, a company that maintained data on an individual basis was also required. This was the only way to determine the potential differences which might arise between dependents and employees (members). Another major requirement was that the data had to be accessible

without restriction to the author so that adequate representations could be made of the population without additional biases being introduced.

I.A. Site selection

The Director of Medical Education and Research for Southern California Edison (SCE), Dr. G.W. Courtright, and the Medical Director (currently Medical Director and Corporate Vice President), Dr. Jacque J. Sokolov, provided assurance that SCE could provide support for the majority of the site requirements which this study put forth. Given the degree of enthusiasm, support, and data availability, Southern California Edison was selected as the research site.

I.B. Characteristics

I.B.1. Site Characteristics

The corporate headquarters of SCE are located in Rosemead, a small suburb east of downtown Los Angeles, California. The company is currently the largest utility company in the United States. There are approximately 19,000 employees, and 38,000 dependents.

I.B.2. Personnel characteristics

The demographic characteristics of this population can be seen in figures 2, 3, 4, and 5 on the next pages. Figures 2 and 3 show the dependent male and female populations in the indemnity plan and HMOs respectively. The scales are the same on these graphs to allow for comparison. As can be seen, there exists a large portion of females over the age of 40 in the indemnity plan which does not exist in the HMOs. Figures 4 and 5 show a similar depiction except that the older population is comprised mainly of males.

These depict not only the demographics of SCE, but also the inequities in age, and risk, between HMOs and the indemnity plan. It is readily apparent from the graphs that the average age for individuals within the indemnity plan is considerably older than in the HMOs.

FIGURE 2

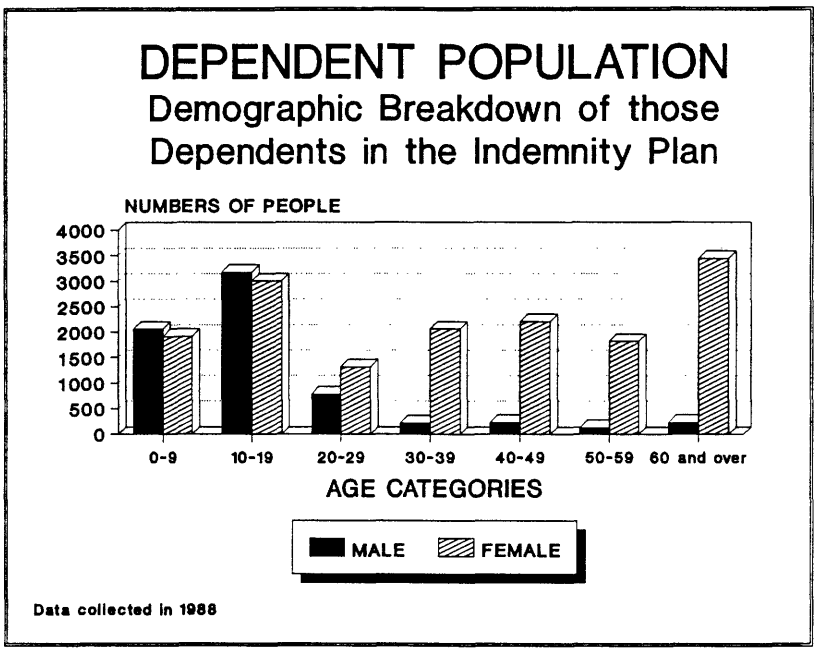


FIGURE 3

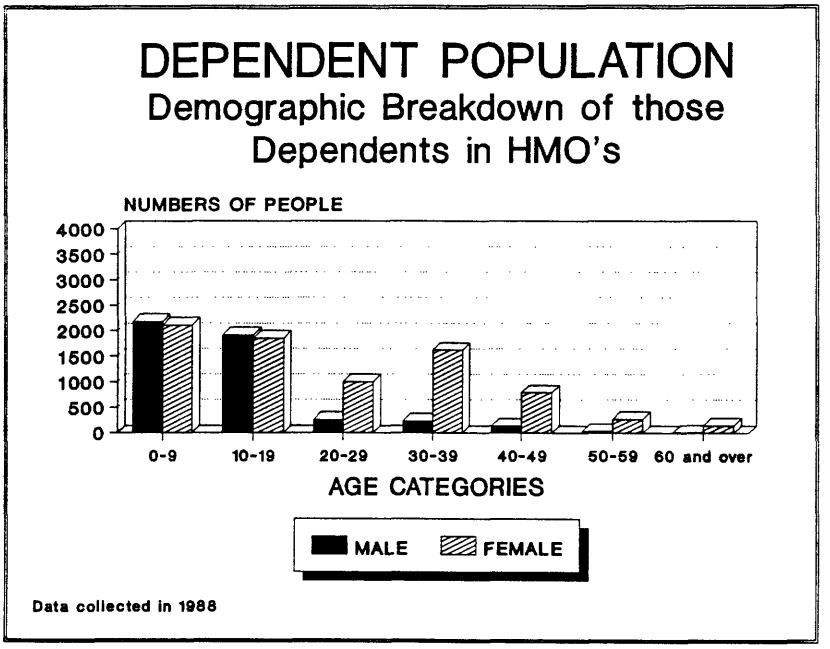


FIGURE 4

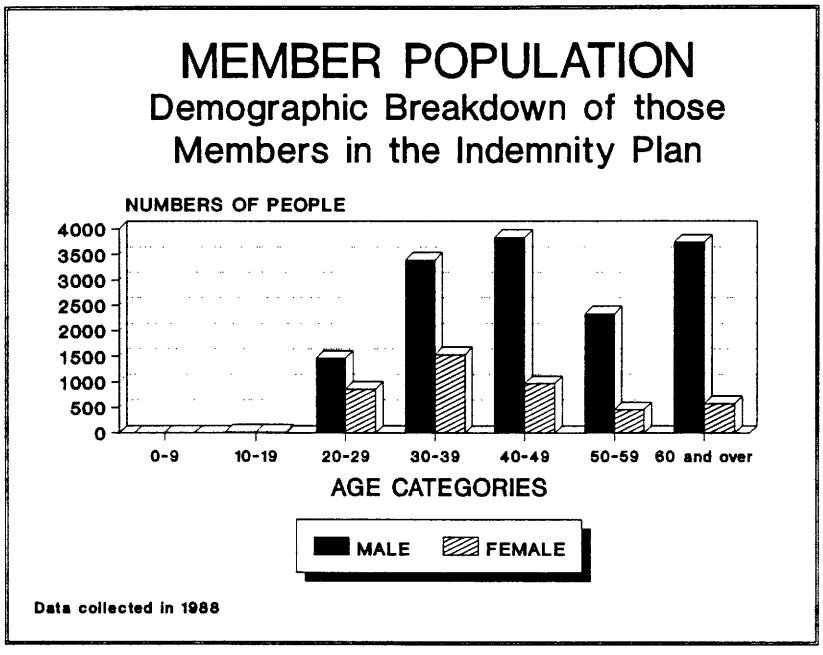
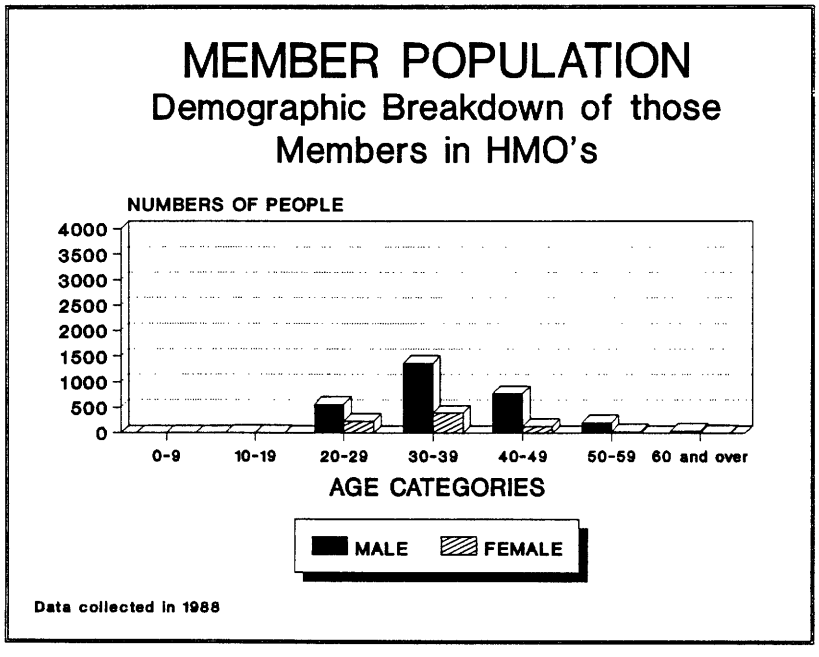


FIGURE 5



I.B.3. Plan Characteristics

The company began offering health care as a benefit in 1902. Health care was provided by a lone physician on horseback riding from camp to camp in the Sierra mountains. Since that time, expenditures for health care benefits has grown from the salary for that physician to almost 25% of the total benefit package. The increase has prompted concern as to the future liabilities associated with both increasing health care benefit levels and increasing costs.

As can be seen in Figure 1 (page 5), the yearly budgets for the provision of health care at the company have been growing at a rapid rate. Health care costs for the organization have been increasing at an annual rate of 23% (considerably higher than the national average of 15%). The projections of these rates into the 1990s have caused great concern at this and many other large corporations.

Figures 6 and 7 depict the penetrations of HMOs into this market. Figure 6 shows the percent of the total company population (employees and dependents) with HMO coverage between the years of 1984 and 1988. Figure 7 shows

what percentage of this HMO penetration is due to employees and how much is from the dependents.

FIGURE 6

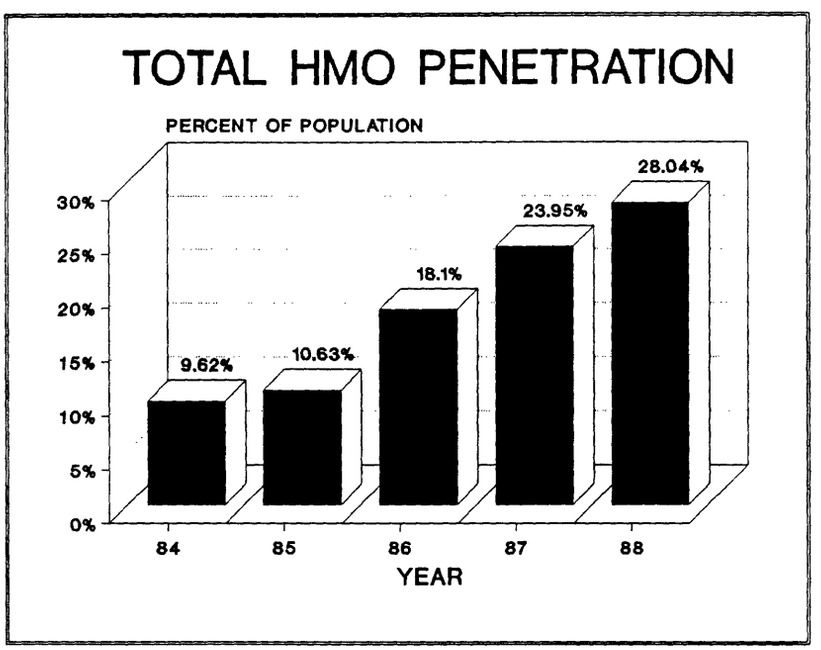


FIGURE 7

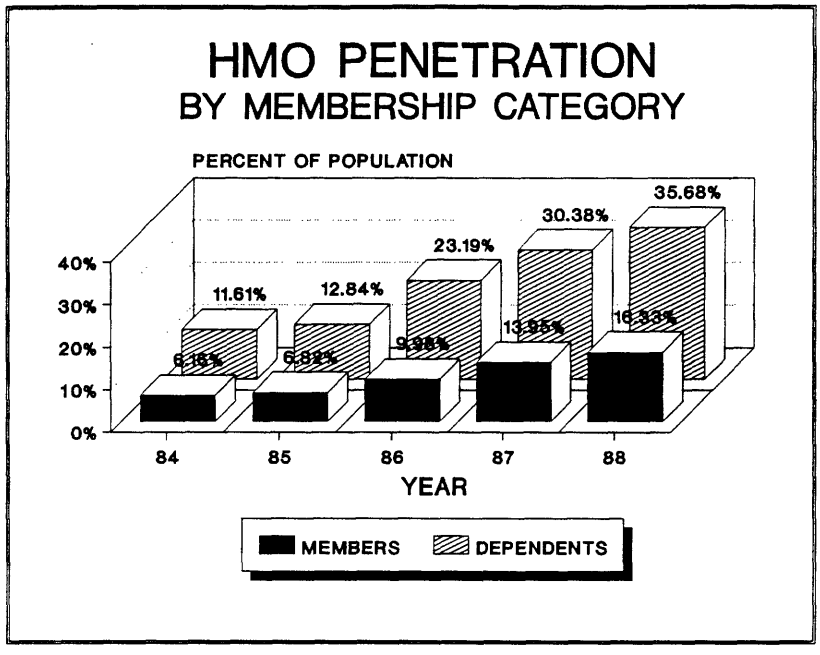


FIGURE 8

SCE HEALTH CARE COSTS PER YEAR PER COVERED INDIVIDUAL

POPULATION	1985 $/ COV.IND.	1986 $/ COV.IND.	1987 $/ COV.IND.	1988 $/ COV.IND.
INDEMNITY	915.65	900.98	1165.25	1942.14
HMOs	542.40	743.95	816.53	907.38
TOTAL	1458.05	1644.93	1981.78	2849.52
% Change from previous year		12.82 %	20.48 %	43.79 %

COV.IND.=covered individual

In Figure 8, we can see the cumulative four year increase in health care expenditures for the company's indemnity plan at 112%, and 67% for the coverage for those individuals in the HMOs during the study period.

The health care benefits at the company are provided through the following plans: The Employee Health Care Plan, The Dependent Health Care Plan, the COBRA (Consolidated Omnibus Budget Reconciliation Act of 1985) extended benefits plan, and a retirement plan. However, the retirement plan in itself is comprised of various components of the other plans plus a pilot project called PRIME. The company self-insures and self-administers its health care benefits.

I.B.2.a. Employee coverage

Within the benefit structure, there exist three separate entities in the "employee plans." The first group is full-time employees who have elected health care through the Employee Health Care Plan. They may receive care from the providers at the Company Health Care Centers, from company networked providers, or from providers they choose themselves (at 80% reimbursement). There is an annual $150.00 deductible, after which covered health care expenses of the employees themselves (not their dependents) are paid

by the company in full. The second group is employees who have joined any one of the eight HMO choices.[12] The last group comprises employees covered by the extended benefits, or COBRA. The COBRA portion consists of legislatively mandated coverage for 18 months for individuals that would no longer be covered, whether terminated for anything other than gross misconduct, changing employment status (full-time->part-time), or if they retired with less than ten years of service.

I.B.2.b. Dependent coverage

During the study period, there were eight options available for dependents and part-time employees. Under the Dependent Health Care Plan, the company pays 80% of the monthly premium. This plan is open to part-time employees, dependents of full-time, part-time, or retired employees, or their surviving spouses. The basic benefits cover 100% of the reasonable and customary charges up to specified limits. The major medical benefits are covered at 80% after the annual deductible of $125 ($250 per family). There is also an option for dependents to join HMOs. Mandated coverage is available through COBRA for 36 months when the employee dies while in service, is involved in a divorce or separation, or

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[12] General Med., Inland, Pacificare, Kaiser, Maxicare, Nevada, Ross Loos, and Cigna.

the dependent loses eligibility (this occurs when unmarried children reach age 19, unmarried children who are full time students reach age 23, or if a physical or mental incapacitation occurs after the age of 19). Dependents are not currently permitted to use the services provided from the Company Health Care Centers.

I.B.2.c. Retiree coverage

The retiree plans consist of those retired employees covered through an extension of the Employee Health Care Plan, through an HMO, through a company sponsored pilot project (PRIME), or those covered through the COBRA mechanism. The employee's premium is paid in full by the company, as are all bills. Although not currently mandated legislatively, the company has offered itself to become the primary payer for Medicare. The loss associated with the payment of all premiums and the primary payer arrangement has left some wondering about the viability of these programs in the future. In the early 1980s, the company felt that it would recapture approximately 70% of its costs through a system such as this. Today, this figure has been estimated at less than 35%.[13]

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[13]personal communication with company health care managers

I.C. Unique Features

The health care department and benefits structure at SCE are very unique in a number of ways. Health care contracts are on an individual basis, rather than on a subscriber or family level. This allows for a better representation of dependents and their plan preferences and utilization data.

Another unique aspect of the benefits plan during the study period was that there were a number of exogenous changes in relative costs of plans available to employees. These cost changes are likely to induce employees to switch plans (Appendix III and Appendix V).

For example, in 1986, one HMO began to offer coverage for dependents free of premiums, while the majority of the others HMOs had premiums significantly lower than the indemnity plan. The following year, 1987, other HMOs also began offering dependent care at no additional premium over and above the company contribution. In 1987, members were also given the option of paying no additional premium for certain HMO plans. Prior to this, the indemnity plan was the only plan which was offered at no additional expense to the subscriber. For 1988, almost every HMO was free of premium dollars to the individuals (both members and

dependents, but not for medicare), but the company sponsored indemnity plan still had substantial premiums associated with dependent coverage. These changes increase the likelihood of switching if consumers are concerned with minimizing their expenses.

Also of interest during the study period was the ability for individuals to make health care changes without changing providers. This was accomplished through the institution of a preferred provider network that employees had requested. The effects of this were that almost everyone was able to have his or her private physician (if he or she chose to do so) covered through the indemnity plan. Therefore, people were able to make a transition without the most important aspect of transition costs--that of breaking the patient-provider relationship.

II. DATA REQUIREMENTS AND COLLECTIONS

II.A. Data Elements and Limitations

Data was collected to test the hypotheses presented in Chapter 3. However, the HMOs which this company offers as choices were not able to provide adequate data on service use by individuals, nor were they willing to share reliable cost or revenue data based upon SCE's population. Therefore, with only the data from the indemnity plan available, accurate comparisons of utilization were possible only during the period when the consumer was in the indemnity plan. This allowed examination of a switcher's utilization for the year(s) following disenrollment from an HMO and the year(s) preceding the enrollment to an HMO.

Due to labor-management conflicts, restrictions were also placed on information regarding "represented" (union) employees. Although this restriction was later removed, the union individuals were excluded from the telephone survey. However, all other information was gathered for these individuals.

Further data investigation revealed that while eligibility and employment data were intact from 1984,

claims information was not reliable until 1985. Therefore, while 1984 is included in the determination of the various "patterns of change", it is excluded from the remainder of the analysis.

Data sources included the corporation's Employee Information System, the ClaimFacts system (described below), corporate accounting books, and management and personnel interviews.

II.A.1. Employee information

The Employee Information Systems (EIS) provide data which included sex, age, marital status, family size, employment status, work location, payroll location, address, relationship to subscriber, and subscriber category.

II.A.2. Eligibility information

The eligibility files provide data on plan membership by year, eligibility status, and dates of enrollment.

II.A.3. Claims information

The ClaimFacts Systems provide the following data: date of service, inpatient days, place of service, type of service, provider identification, principal diagnosis, procedure code, dollar amount charged, dollar amount paid, and dollar amount allowed. Type of service was then categorized into claims and dollar amounts for visits with on-site Edison physicians, visits with outside physicians, prescription services, inpatient services, surgical services, obstetrical services, and mental health services.

Expectations for this data are the ability to determine cost saving and service seeking switches from claims analysis and to corroborate this information with individual responses as to their reasons for change. It is expected that those individuals migrating to the HMOs will have reduced expenditures possibly with the exception of obstetrical services. Those individuals disenrolling from the HMOs are expected to be searching for specific services, such as mental health, where HMO benefits are limited unlike those of the indemnity plan.

II.A.4. Survey Information

II.A.4.a. Survey instrument

While claims data can support the notion of adverse selection, only the individuals involved can verify whether changes were intentionally made for cost saving or service seeking reasons. Consequently, a survey of health care users that switched plans is used to validate the claims data. A telephone survey was determined to be the most effective way to conduct this survey. If a mailed survey had been used, the open ended questions could not have been directed to elicit detailed responses which the subjects provided. The company requested that anonymity be maintained at all times which removed the possibility of face-to-face interviews. Further, the logistics required to attempt a face-to-face interview with this many people would be impossible given the time constraints.

Due to the nature of certain questions, measures were taken to design the survey instrument such that individuals being questioned would not be placed into a defensive situation. Many consumers are hesitant to discuss medical needs or emotions to strangers. Therefore, the survey design required enough general questions in the beginning to

allow for the respondent to feel comfortable with the interview and then be lead into more difficult personal questions. This form of leading also aided respondents to better clarify their needs by reviewing their history.

The instrument itself was designed in a database format for ease of use and future analysis. Pertinent history was uploaded from the master eligibility files to allow the interviewer the capability to further direct the interview. The social security number (scrambled) was used as a key field to further analyze responses with claims information. The stated history was included to not only verify the information, but to verify the subject's memory.

After a brief introduction, an additional reminder about the structure of the interview was given (questions would be asked about both the respondent's previous plans as well as the coverage they had in 1988). The survey began with some very general questions regarding overall satisfaction levels in their plans (medical, routine, specialty, emergency, and dependent care). Each of these areas were then covered in more detail. Questions covered whether the service was used, the travel time required for the service, the appointment backlog, in-office waiting times, out-of-pocket fees, and amount of paperwork which needed to be completed. These questions were used to assess

respondent's views on routine care, dependent care, and emergency services.[14]

One question raised in the literature is whether to evaluate travel times or distances. In many metropolitan areas, distance is not an adequate representation of the hassles involved with seeking health care services. Driving times can provide a much better indicator of convenience. Two locations the same distance in miles could have extremely different travel times or convenience levels.[15]

II.A.4.a.(1). Outside care

For outside care, questions were asked about the use of services, whether they were covered, how important those services were in the health care decision, and service satisfaction levels.

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[14]Emergency services did not contain a question about appointment backlog.

[15]For example, consider two locations A and B, both 5 miles from a family's house. If location A has highway access and plenty of parking, the driving time from door to door could be less than 15 minutes. On the other hand, location B may access only surface roads and be located downtown where parking is scarce and very costly. Total travel time for location B could be close to 1 hour.

II.A.4.a.(2). Provider issues

Specific provider issues were then addressed. The subjects were asked whether they had to change health care providers because of their switch, and whether they were satisfied with their providers before and after their change.

II.A.4.a.(3). Service issues

Specific service issues were also addressed with regard to satisfaction levels with appointment times, information given over the phone, support staff, facilities, access to special services, access to hospital care, and access to emergency care.

II.A.4.a.(4). Health plan selection

Questions were asked to determine who decides health care arrangements for the family (if not a single individual) and how such decisions were made. These were followed by an open discussion about why any changes were made, why only parts of the family made a change, or why they were all making different changes.

Following this discussion, questions were asked to determine the highest levels of education completed by both the member and the spouse, whether the family had a dual income, and the level of that income.

The levels of income selected proved to be inadequate to assess any differences in total family income. This geographical phenomenon was not accounted for in the original design. Almost 92% of the respondents had dual incomes with total income greater than $50,000. Although income differences will be noted in the results chapter, it is not clear which (the total family income or that derived from the employee in question) might produce an income effect.

II.A.4.b. Logistics

To set up the telephone interviews, the company sent letters to individuals asking for their participation in the study. The company letters and the employee response letters served multiple purposes. First, they served as a legal release form from the person. Second, it served to release additional information such as the person's phone number, or at least where they might be reached for participation in the survey and at what time they preferred

to be called. This was accomplished by adding boxes for the people to check when they would prefer to be called.

Once the letters were received from survey participants, their social security numbers had to be rescrambled to allow compatibility with the database information. To ensure confidentiality to the respondents, the company sorted the signed forms so that the appropriate social security numbers could be assigned. This information was not released to the author to ensure that plan users who had been included in the survey but had not responded could not be identified.

The telephone interviews were complicated by SCE's phone system, a Rolm digital system, which allows almost all individuals access to phonemail. Phonemail is a form of answering machine. While this might be a very functional system for a work environment, it is not conducive to a phone survey with very limited time. The conveniences of these phones went so far as to allow an individual to not be disturbed during meetings or other busy times. The majority of the employees included in the survey had access to use this "Do Not Disturb" facility. This routes all calls directly to the answering system whether the person is available or not.

What began with 208 individuals (38.1% of 546 possible non-union survey population) who responded by returning their letters for the telephone survey, was reduced to 62 (29.81% of those responding to the letter) usable respondents. While not appearing to produce any biases, this reduction in sample size decreases the statistical power of the t-tests. However, the company's confidentiality concerns did create a selection bias since union employees were excluded. The response letters created an additional bias. By requiring individuals to actively participate by returning the release form, a bias was introduced since only those individuals who had specific reasons to respond did so. Because of these biases, generalizations from the survey population to the population as a whole are severely limited.

The advantage of a phone versus mailed survey was that open ended questions and discussion were possible. People were very open to discuss not only the specific questions on the survey, but would allow specific medical questions to be asked to which they would gladly respond. While the response rate was less than expected, given the claims information to back the data received, the survey was very informative. The specific reasons and the migration of those respondents did allow validation of the claims

information, which did not suffer from biases afflicting the survey.

II.A.5. Additional Information Sources

II.A.5.a. Employee interviews

These meetings provided information on the various costs and other data associated with the provision of health care benefits. SCE self-insures its medical costs. Information collected included costs associated with managing an open enrollment (average cost per year during the study period was $75,000 or about $1.33 per covered individual per year), and various data on the mechanisms associated with the management of claims and medical benefits at such a large corporation.

II.A.5.b. Open enrollment material

This material provided plan descriptions and variations on an annual basis as well as the costs associated with each.

III. SAMPLE SELECTION

Upon determination of whether switching does occur, various samples were selected for further analysis. The direction of change, whether from or to an HMO, as well as whether changes occurred within families were investigated.

III.A. Frequency of Switching

Prior to sample selection, various groups were defined to stratify each of the sample populations. Health care switches were defined as changes in plan membership between 1/1/85 and 3/9/88. Non-voluntary changes arising from initial assignments of coverage, terminations, deaths, non-eligible employees, or transfers to student status were excluded. Given these exclusions, the employment and eligibility data for the remaining population at the firm (56,354 people) were queried to determine the number of health care switches individuals had made and the patterns associated with these switches. The number of changes is shown in Figure 9.

FIGURE 9

Number of Individuals* Making Voluntary and Involuntary Changes in Health Care Coverage in Period 1985 to 1988

	Voluntary changes		Voluntary & Involuntary Changes	
	number of people switching	percent of total population	number of people switching	percent of total population
1 change	= 18953	33.6%	28500	50.6%
2 changes	= 5987	10.6%	13813	24.5%
3 changes	= 1357	2.4%	3558	6.3%
4 changes	= 342	0.6%	1048	1.9%
5 changes	= 66	0.1%	306	0.5%
6 changes	= 41	0.1%	253	0.4%

Total Number Of People
Making Voluntary Switches = 26,746

Total Number of Switching Events = 36,942
*includes employees and dependents

Given an average population of 56,354 during three open enrollment periods and the policy that individuals are only allowed to change health plans during the annual open enrollment period (one change per year), there are 169,062 possible switching events, and 36,942 actual changes. This is 22% of the total and represents the combination of members and dependents.

III.A.1. Patterns of Change

In examining this population, it was determined that there were specific "patterns of change" which the switchers had made. In order to search for cost saving and service seeking switches, an annual plan selection code was merged with the individual's claims data. We have simplified the basic health care decision to consist of two choices: the indemnity plan or an HMO. With this scheme, the plan selection information was coded to "I's" for the choice of the indemnity plan and "H's" for an HMO. Therefore, if an individual was in the indemnity plan in 1984, an "I" would be coded in the first position. If a change was made outside of the open enrollment period, then the plan in effect as of January 1 (provided company eligibility was for more than six months of the year) was used for the code. This classification procedure was repeated for each of the subsequent sample years 1985, 1986, 1987, and 1988. Those individuals with less than a five year eligibility were analyzed separately from those continuously with the company during the study period. This added an additional level of variable control.

While there are 32 possible combinations of patterns (2^5=32; 2 possibilities "H" (HMO) or "I" (Indemnity) over 5 years--'84,'85,'86,'87,'88), only twenty patterns were

actually observed. For ease of claims analysis, these were collapsed. That is, a pattern which presented as HHIIH produced the collapsed pattern of HIH. The twenty observed patterns were reduced to seven collapsed patterns (to be known as "patterns of change"). These patterns of change consist of the two non-switching patterns "III" for indemnity and "HHH" for HMOs, and five switching patterns "HI", "IH", "HIH", "IHI", and "IHIH." No other patterns were found in this population. Figure 10 represents the numbers of individuals (from total population) within each pattern of change and figure 11 shows the percentage breakdown within each pattern of change for members and dependents.

FIGURE 10

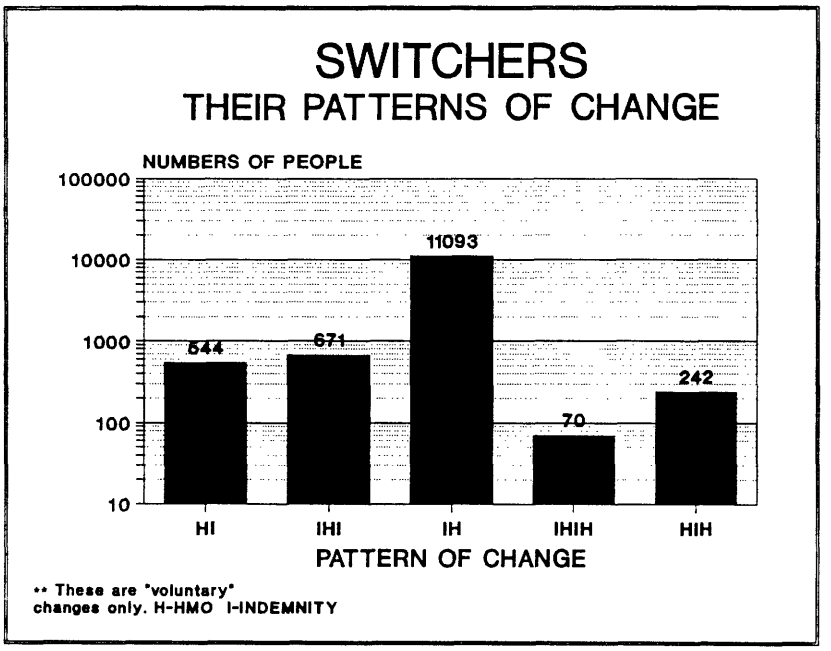
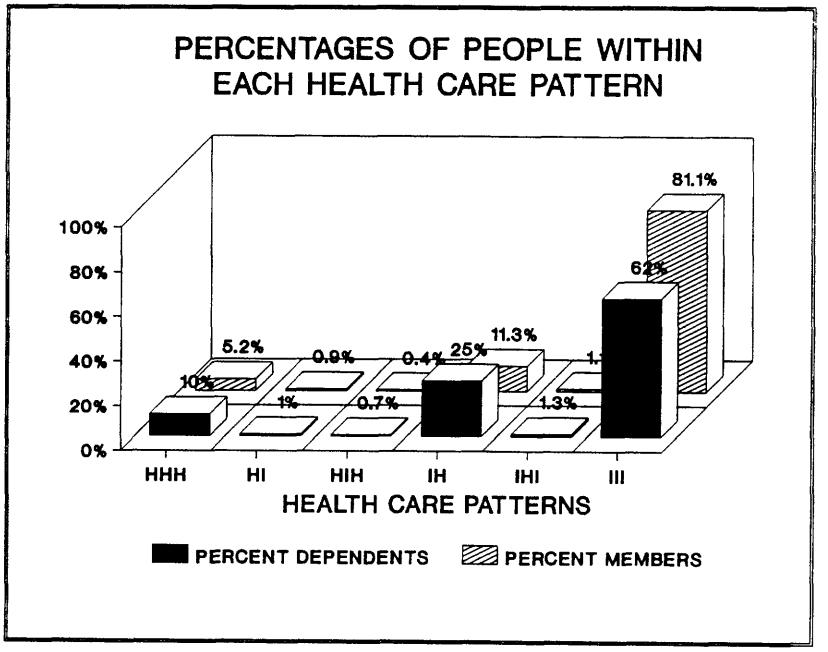


FIGURE 11



III.A.2. Other comparisons

While the information on the total SCE population (known as "total" population) was included for determining overall population statistics, a smaller sample (called "claims" sample) was selected for claims analysis to determine whether cost saving or service seeking switches occur, and a third sample (smaller yet, known as the "survey" sample) was defined for a telephone survey to provide additional information about the reasons why people make health care changes. These samples were compared to a control group of non-switchers.

The "claims" sample size was dictated by the amount of claims data which could be analyzed. That is, the ability to analyze multiple years of claims and eligibility information was constrained by the availability of computing time and data storage capacity.

Based upon these constraints, a 30% stratified random sample of employees was selected, their dependents were then included (21,253 total comprised of 6000 members, 15253 dependents) and medical claims information was collected. Stratification was made by pattern of change. Using this

"claims" population, the company's eligibility information was then collected, merged and analyzed for this sample.

The survey population was a further reduced stratified, random sample of the "claims" population. This allowed a merge of both survey and claims information to support the reasons for changing health plans. This stratification was also performed by patterns of change which were observed in the switching population. Although information on dependents would be collected, the employee would be source of information. This sample included 1116 (546 non-union, 570 union) individuals. This figure included a sufficiently large sample of each pattern of change to allow determination of statistically significant differences at a low survey response rate. These figures were considerably larger than necessary to provide additional statistically sound ($p<.05$) comparisons between union and non-union membership, dependents and members, and interfamily changing populations.

A comparison between the sample populations can be seen in Figure 12.

FIGURE 12

MEAN COMPARISONS BETWEEN SAMPLES

	CLAIMS SAMPLE n=21250	SURVEY SAMPLE n=62
AGE (years)	42.92 (14.99)	40.27 (11.97)
SEX RATIO (F/M)	1.42 (0.86)	1.06 (0.99)
FAMILY SIZE	3.16 (1.53)	3.29 (1.51)
INCOME (dollars)	35,884 (16,464)	37,032 (13,584)

** standard deviations given in parentheses--no statistically significant differences were noted

While slight differences were seen between the sample populations, there were no statistically significant differences. Which is to say, the telephone survey sample should be a fair representation of the claims sample.

III.A.3. Interfamily changes

SCE permits family members to make different health care choices from those of the subscriber. With eligibility information on individuals rather than on only the subscriber, we found that there were differences in choices

between family members. The patterns of differences were then categorized as to whether health care arrangements were made as a family unit (SAME), whether the dependents went to an HMO while the member remained in the indemnity plan (ONE), whether the member changed to an HMO and the dependents stayed in the indemnity plan (TWO), and whether during the study period both ONE and TWO occurred (BOTH).

FIGURE 13

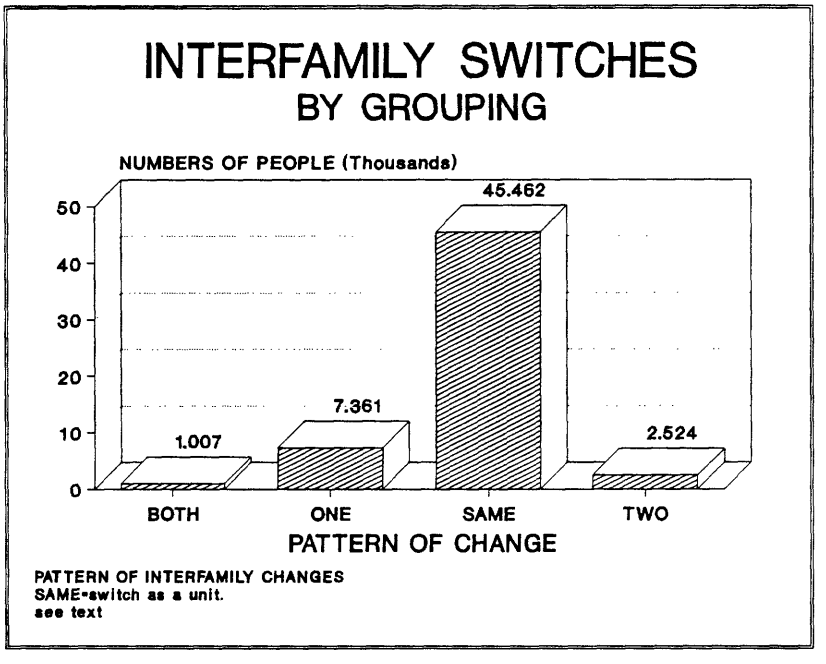


Figure 13 shows the number of people associated with each of these categories. Of the 45,462 individuals shown in the SAME category, 5,565 are single individuals and could be excluded from "inter-family" switching. After this

exclusion, 21.4% of all families at SCE had been involved in this form of switching. This suggests that while the of families may not be "gaming" the system, a significant portion is.

III.A.4. Control group

The various switching populations for SCE were compared to a randomly selected population of non-switchers from the same firm. The data elements discussed in appendix B were obtained from the company's claim system, the employment information system, or company records. Others were collected through a company coordinated survey, and still others were collected through anonymous personal interviews.

IV. ANALYSIS

IV.A. Univariate

The claims and survey data were analyzed using two-sample difference of means testing (t-tests). This analysis was implemented via microcomputer based software packages.

IV.B. Multivariate

A probit model was used to evaluate factors which influence the decision to select an HMO or the company's indemnity plan. The dependent variable P^* is classified as 0 if the indemnity is chosen and 1 if the HMO plan is chosen. The selection of one choice will be designated as "0", the other "1." The probability function of selecting one choice or the other will be tested in the following model:

$$P^* = BX + U$$

where P^* is the plan selection variable, (X) are the explanatory variables, B is a vector of coefficients and U is the error term.

The coefficients will consist of those data elements previously considered in the univariate analysis (Chapter IV.II.A or Appendix B for description) with an additional variable to test the effective of length of service with the company. By combining this information it is hoped that additional insight will be gained on the interactions of each of these variables.

Although this is a very simplistic model, the use of a model such as this is adds more confirmation to data which would already support the hypotheses. However, the analysis described thus far has included only univariate testing, which is, testing one variable at a time. A probit model allows multivariate testing of the interactions between variables. While univariate testing is statistically sound with the data presented, it is also possible that additional confounding variables or variables which are highly correlated with one another may exist and disrupt the true picture.

V. SUMMARY

What then would our study add to the literature? The results of this methodology are the culmination of analysis of individual time series data which consists of not only health care claims information, but includes a telephone

survey, data on plan eligibility, and other employee characteristics (work location, payroll, etc.) to better understand the factors which underlie the decision to make a change in health care coverage. The time series data allows analysis of utilization before and after a change for a given individual or family or for the company's population as a whole. The survey allows for the identification of reasons why people have made health care changes and how these relate to claims experience. Few studies have had the luxury of such large databases along with the computing and analytic power which is available today.

CHAPTER V

RESULTS

We now each of the hypotheses described in Chapter 3. First to be considered will be the frequency of switching, followed by the reasons for switching (cost saving and service seeking). A short summary will be given at the end of each section to suggest whether the hypothesis would be accepted or rejected.

I. UNIVARIATE

I.A. Frequency of Switching

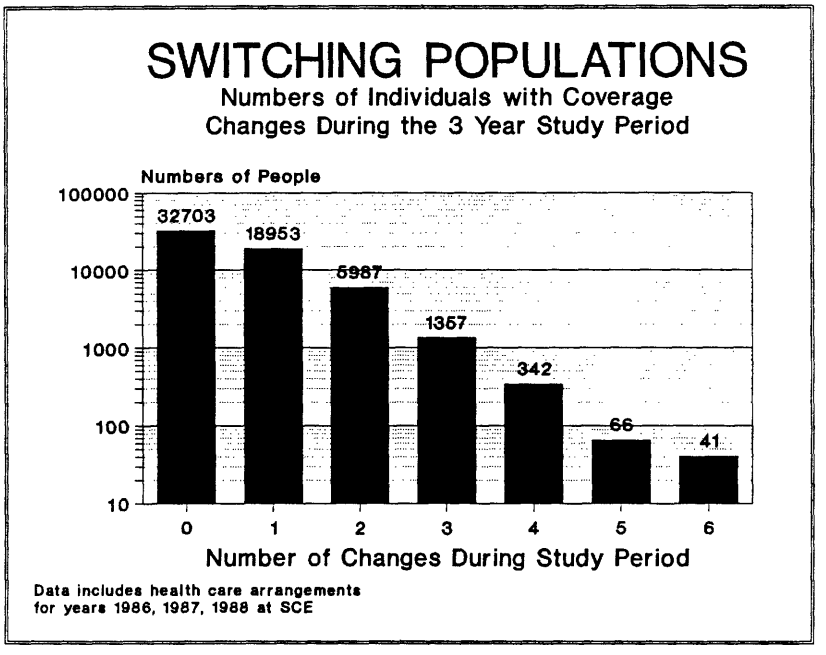
I.A.1. Total population

The following research question was posed:

Are changes in health care coverage rare or common?

Switching does appear to occur at this company. Health care switches were defined as changes in plan membership between 1/1/85 and 3/9/88. Data selection for the 3 year period, indicates that 13.84% (7793 individuals) of the firm's eligible workers are involved in regular health care changes (2 or more in the 3 year study period)and 47% changed at least once. The graphic depiction of the number of individuals corresponding to the numbers of switches they made during the study period can be seen in figure 14.

FIGURE 14



As can be seen in the previous chart, some individuals made more changes than were theoretically possible. This is not a data error. These individuals (1806) with more than 3 switches during the study period were permitted to alter their health care arrangements beyond that which was normally allowed. This was accomplished through specific complaint or for some, simply stating they did not realize what plan they had chosen. While some level of error will certainly occur from the company's side of this selection process, some surveyed individuals stated specifically "...we were unhappy with the way they (an HMO) treated us,

so we changed back (to the indemnity plan, their previous choice)."

From this data, we can conclude that in this population, switching does occur with relatively high frequency.

When the population is considered as a whole (i.e. people who started in an indemnity plan and people who started in an HMO all together), 22.42% made at least one health care change during the study period. Of those who changed types of coverage once, 7.79% (1.75% of the total population) changed back to their original form of coverage. Of those who returned, another 7.12% (0.12% of the total population) switched again.

However, when the events are separated between individuals who began in an HMO and those who began in the indemnity plan, a different story emerges. For those who began in the indemnity plan, the percentages are very similar to the total population: 23.24% changed from the indemnity to an HMO, 6.26% of those making this first switch changed back to the indemnity plan, and 9.45% of this second group switched back to an HMO again. On the other hand, the group that began in the HMO lost only 14.63% and of that group, 30.79% returned.

These findings suggest that while the first change has a substantial probability of occurring (22.42%), the probability of additional changes appears to decrease to approximately 7% each occurrence. For the HMO population, the initial change appears to be much lower (14.63%) and the rate at which people return is much higher (30.79%).

I.A.2. By age group

To approach this category, the company's demographic information was queried and projections made. We can see from the demographic charts in Chapter IV that a large portion of SCE's population will be entering retirement years within the next two decades. As can be seen from figure 15 on return percentages, the older age groups have a much higher return rate to the indemnity plan prior to and during retirement. Given what we know about health care expenditures in the last years of life, this leaves the company sponsored indemnity plan with the older, hence more costly population.

FIGURE 15

RETURNS TO INDEMNITY

AGE GROUP	PERCENT WITHIN EACH AGE GROUP RETURNING TO THE INDEMNITY PLAN
0-5	4.44
6-18	6.44
19-25	6.77
26-32	8.24
33-40	9.78
41-55	9.82
56-64	19.09
65 +	22.61

data is an annual percent per age category

This chart holds some concerns for most companies with ever increasing HMO penetration into their corporate populations. The younger (probably healthier) population tends to remain with the HMO, while as the population ages, possibly due to the increased mobility due to retirement and quest for services outside the normal service area for most HMOs they return to the company's rich indemnity insurance.

Another reason for the older populations migrating back to the indemnity plan is the financial incentives currently in place. Because the company has taken the responsibility of the part B payor for Medicare, and because the cost differential between the indemnity plan and the available HMOs is so great, elderly individuals will continue to return to the indemnity plan.

I.A.3. By year by membership

Findings at SCE suggest that the persistence rate per year is approximately 98.5%. This number was obtained by backing out the compound percentage which would leave 92% of the original population. Figures 16, 17, and 18 depict the percent of employees, total population (employees and dependents), and those of the dependents respectively. If one looks only at the employee disenrollee percentages, it is apparent that employees are not making drastic switches in their health care arrangements. If dependents are included (therefore the total population), this finding drops to 94.8% on average. However, when dependents are considered on their own, the per year persistence rate declines to 92.2%.

While these numbers suggest that small percentages of people actually change, further scrutiny revealed that when these results are looked at over time, the results are not as insignificant. In fact, the figures (16, 17, and 18) show the compounding effects.

FIGURE 16

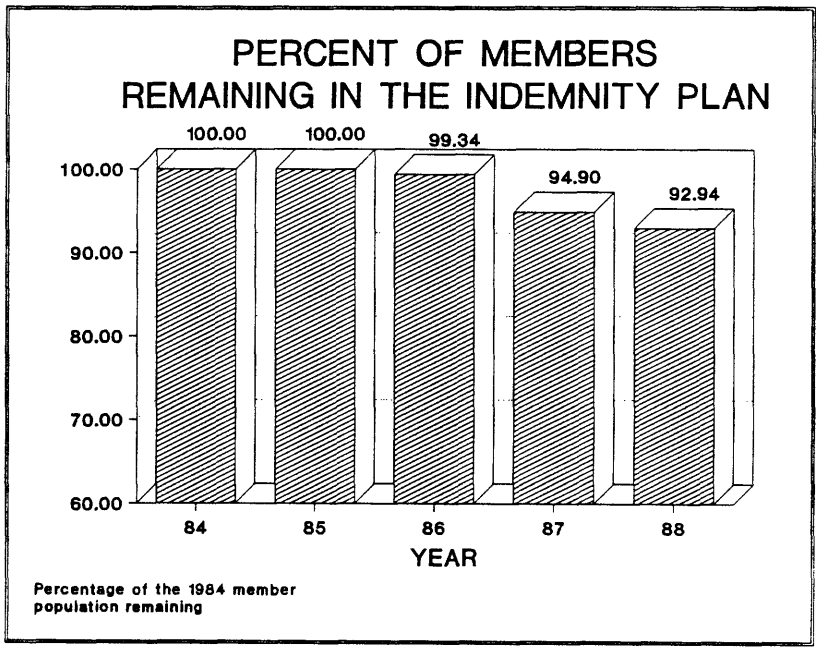


FIGURE 17

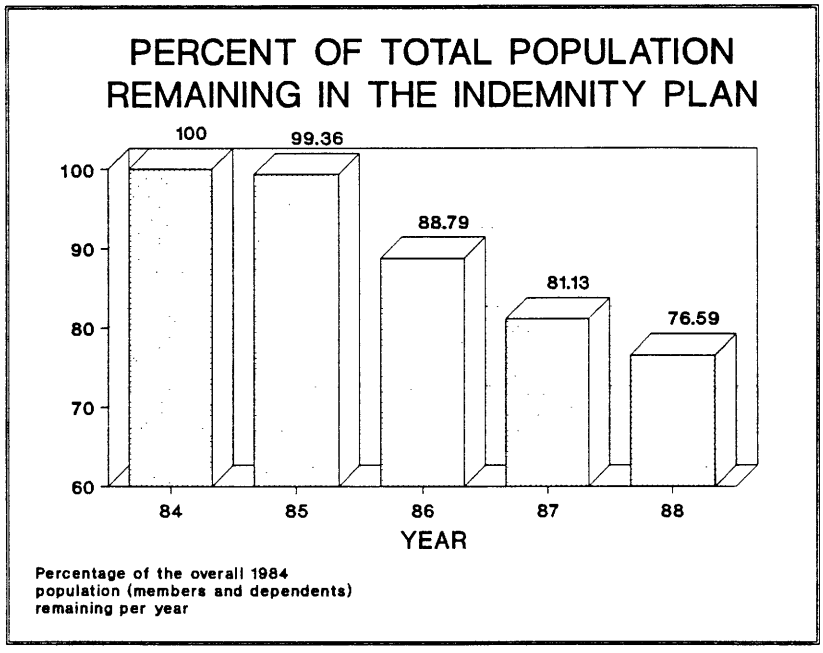
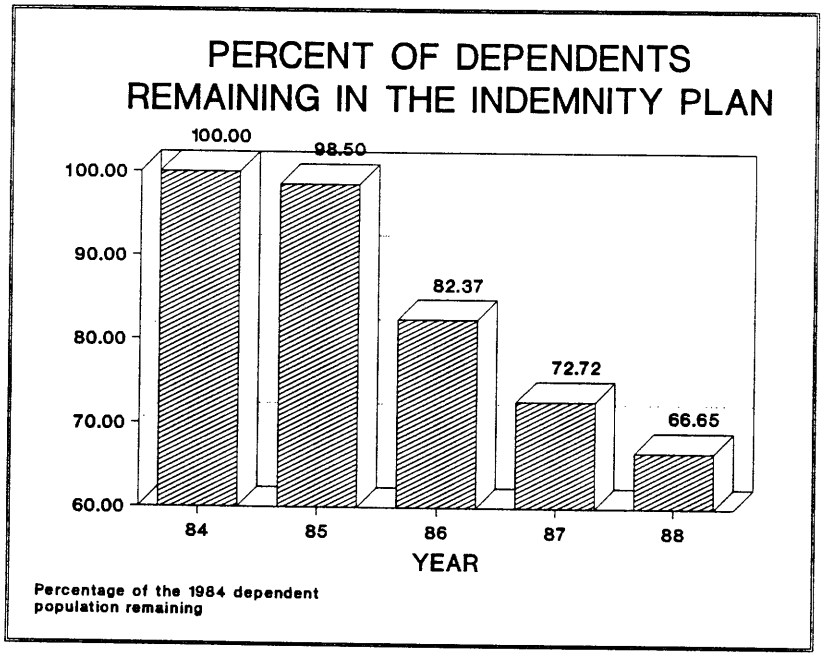


FIGURE 18



I.B. Reasons for Switching

Reasons for switching were separated into those defined as cost saving and those defined as service seeking. The claims population was examined first followed by the examination of the survey population.

I.B.1. Claims Results

I.B.1.a. Cost saving

Those expenses which could be directly attributable to out-of-pocket expenses were examined. The first hypothesis to test the existence of cost-saving switches was:

> H_1: The incidence of switching is affected by changes in premiums. In particular, as premiums increase, switching away from the increase would be expected.

When the members and dependents are separated, relative cost data and migration patterns can be seen in figures 19, 20, 21, and 22 (seen on the next two pages). Figures 19 and 21 depict the costs for each year for dependents and members respectively. Costs shown are the average monthly HMO premium, and the monthly indemnity plan premium. In this way, the costs can be compared while looking at

FIGURE 19

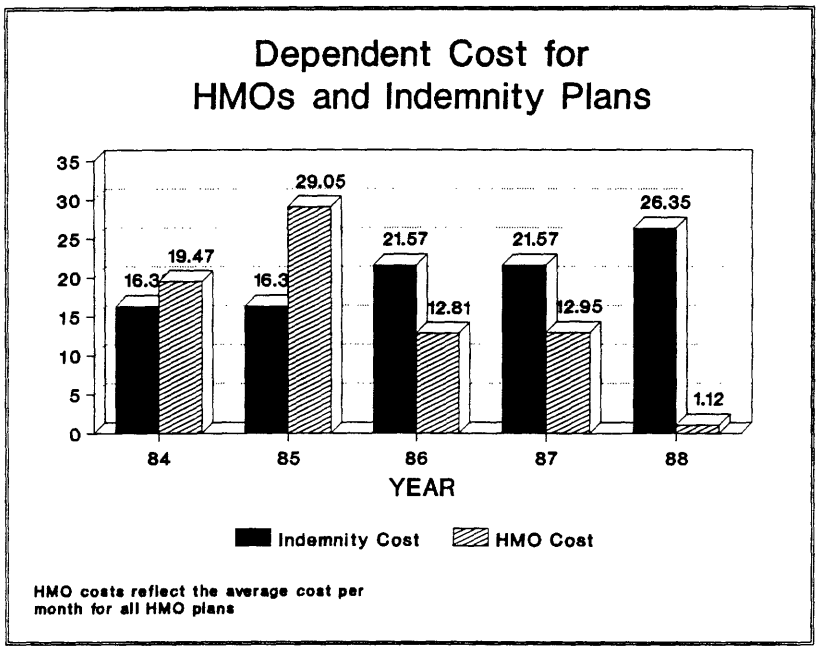


FIGURE 20

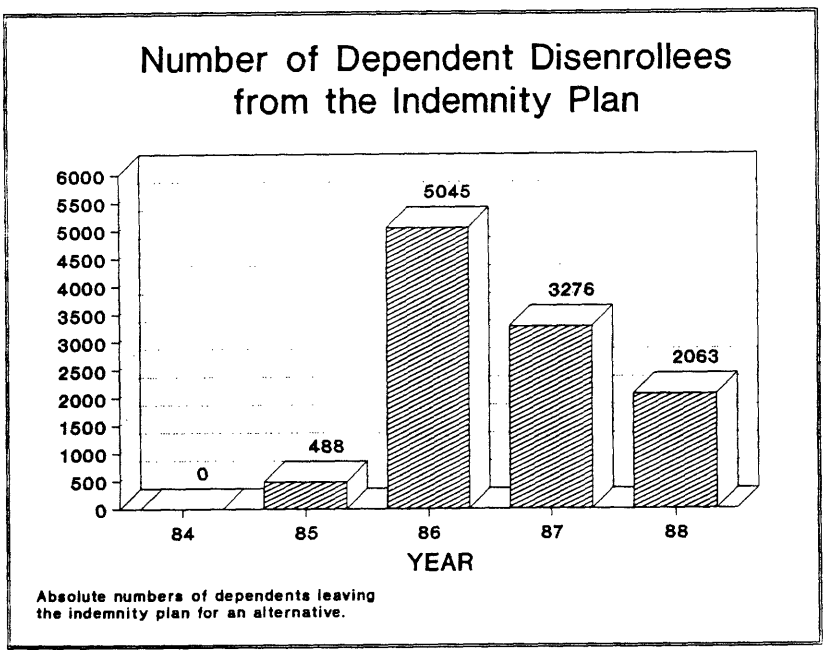


FIGURE 21

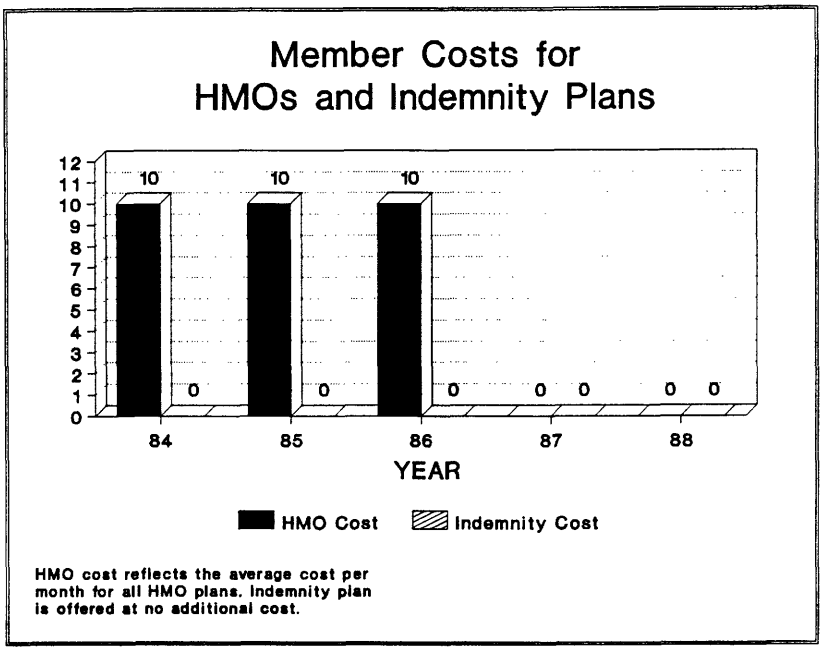
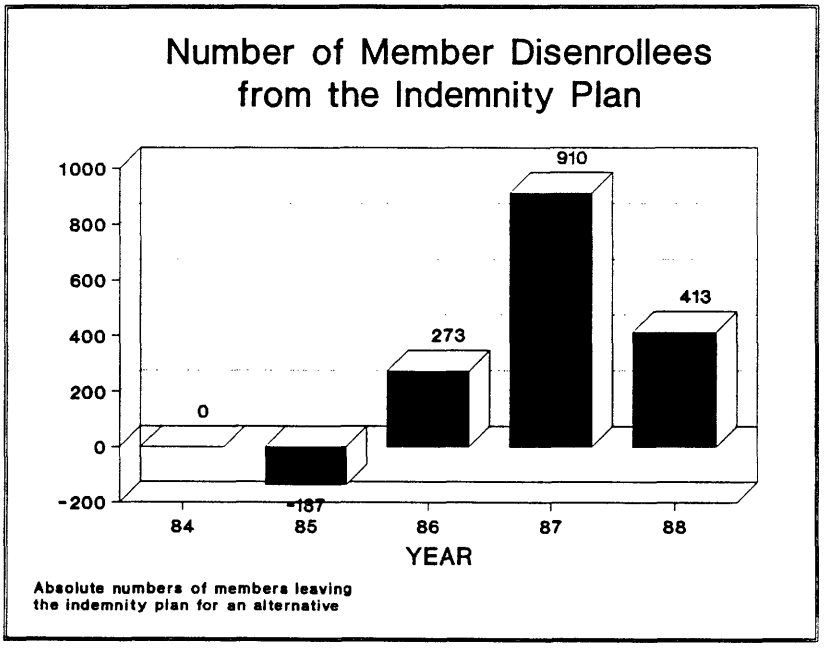


FIGURE 22



figures 20 (22) which show the numbers of dependents (members) migrating to the HMOs.

For dependents, 1986 was the first year in which there was either no additional premium charge or that the cost difference between the HMOs and the indemnity plan became negligible. As seen in figure 12, the increase in absolute numbers of disenrollees from the indemnity plan appears to coincide with the drop in costs for the HMO options. Migrations to HMOs increase with the relative decrease in HMO pricing.

For members, 1987 was the first year in which the HMOs were offered at no additional premium, that is, HMOs were the same price as the indemnity plan. Although the numbers of member switchers are small in relative terms (4.64% of the member population), this represents a 233% increase in the number of members who switched in the previous open enrollment period.

From the pricing information, a pattern of rational purchasing appears. Although the employee population does not show as drastic a migration shift as the dependents, a shift in both populations does occur and coincides with a decrease in the relative premiums being paid.

From these figures we can comfortably accept the hypothesis concerning the impact of premium differences on switching behavior.

Other hypotheses which tested the existence of cost-saving switches are:

H_2: The copayment amounts are different between those who switch and those who don't.

and

H_3: The deductible amounts are different between those who switch and those who don't.

The copayment and deductible amounts are reported in figure 23. Here, the figures are separated based upon switching direction (I->H is indemnity to HMO, I->I is no switch (the controls), and H->I is HMO to indemnity). That is, those individuals going to an HMO would no longer pay these amounts whereas their counterparts switching from the HMO to the indemnity plan would.

FIGURE 23

AVERAGE DOLLAR AMOUNTS SPENT PER

DIRECTION OF CHANGE:

	I->H (n=12326)	I->I (n=5740)	H->I (n=1566)
DEDUCTIBLE	$61.03** (52.46)	$71.20 (60.63)	$92.70** (63.97)
COPAYMENT	$58.26** (112.92)	$86.71 (236.35)	$135.67** (265.30)

** statistically different than I->I at $p < .05$.
standard deviations are given in parentheses

Although these figures allow us to reject the null hypotheses about non-difference, it says little as to why. While we can speculate that those individuals going to HMOs had lower deductibles and lower copayments because of better health, we might also speculate that those individuals returning to the indemnity plan did so for specific services, and hence, their copayment amounts and deductibles were higher. Examination of total charges may enlighten this theory of better health. If the assumption is made that individuals who require lower expenditures are

healthier, then total dollar expenditures should provide a fair representation of health.

To determine this, claims data was analyzed and compared to the control group of non-switchers (I->I). Figure 24 on total charge per direction of change suggests varying levels of charges.

FIGURE 24

AVERAGE HEALTH CARE EXPENDITURE CHARGED BY THE SWITCHING POPULATION

SWITCHING PATTERN	MEAN AMOUNT OF DOLLARS CHARGED	
I->H	$967.72**	(1209)
I->I	$1672.79	(1733)
H->I	$2088.61	(2409)

**statistically significant difference from I->I at p<.05

Individuals in the I->H category have lower dollar amounts when compared to the other groups for these charts. However, those returning to the indemnity plan from the HMO use considerably more of the health care dollar than their non-switching counterparts. This information was further

supported during the interview and survey process when respondents made suggestions such as: "We switched because we just didn't need the additional coverage."

The data suggests that while the average switcher that chose the indemnity plan had significantly higher expenditures compared to their non-switching and HMO switching counterparts, data was not available to permit evaluation of whether the average switcher increased or decreased his copayment or deductible dollar expenditures.

I.B.1.b. Service seeking switches

As there are many services which were considered, those which could be most representative of health care costs were examined. The hypotheses for those services were:

H_1: There are differences in dollar amounts charged or number of claims used for *Y* service between groups that switch and those that don't.

where *Y* is each of the following respectively: obstetrical (OB), mental health (MH), pharmacy (PH), inpatient (INPT), surgical (SURG), outside physician use(OMD), and inside physician use(SCEDOC).

Figure 25 shows the differences in the average number of claims between the two switching patterns for each of the services tested. This chart contains data that was standardized by including only those individuals who had company eligibility for the entire study period. The chart is then followed by a representation of the average dollar amount charged per group in figure 26.

FIGURE 25

AVERAGE NUMBER OF CLAIMS PER DIRECTION OF CHANGE:

SERVICE:	I->H	I->I	H->I
SCE PHYSICIAN	0.68**	2.00	1.75**
OUTSIDE MD	4.00**	6.71	8.21**
INPATIENT	0.11**	0.12	0.14
SURGICAL	0.39**	0.68	0.73
PHARMACY	1.78**	3.86	2.68**
OBSTETRICAL	0.32**	0.19	0.33**
MENTAL HEALTH	0.44**	1.11	2.06**

** statistically different than I->I at $p < .05$ as determined by difference of means testing.
Claims--per year of indemnity eligibility during the study period.

FIGURE 26

MEAN DOLLAR AMOUNT CHARGED PER DIRECTION OF CHANGE:

SERVICE:	I->H	I->I	H->I
SCE PHYSICIAN	10.87**	37.26	33.45**
OUTSIDE MD	146.58**	281.12	402.92**
INPATIENT	93.02**	129.40	121.39**
SURGICAL	122.18**	184.95	239.28**
PRESCRIPTIVE	28.81**	80.10	55.96**
OBSTETRICAL	82.26**	46.45	82.20**
MENTAL HEALTH	80.48**	184.13	407.35**

** statistically different than I->I at $p < .05$. as determined by difference of means testing.
Dollars--per year of indemnity eligibility during the study period.

I.B.1.b.(1). SCE physician use

In figure 25, SCE PHYSICIAN represents the mean dollars spent per individual for "in-house" physician services as well as the number of claims associated with these providers. This data reflects only charges and claims made by members as no dependent care is provided at SCE. When this data is considered on a dollar per claim basis, the results show another pattern. Those individuals going to the HMO have an average cost per claim of $15.98. Those remaining in the indemnity plan average $18.63 while the individuals migrating into the indemnity plan require an average of $19.11.

The predictions for this utilization statistic were as expected. Those individuals switching to an HMO did have reduced claims and expenditures than did their non-switching and HMO disenrollee counterparts.

I.B.1.b.(2). Outside physician use

The average cost per claim was $36.65, $41.90, and $49.08 for I->H, I->I, H->I respectively. Here we see that not only are those individuals migrating into the indemnity plan from the HMO spending more on the use of physician

services outside of SCE, but that the cost per claim is considerably higher as well.

The expectations for this category were mixed. Although the group of individuals switching to HMOs were thought to be healthier and therefore require fewer services overall, it was thought that their use of outside physician services might be either the same or greater than their counterparts. The results show that for outside physician services, the individuals switching to the HMOs have lower expenditures and reduced frequency compared to the other groups.

I.B.1.b.(3). Pharmacy use

The mean dollars per claim are $16.19, $20.75, and $20.88 for the patterns respectively. Prescription claims, dollars, and mean dollars per claim have been suggested to infer the health status of a population. The more sick the population, the higher the per claim cost for prescriptions. With this in mind, one can see that the per claim cost for those migrating to the HMO is also considerably lower than the other groups. These findings were consistent with the previous expectations.

I.B.1.b.(4). Inpatient services

The per claim expense for inpatient services was $845.64, $1078.33, and $867.07 for I->H, I->I, and H->I respectively. The only difference is that of reduced expenses for those migrating to the HMO. However, this information needs to be put into context with the following explanation for surgical services.

I.B.1.b.(5). Surgical services

The per claim expense was $313.28, $271.99, and $327.78 for I->H, I->I, and H->I respectively. While it can be seen that the individuals returning to the indemnity plan spend considerably more health care dollars for surgical care than their counterparts, we should consider the information also collected for inpatient costs. Although the surgical costs are higher for those individuals disenrolling from an HMO, their inpatient costs tend to be lower. One possible explanation is that the surgeries could well have been "elective." Given that most elective procedures have shorter lengths of stay than non-elective procedures, it would follow that the inpatient costs for these patients would also be lower.

Expectations for both surgical and inpatient services were correct for the most part. However, while surgical expenses were higher for those individuals switching to the indemnity plan, the number of claims were not significantly different from the control group.

I.B.1.b.(6). Obstetric services

While expectations were met for the group switching to the HMOs, the finding of such high obstetric figures for both switching and non-switching group)(relative to the control group) was not expected. A reason for this can be explained by examining the group patterns rather than only the direction of change.

The group patterns show interesting findings. Those transferring from H->I->H use the significantly more obstetric dollars than any of the other group patterns (see Figure 19). This also was confirmed through the survey as individuals in the group made statements such as "...we wanted to have our baby in a different hospital than the HMO allowed, so we came back to the Edison plan (indemnity) for the choice. After the baby was born, they (wife and child) went back to Maxicare...the child care (well-baby care) is considerably cheaper (less expensive) than at Edison."

I.B.1.b.(7). Mental health services

The per claim costs were $182.91, $165.88, and $197.74 for I->H, I->I, and H->I respectively. Mental health care is the second highest expenditure, second only to inpatient hospital services, for many companies today. It is interesting then to find that when one looks at those individuals making health care changes, we find such a large average dollar figure for HMO disenrollees.

If the dollar amounts used by group pattern HI are extrapolated for the number of individuals who fall within this group, this 0.9% of the total population account for almost 21% of the mental health expenditures.

The majority of individuals switching to an HMO had statistically lower expenses and claims when compared to either the non-switching control group (I->I) or the other switching group who changed to the indemnity plan. Inferences can be made from the claims data. In particular, service seeking switches were examined in which the utilization statistics of particular groups were significantly different from that of the control population. Mental health, a benefit long controlled at most HMOs, would

be one example of a service seeking switch. Well baby care would be another.

Figures 27 and 28 show the average dollars for obstetrical services and mental health per "pattern of change." As seen in the figure 25 and 26, these services have very significant findings.[16] It is interesting to note however, that the obstetrical amounts are almost identical in both the switching population from the HMO and the switching population to the HMO. Therefore, it is not surprising when we look at figure 27 to see that the pattern HIH is as high as it is. This suggests that many women having babies disenroll from the HMO to the indemnity plan to have their baby in the hospital of choice or with their physician of choice, rather than to have the restrictions which are generally placed by HMOs. However, after having the child, it appears that many of these women then return to the HMO for the well baby services which the HMOs provide full coverage for.

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[16]Although Figures 18 and 19 also include individuals with less than full eligibility, the relative figures are comparable.

FIGURE 27

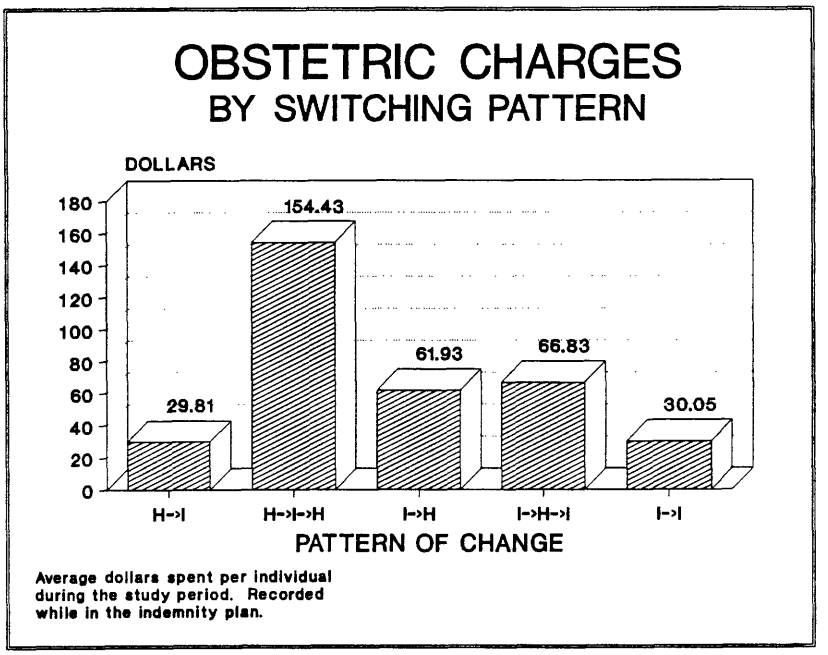
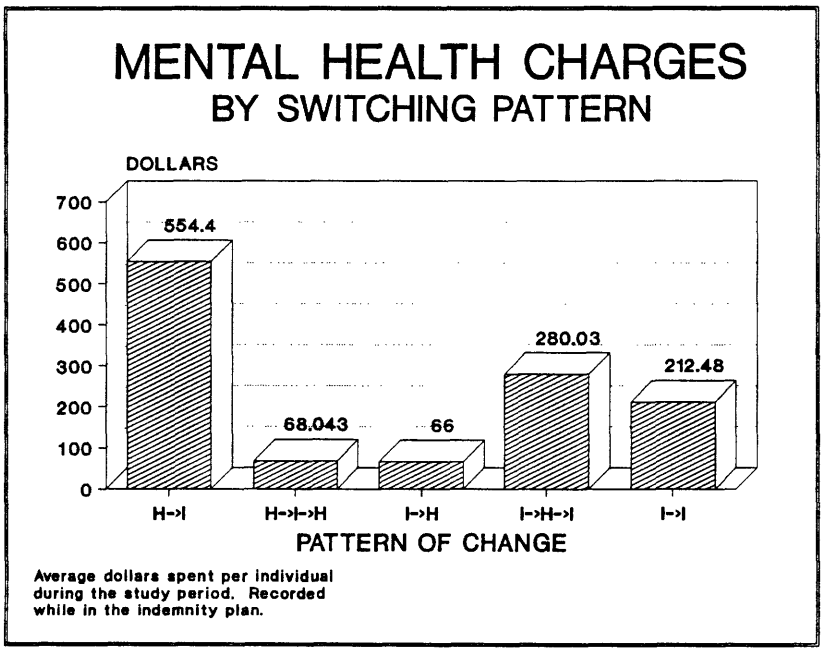


FIGURE 28



Therefore, cost saving and service seeking switches were found to occur. Figures 19 through 22 above suggest that the relative cost of the HMOs to the indemnity plan is highly correlated with a cost-saving rationale for switching. Figures 23 through 28 provide support for service seeking and cost saving switches. The data supports the hypothesis of rational buying of health care by supporting its hypotheses. These hypotheses have shown that switching does occur, and that cost saving and service seeking switches can be readily found.

I.B.1.c. Diagnostic switches

Specific diagnostic groups were also analyzed to determine whether there are differences in utilization of specific services between various switching populations. Diabetics, and rheumatoid arthritics tended to stay in the indemnity plan. For the claim retrieval of these individuals with diagnostic coding associated with these disorders, all remained within the indemnity plan (pattern code III) during the study period. This is as Luft and others have suggested in that people with specific medical concerns are more likely to have a personal physician. The

transition costs associated with this type of switch would be considerable. Another possibility is that within this population of diabetics and rheumatoid arthritics, the majority are also on Medicare. Therefore with the financial incentives for people to return to the company sponsored indemnity plan for their Medicare coverage, individuals have great incentives to stay where they are.

Individuals with infertility concerns tended to migrate to HMOs. Often this migration was made because of the depth of coverage in the HMO. However, the reasons were not always economic. Concerns about the possible lack of confidentiality within the organization were also mentioned as reasons not to obtain services within the company's system. Individuals who became pregnant had the greatest representation in the population migrating from HMO->ind->HMO.

I.B.2. Survey

In addition to the claims data, the survey results provide support for the hypotheses of cost saving and service seeking switching. Prior research suggests that most changes occur because of dissatisfaction with the medical care received (see Sorenson and Wersinger(1981)).

However, the following is a list in order of preference of the "top five" reasons which the 62 respondents to this study's telephone survey provided:

1. cost (based mainly on premiums and out-of-pocket expenses although some respondents replied that they had considered the cost and additional services which they required.(n=46))
2. dependent care (n=28)
3. convenience (n=20)
4. dissatisfaction (n=17)
5. service-specific requirements (n=12)

These reasons varied systematically across respondent types. Individuals making switches from the indemnity plan to the HMOs generally did so because of cost, with dependent care and convenience following. Those making changes from one HMO to another suggested that the main reasons were for costs and additional physician choice. Individuals switching from the HMOs to the indemnity plan mentioned physician choice, service availability, no forms or paperwork, and convenience due to location. Unfortunately, due to the poor telephone response and potential biases which were introduced, it is not clear how generalizable these results are.

The reasons most frequently given by pattern of change are shown in Figure 29. As some individuals had made more than one type of change, their reasons for each switch were

recorded.

FIGURE 29

SWITCHING PATTERN	REASONS FOR CHANGE
I->H	cost(n=42), service needs(dependent care)(n=24), location(convenience)(n=14).
H->H	cost(n=4), choice of physician(n=3), convenience(n=3).
H->I	specific service need(Mental Health, OB)(n=12), choice of physician(n=4).

Reasons for the migrations were as expected. Because the cost of well baby care is a covered expense in HMOs and not in the indemnity plan, reasons followed intuition. Those interviewed who required well baby services (n=16) stated that cost was the major factor in their switch from the indemnity plan to the HMO for well baby care. However, the majority of those interviewed (81.25%--13/16) were first time parents. This bias may well interfere with the results. The switching behavior for these people might be easily explained by Luft's "lack of integration" theory (1987).[17] With no definitive care-giver associations for

[17]This theory suggests that individuals without regular health care providers have much lower transition costs and therefore, due to "lack of integration" into the system, may

the unborn child, the transition costs would be reduced, and the premium differential often dictates the decision. For many HMOs, well baby care is a low cost service which attracts young healthy individuals.

Mental health, on the other hand, is not a low cost service. For SCE, mental health is the second largest expenditure in corporate health care. Often, the care which is given for these individuals itself creates a strong physician-patient relationship thereby increasing transition costs. As many restrictions apply for these services in the HMO environments, people seeking the service at less cost to themselves often switch to the indemnity plan for its wealth of coverage. Only two of the survey respondents required mental health services and both stated that their return to the indemnity plan was because they had used their available benefits through the HMOs. Figure 28 depicts the differences between patterns of change that suggest adverse selection.

Although differences in satisfaction are found in the literature, only those individuals in group pattern HI showed a statistically significant difference from their counterparts. However, though their levels of satisfaction

---

change their health care arrangement.

with their previous plan was reduced compared to the other groups, these individuals were generally satisfied with their previous plan (figure 30).

FIGURE 30

OVERALL SATISFACTION LEVELS
WITH PREVIOUS PLAN

SWITCHING PATTERN	OVERALL MEAN
I->H	3.72 (2.74)
I->I	3.87 (1.98)
H->I	3.12** (1.1)

** statistically different than I->I at $p < .05$.

This chart suggests that while all individuals are fairly satisfied with the health care they have received, those making switches from the HMO back to the indemnity plan are less satisfied than their counterparts making the change to the HMO.

Figures 31 and 32 also each show a finding which is statistically different. For routine services, those individuals leaving the HMO were less likely to be satisfied than their counterparts. Dependent care also showed a difference which was statistically relevant. Although all

showed a statistically significant difference from their counterparts. However, though their levels of satisfaction with their previous plan was reduced compared to the other groups, these individuals were generally satisfied with their previous plan (figure 30).

FIGURE 30

OVERALL SATISFACTION LEVELS
WITH PREVIOUS PLAN

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Figures 31 and 32 also each show a finding which is statistically different. For routine services, those

individuals leaving the HMO were less likely to be satisfied than their counterparts. Dependent care also showed a difference which was statistically relevant. Although all of these figures appear to show generalized satisfaction, the individuals leaving the indemnity plan tended to have a lower thought of the services they received.

FIGURE 31

OVERALL SATISFACTION LEVELS
WITH ROUTINE SERVICE
FROM PREVIOUS PLAN

SWITCHING PATTERN	ROUTINE SERVICE MEAN
I->H	3.91
I->I	4.29
H->I	3.61**

** statistically different than I->I at $p < .05$.

FIGURE 32

OVERALL SATISFACTION LEVELS
WITH DEPENDENT CARE
FROM PREVIOUS PLAN

SWITCHING PATTERN	DEPENDENT CARE MEAN
I->H	3.16**
I->I	3.64
H->I	3.25

** statistically different than I->I at $p < .05$.

These charts give some additional insights as to the important factors for the switching population. That is, as the respondents to the open ended questions stated, and as their claims and eligibility information infers, those individuals making the change to the indemnity plan were less satisfied with their routine care and hence, switched to a plan in which they had more control.

No other statistically significant results were found through the survey. The low response rate reduced the ability to determine any further differences based upon the requirements set forth in the research design.

II. MULTIVARIATE RESULTS

The probability distribution function model described earlier was tested on the data available from years 1985 through 1988 on company employees and their dependents included in the "claims" population. The model was tested twice. The first test (P_1) compared the claims history for those individuals making the selection to a HMO versus those who remained in the indemnity plan. The second test (P_2) examined the claims differences between those individuals disenrolling from an HMO and selecting the indemnity plan with their counterparts who remained in the indemnity plan. P_1 (Figure 33) and P_2 (Figure 34) show the coefficients from these models. T-statistics are shown in parentheses. Variable definitions can be found in the methodology chapter and in the appendix.

These models also confer that those individuals who self-select tend to be dependents and younger when compared to those who remain in the indemnity plan. Model P_1 provides additional support to the univariate testing for family size and utilization variables of SCE clinic usage and prescription usage. Model P_2 provides additional verification of the mental health results. The remaining

variables were found to be not statistically significant at P<.05.

FIGURE 33

```
Iteration 0:  Log Likelihood = -2545.934
Iteration 1:  Log Likelihood =-2064.6221
Iteration 2:  Log Likelihood =-2040.1257

Probit Estimates                                  Number of obs =   4508
(Log Likelihood tolerance .01)                    chi2(25)      =1015.63
Log Likelihood =-2038.1179                        Prob > chi2   = 0.0000

Variable |  Coefficient    Std. Error      t    Prob > |t|       Mean
---------+--------------------------------------------------------------
    chIH |                                                     .2522183
---------+--------------------------------------------------------------
     st1 |    .4333231      .0668972     6.477    0.000      .3888642
     mt1 |   -.0051225      .0660826    -0.078    0.938      .8416149
     sx1 |    .0334736      .0554519     0.604    0.546       .398181
     age |   -.0227609      .0016928   -13.445    0.000      36.84073
      ye |    .8887519       .163817     5.425    0.000      4.968944
 famsize |    .0479008      .0171248     2.797    0.005      3.510426
    days |    .0333414      .0336607     0.991    0.322      .5024401
    clms |   -.0017972      .0050551    -0.356    0.722      24.61335
     ded |    .0004546      .0003855     1.179    0.238      90.37927
     cpy |    .0002669      .0001777     1.502    0.133      115.5805
--more--

     chg |    4.06e-06      9.13e-06     0.444    0.657      2328.783
   sceal |    -.001324       .000435    -3.043    0.002      55.60459
   scecl |    .0150947      .0087504     1.725    0.085      3.239352
   docal |   -.0000131      .0000671    -0.196    0.845      489.7979
   doccl |   -.0089254      .0063709    -1.401    0.161      11.17036
   inpal |   -.0000825      .0000875    -0.944    0.345      172.6271
   inpcl |   -.0030636      .0724978    -0.042    0.966      .1539485
    rxal |   -.0007482      .0003327    -2.249    0.025      108.9288
    rxcl |    .0053349      .0106461     0.501    0.616      4.819432
    sual |    .0000175      .0000581     0.301    0.763      253.8178
    sucl |   -.0191713      .0182706    -1.049    0.294      .9177019
    obal |    .0000556      .0000677     0.822    0.411      52.63265
    obcl |     .029915      .0178482     1.676    0.094      .2284827
    mhal |   -.0000443      .0000384    -1.155    0.248      266.0394
    mhcl |   -.0132872      .0071785    -1.851    0.064      1.540373
   _cons |   -4.593862       .817221    -5.621    0.000             1
---------+--------------------------------------------------------------
```

FIGURE 34

```
Iteration 0:  Log Likelihood =-1085.7686
Iteration 1:  Log Likelihood =-1004.0218

Probit Estimates                                  Number of obs =   3690
(Log Likelihood tolerance .01)                    chi2(25)      = 170.19
Log Likelihood = -1000.675                        Prob > chi2   = 0.0000

------------------------------------------------------------------------------
Variable |  Coefficient   Std. Error      t    Prob > |t|       Mean
---------+--------------------------------------------------------------------
    chHI |                                                      .0864499
---------+--------------------------------------------------------------------
     st1 |      .28714    .0889708     3.227    0.001      .3159892
     mt1 |   -.0309318    .0886896    -0.349    0.727      .8371274
     sx1 |    .1331355    .0748302     1.779    0.075      .3791328
     age |   -.0145739    .0022475    -6.485    0.000      40.14526
      ye |    .1401227    .1580279     0.887    0.375      4.961247
 famsize |   -.0229384    .0243413    -0.942    0.346      3.340108
    days |    .0277019    .0399291     0.694    0.488      .5401084
    clms |    .0001094    .0047206     0.023    0.982      27.82981
     ded |    .0002573    .0005071     0.507    0.612      93.09502
     cpy |    .0000458    .0001634     0.280    0.779      136.5924
     chg |    7.45e-06    9.74e-06     0.765    0.444      2633.98
--more--

   sceal |    .0001078    .0004462     0.242    0.809      65.9102
   scecl |   -.0047775    .0105756    -0.452    0.651      3.739024
   docal |    .0000856    .0000631     1.358    0.175      563.3201
   doccl |   -.0037807    .0060515    -0.625    0.532      12.58916
   inpal |   -.0000924    .0001069    -0.865    0.387      186.1254
   inpcl |   -.0297367    .0866857    -0.343    0.732      .1593496
    rxal |   -3.92e-06    .0002659    -0.015    0.988      127.0941
    rxcl |   -.0074284    .0109841    -0.676    0.499      5.472358
    sual |   -.0000257    .0000634    -0.406    0.685      278.3753
    sucl |    .0062727    .0131653     0.476    0.634      1.04065
    obal |   -.0005287    .0003223    -1.640    0.101      30.06192
    obcl |    .0334798    .0270551     1.237    0.216      .1571816
    mhal |   -.0000332    .0000345    -0.962    0.336      351.8646
    mhcl |    .0108876    .0046268     2.353    0.019      2.063144
   _cons |   -1.607876    .7808569    -2.059    0.040             1
---------+--------------------------------------------------------------------
```

III. LIMITATIONS

However, data from the HMOs were not available and therefore little can be said about those individuals switching between HMOs. The only available information is shown in appendix C. Although this suggests considerable differences between these HMOs and the indemnity plan, the collection methods, sources and standard deviations are not known. While inferences can be made, whether these numbers are statistically different is unknown.

CHAPTER VI

DISCUSSION

I. Findings

This study has shown that there are many people who are indeed, shopping for health care. Dependents do so more frequently than members, and females more than males. While a cross-sectional study may show that these effects are small, when the effects are analyzed over time, another story emerges.

People at the location studied do self-select their health care based upon expected costs and service needs. This has been shown through the use of claims data, eligibility information, and personal interviews.

The literature suggests that people do not change their health care arrangements (Neipp and Zeckhauser 1985). The findings presented here both support and enlighten this theory. That is, if only members (the employees only) are considered (or possibly in settings where the member-dependent must move as a unit), the findings at SCE suggest that the persistence rate per year is approximately 98.5%. However, if dependents are included, this finding drops to 94.8% on average, and when dependents are considered separately, the per year persistence rate declines to 92.2%.

These figures still suggest that the majority of the population does not migrate on a yearly basis. However, it should be clarified that if the effects are considered over the length of the study period (4 open enrollment periods), the persistence rates show 92.94% of the members as persisters but only 66.65% of the dependents remaining with their original plan.

The hypotheses presented were tested by attempting to answer specific research questions. For the original hypothesis regarding the rational purchase of health care, the initial question was to determine whether or not switching occurs. The appearance of switching then progressed such that data were analyzed for switching occurrences relative to premium differences, copayment reductions, and service requirements. These were defined as cost-saving and service-seeking switches.

Both cost-saving and service-seeking switches were found for the switching population, supporting the hypothesis of rational buying of health care. However, the telephone survey aided in obtaining the information necessary to clarify this behavior. Where rational reasons were not obvious from the claims or other data sets, the telephone survey provided additional insight. This was made more clear when it was determined that these individuals

were seeking specialty care and paying out-of-pocket for these services. These services would eventually lead to expensive surgical procedures which would be covered in the indemnity plan.

II. Consequences

Although HMOs are increasingly penetrating corporate populations, the cost savings which have been shown are not being passed on to the corporations themselves. One possible explanation for this is that people self-select their health care. When this behavior is combined with an inappropriate rating scheme and misinformation, or imperfect information, companies will not receive the potential revenues. The data collected in this study support the hypothesis.

Switching is impacting the company. The impact is being seen in increasing costs, increasing manpower, and increasing benefits to maintain the satisfaction levels of the consumers. Unfortunately, this is occurring while the indemnity plan declines and the HMOs attract more of the younger, healthier population.

In the location selected, the maximum company reimbursement to the HMOs is based on the indemnity plan's

rate. As the indemnity plan's rate increases to cover the costs associated with the care of its considerably older population, to say nothing of the population which is gaming its services, then the HMOs will continue to enjoy increasing premiums. The incentive to pass any major cost savings on to the company have been removed. As long as the HMO's premium is less than that of the indemnity plan, individuals do not have a monthly premium. If however the HMO premium exceeds the employer's contribution, the additional monies are the responsibility of the subscriber.

As can be seen, many people are price sensitive and the increase (or relative decrease) in required premiums or out-of-pocket expenses induces changes in coverage. Therefore, if the HMO's decrease their premiums to a level below that of the indemnity plan, an increase in disenrollment from the indemnity is likely to occur.

Adverse selection is occurring at the location studied. Not only is this based upon claims information, but, at the site selected, the potential for a much higher risk population exists long-term. The return percentages to the indemnity plan after the fifth decade of life raises a significant burden on the company for the provision of health care for their population.

With ever increasing health care costs, and the burden of adverse selection, companies will continue to experience increasing costs. The positive feedback loops in this system currently are unchecked. Company rates increase to cover the costs of their population; the rates that the company pays to the HMO are tied to the rates that the indemnity plan pays with no reference to HMO costs; younger, healthier, less costly contracts migrate to the HMOs removing the ability for cost-shifting; the cost per contract at the company increases further because the less expensive contracts have left; the cycle starts again.

III. Mechanisms for change

The pricing structure and incentives (in effect 1988) seen at the location studied will not reduce the adverse selection which has been shown in this study. However, the location has invested the time, capital, and manpower to provide a first rate health care department for what is soon to be the nation's largest utility company. Because of this investment, the large amount of fixed costs would suggest that any means to bring more premium dollars back to the organization should be a benefit. Given the dynamics of this organization, one of the only ways for this to occur would be if those physicians already in place had additional capacity, if more capacity was produced (hiring more health

care providers) or if external costs could be controlled. Since none of these will remove the underlying problem of adverse selection and community rating, benefit modifications may be the only means by which to reduce the adverse selection which we are seeing.

Another impact that might be seen which has the potential for cost inflation is that of the company trying to return the "lost sheep" to the fold. This could be performed in a variety of mechanisms. One way to induce the return might be a reduction in the price relative to that seen in the HMO's. If the hypotheses given here are true, then a drop in price alone might be enough to induce a sizable return. The reverse could also hold. That is, if the price of the HMO's rises relative to the company programs, the same should hold. Another option is to add an incentive program to the health care package already in place. This could be seen in the form of flexible health plans and monetary-based preventive health plans. But here again, we should consider the costs associated with the start-up phenomenon and the potentials of adverse selection.

Implications for policy would include investigating the possible restructuring of payment rating mechanisms, benefit structures, the lack of cost associated with switching, additional risk sharing schemes--including corporate

ownership of HMOs which serve the employees and compete against the company's self-insured indemnity plan.

CHAPTER VII

RECOMMENDATIONS FOR FUTURE RESEARCH

Suggestions for future research include the determination of case mix and how rational buying might affect this over time. It is unclear how long the cycle of adverse selection could occur and still leave a viable insurance product.

We do not know how cost-effective various benefit modifications are or whether or not specific policies can reduce or alter the switching behavior. Flexible benefit programs, "Good Health Rebates," and preventive health accounts all have the potential to begin the reversal of adverse selection. Whether the community rating schemes currently in place will be replaced by a variable payment mechanism and how effective this may be in deterring self-selection is unknown.

Of medical importance would be the tracking of individuals with specific medical conditions through various programs to determine what effects the change in care givers provides. Due to the paternalistic nature of many corporations today, we might expect that there are strong incentives to maintain a healthy low cost population. There may be a greater incentive to test the feasibility of a standardized medical record in a media other than the

present paper chart in order to better track medical information.

Mental health costs seen in this study deserve additional research. It is not clear whether these differences might be geographically related or what the potential effects may be. Benefit modifications are currently planned which should place the indemnity plan at the same risk as HMOs. Whether this will change switching behavior for those requiring these services is unknown.

We also need to determine whether the number of years of exposure to the potential for change has an effect on the probability for change and direction.

With regard to additional categories of individuals who deserve mention are single parent families. It is not known how these individuals go about selecting health care. Given the dramatic increase in numbers of people in this category, new benefits plans may require modification to address additional needs.

Standardization and increasing data sharing needs to be addressed. Current management reports in the literature as well as in many companies, are inadequate. The reports often are not standardized in any way. However, comparisons

and policies continue to be made without a real understanding of the materials.

Because of the selection biases that were raised in the survey of this study, another attempt at placing the instrument should be made to more accurately determine differences in reasons for switching between various populations.

The location selected has undergone considerable change since the study was conceived and conducted. Many of the areas for future research could be addressed at the same location. Many items that were of concern in the past are in the process of being rectified (HMO data availability, and indemnity data analysis). Given the levels of support and enthusiasm, it would be highly recommended that this company continue to provide research assistance in this field.

APPENDIX I

SELF-SELECTION REFERENCE CHART

APPENDIX A

Study	Year	Population	Measurement	Findings
Bice	1974	Low-income families	Preenrollment claims	HMO adverse selection
Hetherington, Hopkins, Roemer	1975	Employment-based	Chronic health problems	HMO adverse selection
Tessler, Mechanic	1975	Employment-based	Chronic health problems	HMO adverse selection
Berki, Ashcraft, Penchansky, Fortas	1977	Employment-based	Self-reported health status	No evidence for biased selection
Scitovsky, McCall, Benham	1978	Employment-based	Self-reported health status	No evidence for biased selection
Eggers	1980	Medicare	Preenrollment service use	HMO favorable selection
Juba, Lave, Shaddy	1980	Employment-based	Chronic health problems	Not conclusive
McGuire	1981	Employment-based	Years of age	Not conclusive
Eggers, Prihoda	1982	Medicare	Prior service use	HMO favorable selection
Jackson-Beeck, Klein	1983	Employment-based	Preenrollment claims	HMO favorable selection
Price, Mays, Trapnell	1983	Employment-based	Premium changes	HMO favorable selection
Welch, Frank, Diehr	1984	Employment-based	Service use and imputed costs	Not conclusive
Dowd, Feldman	1985	Employment-based	Chronic health problems	HMO favorable selection
Ellis	1985	Employment-based	Prior year enrollment claims	Not conclusive
Farley, Monheit	1985	Employment-based	Expenditures and premiums	No evidence for biased selection
Lubitz, Beebe, Riley	1985	Medicare	Medicare claims, service use	Not conclusive
Luft, Trauner, Maerki	1985	Retired employee	Age-sex distribution	HMO favorable selection
Price, May	1985	Employment-based	Premium changes over time	HMO favorable selection
Welch	1985	Medicare	Preenrollment claims	HMO favorable selection but declines
Merrill, Jackson, Reuter	1985	Employment-based	Prior year enrollment claims	HMO favorable selection
Buchanan, Cretin	1986	Employment-based	Prior claims	HMO favorable selection

Reprinted from Health Affairs SPRING 1986

APPENDIX II

DATA ELEMENTS AND DESCRIPTIONS

DATA ELEMENTS

(this list is not all-inclusive and should have the capacity to relate trends, forecasts, and outside variables as well)

DEMOGRAPHICS (company, region, dept, plan, etc)
- patient sex
- patient age
- marital status
- family status
- education level ***
- employment
- income

OTHERS
- subscriber/patient relationship
- patient/provider relationship
- subscriber category
- major benefit category
- plan type
- location/area code
- industrial code
- rating code/method

ORGANIZATION VARIABLES
COSTS and/or associated REVENUES
- TOTAL AND PER PLAN
- per demographic category
- per member
- per contract
- per covered individual
- per claim
- claims paid amount
- capitated amount
- copayment
- deductible
- administrative expense ***
- commission expenses

CLAIMS DATA
- date incurred
- claim receipt date
- paid date
- discharge date
- days/visits/treatments
- claim types (paymt, prepay, capit)
- place (inpt, outpt, amb ctr, MD off)
- provider identifier
- service identifier (med, sur, lab, pharm, etc)
- group numbers
- patient identifier

renewal date
plan rating code
discharge summary/diagnosis

MANAGEMENT
benefits
# of plans offered
# of personnel assigned
# of subscribers/plan

tracking mechanisms associated with plan utilization
audit trails
automated systems, to what extent?

use of:
utilization review
admission precertification
case management
concurrent hospital review
mandated outpatient care
employee & retiree education programs
"gatekeeper" substance abuse programs
ancillary services
community vs actuarial rated HMO's

INDIVIDUAL VARIABLES
COSTS
cost per plan
costs per service
outside utilization costs ***
switching costs, if any
copayment (event, time period, prescription, etc)
deductible
headache costs (out of plan paperwork, notification, etc)
nuisance fees
length of coverage
previous coverage, length, and reasons for switching

UTILIZATION
total numbers
outside utilization ***
per plan
per covered individual
per contract
per repeat utilization
per service
per event
out of plan use
ability to track given individuals over time? length?

HEALTH STATUS
medisgroups data?
specific categories (smokers, diabetics, cad, etc)

*** those items reports not readily available w/in system.

In addition to the above variables, questions relating to both the control and switching population should include the following items. These should also include data for both the previous and current options:

satisfaction
- previous hassles/claims
- availability of appointment times
- availability of necessary services
- satisfaction with providers
- satisfaction with facility
- satisfaction with other staff

location differences
provider differences
knowledge of plan (coverage)
- where did you find out
- how
- when

knowledge of plan services
- where
- how
- when

cost differential
- between plans (premium, copay, deductible, etc.)
- specific free services
- specific lower cost services

special requirements--fertility, etc.
loyalty factors
peer pressure
market pressure

The explanatory variables are as follows:

premium--this is the premium for the selected plan
expected out-of-pocket costs
  "cpy"--copayment
  "ded"--deductible
"age"--age in years
"st1" status--member(0) or dependent(1)
relation--to subscriber (wife, husband, son, daughter)
"sx1" sex--male(0) or female(1)
"bu" bargaining unit--(1/5 management, 2/3/4 union)
"famsize" family size
"days" average inpatient days
"clms" average total claims
"chg" average total charge
"doccl" average outside doctor claims
"docal" average outside doctor dollars
"scecl" average SCE doctor claims
"sceal" average SCE doctor dollars
"inpcl" average inpatient claims
"inpal" average inpatient dollars
"sucl" average surgical claims
"sual" average surgical dollars
"rxcl" average prescription claims
"rxal" average prescription dollars
"obcl" average obstetrical claims
"obal" average obstetrical dollars
"mhcl" average mental health claims
"mhal" average mental health dollars

APPENDIX III

COMPANY DESCRIPTIONS

SOUTHERN CALIFORNIA EDISON
HEALTH CARE PLANS

EMPLOYEE PLANS

Full – Time Employees
Employees on HMO's
Exteneded Benefits (COBRA)

DEPENDENT PLANS

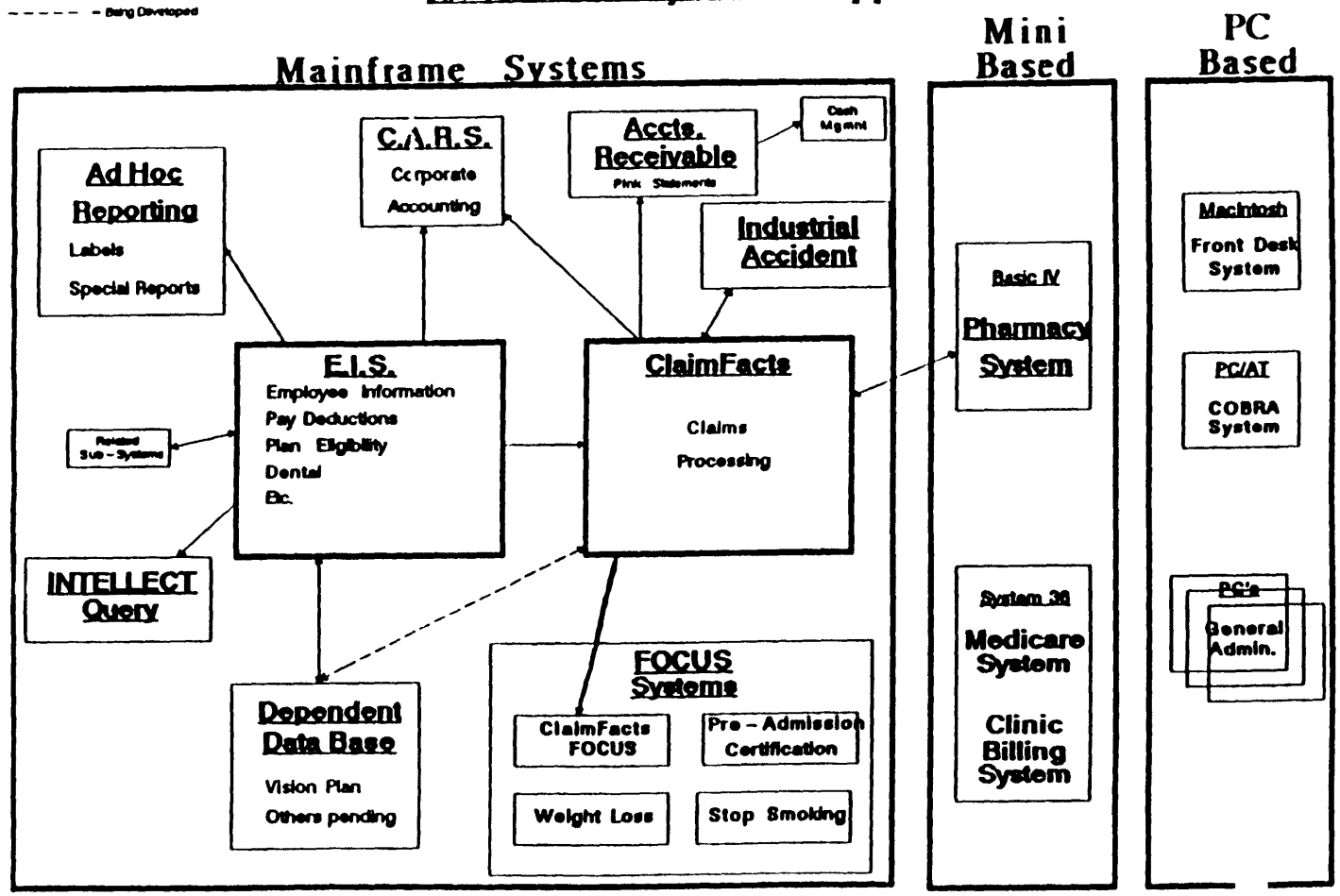
Dependents of Full – Time Employees
Part – Time Employees
Dependents of Part – Time Employees
Dependents of Retirees
Surviving Spouses
Dependents on HMO's
Dependents of Retirees on Pilot Project (PRIME CARE)
Extended Benefits (COBRA)

RETIREE PLANS

Retired Employees
Retirees on HMO's
Retirees on Pilot Project (PRIME CARE)
Extended Benefits (COBRA)

HEALTH CARE DEPARTMENT

Automated Systems Support



HEALTH CARE

MILESTONES

	MEMBERS	DEPENDENTS
1984	brought in from Aetna Company was now self-insured	
1985		
1986		HMO's premiums became free from Kaiser, reduce to level of indemnity for others
1987	HMO prices became equal to that of the indemnity plan.	
1988	preferred provider network approaches 7500 physicians	
1989	*** HEALTH FLEX OPTIONS ***	
1990		WELL BABY CARE
	*** LIFE LINK MENTAL HEALTH ***	

APPENDIX IV

CHARTS

By Group & Bucket

Group: ** Grand Total Summary

Switches	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0 Switches	8876	15.75%	3474	39.14%	40	17.39%	34	17.10%	0	0
1 Switches	28500	50.57%	11991	42.07%	39	54.06%	32	53.07%	0	1
2 Switches	13813	24.51%	5147	37.26%	30	20.43%	27	21.63%	1	1
3 Switches	3558	6.31%	1470	41.32%	31	5.41%	27	5.42%	2	1
4 Switches	1048	1.86%	534	50.95%	35	1.78%	30	1.82%	2	2
5 Switches	306	0.54%	179	58.50%	34	0.50%	29	0.51%	3	2
6 Switches	253	0.45%	156	61.66%	35	0.43%	31	0.45%	4	2
Total for: Group										
** Grand Total Summary	56354	100.00%	22951	100.00%	2054089	100.00%	1742299	100.00%	36292	37748
Percent of Grand Total		100.00%		40.73%		100.00%		100.00%		

By Same Group & Family Size

Same Group: ** Grand Total Summary

Same Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	99	0.45%	50	50.51%	36	0.48%	30	0.46%	2	1
ONE	2254	10.29%	1072	47.56%	38	11.25%	32	11.32%	1	1
SAME	18829	85.98%	6488	34.46%	34	84.85%	29	85.05%	1	1
TWO	666	3.04%	358	53.75%	36	3.17%	28	2.95%	1	1
ZERO	51	0.23%	30	58.82%	37	0.25%	28	0.22%	1	0
Total for: Same Group										
** Grand Total Summary	21899	100.00%	7998	100.00%	756143	100.00%	637282	100.00%	13683	12923
Percent of Grand Total		100.00%		36.52%		100.00%		100.00%		

3

By Group & Relation

Group: ** Grand Total Summary

Relationship	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
D	9490	16.84%	4657	49.07%	41	18.97%	34	18.63%	1	1
H	1376	2.44%	228	16.57%	30	2.00%	24	1.92%	1	1
M	21899	38.86%	7998	36.52%	35	36.81%	29	36.58%	1	1
O	75	0.13%	24	32.00%	35	0.13%	33	0.14%	1	0
S	9976	17.70%	4951	49.63%	41	19.90%	34	19.56%	1	1
W	13538	24.02%	5093	37.62%	34	22.19%	30	23.18%	1	1
Total for: Group										
** Grand Total Summary	56354	100.00%	22951	100.00%	2054089	100.00%	1742299	100.00%	36292	37748
Percent of Grand Total		100.00%		40.73%		100.00%		100.00%		

By Same Group & Family Size

Same Group: ** Grand Total Summary

Family Size	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
1	5565	25.41%	1867	33.55%	31	22.91%	23	20.33%	1	0
2	6166	28.16%	1387	22.49%	27	21.92%	25	24.32%	1	1
3	2915	13.31%	1254	43.02%	38	14.69%	32	14.82%	1	1
4	4196	19.16%	1969	46.93%	42	23.31%	35	23.30%	1	1
5	1970	9.00%	964	48.93%	43	11.10%	36	11.06%	1	1
6	732	3.34%	363	49.59%	42	4.07%	36	4.12%	1	1
7	232	1.06%	134	57.76%	42	1.29%	37	1.34%	1	1
8	83	0.38%	40	48.19%	43	0.48%	37	0.48%	1	1
9	28	0.13%	16	57.14%	44	0.16%	38	0.17%	2	1
10	6	0.03%	2	33.33%	52	0.04%	46	0.04%	0	1
11	4	0.02%	1	25.00%	40	0.02%	35	0.02%	1	1
12	2	0.01%	1	50.00%	46	0.01%	40	0.01%	0	0
Total for: Same Group										
** Grand Total Summary	21899	100.00%	7998	100.00%	756143	100.00%	637282	100.00%	13683	12923
Percent of Grand Total		100.00%		36.52%		100.00%		100.00%		

By Same Group & Family Size

Same Group: BOTH

Family Size	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
2	5	5.05%	0		26	3.58%	16	2.69%	2	1
3	18	18.18%	7	38.89%	37	18.35%	30	18.44%	3	1
4	42	42.42%	26	61.90%	36	42.21%	30	42.24%	2	1
5	21	21.21%	9	42.86%	39	22.48%	31	22.31%	3	1
6	9	9.09%	5	55.56%	38	9.52%	33	10.14%	2	2
7	2	2.02%	1	50.00%	37	2.03%	32	2.18%	3	1
8	1	1.01%	1	100.00%	38	1.05%	34	1.16%	3	0
9	1	1.01%	1	100.00%	28	0.78%	25	0.85%	3	1
To: for: Same Group										
BOTH	99	100.00%	50	100.00%	3603	100.00%	2940	100.00%	239	106
Percent of Grand Total		0.45%		0.23%		0.48%		0.46%		

By Same Group & Family Size

Same Group: ONE

Family Size	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
2	561	24.89%	201	35.83%	32	20.95%	28	21.62%	1	1
3	534	23.69%	256	47.94%	38	23.95%	32	23.62%	1	1
4	658	29.19%	341	51.82%	40	31.12%	34	30.90%	1	1
5	322	14.29%	173	53.73%	41	15.45%	34	15.27%	1	1
6	122	5.41%	70	57.38%	40	5.72%	34	5.67%	1	1
7	39	1.73%	22	56.41%	41	1.89%	36	1.97%	1	1
8	14	0.62%	6	42.86%	45	0.73%	39	0.75%	1	1
9	4	0.18%	3	75.00%	40	0.19%	36	0.20%	2	1
Total or: Same Group										
ONE	2254	100.00%	1072	100.00%	85090	100.00%	72154	100.00%	1917	1309
Percent of Grand Total		10.29%		4.90%		11.25%		11.32%		

By Same Group & Family Size

Same Group: SAME

Family Size	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
1	5565	29.56%	1867	33.55%	31	27.01%	23	23.90%	1	0
2	5481	29.11%	1126	20.54%	26	22.40%	25	25.15%	0	1
3	2215	11.76%	915	41.31%	38	13.23%	33	13.49%	1	0
4	3280	17.42%	1483	45.21%	43	21.89%	36	21.91%	1	1
5	1497	7.95%	712	47.56%	43	10.15%	37	10.12%	1	1
6	546	2.90%	256	46.89%	43	3.66%	37	3.72%	1	1
7	158	0.84%	90	56.96%	43	1.05%	37	1.09%	1	1
8	60	0.32%	27	45.00%	44	0.41%	38	0.42%	1	1
9	18	0.10%	8	44.44%	49	0.14%	42	0.14%	1	0
10	4	0.02%	2	50.00%	55	0.03%	47	0.03%	0	0
11	3	0.02%	1	33.33%	33	0.02%	28	0.02%	1	1
12	2	0.01%	1	50.00%	46	0.01%	40	0.01%	0	0
Total for: Same Group										
SAME	18829	100.00%	6488	100.00%	641554	100.00%	541982	100.00%	10634	10630
Percent of Grand Total		85.98%		29.63%		84.85%		85.05%		

By Same Group & Family Size

Same Group: TWO

Family Size	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
2	100	15.02%	51	51.00%	34	14.18%	25	13.30%	1	1
3	137	20.57%	70	51.09%	35	19.73%	26	18.71%	1	1
4	203	30.48%	109	53.69%	36	30.51%	29	30.91%	1	1
5	125	18.77%	67	53.60%	38	19.58%	30	20.00%	1	1
6	53	7.96%	30	56.60%	38	8.29%	31	8.76%	1	2
7	32	4.80%	21	65.63%	38	5.09%	33	5.64%	1	2
8	8	1.20%	6	75.00%	39	1.30%	28	1.19%	1	2
9	5	0.75%	4	80.00%	33	0.68%	28	0.74%	2	1
10	2	0.30%	0		48	0.40%	45	0.48%	0	2
11	1	0.15%	0		60	0.25%	53	0.28%	1	2
Total for: Same Group										
TWO	666	100.00%	358	100.00%	23991	100.00%	18793	100.00%	825	874
Percent of Grand Total		3.04%		1.63%		3.17%		2.95%		

By Same Group & Family Size

Same Group: ZERO

Family Size	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
2	19	37.25%	9	47.37%	36	36.33%	27	35.81%	1	0
3	11	21.57%	6	54.55%	33	19.16%	23	17.91%	2	0
4	13	25.49%	10	76.92%	39	26.82%	29	27.11%	2	0
5	5	9.80%	3	60.00%	39	10.18%	33	11.75%	2	0
6	2	3.92%	2	100.00%	31	3.20%	28	3.89%	1	0
7	1	1.96%	0		82	4.30%	50	3.54%	0	0

Total for: Same Group

ZERO	51	100.00%	30	100.00%	1905	100.00%	1413	100.00%	68	4
Percent of Grand Total		0.23%		0.14%		0.25%		0.22%		

By Group & Age/Sex

Group: F 0-5

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	204	9.07%	116	56.86%	37	8.79%	26	7.86%	1	1
HI	23	1.02%	12	52.17%	38	1.00%	24	0.84%	2	1
HIH	10	0.44%	3	30.00%	42	0.48%	36	0.54%	2	1
IH	985	43.80%	596	60.51%	36	41.33%	28	40.99%	1	0
IHI	37	1.65%	22	59.46%	39	1.68%	33	1.80%	2	0
IHIH	7	0.31%	4	57.14%	37	0.30%	32	0.33%	3	0
III	980	43.57%	518	52.86%	41	46.31%	32	47.53%	1	0
UNKN	3	0.13%	0		32	0.11%	27	0.12%	1	0
Total for Group										
F 0-5	2249	100.00%	1271	100.00%	86805	100.00%	66907	100.00%	2295	676
Percent of Grand Total		3.99%		2.26%		4.23%		3.84%		

//

By Group & Age/Sex

Group: F 6-18

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	818	13.73%	426	52.08%	39	12.87%	32	12.45%	0	1
HI	77	1.29%	37	48.05%	43	1.32%	35	1.30%	1	1
HIH	44	0.74%	24	54.55%	41	0.73%	35	0.73%	2	1
IH	1658	27.83%	956	57.66%	39	25.58%	31	24.57%	1	1
IHI	91	1.53%	45	49.45%	40	1.45%	33	1.42%	2	1
IHIH	8	0.13%	2	25.00%	43	0.14%	37	0.14%	3	1
III	3250	54.56%	1381	42.49%	44	57.77%	38	59.26%	0	1
UNKN	11	0.18%	8	72.73%	32	0.14%	26	0.14%	1	0
Tot for: Group										
F 6-18	5957	100.00%	2879	100.00%	249874	100.00%	210230	100.00%	3328	4618
Percent of Grand Total		10.57%		5.11%		12.16%		12.07%		

12

By Group & Age/Sex

Group: F 19-25

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	147	7.14%	77	52.38%	36	6.69%	29	6.90%	0	1
HI	13	0.63%	3	23.08%	38	0.62%	26	0.54%	1	1
HIH	6	0.29%	3	50.00%	40	0.30%	35	0.34%	2	1
IH	440	21.38%	270	61.36%	34	19.01%	24	17.00%	1	0
IHI	22	1.07%	10	45.45%	34	0.94%	27	0.95%	2	0
IHIH	3	0.15%	3	100.00%	38	0.15%	32	0.15%	3	0
III	1425	69.24%	547	38.39%	40	72.18%	32	74.01%	0	1
UNKN	2	0.10%	1	50.00%	41	0.10%	37	0.12%	1	1
Tot. for: Group										
F 19-25	2058	100.00%	914	100.00%	78422	100.00%	62079	100.00%	1251	1238
Percent of Grand Total		3.65%		1.62%		3.82%		3.56%		

By Group & Age/Sex

Group: F 26-32

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	383	12.46%	218	56.92%	36	12.60%	26	12.31%	1	1
HI	51	1.66%	25	49.02%	35	1.65%	27	1.69%	1	1
HIH	28	0.91%	12	42.86%	37	0.96%	31	1.07%	2	1
IH	938	30.52%	618	65.88%	35	30.35%	26	30.08%	2	0
IHI	60	1.95%	34	56.67%	35	1.91%	28	2.04%	3	1
IHIH	5	0.16%	3	60.00%	34	0.16%	31	0.19%	3	1
III	1602	52.13%	715	44.63%	36	52.20%	27	52.42%	0	1
UNKN	6	0.20%	3	50.00%	32	0.18%	26	0.19%	1	1
Total or: Group										
F 26-32	3073	100.00%	1628	100.00%	109120	100.00%	81952	100.00%	2726	1804
Percent of Grand Total		5.45%		2.89%		5.31%		4.70%		

14

By Group & Age/Sex

Group: F 33-40

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	471	10.56%	216	45.86%	40	10.43%	32	10.17%	0	1
HI	70	1.57%	19	27.14%	40	1.55%	35	1.65%	1	1
HIH	25	0.56%	13	52.00%	42	0.58%	35	0.59%	2	1
IH	937	21.01%	523	55.82%	39	20.11%	31	19.59%	1	1
IHI	86	1.93%	41	47.67%	39	1.87%	32	1.87%	2	1
IHIH	8	0.18%	2	25.00%	34	0.15%	30	0.16%	3	1
III	2854	63.99%	977	34.23%	41	65.12%	34	65.78%	0	1
UNKN	9	0.20%	6	66.67%	38	0.19%	31	0.19%	1	0
Total or: Group										
F 33-40	4460	100.00%	1797	100.00%	180261	100.00%	148262	100.00%	2758	3315
Percent of Grand Total		7.91%		3.19%		8.78%		8.51%		

By Group & Age/Sex

Group: F 41-55

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	317	6.30%	127	40.06%	40	6.07%	35	5.92%	0	1
HI	36	0.71%	6	16.67%	42	0.72%	35	0.67%	1	1
HIH	15	0.30%	5	33.33%	47	0.34%	42	0.34%	2	1
IH	651	12.93%	287	44.09%	40	12.43%	34	11.88%	1	1
IHI	38	0.75%	8	21.05%	41	0.75%	41	0.83%	2	1
IHIH	5	0.10%	2	40.00%	38	0.09%	33	0.09%	3	1
III	3968	78.81%	1208	30.44%	42	79.52%	38	80.18%	0	1
UNKN	5	0.10%	0		36	0.09%	32	0.09%	1	1
Tot or: Group										
F 41-55	5035	100.00%	1643	100.00%	210554	100.00%	187073	100.00%	2072	3895
Percent of Grand Total		8.93%		2.92%		10.25%		10.74%		

By Group & Age/Sex

Group: F 56-64

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	74	3.35%	20	27.03%	26	3.45%	28	3.39%	0	1
HI	15	0.68%	2	13.33%	31	0.85%	32	0.76%	1	1
IH	79	3.57%	20	25.32%	29	4.19%	30	3.78%	1	1
IHI	11	0.50%	1	9.09%	24	0.47%	37	0.65%	3	1
III	2031	91.82%	240	11.82%	25	90.93%	28	91.34%	1	1
UNKN	2	0.09%	2	100.00%	31	0.11%	27	0.09%	1	1

Total for: Group

F 56-64	2212	100.00%	285	100.00%	55394	100.00%	62233	100.00%	1544	1889
ercent of Grand Total		3.93%		0.51%		2.70%		3.57%		

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By Group & Age/Sex

Group: F 65 & over

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	48	1.72%	1	2.08%	11	1.99%	12	2.05%	0	1
HI	12	0.43%	1	8.33%	11	0.53%	14	0.62%	2	1
HIH	1	0.04%	0		8	0.03%	8	0.03%	3	1
IH	39	1.40%	2	5.13%	13	1.94%	14	1.99%	1	1
IHI	8	0.29%	0		10	0.31%	10	0.28%	2	1
III	2679	96.12%	38	1.42%	9	95.20%	10	95.03%	1	1
Total for: Group										
F 65 & over	2787	100.00%	42	100.00%	25365	100.00%	27555	100.00%	2548	2984
ercent of Grand Total		4.95%		0.07%		1.23%		1.58%		

By Group & Age/Sex

Group: M 0-5

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	197	8.45%	98	49.75%	39	8.37%	29	8.01%	1	1
HI	9	0.39%	6	66.67%	40	0.39%	29	0.37%	1	1
HIH	2	0.09%	2	100.00%	38	0.08%	32	0.09%	3	1
IH	1035	44.38%	679	65.60%	36	41.42%	28	40.84%	1	0
IHI	39	1.67%	21	53.85%	38	1.64%	31	1.68%	2	0
IHIH	7	0.30%	1	14.29%	43	0.33%	37	0.36%	3	0
III	1042	44.68%	528	50.67%	42	47.72%	33	48.60%	1	0
UNKN	1	0.04%	1	100.00%	34	0.04%	31	0.04%	1	0
Tot for: Group										
M 0-5	2332	100.00%	1336	100.00%	91201	100.00%	70990	100.00%	2355	729
Percent of Grand Total		4.14%		2.37%		4.44%		4.07%		

By Group & Age/Sex

Group: M 6-18

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	826	13.14%	449	54.36%	39	12.26%	32	12.18%	0	1
HI	75	1.19%	32	42.67%	40	1.14%	33	1.14%	1	1
HIH	53	0.84%	22	41.51%	43	0.86%	37	0.90%	2	1
IH	1739	27.67%	1011	58.14%	38	25.44%	31	24.37%	1	1
IHI	83	1.32%	42	50.60%	40	1.28%	34	1.30%	2	1
IHIH	10	0.16%	2	20.00%	43	0.17%	35	0.16%	3	1
III	3488	55.51%	1535	44.01%	44	58.72%	38	59.80%	0	1
UNKN	10	0.16%	9	90.00%	35	0.13%	31	0.14%	1	0
Tot. or: Group										
M 6-18	6284	100.00%	3102	100.00%	261751	100.00%	219389	100.00%	3545	4812
Percent of Grand Total		11.15%		5.50%		12.74%		12.59%		

By Group & Age/Sex

Group: M 19-25

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	136	7.36%	61	44.85%	38	7.10%	29	6.82%	0	1
HI	13	0.70%	3	23.08%	43	0.77%	42	0.94%	1	1
HIH	3	0.16%	1	33.33%	41	0.17%	35	0.18%	2	1
IH	264	14.29%	143	54.17%	37	13.30%	27	12.54%	2	0
IHI	19	1.03%	12	63.16%	36	0.93%	31	1.03%	2	1
III	1410	76.30%	645	45.74%	40	77.59%	32	78.34%	0	1
UNKN	3	0.16%	2	66.67%	34	0.14%	29	0.15%	0	1
Total for: Group										
M 19-25	1848	100.00%	867	100.00%	72749	100.00%	57806	100.00%	988	1196
Percent of Grand Total		3.28%		1.54%		3.54%		3.32%		

By Group & Age/Sex

Group: M 26-32

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	226	8.07%	146	64.60%	35	8.15%	26	8.40%	1	1
HI	40	1.43%	24	60.00%	39	1.57%	30	1.70%	1	2
HIH	17	0.61%	7	41.18%	39	0.68%	32	0.78%	3	2
IH	703	25.12%	488	69.42%	34	24.46%	24	24.25%	2	0
IHI	35	1.25%	24	68.57%	36	1.28%	28	1.40%	3	1
IHIH	3	0.11%	3	100.00%	31	0.09%	23	0.10%	5	1
III	1774	63.38%	1212	68.32%	35	63.74%	25	63.33%	1	0
UNKN	1	0.04%	0		29	0.03%	26	0.04%	1	0
Total for: Group										
M 26-32	2799	100.00%	1904	100.00%	98390	100.00%	70434	100.00%	2839	1468
Percent of Grand Total		4.97%		3.38%		4.79%		4.04%		

By Group & Age/Sex

Group: M 33-40

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	373	8.99%	205	54.96%	39	8.67%	31	8.46%	0	2
HI	40	0.96%	16	40.00%	39	0.92%	33	0.98%	1	2
HIH	22	0.53%	14	63.64%	39	0.51%	34	0.54%	3	2
IH	831	20.03%	494	59.45%	37	18.35%	29	17.62%	2	1
IHI	61	1.47%	30	49.18%	41	1.47%	35	1.54%	3	1
IHIH	8	0.19%	6	75.00%	41	0.19%	33	0.19%	4	1
III	2812	67.79%	1425	50.68%	42	69.88%	34	70.65%	0	0
UNKN	1	0.02%	0		34	0.02%	28	0.02%	0	1
Total or: Group										
M 33-40	4148	100.00%	2190	100.00%	169756	100.00%	136942	100.00%	3099	2575
Percent of Grand Total		7.36%		3.89%		8.26%		7.86%		

By Group & Age/Sex

Group: M 41-55

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	315	5.32%	133	42.22%	42	4.89%	35	4.73%	0	2
HI	55	0.93%	23	41.82%	43	0.89%	37	0.87%	1	2
HIH	15	0.25%	7	46.67%	40	0.22%	35	0.23%	3	2
IH	641	10.83%	277	43.21%	39	9.41%	32	8.87%	2	0
IHI	61	1.03%	24	39.34%	40	0.92%	36	0.95%	3	1
IHIH	6	0.10%	2	33.33%	40	0.09%	35	0.09%	4	1
III	4827	81.54%	1851	38.35%	46	83.58%	40	84.27%	0	0
Total for: Group										
' 41-55	5920	100.00%	2317	100.00%	267648	100.00%	230935	100.00%	2606	2620
Percent of Grand Total		10.51%		4.11%		13.03%		13.25%		

By Group & Age/Sex

Group: M 56-64

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	32	1.34%	17	53.13%	28	1.31%	26	1.07%	0	2
HI	11	0.46%	2	18.18%	35	0.56%	37	0.51%	2	2
HIH	1	0.04%	0		5	0.01%	23	0.03%	4	2
IH	56	2.35%	17	30.36%	32	2.55%	32	2.26%	2	0
IHI	9	0.38%	2	22.22%	22	0.28%	37	0.42%	3	1
III	2279	95.44%	380	16.67%	29	95.30%	33	95.71%	0	0
Total for: Group										
M 56-64	2388	100.00%	418	100.00%	69408	100.00%	78870	100.00%	1258	1113
Percent of Grand Total		4.24%		0.74%		3.38%		4.53%		

By Group & Age/Sex

Group: M 65 & over

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	12	0.49%	1	8.33%	12	0.54%	18	0.70%	0	2
HI	3	0.12%	0		7	0.07%	6	0.06%	1	3
IH	16	0.65%	2	12.50%	20	1.17%	17	0.91%	1	1
IHI	3	0.12%	0		10	0.11%	22	0.22%	3	1
III	2439	98.63%	24	0.98%	11	98.11%	12	98.12%	0	1
Total for: Group										
M 65 & over	2473	100.00%	27	100.00%	27391	100.00%	30642	100.00%	1080	2816
Percent of Grand Total		4.39%		0.05%		1.33%		1.76%		

By Same Group & Switch Group

Same Group: ** Grand Total Summary

Same Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	405	0.72%	219	54.07%	36	0.70%	29	0.68%	1	1
ONE	7361	13.06%	3725	50.60%	39	13.80%	32	13.69%	1	1
SAME	45462	80.67%	17406	38.29%	36	80.45%	31	80.88%	1	1
TWO	2524	4.48%	1419	56.22%	36	4.45%	29	4.15%	1	1
ZERO	602	1.07%	182	30.23%	20	0.60%	17	0.60%	1	1
Total for: Same Group										
** Grand Total Summary	56354	100.00%	22951	100.00%	2054089	100.00%	1742299	100.00%	36292	37748
Percent of Grand Total		100.00%		40.73%		100.00%		100.00%		

By Same Group & Switch Group

Same Group: ** Grand Total Summary

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	4585	8.14%	2317	50.53%	38	8.50%	31	8.06%	0	1
HI	544	0.97%	212	38.97%	39	1.03%	32	1.01%	1	1
HIH	242	0.43%	113	46.69%	41	0.48%	35	0.49%	2	1
IH	11093	19.68%	6464	58.27%	37	19.94%	29	18.48%	1	0
IHI	671	1.19%	324	48.29%	38	1.23%	32	1.24%	2	1
IHIH	70	0.12%	30	42.86%	39	0.13%	33	0.13%	3	1
III	39094	69.37%	13458	34.42%	36	68.60%	31	70.50%	0	1
UNKN	55	0.10%	33	60.00%	34	0.09%	28	0.09%	1	0
Tot for: Same Group										
** Grand Total Summary	56354	100.00%	22951	100.00%	2054089	100.00%	1742299	100.00%	36292	37748
Percent of Grand Total		100.00%		40.73%		100.00%		100.00%		

By Same Group & Switch Group

Same Group: BOTH

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	84	20.74%	42	50.00%	38	22.05%	32	22.55%	0	1
HI	20	4.94%	8	40.00%	36	4.97%	29	4.95%	2	2
HIH	28	6.91%	15	53.57%	39	7.50%	33	7.70%	3	1
IH	243	60.00%	142	58.44%	35	58.48%	28	58.20%	1	0
IHI	19	4.69%	6	31.58%	33	4.30%	25	4.07%	3	0
IHIH	7	1.73%	4	57.14%	34	1.65%	28	1.66%	4	1
III	2	0.49%	2	100.00%	32	0.44%	23	0.39%	1	0
UNKN	2	0.49%	0		44	0.61%	29	0.49%	1	0
Tot for: Same Group										
BOTH	405	100.00%	219	100.00%	14438	100.00%	11890	100.00%	574	232
Percent of Grand Total		0.72%		0.39%		0.70%		0.68%		

By Same Group & Switch Group

Same Group: ONE

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	1012	13.75%	506	50.00%	37	13.32%	30	12.93%	1	1
HI	224	3.04%	85	37.95%	40	3.19%	35	3.24%	1	1
HIH	114	1.55%	56	49.12%	43	1.71%	37	1.77%	2	1
IH	3870	52.57%	2098	54.21%	39	53.09%	33	52.88%	1	1
IHI	289	3.93%	146	50.52%	39	3.97%	33	4.05%	2	1
IHIH	32	0.43%	9	28.13%	40	0.45%	35	0.46%	3	1
III	1806	24.53%	820	45.40%	38	24.12%	32	24.50%	0	1
UNKN	14	0.19%	5	35.71%	32	0.16%	28	0.16%	1	1
Tot for: Same Group										
ONE	7361	100.00%	3725	100.00%	283454	100.00%	238531	100.00%	7877	4510
Percent of Grand Total		13.06%		6.61%		13.80%		13.69%		

By Same Group & Switch Group

Same Group: SAME

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	2605	5.73%	1282	49.21%	39	6.09%	31	5.72%	0	1
HI	208	0.46%	81	38.94%	37	0.47%	31	0.45%	1	1
HIH	55	0.12%	23	41.82%	40	0.13%	34	0.13%	2	1
IH	5582	12.28%	3367	60.32%	36	12.24%	27	10.76%	2	0
IHI	294	0.65%	141	47.96%	36	0.64%	31	0.65%	3	1
IHIH	7	0.02%	6	85.71%	36	0.02%	27	0.01%	4	0
III	36676	80.67%	12479	34.02%	36	80.34%	32	82.20%	0	1
UNKN	35	0.08%	27	77.14%	33	0.07%	28	0.07%	1	1
To for: Same Group										
SAME	45462	100.00%	17406	100.00%	1652474	100.00%	1409178	100.00%	24722	30952
Percent of Grand Total		80.67%		30.89%		80.45%		80.88%		

By Same Group & Switch Group

Same Group: TWO

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	870	34.47%	478	54.94%	37	35.58%	30	36.01%	0	1
HI	89	3.53%	38	42.70%	39	3.81%	32	3.90%	1	1
HIH	45	1.78%	19	42.22%	39	1.91%	33	2.04%	3	1
IH	1300	51.51%	785	60.38%	35	49.52%	27	48.52%	1	0
IHI	65	2.58%	31	47.69%	39	2.76%	32	2.90%	2	1
IHIH	24	0.95%	11	45.83%	41	1.08%	35	1.15%	3	1
III	129	5.11%	57	44.19%	37	5.26%	30	5.39%	1	0
UNKN	2	0.08%	0		40	0.09%	32	0.09%	1	0
Total for: Same Group										
TWO	2524	100.00%	1419	100.00%	91449	100.00%	72234	100.00%	2541	1637
Percent of Grand Total		4.48%		2.52%		4.45%		4.15%		

By Same Group & Switch Group

Same Group: ZERO

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
HHH	14	2.33%	9	64.29%	26	3.01%	20	2.72%	1	0
HI	3	0.50%	0		48	1.17%	47	1.35%	1	1
IH	98	16.28%	72	73.47%	32	25.88%	22	20.99%	2	0
IHI	4	0.66%	0		35	1.13%	31	1.18%	1	1
III	481	79.90%	100	20.79%	17	68.18%	16	73.09%	1	1
UNKN	2	0.33%	1	50.00%	39	0.63%	35	0.66%	2	0

Total for: Same Group

ZERO	602	100.00%	182	100.00%	12274	100.00%	10466	100.00%	578	417
Percent of Grand Total		1.07%		0.32%		0.60%		0.60%		

By Same Group & Switch Group

Same Group: HHH

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	84	1.83%	42	50.00%	38	1.82%	32	1.91%	0	1
ONE	1012	22.07%	506	50.00%	37	21.63%	30	21.96%	1	1
SAME	2605	56.82%	1282	49.21%	39	57.69%	31	57.41%	0	1
TWO	870	18.97%	478	54.94%	37	18.64%	30	18.52%	0	1
ZERO	14	0.31%	9	64.29%	26	0.21%	20	0.20%	1	0
Total for: Same Group										
HHH	4585	100.00%	2317	100.00%	174538	100.00%	140460	100.00%	1870	5074
Percent of Grand Total		8.14%		4.11%		8.50%		8.06%		

By Same Group & Switch Group

Same Group: HI

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	20	3.68%	8	40.00%	36	3.39%	29	3.34%	2	2
ONE	224	41.18%	85	37.95%	40	42.76%	35	43.88%	1	1
SAME	208	38.24%	81	38.94%	37	36.69%	31	36.01%	1	1
TWO	89	16.36%	38	42.70%	39	16.48%	32	15.97%	1	1
ZERO	3	0.55%	0		48	0.68%	47	0.80%	1	1
Total for: Same Group										
HI	544	100.00%	212	100.00%	21153	100.00%	17625	100.00%	663	706
Percent of Grand Total		0.97%		0.38%		1.03%		1.01%		

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By Same Group & Switch Group

Same Group: HIH

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	28	11.57%	15	53.57%	39	10.96%	33	10.79%	3	1
ONE	114	47.11%	56	49.12%	43	49.10%	37	49.71%	2	1
SAME	55	22.73%	23	41.82%	40	22.24%	34	22.17%	2	1
TWO	45	18.60%	19	42.22%	39	17.69%	33	17.33%	3	1
Total for: Same Group										
HIH	242	100.00%	113	100.00%	9877	100.00%	8486	100.00%	592	300
Percent of Grand Total		0.43%		0.20%		0.48%		0.49%		

By Same Group & Switch Group

Same Group: IH

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	243	2.19%	142	58.44%	35	2.06%	28	2.15%	1	0
ONE	3870	34.89%	2098	54.21%	39	36.74%	33	39.18%	1	1
SAME	5582	50.32%	3367	60.32%	36	49.37%	27	47.10%	2	0
TWO	1300	11.72%	785	60.38%	35	11.06%	27	10.89%	1	0
ZERO	98	0.88%	72	73.47%	32	0.78%	22	0.68%	2	0
Total for: Same Group										
IH	11093	100.00%	6464	100.00%	409587	100.00%	321906	100.00%	16317	4939
Percent of Grand Total		19.68%		11.47%		19.94%		18.48%		

By Same Group & Switch Group

Same Group: IHI

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	19	2.83%	6	31.58%	33	2.47%	25	2.24%	3	0
ONE	289	43.07%	146	50.52%	39	44.67%	33	44.79%	2	1
SAME	294	43.82%	141	47.96%	36	42.30%	31	42.68%	3	1
TWO	65	9.69%	31	47.69%	39	10.01%	32	9.71%	2	1
ZERO	4	0.60%	0		35	0.55%	31	0.57%	1	1
Total for: Same Group										
IHI	671	100.00%	324	100.00%	25165	100.00%	21589	100.00%	1632	401
Percent of Grand Total		1.19%		0.57%		1.23%		1.24%		

By Same Group & Switch Group

Same Group: IHIH

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	7	10.00%	4	57.14%	34	8.70%	28	8.46%	4	1
ONE	32	45.71%	9	28.13%	40	46.26%	35	47.49%	3	1
SAME	7	10.00%	6	85.71%	36	9.10%	27	8.24%	4	0
TWO	24	34.29%	11	45.83%	41	35.95%	35	35.81%	3	1

Total for: Same Group

IHIH	70	100.00%	30	100.00%	2737	100.00%	2329	100.00%	238	52
Percent of Grand Total		0.12%		0.05%		0.13%		0.13%		

By Same Group & Switch Group

Same Group: III

Switch Group	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
BOTH	2	0.01%	2	100.00%	32		23		1	0
ONE	1806	4.62%	820	45.40%	38	4.85%	32	4.76%	0	1
SAME	36676	93.81%	12479	34.02%	36	94.21%	32	94.30%	0	1
TWO	129	0.33%	57	44.19%	37	0.34%	30	0.32%	1	0
ZERO	481	1.23%	100	20.79%	17	0.59%	16	0.62%	1	1
Total for: Same Group										
III	39094	100.00%	13458	100.00%	1409178	100.00%	1228339	100.00%	14934	26250
Percent of Grand Total		69.37%		23.88%		68.60%		70.50%		

By Group & Age/Sex

Group: ** Grand Total Summary

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0-5	331	0.59%	331	100.00%	0		0		0	0
F 0-5	2249	3.99%	1271	56.51%	39	4.23%	30	3.84%	1	0
F 6-18	5957	10.57%	2879	48.33%	42	12.16%	35	12.07%	1	1
F 19-25	2058	3.65%	914	44.41%	38	3.82%	30	3.56%	1	1
F 26-32	3073	5.45%	1628	52.98%	36	5.31%	27	4.70%	1	1
F 33-40	4460	7.91%	1797	40.29%	40	8.78%	33	8.51%	1	1
F 41-55	5035	8.93%	1643	32.63%	42	10.25%	37	10.74%	0	1
F 56-64	2212	3.93%	285	12.88%	25	2.70%	28	3.57%	1	1
F 65 & over	2787	4.95%	42	1.51%	9	1.23%	10	1.58%	1	1
M 0-5	2332	4.14%	1336	57.29%	39	4.44%	30	4.07%	1	0
M 6-18	6284	11.15%	3102	49.36%	42	12.74%	35	12.59%	1	1
M 19-25	1848	3.28%	867	46.92%	39	3.54%	31	3.32%	1	1
M 26-32	2799	4.97%	1904	68.02%	35	4.79%	25	4.04%	1	1
M 33-40	4148	7.36%	2190	52.80%	41	8.26%	33	7.86%	1	1
M 41-55	5920	10.51%	2317	39.14%	45	13.03%	39	13.25%	0	0
M 56-64	2388	4.24%	418	17.50%	29	3.38%	33	4.53%	1	0
M 65 & over	2473	4.39%	27	1.09%	11	1.33%	12	1.76%	0	1
Total for: Group										
** Grand Total Summary	56354	100.00%	22951	100.00%	2054089	100.00%	1742299	100.00%	36292	37748
Percent of Grand Total		100.00%		40.73%		100.00%		100.00%		

By Group & Age/Sex

Group: IH

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0-5	81	0.73%	81	100.00%	0		0		0	0
F 0-5	985	8.88%	596	60.51%	36	8.76%	28	8.52%	1	0
F 6-18	1658	14.95%	956	57.66%	39	15.61%	31	16.05%	1	1
F 19-25	440	3.97%	270	61.36%	34	3.64%	24	3.28%	1	0
F 26-32	938	8.46%	618	65.88%	35	8.09%	26	7.66%	2	0
F 33-40	937	8.45%	523	55.82%	39	8.85%	31	9.02%	1	1
F 41-55	651	5.87%	287	44.09%	40	6.39%	34	6.91%	1	1
F 56-64	79	0.71%	20	25.32%	29	0.57%	30	0.73%	1	1
F 65 & over	39	0.35%	2	5.13%	13	0.12%	14	0.17%	1	1
M 0-5	1035	9.33%	679	65.60%	36	9.22%	28	9.01%	1	0
M 6-18	1739	15.68%	1011	58.14%	38	16.26%	31	16.61%	1	1
M 19-25	264	2.38%	143	54.17%	37	2.36%	27	2.25%	2	0
M 26-32	703	6.34%	488	69.42%	34	5.88%	24	5.31%	2	0
M 33-40	831	7.49%	494	59.45%	37	7.60%	29	7.50%	2	1
M 41-55	641	5.78%	277	43.21%	39	6.15%	32	6.36%	2	0
M 56-64	56	0.50%	17	30.36%	32	0.43%	32	0.55%	2	0
M 65 & over	16	0.14%	2	12.50%	20	0.08%	17	0.09%	1	1
Total for: Group										
IH	11093	100.00%	6464	100.00%	409587	100.00%	321906	100.00%	16317	4939
Percent of Grand Total		19.68%		11.47%		19.94%		18.48%		

By Group & Age/Sex

Group: HI

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0-5	1	0.18%	1	100.00%	0		0		0	0
F 0-5	23	4.23%	12	52.17%	38	4.10%	24	3.17%	2	1
F 6-18	77	14.15%	37	48.05%	43	15.54%	35	15.46%	1	1
F 19-25	13	2.39%	3	23.08%	38	2.31%	26	1.90%	1	1
F 26-32	51	9.38%	25	49.02%	35	8.50%	27	7.86%	1	1
F 33-40	70	12.87%	19	27.14%	40	13.25%	35	13.86%	1	1
F 41-55	36	6.62%	6	16.67%	42	7.21%	35	7.14%	1	1
F 56-64	15	2.76%	2	13.33%	31	2.23%	32	2.70%	1	1
F 65 & over	12	2.21%	1	8.33%	11	0.63%	14	0.97%	2	1
M 0-5	9	1.65%	6	66.67%	40	1.70%	29	1.50%	1	1
M 6-18	75	13.79%	32	42.67%	40	14.07%	33	14.14%	1	1
M 19-25	13	2.39%	3	23.08%	43	2.66%	42	3.10%	1	1
M 26-32	40	7.35%	24	60.00%	39	7.29%	30	6.80%	1	2
M 33-40	40	7.35%	16	40.00%	39	7.36%	33	7.58%	1	2
M 41-55	55	10.11%	23	41.82%	43	11.23%	37	11.40%	1	2
M 56-64	11	2.02%	2	18.18%	35	1.82%	37	2.30%	2	2
M 65 & over	3	0.55%	0		7	0.09%	6	0.11%	1	3
Total for: Group										
HI	544	100.00%	212	100.00%	21153	100.00%	17625	100.00%	663	706
Percent of Grand Total		0.97%		0.38%		1.03%		1.01%		

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By Group & Age/Sex

Group: IHI

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0-5	8	1.19%	8	100.00%	0		0		0	0
F 0-5	37	5.51%	22	59.46%	39	5.80%	33	5.57%	2	0
F 6-18	91	13.56%	45	49.45%	40	14.44%	33	13.82%	2	1
F 19-25	22	3.28%	10	45.45%	34	2.93%	27	2.73%	2	0
F 26-32	60	8.94%	34	56.67%	35	8.29%	28	7.75%	3	1
F 33-40	86	12.82%	41	47.67%	39	13.40%	32	12.84%	2	1
F 41-55	38	5.66%	8	21.05%	41	6.24%	41	7.17%	2	1
F 56-64	11	1.64%	1	9.09%	24	1.03%	37	1.86%	3	1
F 65 & over	8	1.19%	0		10	0.31%	10	0.36%	2	1
M 0-5	39	5.81%	21	53.85%	38	5.96%	31	5.54%	2	0
M 6-18	83	12.37%	42	50.60%	40	13.32%	34	13.26%	2	1
M 19-25	19	2.83%	12	63.16%	36	2.68%	31	2.75%	2	1
M 26-32	35	5.22%	24	68.57%	36	5.01%	28	4.58%	3	1
M 33-40	61	9.09%	30	49.18%	41	9.94%	35	9.76%	3	1
M 41-55	61	9.09%	24	39.34%	40	9.76%	36	10.16%	3	1
M 56-64	9	1.34%	2	22.22%	22	0.77%	37	1.55%	3	1
M 65 & over	3	0.45%	0		10	0.12%	22	0.21%	3	1
Total for: Group										
IHI	671	100.00%	324	100.00%	25165	100.00%	21589	100.00%	1632	401
Percent of Grand Total		1.19%		0.57%		1.23%		1.24%		

By Group & Age/Sex

Group: IHIH

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
F 0-5	7	10.00%	4	57.14%	37	9.54%	32	9.53%	3	0
F 6-18	8	11.43%	2	25.00%	43	12.46%	37	12.71%	3	1
F 19-25	3	4.29%	3	100.00%	38	4.17%	32	4.12%	3	0
F 26-32	5	7.14%	3	60.00%	34	6.21%	31	6.74%	3	1
F 33-40	8	11.43%	2	25.00%	34	9.94%	30	10.39%	3	1
F 41-55	5	7.14%	2	40.00%	38	6.91%	33	7.08%	3	1
M 0-5	7	10.00%	1	14.29%	43	10.96%	37	11.03%	3	0
M 6-18	10	14.29%	2	20.00%	43	15.78%	35	15.11%	3	1
M 26-32	3	4.29%	3	100.00%	31	3.40%	23	2.92%	5	1
M 33-40	8	11.43%	6	75.00%	41	11.95%	33	11.38%	4	1
M 41-55	6	8.57%	2	33.33%	40	8.70%	35	8.97%	4	1
Total for: Group										
IHIH	70	100.00%	30	100.00%	2737	100.00%	2329	100.00%	238	52
Percent of Grand Total		0.12%		0.05%		0.13%		0.13%		

By Group & Age/Sex

Group: III

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0-5	234	0.60%	234	100.00%	0		0		0	0
F 0-5	980	2.51%	518	52.86%	41	2.85%	32	2.59%	1	0
F 6-18	3250	8.31%	1381	42.49%	44	10.24%	38	10.14%	0	1
F 19-25	1425	3.65%	547	38.39%	40	4.02%	32	3.74%	0	1
F 26-32	1602	4.10%	715	44.63%	36	4.04%	27	3.50%	0	1
F 33-40	2854	7.30%	977	34.23%	41	8.33%	34	7.94%	0	1
F 41-55	3968	10.15%	1208	30.44%	42	11.88%	38	12.21%	0	1
F 56-64	2031	5.20%	240	11.82%	25	3.57%	28	4.63%	1	1
F 65 & over	2679	6.85%	38	1.42%	9	1.71%	10	2.13%	1	1
M 0-5	1042	2.67%	528	50.67%	42	3.09%	33	2.81%	1	0
M 6-18	3488	8.92%	1535	44.01%	44	10.91%	38	10.68%	0	1
M 19-25	1410	3.61%	645	45.74%	40	4.01%	32	3.69%	0	1
M 26-32	1774	4.54%	1212	68.32%	35	4.45%	25	3.63%	1	0
M 33-40	2812	7.19%	1425	50.68%	42	8.42%	34	7.88%	0	0
M 41-55	4827	12.35%	1851	38.35%	46	15.88%	40	15.84%	0	0
M 56-64	2279	5.83%	380	16.67%	29	4.69%	33	6.15%	0	0
M 65 & over	2439	6.24%	24	0.98%	11	1.91%	12	2.45%	0	1
Total for: Group										
III	39094	100.00%	13458	100.00%	1409178	100.00%	1228339	100.00%	14934	26250
Percent of Grand Total		69.37%		23.88%		48.60%		70.50%		

Group: UNKN

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0-5	1	1.82%	1	100.00%	0		0		0	0
F 0-5	3	5.45%	0		32	5.12%	27	5.11%	1	0
F 6-18	11	20.00%	8	72.73%	32	19.04%	26	18.47%	1	0
F 19-25	2	3.64%	1	50.00%	41	4.37%	37	4.66%	1	1
F 26-32	6	10.91%	3	50.00%	32	10.30%	26	9.90%	1	1
F 33-40	9	16.36%	6	66.67%	38	18.39%	31	17.64%	1	0
F 41-55	5	9.09%	0		36	9.82%	32	10.22%	1	1
F 56-64	2	3.64%	2	100.00%	31	3.29%	27	3.45%	1	1
M 0-5	1	1.82%	1	100.00%	34	1.83%	31	1.98%	1	0
M 6-18	10	18.18%	9	90.00%	35	18.99%	31	19.55%	1	0
M 19-25	3	5.45%	2	66.67%	34	5.45%	29	5.56%	0	1
M 26-32	1	1.82%	0		29	1.56%	26	1.66%	1	0
M 33-40	1	1.82%	0		34	1.83%	28	1.79%	0	1
Total for: Group										
UNKN	55	100.00%	33	100.00%	1854	100.00%	1565	100.00%	46	26
Percent of Grand Total		0.10%		0.06%		0.09%		0.09%		

By Group & Age/Sex

Group: HHH

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
0-5	6	0.13%	6	100.00%	0		0		0	0
F 0-5	204	4.45%	116	56.86%	37	4.37%	26	3.74%	1	1
F 6-18	818	17.84%	426	52.08%	39	18.43%	32	18.64%	0	1
F 19-25	147	3.21%	77	52.38%	36	3.01%	29	3.05%	0	1
F 26-32	383	8.35%	218	56.92%	36	7.88%	26	7.18%	1	1
F 33-40	471	10.27%	216	45.86%	40	10.77%	32	10.74%	0	1
F 41-55	317	6.91%	127	40.06%	40	7.32%	35	7.89%	0	1
F 56-64	74	1.61%	20	27.03%	26	1.09%	28	1.50%	0	1
F 65 & over	48	1.05%	1	2.08%	11	0.29%	12	0.40%	0	1
M 0-5	197	4.30%	98	49.75%	39	4.37%	29	4.05%	1	1
M 6-18	826	18.02%	449	54.36%	39	18.39%	32	19.03%	0	1
M 19-25	136	2.97%	61	44.85%	38	2.96%	29	2.81%	0	1
M 26-32	226	4.93%	146	64.60%	35	4.59%	26	4.21%	1	1
M 33-40	373	8.14%	205	54.96%	39	8.43%	31	8.24%	0	2
M 41-55	315	6.87%	133	42.22%	42	7.49%	35	7.77%	0	2
M 56-64	32	0.70%	17	53.13%	28	0.52%	26	0.60%	0	2
M 65 & over	12	0.26%	1	8.33%	12	0.09%	18	0.15%	0	2
Total for: Group										
HHH	4585	100.00%	2317	100.00%	174538	100.00%	140460	100.00%	1870	5074
Percent of Grand Total		8.14%		4.11%		8.50%		8.06%		

By Group & Age/Sex

Group: MIH

Sex/Age	People Total	People Percent	Union Total	Union Percent	Salary 88 Average	Salary 88 Percent	Salary 85 Average	Salary 85 Percent	Before '85 Average	Since '85 Average
F 0-5	10	4.13%	3	30.00%	42	4.25%	36	4.29%	2	1
F 6-18	44	18.18%	24	54.55%	41	18.41%	35	17.98%	2	1
F 19-25	6	2.48%	3	50.00%	40	2.42%	35	2.50%	2	1
F 26-32	28	11.57%	12	42.86%	37	10.58%	31	10.36%	2	1
F 33-40	25	10.33%	13	52.00%	42	10.62%	35	10.33%	2	1
F 41-55	15	6.20%	5	33.33%	47	7.21%	42	7.44%	2	1
F 65 & over	1	0.41%	0		8	0.08%	8	0.09%	3	1
M 0-5	2	0.83%	2	100.00%	38	0.77%	32	0.74%	3	1
M 6-18	53	21.90%	22	41.51%	43	22.89%	37	23.30%	2	1
M 19-25	3	1.24%	1	33.33%	41	1.25%	35	1.23%	2	1
M 26-32	17	7.02%	7	41.18%	39	6.73%	32	6.47%	3	2
M 33-40	22	9.09%	14	63.64%	39	8.70%	34	8.73%	3	2
M 41-55	15	6.20%	7	46.67%	40	6.04%	35	6.27%	3	2
M 56-64	1	0.41%	0		5	0.05%	23	0.27%	4	2
Total for: Group										
MIH	242	100.00%	113	100.00%	9877	100.00%	8486	100.00%	592	300
Percent of Grand Total		0.43%		0.20%		0.46%		0.49%		

APPENDIX V

PLAN COSTS

	PROGRAM	PAYOR	1DEP	2DEP	3DEP	EMPONLY	EMP1	EMP2	MEDICARE
YEAR 84									
	AETNA/DEP	MEMBER	16.33	32.22					4.72
	GMC	MEMBER	11.67	41.24		10.00	21.67	51.24	30.18
	INLAND	MEMBER	28.93	43.02		10.00	38.93	53.02	30.82
	KAISER	MEMBER	7.30	16.40	89.06	10.00	17.30	26.40	20.94
	MAXICARE	MEMBER	27.13	52.09		10.00	37.13	62.09	25.37
	ROSS LOOS	MEMBER	22.33	49.69		10.00	32.33	59.69	34.77
min			7.30	16.40	89.06	10.00	17.30	26.40	4.72
max			28.93	52.09	89.06	10.00	38.93	62.09	34.77
YEAR 85									
	SCE/DEP	MEMBER	16.33	32.22					4.72
	GMC	MEMBER	22.45	65.06		10.00	32.45	75.06	30.18
	CIGNA	MEMBER	36.47	56.79		10.00	46.47	66.79	37.20
	KAISER	MEMBER	13.32	28.44	107.12	10.00	23.32	38.44	25.55
	MAXICARE	MEMBER	34.13	65.64		10.00	44.13	75.64	26.78
	ROSS LOOS	MEMBER	24.96	55.05		10.00	34.96	65.05	34.77
	INLAND	MEMBER	42.99	44.55		10.00	52.99	54.55	50.60
min			13.32	28.44	107.12	10.00	23.32	38.44	4.72
max			42.99	65.64	107.12	10.00	52.99	75.64	50.60
YEAR 86									
	SCE/DEP	MEMBER	21.57	43.79					6.36
	GMC	MEMBER	9.29	15.94		10.00	19.29	25.94	23.10
	CIGNA	MEMBER	22.70	23.55		10.00	32.70	33.55	37.62
	KAISER	MEMBER	0.00	0.00	77.56	10.00	10.00	10.00	27.38
	MAXICARE	MEMBER	13.23	19.40		10.00	23.23	29.40	20.11
	ROSS LOOS	MEMBER	10.38	21.96		10.00	20.38	31.69	35.68
	INLAND	MEMBER	28.37	100.30		10.00	38.37	110.30	48.09
	PACIFICARE	MEMBER	5.74	0.00		10.00	15.74	10.00	27.81
min			0.00	0.00	77.56	10.00	10.00	10.00	6.36
max			28.37	100.30	77.56	10.00	38.37	110.30	48.09
YEAR 87									
	SCE/DEP	MEMBER	21.57	43.79					6.36
	GMC	MEMBER	9.29	15.94	0.00	0.00	0.00	0.00	9.00
	CIGNA	MEMBER	29.24	35.48		1.72	30.96	37.20	39.60
	KAISER	MEMBER	0.00	0.00	76.00	0.00	0.00	0.00	28.77
	MAXICARE	MEMBER	15.63	24.25		0.00	2.13	10.75	27.01
	ROSS LOOS	MEMBER	0.79	0.00		0.00	0.00	0.00	39.65
	INLAND	MEMBER	28.37	8.37		0.00	8.81	0.00	48.09
	PACIFICARE	MEMBER	20.29	1.74		0.00	13.72	0.00	70.43
	HP/NEV	MEMBER	0.00	0.00		0.00	0.00	0.00	26.95
min			0.00	0.00	0.00	0.00	0.00	0.00	6.36
max			29.24	43.79	76.00	1.72	30.96	37.20	70.43

YEAR 88

	SCE/DEP	MEMBER	26.35	53.50					7.80
	GMC	MEMBER	0.00	0.00		0.00	0.00	0.00	20.51
	CIGNA	MEMBER	0.00	0.00		0.00	0.00	0.00	37.16
	KAISER	MEMBER	0.00	0.00		0.00	0.00	0.00	18.92
	MAXICARE	MEMBER	0.00	0.00		0.00	0.00	0.00	21.38
	INLAND	MEMBER	0.00	0.00		0.00	0.00	0.00	66.20
	PACIFICARE	MEMBER	7.84	0.00		0.00	7.65	0.00	58.22
	HP/NEV	MEMBER	0.00	0.00		0.00	0.00	0.00	18.30
min			0.00	0.00		0.00	0.00	0.00	7.80
max			26.35	53.50		0.00	7.65	0.00	66.20
min			0.00	0.00	0.00	0.00	0.00	0.00	4.72
max			42.99	100.30	107.12	10.00	52.99	110.30	70.43

	PROGRAM	PAYOR	1DEP	2DEP	3DEP	EMPONLY	EMP1	EMP2	MEDICARE
YEAR 84									
	AETNA/DEP	SCE	65.36	128.92					18.88
	GMC	SCE	65.36	128.92		67.03	128.86	173.95	18.88
	INLAND	SCE	65.36	128.92		82.42	147.78	211.36	18.88
	KAISER	SCE	65.36	128.92	128.92	62.66	128.02	191.58	18.88
	MAXICARE	SCE	65.36	128.92		78.91	144.27	207.83	18.88
	ROSS LOOS	SCE	65.36	128.92		78.07	143.80	204.49	18.88
min			65.36	128.92	128.92	62.66	128.02	173.95	18.88
max			65.36	128.92	128.92	82.42	147.78	211.36	18.88
YEAR 85									
	SCE/DEP	SCE	65.36	128.92					18.88
	GMC	SCE	65.36	128.92		77.81	143.17	187.74	18.88
	CIGNA	SCE	65.36	128.92		89.82	155.18	218.74	18.88
	KAISER	SCE	65.36	128.92	128.92	68.68	134.04	197.60	18.88
	MAXICARE	SCE	65.36	128.92		85.60	150.96	214.52	18.88
	ROSS LOOS	SCE	65.36	128.92		80.63	146.30	206.82	18.88
	INLAND	SCE	65.36	128.92		76.85	142.21	205.77	18.88
min			65.36	128.92	128.92	68.68	134.04	187.74	18.88
max			65.36	128.92	128.92	89.82	155.18	218.74	18.88
YEAR 86									
	SCE/DEP	SCE	86.26	175.16					25.45
	GMC	SCE	86.26	175.16		85.55	171.81	260.71	25.45
	CIGNA	SCE	86.26	175.16		96.80	183.06	271.97	25.45
	KAISER	SCE	84.24	168.48	175.16	74.24	158.48	242.72	25.45
	MAXICARE	SCE	86.26	175.16		85.60	171.86	260.76	25.45
	ROSS LOOS	SCE	86.26	175.16		86.98	173.58	258.94	25.45
	INLAND	SCE	86.26	175.16		81.93	168.19	165.16	25.45
	PACIFICARE	SCE	86.26	149.48		81.44	167.70	230.92	25.45
min			84.24	149.48	175.16	74.24	158.48	165.16	25.45
max			86.26	175.16	175.16	96.80	183.06	271.97	25.45
YEAR 87									
	SCE/DEP	SCE	86.26	175.16					25.45
	GMC	SCE	86.26	175.16		95.55	191.10	286.65	25.45
	CIGNA	SCE	86.26	175.16		111.49	197.75	286.65	25.45
	KAISER	SCE	83.72	167.44	175.16	83.72	167.44	251.16	25.45
	MAXICARE	SCE	86.26	175.16		97.99	197.75	286.65	25.45
	ROSS LOOS	SCE	86.26	168.19		82.44	164.88	247.33	25.45
	INLAND	SCE	86.26	175.16		91.93	197.75	275.46	25.45
	PACIFICARE	SCE	86.26	175.16		104.92	197.75	281.82	25.45
	HP/NEV	SCE	84.10	168.20		84.10	168.20	246.61	25.45
min			83.72	167.44	175.16	82.44	164.88	246.61	25.45
max			86.26	175.16	175.16	111.49	197.75	286.65	25.45

YEAR 88

	SCE/DEP	SCE	105.39	213.99					31.19
	GMC	SCE	95.55	191.10		95.55	191.10	286.65	31.19
	CIGNA	SCE	91.40	176.60		86.56	173.12	259.70	31.19
	KAISER	SCE	94.08	188.16		87.87	175.74	263.61	31.19
	MAXICARE	SCE	103.93	203.40		99.85	203.68	303.08	31.19
	INLAND	SCE	102.54	197.72		102.54	197.72	286.60	31.19
	PACIFICARE	SCE	105.39	191.36		113.54	219.12	304.90	31.19
	HP/NEV	SCE	89.99	179.37		89.99	179.37	267.19	31.19
min			89.99	176.60		86.56	173.12	259.70	31.19
max			105.39	213.99		113.54	219.12	304.90	31.19
min			65.36	128.92	128.92	62.66	128.02	165.16	18.88
max			105.39	213.99	175.16	113.54	219.12	304.90	31.19

APPENDIX VI

SURVEY INSTRUMENT

CONSUMER SATISFACTION
WITHIN A MULTIPLE OPTION
HEALTH PLAN SETTING

Robert A. Wacloff
January 25, 1989

********** CODE1<AA >
SOCIAL <AB > * OVERALL SATISFACTION * CODE2<AC >
PHONE <AD > ********** CODE3<AE >

COVERAGE HISTORY< >

RELATION TO SUBSCRIBER <AG> NAME <AH > FS<AI>

STATED HISTORY<AJ >

Please respond to the following statements based on the following scale:

2-STRONGLY AGREE 3-AGREE 4-NEUTRAL
5-DISAGREE 6-STRONGLY DISAGREE

CHX TO 1-5

	PRIOR		1988
I am very satisfied--			
With regards to the medical care I have received	<AK>	1-7	<AL>
Overall, with the routine care I have received	<AM>	1-7	<AN>
Overall, with the specialty care I have received	<AO>	1-7	<AP>
Overall, with the emergency care I have received	<AQ>	1-7	<AR>
Overall, with the care my dependents have received	<AS>	1-7	<AT>

*** SPECIFIC CARE ISSUES ***

	PRIOR		1988
FOR ROUTINE CARE--			
Did you have need for use of routine services	< >	yes/no	< >
What was the travel time (minutes)	<AU>	minutes	<AV>
What was the appointment backlog (days)	<AW>	days	<AX>
What was the waiting time at the office for the provider	<AY>	minutes	<AZ>
What was the out-of-pocket cost (nuisance fee) per visit (dollars)	<Aa>	dollars	<Ab>
How would you rate the paperwork/hassle factor per visit 1--LOW 10--HIGH	<Ac>	1-10	<Ad>

CONSUMER SATISFACTION
WITHIN A MULTIPLE OPTION
HEALTH PLAN SETTING

Robert A. Wacloff
January 25, 1989

FOR EMERGENCY CARE--	PRIOR		1988
Did you have need for emergency services	< >	yes/no	< >
What was the travel time (minutes)	<Ae>	minutes	<Af>
What was the waiting time for services (minutes)	<Ag>	days	<Ah>
What was the out-of-pocket cost (nuisance fee) per visit (dollars)	<Ai>	dollars	<Aj>
How would you rate the paperwork/hassle factor per visit 1--LOW 10--HIGH	<Ak>	1-10	<Al>

*** SPECIFIC CARE ISSUES ***

FOR DEPENDENT CARE--	PRIOR		1988
H many dependents are covered by health insurance	<Am>	number	<An>
Did you have need for dependent services	< >	yes/no	< >
What was the travel time (minutes)	<Ao>	minutes	<Ap>
What was the appointment backlog (days)	<Aq>	days	<Ar>
What was the waiting time at the office for the provider	<As>	minutes	<At>
What was the out-of-pocket cost (nuisance fee) per visit	<Au>	dollars	<Av>
How would you rate the paperwork/hassle factor per visit 1--LOW 10--HIGH	<Aw>	1-10	<Ax>

FOR OUTSIDE CARE--	PRIOR		1988
Did you obtain health services outside of your plan?	<Ay>	yes/no	<Az>
How often?	<BA>	times	<BB>
Were those services covered by your plan?	<BC>	yes/no	<BD>
How important were those services in determining your present health care arrangements? 1--LOW 10--HIGH	<BE>	1-10	<BF>
Would you use these services more if you were not satisfied with your health care arrangements?			<BG>
Would you use your present arrangement less if you were unsatisfied?			<BH> yes/no

CONSUMER SATISFACTION
WITHIN A MULTIPLE OPTION
HEALTH PLAN SETTING

Robert A. Wacloff
January 25, 1989

*** SPECIFIC PROVIDER ISSUES ***

I had to change providers to switch health care plans	<BI>	yes/no	<BJ>
I am satisfied--			
With the physicians available to me	<BK>	1-7	<BL>
With the nurses/nurse practitioners available to me	<BM>	1-7	<BN>

*** SPECIFIC SERVICE ISSUES ***

	PRIOR		1988
I am satisfied--			
W h availability of appointment times	<BO>	1-7	<BP>
With availability of medical information/advice by phone	<BQ>	1-7	
With access to specialty services**, if needed	<BS>	1-7	<BT>
With access to hospital care, if needed	<BU>	1-7	<BV>
With access to emergency care, when needed	<BW>	1-7	<BX>
With the support staff I have had contact with	<BY>	1-7	<BZ>
With the facility(ies) at which I receive care	<Ba>	1-7	<Bb>

Who determines the health care arrangements for your family? < >
How is this decision reached?

*** REASONS FOR SWITCHING ***

**
<Bc OPEN ENDED RESPONSES GO HERE >

CONSUMER SATISFACTION
WITHIN A MULTIPLE OPTION
HEALTH PLAN SETTING

Robert A. Wacloff
January 25, 1989

*** PERSONAL INFORMATION ***

Highest level of education completed by member? <Bd>
Highest level of education completed by spouse? <Be>

1--GRADE SCHOOL 2--SOME HIGH SCHOOL 3--HIGH SCHOOL 4--SOME COLLEGE
5--COLLEGE 6--MASTERS 7--OTHER GRADUATE TRAINING

DUAL? <a> Family income <Bf>

(1) $0-$10,000
(2) $10,001-$15,000
(3) $15,001-$20,000
(4) $20,001-$25,000
(5) $25,001-$30,000
(6) $30,001-$35,000
(7) $35,001-$40,000
(8) $40,001-$50,000
(over $50,000

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