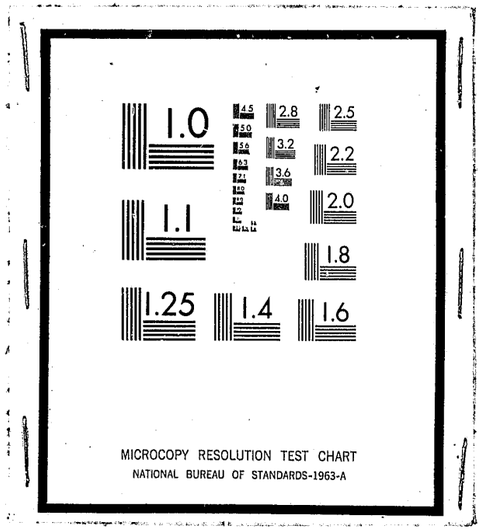

ECONOMIC IMPACT CONSIDERATIONS OF THE LA LLAVE DRUG REHABILITATION PROGRAM ALBUQUERQUE, NEW MEXICO

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Economic Impact Considerations
of the
La Llave Drug Rehabilitation Program
Albuquerque, New Mexico

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INTRODUCTION

The criteria normally employed to evaluate the effectiveness of drug addiction treatment programs fall under three broad categories: (A) Reduction of drug use; (B) Reduction of criminal behavior, and; (C) Increase of productivity and related economic gains. Our analysis below concentrates on the third of these categories, though the economic impact of category B, criminal behavior and its consequences, have been dealt with as they have affected the La Llave methadone treatment program. Needless to say, one cannot judge the effectiveness of a methadone treatment program by economic criteria alone, as the main aims of such programs have not been economic in nature to begin with; clinical, social and humanitarian aims would also need to be considered to set up appropriate and relevant criteria to perform an ultimately well balanced evaluation. Even when considering economic aspects alone, one is forced to limit the scope of inquiry as a result of constraints in type and amount of available data; in my case there has been no exception. This study is neither a full-fledged cost-benefit nor a cost-effectiveness analysis, but rather an appraisal of the impact of the program, in terms of a number of quantifiable economic indices on increases in the Gross National Product. In addition, we have evaluated the potential economic impact that an assumed phasing out of the program may have on the community.

With the possible exception of category B above, no "spillover" or indirect economic effects from the performance of the program, either on the cost or benefit sides, have been considered. The economic costs of the program have been assumed to be equivalent to its accounting costs. No statistical control group has been used for purposes of comparability. And, finally, I may add, that the principal point of view taken in this study is of benefits and costs in terms of effects on the national product, as opposed to consideration of private costs or benefits, or economic aspects of categories which are related to the individual, such as changes in socialization, family relationships, and improvement of health.

SUMMARY

This study consists in a large measure a partial cost-benefit analysis; partial, in the sense that not all conceivable economic benefits or costs were, or even could have been, included. I believe, however, that the costs and benefits that I was able to analyze, given the limitations of the data, would be considered the major ones in any economic appraisal of this type of program.

The study applies existing relevant data measuring the past performance of the program in terms of quantifiable economic variables, to a yearly cohort of 500 patients, which represents La Llave minimum static caseload capacity during the last two years. Average benefit-cost ratios are then derived in terms of increases of income for the nation as well as for the State of New Mexico.

I have considered in the evaluation program-related changes in employment, underemployment, earnings, drug addiction-associated illegal activities and Criminal Justice System costs, federal grants, public assistance and program costs. Also derived were the economic losses to the nation and to the State of New Mexico, in the event the program were to be phased out. The main conclusions of this study consequently, may be viewed at from two distinct vantage points: that of the nation and that of the State.

. National - Income Perspective:

a) The yearly benefits resulting from the program in terms of increased earnings of patients, is estimated to be $2,457,900.
b) The yearly benefits resulting from decreased underemployment of patients is $1,101,583.
c) The yearly benefits resulting from increases in newly part-time employed patients is $344,269.
d) The yearly benefits resulting from the impact that the program has on the reduction of criminal activities as well as on criminal justice costs is $1,660,000.

An interesting finding of the study is that there is little difference in the economic costs to the community whether the addict is on the street stealing from the private citizenry or he/she is apprehended, prosecuted and incarcerated at public expense.

Since the La Llave treatment budget for the fiscal year 1973-74 was $1,089,421, this provides a benefit-cost ratio of approximately 5 ($5.00 benefit for every $1.00 of public funds spent on the program). On the other hand, phasing out the program would imply a total loss to the nation of goods and services in the amount of $4,474,331.

State of New Mexico-Income Perspective:

The benefit-cost ratio as well as the loss of income to the State of New Mexico (if the program were to close) would be larger than the above, as on the benefit side, Federal funding is an inflow of purchasing power into the State, while, on the cost side, State governmental bodies finance only a portion of the program's total costs. Specifically, the benefit-cost ratio to the state from the operation of the program goes up to 20 ($20.00 of benefits per $1.00 expended). Meanwhile, the total loss to the community from phasing out the program in the span of a year would be approximately $6,242,870.

A. INCOME AND PRODUCTIVITY

In attempting to measure changes in income and deduce an approximate estimate of the program's contribution to this change, we made use of two sets of data (attached as Exhibits A and B). Exhibit A consists of employment and wage data of La Llave clients active more than one month as of January 31, 1974; while Exhibit B is made up of socio-economic and demographic background data on all clients (1,126) entering treatment with La Llave between 6/69 and 4/73 (this data was compiled by the Institute of Behavioral Research at Texas Christian University). Again I must note the data limitations for the analysis attempted herein.

Crucial for the discussion that follows, was the derivation of the following four estimates, see Exhibit C for calculations:

(1) Average Age at the time of Admission is 26. (2) Average earnings of those employed prior to treatment is $2218.84 per year per employed individual. (3) Average length of treatment of an employed patient who was in the program in January 31, 1974, was 24.57 months. (4) Average income of clients, January, 1974, from a sample of 458, of which 203 were employed was $6666.64 per year.[1]

From the above figures, we may deduce that the typical patient who was employed when he came into the program, experienced an increase of $4,447.56,($6666.4-$2218.84), in his money income in approximately 2 years, or approximately an increase of $2223.78 yearly. This will be used as a proxy for the experienced increase in productivity. Adjustments for inflation will not be made since this would produce minor changes to this figure given that we are dealing with a variation of income in a shortrun period.

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[1] January, 1974, employment data did not provide underemployment information, prior to admission figures did provide unemployment information. Therefore, for purposes of comparability, both series were calculated on a per annum basis. We can hypothesize, however, that prior to admission underemployment was considerably more severe.

Assume next that the remaining years in the labor force for the typical patient who has a job in January, 1974, would be equal to 37 years, (65-28). Employing a 6% discount rate,[2] the present value (which refers to the value today of the sum of monetary benefits accruing in the future) will be deduced. Thus the $2,223 per year income differential of the typical employed patient in the program when projected for 37 years has a present value of $32,772. That is:

$$P.V. = \left[\frac{1 - (1 + .06)^{-37}}{.06}\right](2223.78) =$$

(14.7369) (2223.78) = $32,772/"typical employed patient"

On the assumption that the above figures hold for a 500 patient static capacity per year, of whom 75 (15%)[3] are and remain employed full-time for a year while in the program, and who may be expected to stay on the average for 37 years in the labor force, means a total present value of goods and services of:

$$P.V._1 = (75)(\$32,772) = \$2,457,900$$

that could be attributed to the program each year, given no change in the distribution of underemployment and in the amount of employment. That is, given the assumption that society would not have enjoyed this increase per year in the absence of the drug addiction treatment program, it is to the program that the economic gain to society must be attributed. Treatment contributes to the increase in productivity of patients in terms of attitudes toward work habits, reducing the level of job absenteeism and by improving the level of health.

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[2] A commonly assumed rate by analysts of federally funded human recource programs. See Joint Economic Committee Congress of the U.S., Benefit-Cost Analysis of Federal Programs, 92nd Congress, 2nd Session, U.S. Govnmt. Printing office, Wash. D.C., 1973.

[3] Based on the assumption that the ratio of fully-employed individ- (Footnote continued)

In addition, treatment tends to increase the number of years of the typical patient in the labor force.

The above gain must be qualified insofar as employed patients would have had available productive and legitimate alternative employment opportunities had the program not been there. This, however, would have been highly unlikely not only due to the fact of relatively high unemployment rates characterizing the nation, and particular New Mexico, in the recent years under consideration, but also due to fundamental problems that tend to limit the economic capability of the addict as a supplier of labor, such as the excessive costs of maintaining a heroin habit on the one hand, and the considerable amount of psychological and social instability that addiction produces on the other hand. It is precisely the amelioration of both of these circumstances that a methadone treatment program tends to achieve and, thereby, addicts are assisted to be economically productive members of society, as opposed to the potential increased addiction which the addict faces without treatment.

On net, therefore, the differential gain of $2,223.78 per year per typical employed addict may have a downward bias, and an adjusted gain attributable to the program could well be larger than this amount once we consider those who, though employed at the time they come into the program, would have lost their jobs as a result of addiction had there not been a treatment center; $2,223.78 per year per typical employed addict is, most probably, therefore, a conservative estimate.

B. UNDEREMPLOYMENT

Based on the background data on 1,126 clients entering treatment with La Llave between 6/69 and 4/73, the number of months of underemployment in the year prior to treatment (derived from TCU Data)[4] , is shown in the following table:

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uals to the total number of patients remains constant and the same as that found in the background data on 1,126 clients who entered treatment with La Llave between 6/69 and 4/73.

[4] Exhibit B

Months	# of Patients [5]	
11-10	147	
9-8	146	
7-6	146	
5-4	87	
3-2	79	
1-0	167	: total number fully employed
	775	- 167=608: # of underdemployed
	351	: number unemployed ("0" employment)
	1,126	: total # of patients

The weighed average of the number of months of underemployment is:

$$\frac{(10.5)(147)+(8.5)(146)+(6.5)(146)+(4.5)(87)+(2.5)(79)}{608} =$$

$$\frac{4322.5}{608} = 7 \text{ months/ year/underemployed patient}$$

Therefore, the average percent of underemployment time per year was 58%. Since it has been estimated nationally[6] that the average value of goods and services foregone from production by an addict who is underemployed 75% of the time per year is $3,450. Employing this as a proxy, the average value of goods and services foregone when an addict is underemployed 58% of the time per year in Albuquerque, (assuming proportionality with respect to underemployed time) is $2,668. To the extent that methadone maintenance diminishes underemployment, a net economic gain to the community takes place. From the above referenced

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[5] There were no answers for 42 persons out of the total sample of 1,126. Thus we decided to distribute them evenly among all groups.

[6] See William McGlothlin, Costs, Benefits and Potential, Bureau of Narcotics and Dangerous Drugs; US Dept. of Justice, Nov. 8, 1973.

national study (which includes both underemployment and unemployment under the same rubric "unemployment rate"), it has been estimated that the unemployment rate fell to 40% for the first 100,000 methadone maintenance patients as compared to the 70% in pre-treatment. The corresponding figure for La Llave would be a fall from 58% to 33%. These figures are, of course, not entirely comparable: in the first place, because the national study does not differentiate between unemployed and underemployed time, and in the second place, because some of the socio-economic and ethnic characteristics of Albuquerque and of the program's patients, are rather different from those of New York and Washington, for example. For these reasons we will make a conservative assumption that the decrease in the average percent of underemployment time per year was half as large in La Llave as that indicated above. Then we can tentatively conclude, until more appropriate data becomes available, that a decrease of 12.5 percentage points to 45.5%, could have been a reasonable indicator of the program's experience. If so, the programs net economic contribution to society through its incidence on decreasing underemployment per year would be $575 per year per underemployed patient, ($2,668-$2,093). On the assumption that the following ratios, given the available data, remain constant:

$\frac{\text{\# of underemployed}}{\text{\# of employed}} = .79$ (Derived from data of 1,126 clients entering treatment with La Llave between 6/69 and 4/73)

$\frac{\text{\# of employed}}{\text{\# of patients}} = .33$ (Derived from the employment status of patients as of January, 1974, at time of admission)

We then have:

$$\begin{aligned} \text{\# of underemployed} &= (.79)(\text{\# of employed}) \\ &= (.79)(.33)(\text{\# of patients}) \\ &= (.26)(\text{\#of patients}) \end{aligned}$$

It follows, then that given a cohort of 500 patients per year, 130 patients, (.26 x 500), will be the approximate number of underemployed ones. Consequently $44,750 will be the program's noncapitalized net contribution to society per year from a reduction in underemployment, i.e. ($575 x 130 pts.)

If this is accepted, then the present value of this amount (assuming a discount rate of 6% and a typical patient who has 37 years remaining in the labor force) will be

$$P.V._2 = \left[\frac{1 - (1+ .06)^{-37}}{.06}\right](74,450) = \$1,101,583$$

This amounts to an economic gain whose present value per underemployed patient is $8,474.

C. CHANGES IN EMPLOYMENT

Considering the change in employment, we know from the sample that was taken of all clients who were active more than one month as of January 31, 1974, that the net change in employment consisted of an increase in 11.56%. We do not know how many of those who gained employment while in treatment ended up employed full-time and how many started working on a part-time basis. However, assuming that the benchmark of the typical years of treatment remain 2, then we can say that the program has experienced an average net increase of 5.75% per year in the number of newly employed individuals. We know already that from a yearly cohort of 500 patients, 130 will be the approximate number of underemployed ones, while 75 will be the number of fully employed ones. This gives us a total number of employed individuals of 205 per year. If to this we now add an average net increase in employment of 5.75%, we then have as 217, the total number of employed individuals, or an addition of 12 additional individuals to the ranks of the employed. If we distribute them in proportion to the weight that underemployment and full-employment had initially,then
have 7.6 newly underemployed individuals (.63 x 12)
d 4.4 newly fully employed individuals (12 - 7.6). As
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have 8 new underemployed persons and 4 more fully employ-

ed ones. If once again we hold that these individuals fall into the average pattern of being underemployed 7 months per year, or 58% of the time, then the net gain in earnings when jumping from unemployment to average underemployment, is $1,932, ($4,600 - $2,668). With 8 individuals, the total net gain is $15,456(8 x 1932). We stated above, however, that underemployment tends to diminish throughout the year from 58% to approximately 45.5% per year in La Llave. Applying this new percentage, we now have a net gain of $2,507 per year, ($4,600 - $2,093), so that for 8 individuals, the gain now after a year of treatment is $20,056/year, (8 x $2,507).

On the other hand, the net economic gain resulting from those who became fully employed is $26,666/year, (4 x $6666.4). Since not all of these gains would start flowing at the beginning of the year of treatment for all the individuals in question an adjustment coefficient must be applied. On the reasonable assumption that this is 1/2, we have total gains amounting to $23,361.

The present value of the aggregate gain, resulting from increased full employment and decreased underemployment, is as follows:

$$P.V._3 = \left[\frac{1- (1 + .06)^{-37}}{.06}\right]($23,361) = \$344,369$$

This amounts to a present value of $1,947 per newly employed individual per year.

D. ILLEGAL ACTIVITY AND CRIMINAL JUSTICE SYSTEM COSTS

From the background data on 1,126 clients entering treatment with La Llave between 6/69 and 4/73, 375 of them admitted that their major source of financial support in the last 2 months prior to admission was from illegal activities. This figure constitutes 33% of the total number of patients admitted during almost 4 years.

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If the program had not intervened in the lives of these individuals, we may assume that in order to maintain the increasing costs of heroin addiction they would have had to continue being involved in illegal activities at an increasing rate. For purposes of analysis we are going to assume a constant rate of illegal activities. We must keep in mind, therefore, that this will make our estimates reflect the minimum economic loss to society from these activities. It has been estimated nationally[7], and also employed for analysis in Albuquerque[8] that the average addict spends $25 to $40 a day to support his habit. Taking $30 as a relatively low estimate of the cost per day, this turns out to be $10,950 as the cost per year per addict engaged in illegal activity. On the other hand, we have 16.2 months as the estimated average length of stay per patient, calculated on a base of persons in treatment from July 1, 1973, to December 31, 1973, where treatment time was traced back to 1969, by examining the individual records of each patient involved.[9]

Applying these figures to the above mentioned 375 clients who admitted illegal activity prior to admission to La Llave, gives us:

$$\frac{(16.2 \text{ months})(\$10,950)}{12 \text{ months}} = \$14,782/\text{client}$$

which is the gross (i.e. we have not yet adjusted for treatment costs) amount saved by society per average-stay-time patient. This amounts to a total gross

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[7] William McClothlin, Ph.D., Costs, Benefits and Potential, Bureau of Narcotics and Dangerous Drugs, US Dept. of Justice June, 1972, p.2.

[8] Stephen Blake, Jeffie Riley, Stephany Wilson, Heroin and Crime in Albuquerque, A report of the Criminal Justice Program, University of New Mexico, March 9, 1973, p. 3.

[9] From a study by Patricia Cole, Information Control Center Director, March, 1974. Note that the average length of stay of an employed client was longer, as indicated previously.

gain of $5,543,437 per 16.2 months (375 x $14,782.5) or to $4,106,250 per year for 375 clients on the assumption that they would have stayed in illegal activities had the program not intervened. When adjusted for addict years[10] (i.e. 255 days = 1 addict year) the amount of gross economic savings as a result of treatment has been approximately $2,868,750 per year; or for the 16.2 months per patient average length of stay in the program this has amounted to $3,870,000 of gross economic gain to society, i.e. avoided loss through theft and other illegal means.

It is important to note that there would have been only a relatively small difference in the economic cost to society had a proportion of them been arrested for their activities, as it has been estimated that the approximate average criminal justice cost in early 1974 of a 4th Degree Felony (the most typical addict crime) was $8,021 per year.[11] And $8,021 falls within the range of the estimated economic costs of illegal activity per addict year. It is ironic, we may add, that whether the addict is on the street stealing from the private citizenry or he is apprehended, prosecuted and incarcerated with public funds, his cost to society falls within a fairly narrow range of difference.

One important qualification must be added in selecting the economic costs that we must use as alternatives to program treatment costs, since they would fall in between the above-mentioned two estimates. Thus, while the average addict is considered to support his habit 255 days a calendar year, a fraction of the remaining 110 days in the

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[10] op; cit., Heroin and Crime in Albuquerque, p. 3.

[11] As estimated by Gerald G. Swanson, Client Support Services Director at La Llave, in June 1974. The specifics of the estimate, which must be considered very approximate, are shown below:

Estimated criminal justice cost per Year of a 4th Degree Felony (Sentence 1-5 yrs):

1.	Arrest:	165.00
2.	Pretrial Confinement (3 months):	1,200.00
3.	Court Appearance Escort:	85.00
4.	Pretrial Court Appearances: (Including magistrate Arraigment, Grand Jury, Preliminary Hearing and Motions)	330.00
5.	Defense Counsel:	570.00
6.	Prosecution:	570.00

 (Footnote continued)

calendar year he may spend in jail or in a hospital, and this also has to be subsidized by the taxpayers. Therefore, a figure approximating $10,000 would be a more appropriate proxy for our purposes, since the average criminal justice costs of $8,021 and the illegal activity per calendar year costs of $10,950, weighted by the proportion of time that the average addict is expected to be involved in one or the other, .3 and .7, respectively, gives us that sum. Thus, with $10,000 as the average cost per year per addict in illegal activity, in or out of jail, the gross economic gain that resulted from the program intervention in the lives of the above-mentioned 375 clients consisted of $13,500 per 16.2 months per client, $\frac{(16.2 \text{ months})(\$10,000)}{12 \text{ months}}$, or a total of $5,062,500, (375 x $13,500). Converted to gross economic gains per year this has amounted to $3,750,000/year, ($10,000 x 375).

We must, of course, add that the above costs do not include foregone income, which is incurred either when a client performs illegal activities while unemployed, or is unemployed while in jail or in treatment. It is unfortunately true, that not even halfway reliable data exists on this subject in New Mexico which would permit meaningful comparisons.[12] In our case, neglect of foregone income will not tend to bias the figures by the total magnitude of that income, and the reason is that we are dealing with a segment of individuals in this case who ought to be considered in a large measure unskilled and hard-core addicts, and, therefore, who are characterized by nearly zero opportunity costs, i.e. they will tend to be unemployed or highly underemployed re-

7.	Court Reports:	185.00
8.	Trial:	440.00
9.	Sentencing	65.00
10.	Incarceration (9 months):	3,020.00
11.	Parole Board Hearing:	55.00
12.	Overhead Costs (20):	1,336.00
	Total:	$8,021.00

12 For a menu of the data problems which one who tries to do an analysis in these areas in New Mexico encounters, see Governor's Organized Crime Prevention Commission, The Beginning of the Task, Santa Fe, New Mexico, December, 1973.

gardless of whether they are inside or outside jail or prison or in the program. Adjustments would have to be introduced when work done while incarcerated is rewarded or when employment gains occur while in the program. Since such an adjustment will require a totally arbitrary choice in view of the lack of data, I have decided to neglect it.

The respectable employment gains (discussed earlier) characterizing the La Llave program had to also affect clients previously in illegal activities, although the degree to which this occurred cannot be specified from available data. Thus, the economic losses to society from foregone income by these individuals while under treatment must be considered smaller than the comparable losses which would have occurred had they not been under treatment.

Assuming, next, an average yearly cohort of 500 patients being treated in La Llave, and in addition that 33% of them would have continued in illegal activities had the program not been there, then the gross economic cost to society from the aforementioned activities by 166 individuals, would have been $1,660,000 (166 x $10,000). The approximate average treatment cost per patient per year in La Llave during the fiscal year 1972/73 has been $1,288. For 166 individuals, the treatment cost would have amounted to $213,808/year, (166 x $1,288). It follows therefore, assuming no illegal activities by the aforementioned clients while under treatment (treatment after all, does eliminate the major economic reason for illegal activity of a heroin addict: the high cost of maintaining the habit), that the net economic gain resulting from the intervention of the program in this case is $1,446,192 per year, ($1,660,000 - $213,808). Consequently, were the program to fold, the net economic loss to society, on the assumption of the existence of a yearly cohort of 500 individuals being treated, with 33% of them expected to return to illegal activities to support their addiction, would be close to $1,446,192 per calendar year at a bare, and perhaps greatly unrealistic, minimum.

E. PUBLIC ASSISTANCE

The consensus among economists who have done work in cost-

benefit analysis of private and public programs has been to consider public assistance payments as "transfer payments" that is, as expenditures that involve no economic costs of resources from the societal point of view. Increases or decreases of welfare payments do not constitute increases or decreases of resource costs, but rather redistributions of income within the nation, and, thus, they constitute shifts in the command over resources. If, for example, earned wages are replaced by welfare payments as the means of family support, the loss of output, as measured by the loss of earnings, constitutes society's economic loss; to add welfare payments to this loss would be double counting, since the disposable income of recipients increase by its corresponding decrease among taypayers, with no net change in the value of goods and services produced.[13]

Nevertheless, for those who may be interested in questions of income redistribution through public assistance to needy families among La Llave patients, it is interesting to note that from the background data compiled by T.C.U. on 1,126 clients entering treatment with La Llave between 6/69 and 4/73, 97 or 8.61% or the total were receiving public assistance prior to treatment. From the 1970 census, the mean annual amount of public assistance or public welfare income in Bernalillo County was $1,153 per family. As a point of information, applying this as an approximate index for the La Llave clients, we have a total amount of transfer payments received of $111,841, if payments were received for only a one year period by all 97 individuals with families.

Since data collection began in April, 1974 on the number of La Llave clients receiving public assistance, it has been found that during a 13 month period, the monthly average consisted of 76 patients, which represents an average of 7.31% of the active caseload per month of patients who are Bernalillo County residents, indicating that,

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13 See Robert Dorfman, ed., Measuring Benefits of Government Investment, (Washington D.C.: The Brookings Institution, 1965): especially the article by Herbert F. Klarman.

perhaps, there has been a downward trend in the percentage of families receiving transfer payments. If the La Llave program would be phased out, this would certainly increase the ranks of those receiving public assistance and decrease the disposable income of taxpayers. The precise amount of the income redistribution, however, is a matter of utter speculation as it is well known, to compound the problematic nature of the estimate, that many families in Bernalillo County who would qualify for public assistance, do not in fact request it. This I am sure would also be prevalent among the La Llave patients.

Finally, I may add that focusing on public assistance payments from the point of view of the income of the State of New Mexico, marginal increases or decreases in the number of welfare recipients, do not signify equivalent losses to the taxpayers of the State. This would be the case if the aforementioned transfer payments were funded 100% from the State's taxpayers. However, this is not the case. For example, the Aid to Families with Dependent Children (AFDC) Public Assistance Program (the most common type of assistance among La Llave welfare receipients) is funded approximately 70% from federal monies and only 30% from the State. It would be certainly correct to observe that the inflow of purchasing power into the State, as a whole, exceeds outflow through Federal taxation obligations per additional AFDC public aid recipient, given the relatively low income per capita characterizing New Mexico and thus relatively low federal tax obligations, as compared to the majority of the other states.

F. FEDERAL FUNDING IMPACT

In this section will be considered a number of economic consequences on Bernalillo County and the rest of New Mexico, that would follow a loss of Federal monies specifically granted for drug addiction treatment. The total La Llave grant request for 1974-75, as revised by the National Institute of Drug Abuse (NIDA) in May, 1974, is for $1,113,900; the federal share is $779,729 (70%), and the local share is $334,171 (30%). For personnel services,

the approved budget line item is $727,392, this includes fringe benefits of 12%. Thus, the amount for salaries only is $667,314; the federal share of salaries being $467,120, and the local share being $200,194 .

The local share, awarded from the State of New Mexico, Bernalillo County and the City of Albuquerque, is made up of monies with alternative uses within the state and do not constitute additional purchasing power that comes to the state from outside sources. This is, of course, not so with regard to Federal funds, when looked at from the point of view of the state (instead of from the societal economic-efficiency point of view), then these monies constitute additional income and a corresponding economic benefit to the state.

On the assumption that $779,729 of federal funds is cut, this constitutes, ipso facto, a loss of an equivalent amount of goods and services to the state. The impact that this will have on income and employment will, however, be larger than indicated by this amount and will depend on the magnitude of the local income and employment multipliers. It has been estimated from an input-output table constructed for the State of New Mexico at the Bureau of Business Research of the University of New Mexico[14], that the income multiplier for Albuquerque may range from 1.5 to 1.76. Applying both of these estimates to the presumed decrease in the salaries component ($467,120) of the federal funds, we have a total loss of income to the community which may range anywhere from $1,013,289 to $1,134,740 in a span of a year, as it takes approximately that long for the full impact of the multiplier to take place. On the other hand, according to a number of studies made for

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[14] Information from Larry Adcock from the Bureau of Business Research, University of New Mexico.

Lincoln, Nebraska, Los Angeles County and Hawaii[15] the magnitude of the employment multiplier has been found to fluctuate anywhere from 2.31 in Lincoln to 1.25 in Los Angeles County. For a city of the size and economic base of Albuquerque, an employment multiplier approximating 1.5 would probably be appropriate. Applying it to the estimated 85 persons whose employment is supported by the Federal funds[16], we would have a loss of approximately 128 jobs. This will, of course, also produce a loss, though I could not either find or devise non-arbitrary estimates of the magnitude,in revenues from direct and indirect taxation to the state, county and city governments, respectively.

G. PROGRAM COSTS

In the following charts we have depicted the total costs for, and total number of, individuals treated in the La Llave program during each fiscal year, with the percent rate of change between the years included. The third chart depicts the average cost per patient for the same length of time.

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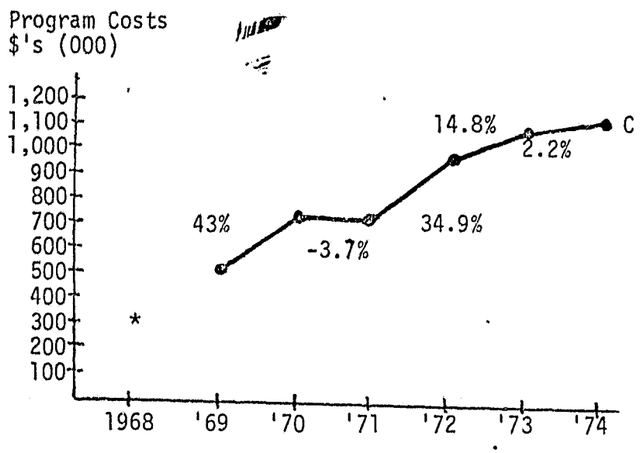
[15] See, G.F. Thompson, "An Investigation of the Local Employment Multiplier, "Review of Economics and Statistics Feb., 1959; G Heidelbrand and A. Mace, "The Employment Multiplier in an Expanding County: Los Angeles County 1940-47,: Review of Economics and Statistics, August, 1960; K. Sasaki, "Military Expenditures and the Employment Multiplier in Hawaii," Review of Economics and Statistics, Aug., 1973.

[16] Estimated by Manuel Ferran, Ph.D., Executive Director, General Addictions Treatment Effort.

CHART I

Program Costs Per Year (C)

with Percent Rate of Change



YEAR	Rate of Change of Costs
'68	*
'69	+43.0%
'70	- 3.7%
'71	+34.9%
'72	+14.8%
'73	+ 2.2%
'74	

*Data not Available

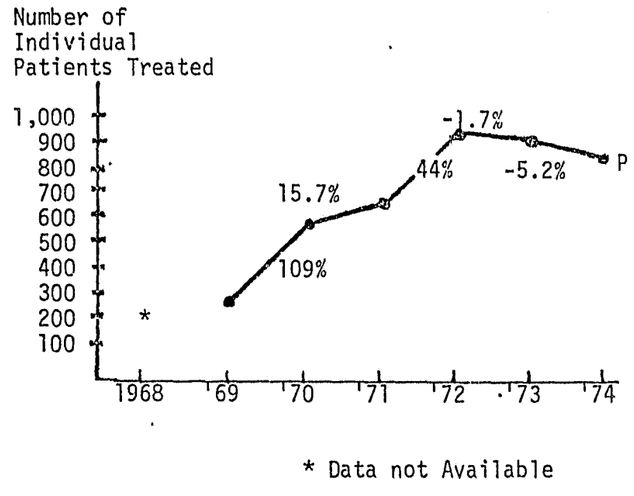
The initial 43% increase in costs from fiscal year 1969 to fiscal year 1970 reflects high start up costs. The following year required fewer dollars for fixed cost items, and, therefore, cost economy is observed. Subsequent years show a decreasing rate in the percentage increase of costs-- a phenomena which we may perhaps be able to attribute to economy of size, i.e. treatment of additional patients resulting in a more efficient use of existing program resources. Since we have not adjusted for inflation, it is noteworthy to observe that a large portion of the increase in costs has to be attributed to that source.

CHART II

Number of Individual

Patients Treated Per Year (P)

with Percent Rate of Change



YEAR	Rate of Change of Patients
'68	*
'69	+109.0%
'70	+ 15.7%
'71	+ 44.0%
'72	- 1.7%
'73	- 5.2%
'74	

* Data not Available

The La Llave program patient counts fell in 1973, as did patient counts nationally. Interpretations of the decrease in patient counts are not, however, within the scope of this study.

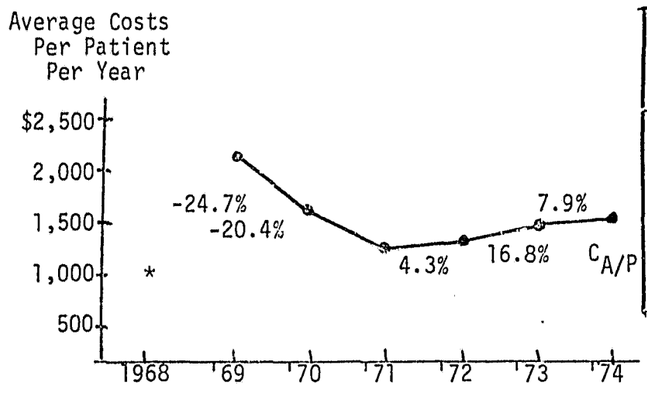
In Chart III the pattern of change of the average costs per patient reflects, of course, the combined forces behind the changes in total costs and patient counts. The fiscal year 1973 increase of 16.8% in average costs was largely attributable to new federal methadone regulations, that went into effect in the spring 1973, resulting in additional security arrangements to store and transport methadone, and additional staff to meet increased daily recordkeeping requirements.

CHART III

Average Costs Per Year

Per Patient ($C_{A/P}$),

with Rate of Change



YEAR	Rate of Change of Ave. Costs per Patient
'68	*
'69	-24.7%
'70	-20.4%
'71	+ 4.3%
'72	+16.8%
'73	+ 7.9%
'74	

* Data not Available

The authorized La Llave treatment budget for fiscal year 1973-74 is $1,089,421; requested funding for fiscal year 1974-75 is $1,113,900. (Note: La Llave has two projects under separate budgets: (1) a statewide Extension Services Project; and (2) an Albuquerque Treatment Alternatives to Street Crime Project. The treatment dollars from project (1) above, are included in the larger treatment budget; other costs under the two projects which are not treatment money, are not included.) The funding profile of the program since its inception is presented on the following page.

FUNDING BACKGROUND OF GATE/LA LLAVE
NIMH/NIDA Grants Only

May, 1974

Program Year	Legal Grantee	Operating Agency	Fiscal Year	% Shared Fed/Local	Expenditures per annum	# of individual patients treated	Static Capacity	Approximate cost** per patient per year Low/High	Avg.
1	Bernalillo County	UNM School of Medicine/ SCMHC	1968/69	90/10	?	?	?	?	
2	"	"	1969/70	80/20	508,472 (actual)	273	225	$1663/2260	2,062
3	"	Quebrar, Inc	1970/71	70/30	729,722 (actual)	571	400	$1278/1824	1,551
4	"	" "	1971/72	60/40	702,458 (actual)	661	500	$1053/1405	1,234
5	"	GATE/La Llave	1972/73	75/25	948,205	952	600	$ 936/1560	1,248
6	"	"	1973/74	70/30	1,089,421 (projected)	936 (est)	590	$1164/1846	1,505
** Average of Inpatient, Outpatient, and Residential Treatment									
Future Projections									
7		GATE/La Llave	1974/75	70/30	1,113,900 (projected)	887 (est)	559	$1255/1993	1,624

Conclusion

Benefits discussed throughout this study, which met the single criterion of increasing national income, will be summed up as applicable to a cohort of 500 patients per year, and compared to the aggregate yearly costs of the La Llave program.

Before proceeding, an explanation is needed for using a 500 patient size cohort. The reason is that a 500 cohort represents La Llave's minimum static capacity, i.e. number of treatment slots available daily for 365 days per year. The National Institute of Drug Abuse (NIDA), funds programs on the basis of treatment slots provided, rather than individual patients occupying these treatment slots. It must be noted, however, that while this has forced us to diminish the number of individual patients treated during the year to 500. for purposes of cost-benefit comparability, that the number of individual patients treated by the program during recent years has been considerabley larger (e.g. 952 patients were treated during the 1972/73 program year). This has of course implications of minimizing the magnitude of total economic benefits that actually accrue yearly from the program, resulting in calculations of the Lare minimum quantifiable economic benefits attributable to the operation of the program. The total gross benefits on the assumption of a 500 cohort of patients per year is the sum of the following:

1.	Benefits from increased earnings:	$2,457,900
2.	Benefits from decreased underemployment:	1,101,583
3.	Benefits from increased employment:	344,269
4.	Benefits from decreased costs of crime and criminal justice costs:	1,660,000
	TOTAL BENEFITS:	$5,563,752

The authorized La Llave treatment budget for the fiscal year 1973 -74 is $1,089,421. Using this as the yearly economic cost of the program, gives us a benefit-cost ratio of:

$$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$5,563,752}{\$1,089,421} = 5.11$$

The relatively high economic benefits received, $5.11 per $1 invested per year from the operation of the program, weighs heavily in favor of continuing La Llave in operation.

Assuming the projected budget for the 1974-75 fiscal year or $1,113,900, the benefit-cost ratio would remain nearly as high:

$$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$5,563,753}{\$1,113,900} = 5$$

Meanwhile, from the national-efficiency point of view, phasing La Llave out would produce a total loss of goods and services, during the first year of its absence, of approximately $4,474,331 (5,563,752 - $1,089,421).

The loss of income to the State of New Mexico will be larger than this amount, as a result of the economic impact of decreased Federal funding, as analyzed in the body of the paper. Specifically, local monies comprise a 30% share of the yearly costs of the program, taking the projected expenditures for next year, the economic costs to local governments of operating the program would be $334,171. The total economic benefits to the State, on the other hand, exceed those calculated above by the impact that the inflow of federal funds has on the income of the State. It has been shown previously that depending on the size of the input-output "income multiplier", this may range from $1,013,289 to $1,134,740, for a federal grant of $779,729, which is the one projected for fiscal year 1974-75. Looked at from the economic point of view of the local community, the economic costs and benefits of the program, for an income multiplier of 1.5 provides the following cost-benefit ratio:

$$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$5,563,752 + \$1,013,289}{\$334,171} = 19.7$$

Conclusion

Benefits discussed throughout this study, which met the single criterion of increasing national income, will be summed up as applicable to a cohort of 500 patients per year, and compared to the aggregate yearly costs of the La Llave program.

Before proceeding, an explanation is needed for using a 500 patient size cohort. The reason is that a 500 cohort represents La Llave's minimum static capacity, i.e. number of treatment slots available daily for 365 days per year. The National Institute of Drug Abuse (NIDA), funds programs on the basis of treatment slots provided, rather than individual patients occupying these treatment slots. It must be noted, however, that while this has forced us to diminish the number of individual patients treated during the year to 500 for purposes of cost-benefit comparability, that the number of individual patients treated by the program during recent years has been considerabley larger (e.g. 952 patients were treated during the 1972/73 program year). This has of course implications of minimizing the magnitude of total economic benefits that actually accrue yearly from the program, resulting in calculations of the bare minimum quantifiable economic benefits attributable to the operation of the program. The total gross benefits on the assumption of a 500 cohort of patients per year is the sum of the following:

1.	Benefits from increased earnings:	$2,457,900
2.	Benefits from decreased underemployment:	1,101,583
3.	Benefits from increased employment:	344,269
4.	Benefits from decreased costs of crime and criminal justice costs:	1,660,000
	TOTAL BENEFITS:	$5,563,752

The authorized La Llave treatment budget for the fiscal year 1973 -74 is $1,089,421. Using this as the yearly economic cost of the program, gives us a benefit-cost ratio of:

$$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$5,563,752}{\$1,089,421} = 5.11$$

The relatively high economic benefits received, $5.11 per $1 invested per year from the operation of the program, weighs heavily in favor of continuing La Llave in operation.

Assuming the projected budget for the 1974-75 fiscal year or $1,113,900, the benefit-cost ratio would remain nearly as high:

$$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$5,563,753}{\$1,113,900} = 5$$

Meanwhile, from the national-efficiency point of view, phasing La Llave out would produce a total loss of goods and services, during the first year of its absence, of approximately $4,474,331 (5,563,752 - $1,089,421).

The loss of income to the State of New Mexico will be larger than this amount, as a result of the economic impact of decreased Federal funding, as analyzed in the body of the paper. Specifically, local monies comprise a 30% share of the yearly costs of the program, taking the projected expenditures for next year, the economic costs to local governments of operating the program would be $334,171. The total economic benefits to the State, on the other hand, exceed those calculated above by the impact that the inflow of federal funds has on the income of the State. It has been shown previously that depending on the size of the input-output "income multiplier", this may range from $1,013,289 to $1,134,740, for a federal grant of $779,729, which is the one projected for fiscal year 1974-75. Looked at from the economic point of view of the local community, the economic costs and benefits of the program, for an income multiplier of 1.5 provides the following cost-benefit ratio:

$$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$5,563,752 + \$1,013,289}{\$334,171} = 19.7$$

For an income multiplier of 1.75:

$$\frac{\text{Total Benefits}}{\text{Total Costs}} = \frac{\$5,563,752 + \$1,134,740}{\$334,171} = 20$$

A potential $20 return to the community for each $1 invested in the program, constitutes indeed a highly attractive form of investment, it even compares favorably with the rate of return of oil companies in recent months !

If the program were to close, the potential economic losses to the local community in a span of a year, and at the bare minimum would increase to an absolute amount of:

($5,563,752 + $1,013,289) - $334,171 = $6,242,870

In concluding, I would like to emphasize that throughout the study I consciously attempted to minimize nearly all the economic benefits which I was able to attribute to, and estimate for, the La Llave program. I would not be surprised in the least if, when more data becomes available and less downwardly biased benefits are estimated, another more thorough evaluation would show that the total economic losses to the community, in the event that the closing of the program would occur, would exceed $6,242,870. Until then, however, and despite the fact that I stacked the cards against La Llave, a $20 return per $1 invested is bound to make the program one of the elite investment prospects for New Mexicans.

APPENDIX

EXHIBIT A

May 14, 1974

To: Mike Berger, Program Director

From: Judith Reynolds, Pat Cole, Information Control Center

Subject: Employment Among La Llave Clients

In response to frequent requests for data on employment among La Llave clients, we reviewed the charts of all clients active more than one month as of January 31, 1974. The following items were noted:

A. Employment at time of admission. This was obtained from the intake form for the current admission.

B. Employment as of January, 1974. This information was obtained from the client follow-up form for January. If there was no form for January, the December or February forms were used instead. If there was no information for any of there 3 months, the clients was listed as an "unknown" in regard to current employment.

C. If the client was employed as of January, his hourly wage was noted when the information was available.

D. Any information regarding current participation in either training or school was also tabulated.

The following results were obtained:

A. Employment Status at Time of Admission:

Length of Time in Program This Admission	Employed #	Employed %	Unemployed #	Unemployed %	Total #
2-3 months	13	(16.67)	65	(83.33)	78
4-6 months	20	(40.00)	30	(60.00)	50
7-9 months	7	(21.87)	25	(78.13)	32
10-12 months	7	(17.95)	32	(82.05)	39
13-24 months	34	(39.53)	52	(60.47)	86
25-36 months	29	(36.25)	51	(63.75)	80
37-48 months	25	(43.10)	33	(56.90)	58
49 + months	17	(48.57)	18	(51.43)	35
Total	152	(33.19)	306	(66.81)	458

From the above table it may be seen that, for clients active more than one month as of January 1974, approximately one-third were employed at the time of admission, while two-thirds were unemployed.

It is interesting to note that the percentage of clients unemployed at admission has increased from 51.43% in 1969 to 83.33% in late 1973.

The Employment Security Commission of New Mexico has provided the following unemployment figures for Albuquerque for the same time period:

Albuquerque Unemployment 1969 - 73:

Time Period	Albuquerque % Unemployment Rate
4/69 - 1/70	4.7
2/70 - 1/71	5.5
2/71 - 1/72	5.4
2/72 - 1/73	5.0
2/73 -12/73	5.4

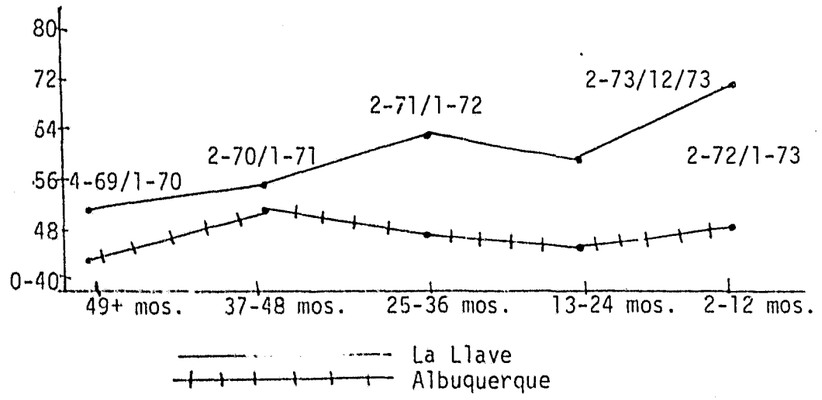
If the above data is plotted on a graph, as on page 26,it may be observed that unemployment among clients at time of admission followed the same general fluctuations as Albuquerque unemployment, with both reaching a low point between 2/72 and 1/73. (The ESC figures on the graph have been multiplied by 10 for visual comparison purposes only.)

B. Employment Status as of January, 1974:

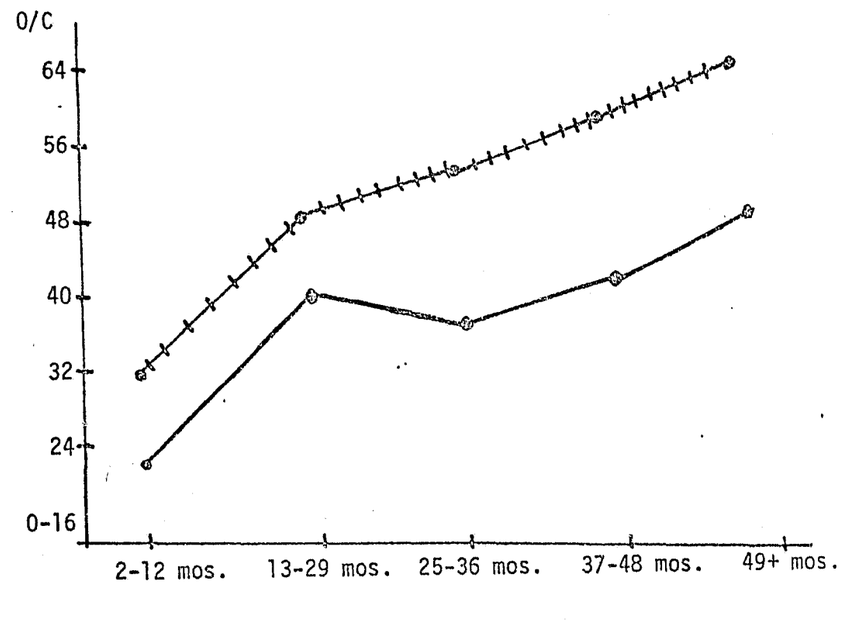
Length of Time in Program This Admission	Employed 1/74		Unemployed 1/74		Total
	#	%	#	%	#
2-3 months	17	(21.79)	61	(78.21)	78
4-6 months	21	(42.00)	29	(58.00)	50
7-9 months	13	(40.62)	19	(59.38)	32
10-12 months	12	(30.77)	27	(69.23)	39
13-24 months	42	(48.84)	44	(51.16)	86
25-36 months	43	(53.75)	37	(46.25)	80
37-48 months	34	(58.62)	24	(41.38)	58
49 + months	21	(60.00)	14	(40.00)	35
Total	203	(44.32)	255	(55.68)	458

By comparing the above table with that in Part A, it may be seen that there has been an increase in employment from the time of admission to January, 1974, for every longevity group. This increase is graphically demonstrated on page 4. However, some clients who were working at admission were no longer working as of January,1974. These figures are compared with the employment increase figures to provide the net change for each group in the table below.

La Llave Unemployment Rate at Time of Admission and Albuquerque Unemployment Rate.



La Llave Clients Employed at Admission, and La Llave Clients Employed 1-74.



	(-) % emp. at admis. but unemp. 1/74		(+) % unemp. at admis. but emp. 1/74		% net change	
2-3 months	0.00	(0)	5.13	(4)	+ 5.13	(+4)
4-6 months	10.00	(5)	12.00	(6)	+ 2.00	(+1)
7-9 months	3.12	(1)	21.88	(7)	+ 18.76	(+6)
10-12 months	2.56	(1)	15.38	(6)	+ 12.82	(+5)
13-24 months	8.14	(7)	17.44	(15)	+ 9.30	(+8)
25-36 months	5.00	(4)	22.50	(18)	+ 17.50	(+14)
37-48 months	3.45	(2)	18.96	(11)	+ 15.51	(+9)
49 + months	8.57	(3)	20.00	(7)	+ 11.43	(+4)
	$\bar{x}$= 5.10		$\bar{x}$= 16.66		$\bar{x}$= + 11.56	

While an overall mean increase of 11.5% may be observed above, several factors may have influenced this result:

a) This survey includes only the clients who were active at the end of January. We have no data on clients who left the program prior to this time. It is possible that the clients motivated to stay in treatment may be more motivated in general and thus have made greater efforts to seek and obtain employment.

b) This survey covers only two points in time, admission and January 1974. We have no input as to what happened between these two points. It is conceivable that some clients could have been employed the majority of this time period, yet happened to be working at one or both of the points selected.

C. Hourly Wages as of January, 1974:

For the clients who were employed as of January, 1974, the following hourly wage data was obtained:

Length of Time in Program This Admission	$1.50 -2.50	$2.51 -3.50	$3.51 -4.50	$4.51 -5.50	5.50	Unknown
2-3 months	4	2	1	0	1	9
4-6 months	4	5	2	0	0	10
7-9 months	4	2	0	1	1	5
10-12 months	2	5	0	2	0	3
13-24 months	8	15	9	0	0	10
25-36 months	6	14	6	5	2	10
37-48 months	5	7	5	4	0	13
49 + months	5	6	3	0	2	5
Total	38	56	26	12	6	65
	(18.72%)	(27.59%)	(12.81%)	(5.91%)	(2.95%)	(32.02%)

If we translate these hourly wages into yearly figures, we have:

Yearly salary	% of clients employed as of 1/74
$3,120 - 5,200	18.72%
$5,221 - 7,280	27.59%
$7,301 - 9,360	12.81%
$9,381 -11,440	5.91%
more than 11,440	2.95%
	67.98%
Unknown	32.02%
Total	100.00%

Thus, for those clients employed as of 1/74, the most frequent salary range is $5,200-$7,300.

EXHIBIT B

Background data on 1,126 Clients Entering Treatment with La Llave Between 6-69 and 4-73.

This data was compiled by the institute of Behavioral Reasearch at Texas Christian University, under a contract with the National Institute of Mental Health. Submission of data to this system was funding requirement of NIMH.

A. Sex

	#	% of total
Female	180	15.99
Male	946	84.01
	1,126	100.00

B. Age at Time of Admission:

	#	% of total
17 or under	34	3.02
18-20	186	16.52
21-25	349	30.99
26-30	266	23.62
31 or over	291	25.84
	1,126	99.99

C. Ethnic Group:

	#	% of total
Anglo	269	23.89
Black	16	1.42
Chicano	836	74.24
Indian	5	.44
	1,126	99.99

D. Educational Background:

(1) Highest Grade Completed

	#	% of total
0	1	.09
1-3	4	.36
4-6	34	3.02
7-9	268	23.80
10-12	700	62.17
13-14	85	7.55
15-16	14	1.24
17+	6	.53
no answer	14	1.24
	1,126	100.00

(2) Does Client Have a High School Diploma or G.E.D. ?

	#	% of total
Yes	442	39.25
No	684	60.75
	1,126	100.00

E. Employment Background

(1) Number of Months Employed in Year Prior to Entering Treatment:

	#	% of total
0	351	31.17
1-2	140	12.43
3-4	139	12.35
5-6	139	12.35
7-8	81	7.19
9 -10	73	6.48
11-12	161	14.30
no answer	42	3.73
	1,126	100.00

(2) Number of Days Worked in 2 Months Prior to Admission:

	#	% of total
0	648	57.56
1-15	91	8.08
16-30	110	9.77
31-45	109	9.68
46+	168	14.92
Total	1,126	100.00

F. Financial Background:

(1) Amount Earned in 2 Months Prior to Admission (legitimate jobs)

	#	%of total
0	648	57.56
$ 1 100	64	5.68
$ 101-300	101	8.97
$ 301-500	92	8.17
$ 501-700	71	6.30
$ 701-1000	61	5.42
$1001-1500	20	1.78
$1500-+	69	6.13
	1,126	100.01

From the above figures it may be observed that, projected from a 2-month to an annual basis:

57.56% earned nothing
22.82% earned less than $3,000 per year
11.72% earned between $3,000--$6,000 per year
7.91% earned more than $6,000 per year

(2) Major Source of Financial Support in 2 Months Prior to Admission

	#	% of total
legitimate job	364	32.33
public assistance	97	8.61
spouse	42	3.73
family or friends	130	11.55
illegal	375	33.30
other	113	10.40
no answer	5	.44
total	1,126	100.00

G. Marital Status*

	#	% of total
Never married	451	40.05
1st marriage	314	27.89
re-married	79	7.01
separated	69	6.13
divorced	188	16.70
widowed	15	1.33
no answer	10	.89
	1,126	100.00

* There was no provision for "Common-law" relationships in answer to this question.

H. Number of Dependents:

	#	%of total
0	617	54.80
1	176	15.63
2-3	227	20.16
4-5	73	6.48
6-7	12	1.07
8+	5	.44
no answer	16	1.42
	1,126	100.00

I. Number of Households Served:

In the above sample (N= 1,126), 70 persons comprised 35 husband-wife pairs where both spouses were in treatment. Thus, the number of households served would be 1,126 - 35 = 1,091.

J. Location of Clients:

A study completed in July, 1973 resulted in the following distribution of 1,210 clients residing within Bernalillo County:

	#	% of total
Southwest quadrant	450	37.19%
Southeast quadrant	192	15.87%
Northwest quadrant	350	28.92%
Northeast quadrant	218	18.02%
	2,210	100.00%

During FY 1973-74, the approximate distribution of clients treated has been:

City of Albuquerque	60%
Rest of Bernalillo County	29%
Rest of New Mexico	10%
Out-of-State	1%
	100%

EXHIBIT C

(1) Average Age at the time of Admission from 6/69 to 4/73 (derived from Exhibit B)

$$\frac{(17)(34) + (19)(186) + (23)(349) + (28)(266)}{1,126}$$

$$\frac{+ (36)(291)}{1,126} = 26$$

(2) Average earnings of those employed prior to treatment at any time during 6/69 - 4/73 (derived from Exhibit B).

Total Clients		Total Unemployed		Total Employed
1,126	-	351	=	775

286,600 = $469.8 = ($369.8)(6) = $2218.84/ year/employed individual.

Where the weighed total income of employed individuals, 286,600 was calculated (from Exhibit B) by taking the midpoint of income ranges, as follows:

(50)(64) (200)(101) + (400)(92) + (600)(71)

+ (850)(61) + (1250)(20) + (1550)(69) = $286,600.

(3) Average length of treatment of an employed patient who was in the program on January 31, 1974 (derived from Exhibit A):

$$\frac{(25)(17) + (5)(21) + (8)(13) + (11)(12) + (18.5)(42)}{203}$$

$$\frac{+ (31.5)(43) + (42.5)(34) + (49)(21)}{203} = 24.57 \text{ Months}$$

(4) Average income of clients, January, 1974, (derived from Exhibit A) from a sample of 458, of whom 203 were employed.

Midpoint incomes weighted by percentage of total clients employed:

4160 (27.6%) = 1148.16
6250.5 (40.2%) = 2512.7
8330.5 (18.9%) = 1574.46
10410.5 (8.8%) = 916.52
11440.0 (4.5%) = 514.8
Average income = $6666.64 / year

END

7. [illegible]