AN ECONOMIC EVALUATION OF ON-THE-JOB TRAINING CONDUCTED UNDER THE AUSPICES OF THE BUREAU OF INDIAN AFFAIRS IN OKLAHOMA

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PREFACE

The purpose of this study is to evaluate the economic effectiveness of the on-the-job training program of the Bureau of Indian Affairs in Oklahoma as it was administered from 1960 through 1967. Basically, the valuation centers on a comparison of the pre- and post-training earnings and employment experience of the 226 Indians who participated in the program. Guidelines are statistically estimated for increasing the private benefits to the program in the future, and once the social benefits and costs of the program are delineated, a derivation of several social benefit cost ratios is undertaken.

As any Ph.D. candidate can attest, one of the most important constraints determining the length of time necessary to complete a dissertation (or whether it will ever be completed) is the element time itself. First, the researcher needs time free of other duties to work solely on the research project. Secondly, a considerable amount of time may elaspe between the time a draft is turned in to a director or reader(s) and the time when it is returned to the researcher for corrections. The writer has been extremely fortunate in enjoying the optimal condition in both cases. In the first case, due to the successful efforts of Professors John Shearer and David Stevens to

acquire financial support for the research, the researcher was able to devote full time to the dissertation for the past seven months. The bulk of this financial support was provided by the Research Foundation of Oklahoma State University whose director, Dr. Marvin T. Edmison, graciously squeezed the project into an already tight budget. Further, financial and secretarial support was provided by the Oklahoma Economic Development Foundation--Scotty Robb, director--and the Manpower Research and Training Center of Oklahoma State University--John Shearer, director. The investigator is grateful to these persons and institutions for their interest and support.

Secondly, both the thesis director, Professor David Stevens, and the readers, Professors Richard Leftwich, Robert Sandemeyer, and Vernon Eidman, required only a minimal time to critically and thoroughly read the drafts when the writer became faced with some pressing deadlines. The researcher wishes to express to these individuals his appreciation for this extra effort. I am indebted in particular to Professor Stevens for his innumerable editoral comments and substantive contributions to the content of this study.

Complete cooperation during the course of the research was received from both Oklahoma offices of the Bureau of Indian Affairs. Thanks are due to Mr. Jack Jayne and Mr. Darrell Williams, Area Employment Assistance Officers, for answering an unending stream of questions and for allowing

the writer access to their files. I am especially appreciative to Betty Rose of the Muskogee Office, who, on several occasions, ungrudgingly obtained important data on short notice.

The investigator would like to express his gratitude to Mr. Paul Blume who first made the writer aware of and stimulated his interest in the employment assistance programs of the BIA. His initial improvements in the pre-post methodology led the writer to make further refinements which hopefully have made this procedure more acceptable in the evaluation of training programs. To Mr. Mike Hucke for his assistance with computer problems, the writer is grateful. The investigator also expresses his appreciation to typists Judy Brazil and Jacque Meisner.

Finally, to my wife, Patti, whose encouragement, patience, and understanding have been exemplary during my four years in graduate studies, I owe this final debt of gratitude.

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CHAPTER I

INTRODUCTION

Recent OJT Enactments

Beginning in the early 1960's with the passage of the Area Redevelopment Act (ARA) of 1961, the Manpower Development and Training Act (MDTA) of 1962, and the Vocational Education Act of 1963, the federal government launched a renewed offensive against the underutilization of human resources in the United States. In particular, under the MDTA, primary emphasis has been on upgrading the skills of the hard-core unemployed through institutional or on-the-job training (OJT). Initially, priority was given to the institutional method of training, but more recently there has been a noticeable shift toward OJT, mainly because the latter has proven less expensive per trainee enrolled.[1] Further evidence of a shift in emphasis is the establishment in 1968 of the Job Opportunities in the Business Sector (JOBS) Program in which private industry, with financial and advisory support of the federal government, was called on to provide not only OJT but also the

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[1] The government spends approximately $650 per trainee entering in the MDTA on-the-job training program versus $1,550 per trainee entering the institutional program. Manpower Report of the President, January, 1969, p. 92.

full range of supportive services required to help disadvantaged workers make a satisfactory job adjustment.[2] The National Alliance of Businessmen (NAB) was formed in the same year with the purpose of encouraging employers to pledge jobs for the JOBS program.[3]

A large number of people and a considerable expenditure of public funds have been connected with the programs mentioned above. Under the Manpower Development and Training Act, for example, just over one million persons had enrolled in training programs at a total cost of nearly one and a half million dollars through fiscal year 1968.[4] Clearly, projects involving so many individuals and such large sums of money should be evaluated to determine the extent to which they are achieving their stated objectives. In Chapter III, evaluations of a variety of institutional training programs are cited. However, the OJT approach to upgrading productivity remains largely an unknown element of manpower policy programming. It is the goal of this thesis to help fill this gap by introducing both new methodological procedures and empirical findings relevant to the measurement of OJT "success." The focus of this study is an evaluation of the on-the-job training program of the Employment Assistance Branch of the Bureau of Indian Affairs in Oklahoma, authorized under P. L. 959 in 1956.

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[2]Ibid., p. 93.

[3]Ibid.

[4]Ibid., p. 238.

Format of the Thesis

With the purpose of providing the reader with an overview of the operation of the BIA-OJT program, Chapter II presents the statutory foundation and administrative mechanics of the program. Public Law 959 is discussed briefly, followed by an explanation of the administrative framework of the Employment Assistance Branch of the BIA. This branch administers two employment-related programs in addition to OJT--adult vocational training and direct employment assistance. The administrative procedures associated with all three programs are described.

In addition to references to evaluations of other training programs, Chapter III sets forth methodological procedures and conceptual issues that are relevant in the attempt to answer three basic questions:

> What are the benefits to Indians who participate in the BIA-OJT program?
>
> Can guidelines for increasing the earning and employment effects of the training be statistically estimated?
>
> What is the benefit-cost ratio for the program, and to what extent is this ratio comparable with those of other government training programs?

An important (perhaps the most important) determinant of the effectiveness of OJT is the actions of the firm that conducts the training. The method of selecting participating firms, the major elements of contract negoti-

ation, and the selection and referral of Indians to the firms are the topics of Chapter IV. It is shown in this chapter that the length of the negotiated training periods may be excessively long, so that a possible source of substantial cost reduction may have been found.

What are the direct economic benefits to the Indians who participated in OJT? This question is considered in Chapter V. Statistical analysis reveals that average monthly after-tax earnings of the trainees increased by $125. Also, it is shown that trainee employment increased by an average of three months annually. Whereas in the pre-training period the trainees earned an average of only $1,358 annually, after training they averaged $3,392 gross annual income. When taxes on this difference are deducted it is found that the net increase in annual earned income is $1,970--more than twice average pre-training gross annual earnings. The argument is advanced in Chapter III that these private benefits were secured at no private costs.

On the basis of past experience, can guidelines be suggested which will enable the BIA to increase the employment and earnings effects of the program in the future? In Chapter VI, multiple regression analysis is employed to determine if there are any characteristics of participants that are associated with higher earnings or more months employed annually. The conclusion is reached that, ceteris paribus, the BIA might consider: (1) selecting young applicants ahead of older ones, (2) choosing

married applicants in preference to single, divorced, or separated applicants, and (3) accepting non-high school graduates before high school graduates.

The isolation of the social costs and benefits and the derivation of a social benefit-cost ratio for the program are the subjects of Chapter VI. It is estimated that the social costs of the program have been $228,159 to date. A minimum estimate of the social benefits of the program is $459,684 annually. Given these cost and benefit figures, a matrix of benefit cost ratios is presented using different combinations of discount rates and time horizons. The most conservative rate estimated is 7.6, using a ten percent discount rate and five-year time horizon. The highest rate estimated is 29.4, in which a six percent rate is combined with a thrity-six year time horizon.

Chapter VIII summarizes the findings of the thesis. A comparison of the findings of this study with the conclusions of a recent evaluation of the BIA's institutional training program[5] is included here. The chapter concludes with a postscript on the BIA-OJT program as it has been administered more recently (1968-69).

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[5]Paul R. Blume, "An Evaluation of the Institutional-Vocational Training Received by American Indians through the Muskogee, Oklahoma Area Office of the Bureau of Indian Affairs" (unpublished Ph.D. dissertation, Oklahoma State University, 1968).

CHAPTER II

STATUTORY FOUNDATION AND ADMINISTRATION OF THE PROGRAM

This chapter briefly outlines the administrative structure of the Employment Assistance Branch of the Bureau of Indian Affairs. The first section establishes the statutory foundation for the operations of the branch and outlines its basic administrative framework. The final section describes the administrative methodology followed in the BIA's three employment assistance programs. Emphasis in both sections is placed on the OJT component of the program.

Public Law 959

In 1956, Congress passed Public Law 959 to provide vocational training for American Indians. After devoting sixteen months to establishing the administrative framework, actual training began in January, 1958. During the subsequent eight years 19,519 Indians received training through funds appropriated under the auspices of P. L. 959.

The Act provides that a vocational training program be established by the BIA to provide two types of vocational

training. Institutional training (called Adult Vocational Training, or AVT) is to be provided by recognized institutions of vocational education in the United States. With respect to on-the-job training (OJT) the law states:

> . . . in order to help adult Indians who reside on or near Indian reservations to obtain reasonable and satisfactory employment, the Secretary of the Interior is authorized to undertake a program of . . . apprenticeship, and on-the-job training, for periods that do not exceed twenty-four months. . . For the purpose of this program the Secretary is authorized to enter into contracts or agreements with any . . . corporation or association which has an existing apprenticeship or on-the-job training program which is recognized by industry and labor as leading to skilled employment.[1]

Prior to P. L. 959, the BIA established the Direct Employment Assistance program (DE). Established in 1952, DE enables Indians to receive financial aid for resettlement to a place of employment. Since its inception 25,902 Indians have benefited from DE support. Through 1966, 14,640 Indians participated in AVT while 4,879 received OJT. A summary of BIA activities by year with regard to these programs is illustrated in Table I.

The sole administrator of P. L. 959 is the Bureau of Indian Affairs. The BIA coordinates the activities of ten area offices. The area offices formulate policy recommendations and supervise the activities of the agency offices which are the grass-roots administrative branch of the

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[1] 70 Stat. 986, USC Sec. 309. The full text of P. L. 959 and a 1961 amendment are found in Appendix A.

BIA. There are numerous agency offices, including eleven in Oklahoma.

TABLE I

SUMMARY OF THE DE, AVT, AND OJT ACTIVITIES OF THE BIA, 1952-1966

Fiscal Year	DE[a] (Units)	New Units[a] P. L. 959 AVT	OJT
1952	442	---	---
1953	697	---	---
1954	1,222	---	---
1955	1,500	---	---
1956	2,083	---	---
1957	2,882	---	---
1958	2,373	397	207
1959	1,655	1,141	168
1960	1,798	936	276
1961	1,822	1,226	506
1962	1,866	1,445	736
1963	1,696	1,747	476
1964	1,985	1,805	552
1965	2,015	2,719	656
1966	1,866	3,224	1,302
TOTAL	25,902	14,640	4,879

[a]A Unit is an unattached person or a family

Source: Unpublished data, Bureau of Indian Affairs

The Branch of Employment Assistance is the unit of the BIA which administers the P. L. 959 and the DE program. Each agency office has an agency employment assistance officer who assists Indians in completing the application for on-the-job training (OJT). This officer

either accepts or rejects the applicant. The opinion of the agency employment assistance officer is then reviewed by the area employment assistance officer. The area officer has veto power over the agency officer, but usually yields to the latter's judgment since the agency officer has more direct contact with the applicant.

Three Employment Assistance Programs

The DE Program

An Indian desiring direct employment assistance must complete an application to be transferred to a certain locality. If job vacancies requiring the applicant's skills are evident in that vicinity and if DE funds are available, the Indian's move is subsidized. It is not necessary that the applicant already have the job before the transfer occurs, but there must be a reasonable chance of securing employment. To aid the Indian in finding a job after being relocated, seven Field Employment Assistance Offices (FEAO) are located in major industrial cities.[2] They provide information on employment opportunities and serve as employment agencies for the Indians.[3]

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[2]These cities are: San Jose, Chicago, Cleveland, Dallas, Denver, Los Angeles, and Oakland.

[3]Readers interested in a more detailed description of the DE program are referred to Alan Sorkin's manuscript for the Brookings Institution. Its title and content were not available to the author at this writing.

The AVT Program

BIA officials indicate that there are long lines of Indians waiting to receive AVT--the number actually receiving training being limited by available funds.[4] Because the demand for AVT is so great, no recruitment of applicants by the BIA is necessary. The initial step for the applicant is to go to the agency office in his area and complete an involved questionnaire. Because the questionnaire is so complete and requires the acquisition of several legal documents, its completion serves as a test of the applicant's sincerity and determination to receive AVT. Establishing that the applicant has the necessary Indian blood quantum to qualify for the program may require tracing the family tree of the applicant for several generations. School records and marriage certificates must also be provided.[5] The applicant must also take the General Aptitude Battery Tests at the nearest state employment agency. The results help counselors to refer applicants to vocations most suited to their skills and preferences.

There are thirty-two AVT occupations made available through the Muskogee Area Office. The AVT program in

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[4] In the month of March, 1969, the Oklahoma offices reported that 176 Indians had completed their AVT applications and are waiting the necessary funds to finance the training. Once funds are appropriated selection is on a first-come, first-served basis.

[5] Blume, p. 65.

Oklahoma is administered solely by the Muskogee Area Office because of its close proximity to Oklahoma State University School of Technical Training at Okmulgee, Oklahoma. The training period usually runs from sixteen to eighteen months depending on the chosen occupation, including not only training directly applicable to the job but also "training-related" courses such as English, oral communications, human relations, etc. Trainees are moved to the training site at the Bureau's expense and a subsistence allowance is provided during the training period. The trainee's academic progress, attendance, and grades are carefully noted. After training is completed, the BIA helps the trainee secure employment and may subsidize his move to a new locality.

The OJT Program[6]

The sequence of events leading to an Indian entering the OJT program begins with the selection of a firm to provide the training. Each area office employs an area industrial development specialist whose job is to make contacts with employers who might qualify to participate in the program. The manual which the BIA follows in administering the OJT program specifies that the participating firm must meet two basic standards: (1) it must

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[6] Indian Affairs Manual Release 43-159, United States Department of the Interior, Bureau of Indian Affairs, October, 1963.

not be owned by an individual and (2) it must have an existing OJT program which is recognized by industry and labor as leading to skilled employment. The industrial development specialist is not the contract negotiator. His job is exploratory in nature. He explains the availability of the program and if the employer is interested, he arranges a meeting with the contract negotiator.

The Commissioner, Area Director, or anyone to whom they have delegated their authority, is responsible for the negotiation of and compliance to the terms of the contract. The area property and supply officer is generally responsible for negotiating the terms of the contract. The area employment assistance officer then handles the OJT program phases and the administration of the contract.

The manual also specifies that the facilities of the prospective firm are to be inspected to determine if there is adequate heating, lighting, toilet facilities, and if safety practices are followed. Equipment and tools are to be inspected for safety and general condition. An attempt should be made to determine if adequate housing is available in the vicinity for the trainees. The firm's OJT program is to be investigated to determine the period of its existence, number of persons who have completed training, their present places of employment, the number now employed by the prospective firms and the number of supervisors and instructors employed to furnish training.

Details are then worked out for the OJT program. Two variables in particular are negotiable: (1) the amount of the wage rate to be paid by the BIA and (2) the length of the training period for each skill. The manual stipulates that the portion of the wage rate subsidized is not to exceed one-half of the established minimum wage under the Fair Labor Standards Act of 1938, as amended, per week for each trainee, based on a forty-hour, five-day work week. For example, the present legal minimum wage is $1.60 per hour.[7] If the trainee's starting wage rate was $2.50 per hour, the BIA would pay $.80 of that hourly rate. If the trainee began at $1.50, the BIA would pay $.75 of that hourly rate. If the trainee were to work fifty-four hours per week, the BIA could subsidize only forty of those hours.

Once the details of the contract are worked out, prospective trainees are referred to the participating firm. The screening, evaluation, and referral of trainees is the responsibility of the area employment assistance officer, although he is usually assisted by the agency employment assistance officer. The final selection of Indians to be trained is made by the participating employer. The employer is not required to hire every person referred to him by the BIA. Other details of a BIA-OJT

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[7]U. S. Department of Labor, WHPC Publication 1167, November, 1966, p. 6. Actually the legal minimum wage in agriculture is $1.30 per hour, but the Bureau has only been granting OJT contracts to those firms paying the higher minimum.

contract are illustrated in a contract form found in Appendix B.

Summary

The basic purpose of this chapter has been to familiarize the reader with the procedures established for administering an OJT contract. With this framework in mind, the reader will be better prepared to understand the methodological procedures and conceptual issues involved in the evaluation of the program which are the topics of the following chapter.

CHAPTER III

METHODOLOGICAL AND CONCEPTUAL ISSUES

Introduction

To date, most economic analyses of skill-training have concentrated on institutional training programs. This is a method of training where participants attend formal classes to acquire a specific skill, and then enter the labor force. Much of this analysis has dealt with evaluating institutional programs conducted under the auspices of the 1961 Area Redevelopment Act or the 1962 Manpower Development and Training Act. A comprehensive reference to these works is Retraining the Unemployed, which includes summaries of evaluative work done by Michael Borus, Glen Cain, Herb Chesler, Gerald Somers, Ernst Stromsdorfer, and others under Ford Foundation sponsorship during the 1963-1967 period.[1] In a study related to the present one, Paul R. Blume has completed an evaluation of an institutional training program of the Bureau of Indian Affairs.[2] Other more recent studies have been concerned

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[1] Retraining the Unemployed, G. S. Somers, ed., (Madison, 1968).

[2] Blume.

with the economic evaluation of vocational and technical school education in general.[3]

Economic evaluations of on-the-job training (OJT) programs, on the other hand, have been conspicuously small in number. In OJT, as the name indicates, the participant acquires, or upgrades, a skill on the job rather than in an institution. Three exceptions to the general dearth of OJT evaluative analysis are the contributions of Gary Becker, Jacob Mincer and Allan Muir.[4] These studies develop important theoretical models and methodological procedures, and Mincer's work includes estimates of the rate of return on selected on-the-job training programs such as apprenticeships and medical specialization. However, neither Becker nor Mincer deal with an evaluation of

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[3]For example, see Jacob Kaufman et al., An Analysis of the Comparative Costs and Benefits of Vocational Versus Academic Education in Secondary Schools, U. S. Department of Health, Education and Welfare Project No. O. E. 512 (University Park, Pennsylvania, October, 1967), and Adger B. Carroll and Loren Ihnen, "Costs and Returns for Two Years of Post-Secondary Technical Schooling: A Pilot Study," Journal of Political Economy, LXXV (December, 1967).

[4]Gary S. Becker, "Investment in Human Capital: A Theoretical Analysis," Journal of Political Economy, LXX (October, 1962) (supplement), pp. 9-49; Jacob Mincer, "On-the-Job Training: Cost, Returns, and Some Implications," ibid., pp. 50-79; Allan Muir et al., Cost/Effectiveness Analysis of On-the Job and Institutional Training Courses, U. S. Department of Labor Contract No. OMPER 88-00-64-04 (Washington, 1967). The author is also aware of a dissertation in progress at Southern Methodist University by Dale Rasmussen entitled "Determinants of Rates of Return to Investment in On-the Job Training."

government subsidized OJT, such as that conducted under the auspices of the Bureau of Indian Affairs.

The purpose of this chapter is to explore the methodological and conceptual issues involved in answering the following questions about the BIA-OJT program:

> What are the payoffs to Indians who received on-the-job training?
>
> Can guidelines for increasing the private returns to training be statistically estimated?
>
> What are the relationships between private and social benefits and costs for the BIA-OJT program, and to what extent are these magnitudes comparable with other government projects?

The Private Economic Payoffs to BIA-OJT Participants

The pre-post method is used to measure the economic return to training in terms of employment experience and earnings of Indians who receive OJT. The trainee's employment experience and earnings before training is compared with the same concepts at a point in time after training, with appropriate adjustments that are detailed below. Other non-employment related measures might be considered relevant for an objective program evaluation. This is not denied, and the reader should be aware of the

limited scope of this analysis. Redistributional and social aspects of the program are discussed in a later section.

In the case of earnings, the payoff measure used is the difference between the trainee's highest (most recent) monthly earned income in his last job before entering training and his monthly earned income two years after the training course was completed with the differential being adjusted for taxes levied on the difference. Since an individual will consider taxes a reduction in his income, earnings as a private payoff measure should be net of taxes.[5] Earned income is the appropriate measure rather than gross income (which may include transfer payments) because it is earnings that the training is designed to bolster. The differential in pre- and post-training earnings should include differences in fringe benefits between the two periods.[6] There is not complete

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[5]See Glen Cain and Ernst Stromsdorfer, "Retraining in West Virgina: An Economic Evaluation," in Somers, p. 303.

[6]Information on fringe benefits was not secured in the pre-training records of the BIA, so in the mailed questionnaire the trainees would have been required to recall the fringe benefits on jobs long since left behind. In addition, it is generally agreed that the more information solicited by mailed questionnaire, the fewer the responses. In this case, it is felt that the analysis would suffer more from a reduction in response than it would gain from additional fringe benefit information. Carroll and Ihnen suggest that persons with higher education generally have more fringe benefits associated with their employment (Carroll and Ihnen, p. 969). This suggests that earnings differentials will be understated if the non-wage components are not included.

agreement that the earning differential is the appropriate measure of return to training. The theoretical basis for controversy on this point is explored in a subsequent section.

The payoff measure for employment experience is the difference between average number of months employed annually in the pre-training period and the same concept in the two year post-training period.

The pre-post evaluative method is criticized in the literature on the basis that part of the differential between observed pre- and post-training values of the payoff measures are attributable to factors other than receipt of training.[7] For instance, it is argued that if the level of aggregate economic activity changes from the pre- to the post-period, this would be expected to alter an individual's earnings and employment experience irrespective of whether he received training or not. Again, the validity of this point is explored below.

Those who criticise the pre-post technique support an experimental-control group methodology.[8] In this technique the payoff measures of individuals who participated

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[7] See M. E. Borus and Einar Hardin, "An Economic Evaluation of the Retraining Programs in Michigan: Methodological Problems of Research," Proceedings of the Social Statistics Section of the American Statistical Association, 1966, p. 134, and D. O. Sewell, " A Critique of Cost-Benefit Analyses of Training," Monthly Labor Review, September, 1967, pp. 48-49.

[8] The four training evaluations in Retraining the Unemployed, Somers, ed., used the experimental-control group technique.

in a training program are compared with the same concepts for appropriately selected individuals with characteristics thought to make them representative of the experience of the trainees if they had not participated in the program. To the extent that the chosen control group accurately reflects this experience the effects of cyclical and seasonal variations in the economy are held to be effectively controlled and any differences in the observed magnitudes of the desired measures are attributable to training. However, because it is impossible to find a conceptually perfect control group, it becomes necessary to adjust for differences in selected personal characteristics, attitudes, and environmental factors between the two groups. For example, the fact that the trainees applied (or even qualified) for training may mean they are more industrious than members of the control group. How does one adjust for this difficult to measure characteristic of motivation? If accurate differences in the payoff measures due to training are to be isolated an adjustment must be made.

In using the pre-post method this problem does not arise in the same way. Differences in the attitude of the trainee before and after training which may affect the payoff measures may be a by-product of the training. Other factors, such as age, marital status, number of children and variations in the level of economic activity, which may change between the pre- and post-periods, and

which may influence the size of the payoff variables, are measurable; and their influence can be statistically estimated and appropriate adjustments introduced. The statistical technique used to determine what adjustments are necessary in this study will be least-squares linear regression analysis. The two measures that are tested for needed adjustment are the level of pre-training monthly earnings (Y_1) and the average number of months worked annually during the designated pre-training period (E_1). These measures are regressed on the following personal and environmental factors:

(1) Age (X_1): As one grows older embodied productivity should increase, resulting in increased earnings and employment.

(2) Marital Status (X_2): Because a married individual bears the added responsibility of providing not only for his own, but for his family's economic welfare, it would be expected that he would have a better employment record and higher monthly earnings than the unmarried individual. In addition, firms might tend to give preference to married persons because the former are likely to be associated with job stability because of their added responsibility.

(3) Number of dependents (X_3): Additional children (or other dependents) are another

source of increased responsibility which in turn provide an incentive to better employment and increase monthly earnings.

(4) Changes in the level of economic activity (X_4): The period of time which this study covers witnessed substantial increases in the general level of economic activity. This change would be expected to favorably affect both earnings per time unit and the number of units worked during a given year.

If changes in any or all of the independent variables do significantly affect earnings and/or employment experience, the payoff variables should be appropriately adjusted.

Even after the difference between the pre- and post-training values has been adjusted for these factors, if necessary, one cannot state conclusively that the resulting value is due solely to the receipt of training. It can only be stated that the differential has been adjusted for what appear to be important causes of variation in the payoff measures other than the receipt of training.

In summary, the experimental-control group method has the advantage that changes in the level of economic activity affect both groups being compared so that no adjustment is necessary for this factor. Its major disadvantages include (1) the difficulty of finding an appropriate control group and (2) the additional time and

expense of collecting data on the control group. The pre-post method is less expensive and the problems of differences in personal characteristics do not exist as they do in the control group method. Those personal characteristics that do change and have some affect on the payoff variables can be appropriately adjusted. Its major disadvantage is the assumption that the pre-training economic experiences of the trainees are assumed to continue in like manner into the post-training period. The effect of this crucial assumption on the magnitudes of the payoff measures is discussed verbally and graphically in Chapter V.

Guidelines for Increasing the Private Returns to Training

The objective of the BIA-OJT program as stated in P. L. 959 is to help adult Indians obtain reasonable and satisfactory employment. Therefore, the BIA is interested in choosing among several qualified applicants the one(s) who will yield the greater private returns per dollar spent. For example, if statistics indicate that younger Indians have better completion records and tend to benefit more in terms of earnings and employment experience than older Indians, then younger Indians might be given preference when choosing among otherwise equally qualified applicants.[9] Multiple regression analysis will be used to

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[9]The word "might" in this sentence is to be emphasized. Perhaps an older Indian should be given preference even though the private return of his training is lower. By giving him the chance for a higher and more stable

estimate the relationship between variations in pre- and post-training differentials in employment and earnings and selected characteristics of the trainees.

The set of relations will contain three dependent variables. They are:

(1) the adjusted differential between the pre- and post-training level of monthly earned income (Y_2)

(2) the adjusted differential between the pre- and post-training level of employment experience (E_2)

(3) the training completion status (T_1).

The independent variables and the reasons for including each are:

(1) Age (X_1): Prior to training older Indians may have been discouraged by the unstable employment experiences associated with low-skill, menial jobs. To the extent that younger Indians have felt this discouragement less, they would be expected to be more enthusiastic, and more optimistic about

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income, his children may be able to attend school longer and become accustomed to living in a family with a regular income. This influence could be reflected in their future income levels and attitudes toward work, and the long run level of payoff variables for the Indian population may be greater than if the BIA simply chose the younger Indian. The question of where to break the vicious circle of poverty to get the maximum results is as thorny as the "chicken or egg" question; but, nonetheless, it is a question which must be considered.

their training and hence have better completion records, greater employment stability, and higher earnings. In addition, because younger persons have a longer potential work-life, firms tend to consider them a better investment risk than older persons. Consequently, the younger person's employment record should be better and his earnings record might be superior.

(2) Marital Status (X_2): As mentioned previously, because a married person bears the added responsibility of providing economic support for a family, as well as for himself, one would expect the married person to be more enthusiastic and conscientious about his training and thus have a better completion record and higher payoff variables than the unmarried individual. Too, firms may exhibit a preference for married persons over unmarried persons, because the former, with their added responsibilities, are linked to better job-stability records.

(3) Sex (X_5): One would expect males, who are more often responsible for the economic support of a family, to be more earnest in their effort to complete training and have a higher payoff variables than females. Though there

is some variation between industries, males are generally considered a superior investment risk by firms, also, since they are less likely to quit to assume household duties as is the case with females.

(4) Highest level of education attained (X_6): Lester Thurow points out there is evidence of an interaction between training and education. The higher the level of education attained by an individual, the more he will tend to benefit from training and vice-versa.[10] Firms tend to give preference to the high school graduate also since his basic skills (reading, writing, and arithmetic) should be superior to those of the nongraduate.

(5) Tribal affiliation (X_7): Historical evidence indicates that because members of the Five Civilized Tribes have made greater efforts to assimilate than members of other tribes, that the completion records and payoff variables for members of the Chickasaw, Cherokee, Creek, Choctaw and Seminole tribes would be

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[10]Lester C. Thurow, "The Occupational Distribution of the Returns to Education and Experience for Whites and Negroes," Proceedings of the Social Statistics Section of the American Statistical Association, 1967, p. 233.

more impressive than for other tribes.[11]

Private Versus Social Benefits and Costs

The calculation of a benefit-cost ratio involves three concepts: (1) costs, (2) benefits, and (3) the time profile and discount rate.[12] Since the benefits and costs to an individual may not coincide with those of society, separate estimates must be made.

Costs

The true cost of training is the value of the next best alternative opportunity which was foregone in order to provide training.[13] However, because of the difficulty of measuring these costs in the opportunity sense, the present study will use costs in the accounting sense as the measure of the costs of training.

Private Costs. The costs to the individual trainee of receiving OJT may include (1) costs of tuition, books, materials, etc., and (2) foregone earnings. This is

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[11]Blume, p. 168.

[12]For a survey of the use of each of these concepts and examples of their application in water, transportation, and other projects, see R. Turvey and A. R. Prest, "Cost-Benefit Analysis: A Survey," Economic Journal, LXXV (December, 1965), pp. 683-735. For a good bibliography of applications and conceptual issues in the general area of education see Mark Blaug, Economics of Education: A Selected Annotated Bibliography (New York, 1966).

[13]Richard Judy, "Costs: Theoretical and Methodological Issues" (paper presented at the North American Conference on Cost-Benefit Analysis of Manpower Policies, University of Wisconsin, Madison, May 14-15, 1969), p. 8.

shown in equation form as:

$$[1] \quad C_p = C_d + C_{fe}$$

where

C_p = private costs of receiving OJT

C_d = direct costs which include books, tuition, materials, etc.

C_{fe} = costs in terms of foregone earnings

In the BIA-OJT program the private direct costs, C_d, are zero, and C_{fe} is generally negative. All direct expenses involved in the BIA-OJT program insofar as tuition, books, and materials are concerned are borne by the Bureau. The Bureau even bears the expense of relocating the trainee to the job site where the training takes place if this is necessary. Foregone earnings are the earnings which are given up to participate in training. Even a cursory glance at the pre-training employment records and earnings of the participants indicates extended periods of unemployment and receipt of legal minimum wage rates, or less, when employed. While receiving OJT the trainees are employed full-time, and all are receiving at least the legal minimum wage. Hence, a trainee generally gives up nothing in terms of earnings in order to receive training. If anything, their "foregone" earnings are negative and should therefore be treated as a benefit of the program.

Given these observations concerning the private costs of training, it becomes clear that it is not

possible to derive a meaningful private benefit-cost ratio. The denominator would either be zero--in which case the ratio would be an undefined term, or negative--which would make the ratio meaningless when the negative sign results from a negative denominator and a positive numerator. For this reason, rather than using a private benefit-cost ratio, the present value of net benefits achieved through the program will be calculated.

Social Costs. The real, as opposed to money, costs to society of providing BIA-OJT are approximated by: (1) BIA administrative costs, (2) BIA subsidy payments to the firm, (3) net costs to the firm supplying the training, and (4) output foregone while the trainees are in training. It should be recognized that these money costs are only an approximation to the real economic costs of training to society, the latter being the opportunity costs of the resources devoted to training.[14] Total administrative costs are available from the BIA Area Employment Assistant Branch. However, this branch engages in two other programs besides the OJT program--adult vocational training (AVT) and direct employment assistance

[14]Mary Jean Bowman, "The Costing of Human Resources Development," The Economics of Education, Proceedings of a conference held by the International Economic Association, eds., E. A. G. Robinson and J. E. Vaizey (New York, 1966), pp. 442-443. Opportunity costs in this case refer to the benefits foregone by society because resources were used in this training effort rather than being used in some other way.

(DE). This occurrenceof joint costs presents the problem of how to determine what portion of the total administrative costs should be allocated to the OJT program.[15] On the basis of their knowledge and experience in administering their three programs, the Employment Assistance Branch will submit their estimate of the administrative cost of the OJT program. It is conceded that this procedure does not adequately recognize the joint cost problem.

The amount of BIA subsidy payments to the participating firms is secured directly from BIA payment forms.

With regard to the third component of social costs, the net cost to the firm of supplying the training, Gary Becker's analysis has shown that no rational firm will provide training at a net cost. If the training is completely general, i.e., increases the trainee's marginal product in other firms also, the costs of training will be borne by the trainee in the form of reduced wage rates during the training period. If training is completely specific, i.e., increases the trainee's marginal product only in the training firm, the firm will capture enough of the returns to training in the future to at least compensate it for the discounted costs of training. Between the two extremes a combination of the two adjustments will take place so that the firm does not lose money on

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[15] See Kaufman et al., pp. 25-28, and R. L. Weil, Jr., "Allocating Joint Costs," American Economic Review, LVIII (December, 1968), pp. 1342-1345.

its training program. Becker shows that if the firm is operating in a purely competitive market, competitive conditions will dictate that the net returns (and thus the net costs) of training equal zero. The more that a firm diverges from the purely competitive characteristics, the more probable it is that net returns from training become positive (or net costs become negative).[16]

These, it is to be remembered, are the conditions holding for the firm which must pay the full wage bill of its trainees. In the BIA-OJT program the nine participating firms paid only one-half the wage bill--the other one-half being subsidized by the BIA. So it seems clear that contrary to bearing costs for providing training, owners of the participating firms actually enjoyed a net benefit up to the amount of the wage subsidy payments they received. Appropriately, these subsidy payments are included as a part of the private benefits of the program.[17]

In calculating the fourth component of costs to society, output foregone while the trainees are in training, the "vacuum effect" should be considered. This is the

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[16] Becker, p. 10-25. Also see Walter Y. Oi, "Labor as a Quasi-Fixed Factor," Journal of Political Economy, LXX (December, 1962), pp. 540-541, and Mincer, ibid., p. 69.

[17] The argument might be made that all of the subsidy should not be included as a benefit to the firm since the BIA trainees are not as productive as the normal trainee. Evidence is presented in Chapter IV, however, which contradicts the existence of such a productivity differential.

idea that when employed before training, most trainees worked in unskilled jobs which could easily and readily be filled from among the ranks of the unemployed who would not have gotten jobs otherwise.[18] If this vacuum effect is operative, then society does not forego output by removing trainees from these jobs and putting them in the OJT program. In fact, because OJT trainees contribute to production while in training, society actually gains, rather than foregoes, output during the training period in an amount approximated by the value of the output of the trainee while in training. There is considerable lack of agreement among manpower program evaluators as to the existence of the vacuum effect. Essentially, they question the assumption that those workers who replace the trainees in their old jobs would not have gotten jobs otherwise. Even if the vacuum effect were not operative for the BIA-OJT program, it seems reasonable to assume that the output of the trainees while in training would be at least as great as their output in their old jobs, so that society still does not forego output in the absence of the vacuum effect.

At the extreme one might even consider that by engaging in OJT the trainee removes bottlenecks which would allow more workers to become employed with the contracting

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[18] M. E. Borus, "A Benefit-Cost Analysis of the Economic Effectiveness of Retraining the Unemployed," Yale Economic Essays, IV (Fall, 1964), p. 412.

firm than would have been employed otherwise. This "bottleneck effect" would add to the magnitude of negative social foregone output.

In summary, social costs would be calculated using the following equation:

$$[2] \quad C_s = C_a + C_{sp} + C_f + Q_f$$

with

$$Q_f = Q_{tp} - Q_v - Q_{tt} - Q_b$$

and

$Q_f < 0$ if Q_{tp} is assumed $\simeq Q_v$, perhaps substantially so

where

C_s = social cost of training

C_a = BIA administrative costs

C_{sp} = BIA subsidy payments to participating firms

C_f = costs to participating firms of supplying the trainees

Q_f = output foregone by society while trainees are in training

Q_{tp} = output of trainees prior to training

Q_v = output of workers who replace trainees in their pre-training jobs--the vacuum effect

Q_{tt} = output of trainees while in training

Q_b = output of those who were hired because the trainees opened up bottlenecks in the participating firms

Benefits

The benefits from training may be defined as the increase in welfare associated with training.[19] Since private and social benefits will not be the same they will be discussed separately.

Private Benefits. Private benefits to the trainees are both explicit--as reflected in changes in earnings and employment experience--and implicit--as reflected in learning as a consumption good and the psychic and social effects of increased well-being.[20] Only explicit benefits will be used to derive the present value of private benefits due to the obvious measurement problems associated with implicit benefits. Thus the calculated value will be a minimum present value of benefits if one accepts the premise that net implicit benefits are positive.

Explicit benefits to the trainees will be measured by using the two aforementioned payoff variables--(1) the difference between monthly earnings in the last job before entering training and monthly earnings in the job two years after training, and (2) the difference between average pre- and post-training employment experience--after appropriate adjustments.

The resulting measure of adjusted minimum private benefits to the trainees may still be somewhat overstated

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[19]Kaufman et al., p. 28.

[20]Ibid., p. 29.

due to what Weisbrod calls "budgetary effects."[21] What would have been the effects on the trainee's payoff variables if the funds used for the training program had instead been put to some alternative use? Perhaps taxes could have been reduced, disposable income and aggregate spending subsequently increased, and as a result some of the trainees may have enjoyed increased earnings and employment without receiving training. Or perhaps the training funds could have been used in some other government investment project with similar (or greater?) beneficial results to some trainees. If this is so, the benefits from training should be reduced by the amount of the possible benefits from alternative uses of training funds. Because of obvious measurement difficulties this potential reallocation of BIA-OJT program resources to alternative uses is assumed to have a negligible effect on the private return measures, and is therefore ignored.

For any year t, the calculation of private benefits (before discounting) to the trainees for the program is shown as:

$$[3] \quad B'_{p_t} = \sum_{i=1}^{M} [(I_{a_i} - I_{b_i}) - TX_i]*$$

where

B'_{p_t} = private benefits to the trainees of the program in year t

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[21] Burton A. Weisbrod, "Conceptual Issues in Evaluating Training Programs," Monthly Labor Review, October, 1966, p. 1092.

I_{a_i} = gross annual earnings of trainee i after training

I_{b_i} = gross annual earnings of trainee i before training

TX_i = the taxes paid on $I_{a_i} - I_{b_i}$

M = number of trainees in the program

* = the value within the brackets has been appropriately adjusted if necessary

Total private benefits of the program includes not only B'_{p_t}, but also the private benefits to the firm measured by the wage subsidy payments they received from the BIA. These latter benefits are received by the firms during the training period and only in that year in which the training took place. Thus, total private benefits of the program through any given period would be:

[4] $$B_{p_N} = B_f + \sum_{t=1}^{N} B'_{p_t}$$

where

B_{p_N} = total private benefits of the program through N years after the completion of training

B_f = the benefits to the firms as measured by wage subsidy payments received from the BIA

$\sum_{t=1}^{N} B'_{p_t}$ = total private benefits to the trainees through N years after the completion of training

Social Benefits. By and large private benefits to the trainees are a close approximation to social benefits.[22] The more that pre-post earnings and employment differentials measure the change in the participant's productivity due to training, the more synonymous the two concepts become. The total increase in trainee productivity may not be reflected in earnings and employment differentials if the supply of labor in his training occupation increases significantly, causing the wage rate to fall. However, due to the relatively small number of BIA-OJT participants entering any one occupation, it seems reasonable to assume that there is no significant change in the relevant supply schedules.

To the extent to which the trainees are replacing other workers in the training occupations and merely shifting the unemployment to them, the social benefits will be overstated. The social benefits of an increase in the trainee's earnings and employment would be offset by a comensurate decrease in the earnings and employment of the replaced workers. This is unlikely to be the situation in the case of the BIA-OJT program because with the relatively tight labor markets of the mid-sixties, it is unlikely that the BIA-OJT trainee would be replacing other workers.[23] David Sewell has pointed out the

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[22] Ibid.

[23] The Bureau could avoid the risk of replacing other workers by adopting a code similar to a section of the MDTA Act, Section 202(e), which states: "The Secretary

potential use of wage rate behavior as evidence of the presence of a net shortage or surplus in the market for trainee skills, although institutional interferences present serious problems.

Private benefits to the trainees and social benefits do diverge with respect to the handling of taxes. Taxes paid on the pre-post earnings differential should be added back to the adjusted private benefits to the trainees to estimate social benefits, since the gains from training to society are the total gains in real output which would be reflected in an individual's gross earnings.[24]

The resulting measure of social benefits may still be an understatement of the correct magnitude due to the presence of other externalities.[25] These include reductions in crime, and provision of other social services and the resulting reduction in personnel to administer those services.[26] It is because the measure of adjusted social benefits does not include these externalities that the concept will be referred to as a minimum social benefit measure. A reduction in social transfer payments is

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(of Labor) shall determine that there is reasonable expectation of employment in the occupation for which the person is to be retrained." For an explanation of the mechanics of this code, see M. E. Borus, "The Effects of Retraining the Unemployed in Connecticut," in Somers, ed., p. 135.

[24]Sewell, p. 49.

[25]The previously mentioned vacuum effect and replacement effects would be considered externalities.

[26]Kaufman et al., p. 21.

not included as a benefit since it is a reduced benefit to the trainee but an increased benefit to the taxpayer whose taxes are reduced comensurately.

It is the presence of externalities as a result of training--and education in general-- that makes a meaningful comparison of benefit-cost ratios for training with similar ratios for other public investment projects difficult, if not impossible.

> . . . even though public investment projects have direct and indirect effects, externalities do not present as much a problem in this area as in education. The absence of a high degree of externalities in public investment projects makes it possible to determine the independent productivity or output of a project. In addition, it is possible to determine the physical productive capacity from engineering data. In the case of education, not only is the concept of productivity an abstract one, but the high degree of externalities makes it impossible to determine the total benefits of a particular educational project.[27]

An even stronger case can be made against a direct comparison of this social benefit-cost with those of other government investment projects. The benefit-cost ratio only evaluates a project on the basis of economic efficiency (i.e., how much is national product increased). What may be as important or possibly more important is the extent to which a project results in a redistribution

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[27] Ibid., pp. 32-33. Also see B. Weisbrod, External Benefits of Public Education: An Economic Analysis, Industrial Relations Section of Department of Economics, (Princeton, 1964), Chapter I.

of income. Arthur Maass argues for the inclusion of income redistribution effects in the evaluation of some government projects.[28] If the marginal utility of an extra dollar to the Indian trainee is greater than for those who are taxed to subsidize his training society has benefited from the use of tax funds. The question remains, of course, whether greater social benefits could be realized by an alternative reallocation. Furthermore, the technique discussed so far determines only the returns to the existing program, without pursuing the question of whether the program design is the least-cost method for attaining a given objective.

For any one year the calculation of social benefits (before discounting) for the program is shown as:

$$[5] \qquad B_{s_t} = \sum_{i=1}^{M} (I_{a_i} - I_{b_i})^*$$

where

B_{s_t} = the social benefits of the program in year t

I_{a_i}, I_{b_i}, M, and * are define as before

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[28] Arthur Maass, "Benefit-Cost Analysis: Its Relevance to Public Investment Decisions," Quarterly Journal of Economics, LXXX (May, 1966), pp. 208-226. Maass has also shown how this goal could be worked into the objective function of government projects. Weisbrod emphasizes the same point in "Benefits of Manpower Programs: Theoretical and Methodological Issues" (paper presented at the North American Conference on Cost-Benefit Analysis of Manpower Policies, University of Wisconsin, Madison, May 14-15, 1969).

Time Profile and Discount Rates

The costs of the BIA-OJT program occur in the present. The benefits of training, however, are expected to accrue as a stream of income sometime in the future. Consequently, a decision must be made as to how far into the future the benefits will be received and at what rate the benefits should be discounted to arrive at the present value of the future stream of benefits. There is little agreement among social scientists as to either the length and shape of the time horizon or the correct magnitude of the discount rate. The selection in each case is important since each will affect the magnitude of the benefit-cost ratio.[29] Since the final decision in each case is essentially one based on value judgment, an alternative may be to use sensitivity analysis.[30] This technique utilizes a table in which different discount rates and different time horizons and the resulting benefit-cost ratios are shown. Commonly accepted values for

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[29]For an excellent article on the effects of different time horizons and discount rates on the benefit-cost ratio the interested reader is referred to J. Hirschleifer, "On the Theory of Optimal Investment Decisions," Journal of Political Economy, LVI (August, 1958), pp. 329-352; S. A. Marglin, Public Investment Criteria: Benefit Cost Analyses for Planned Economic Growth (Cambridge, 1967), pp. 47-69; Kenneth Arrow, "The Social Discount Rate" (paper presented at the North American Conference on Cost-Benefit Analysis of Manpower Policies, University of Wisconsin, Madison, May 14-15, 1969).

[30]This is the course recommended by Weisbrod, "Conceptual Issues in Evaluating Training Programs," p. 1097, and others.

the social opportunity cost of capital lie in a range from six to ten percent,[31] so these two extremes will be used here. Three time profiles will be used--five years, ten years, and the length of time from the average age of the trainees to age sixty-five.

The mathematical form for the total present value of private benefits (X) can now be shown to be:

$$[6] \quad X = B_f + \sum_{t=1}^{N} \frac{B'_{p_t}}{(1 + r)^t}$$

where

r = social opportunity cost of capital

N = time profile of benefits

Calculation of the social benefit-cost ratio (R) is illustrated in the following form:

$$[7] \quad R = \frac{\sum_{t=1}^{N} \frac{B_{s_t}}{(1 + r)^t}}{C_s}$$

Collection of Data

Pre-training magnitudes of the payoff variables and other characteristics of the trainees (i.e., age, sex, education, etc.,) have been secured from the applications for training made available by the Muskogee and Anadarko area offices of the BIA. Some of the applicants were not required to fill in data on pre-training employment experience and earnings, so in these cases the pre-training

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[31] Kaufman et al., p. 65.

data were secured through the post-training experience questionnaire.

A mailed questionnaire was used to collect post-training data. The mailed questionnaire has been accepted as a valid means of securing information on earnings and employment, although the size of response error may vary with the composition of certain characteristics of the population.[32] A reproduction of the questionnaire and accompanying letter are found in Appendix C.

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[32]M. E. Borus, "Response Error in Survey Reports of Earnings Information," Journal of the American Statistical Association, LXI (September, 1966), pp. 729-738.

CHAPTER IV

THE DEMAND FOR TRAINEES: PARTICIPATING FIRMS

Some of the firms which participated in the BIA-OJT were visited, and the person in charge was asked a series of questions which were structured so that replies could be compared between the firms. This was generally followed by a tour of the facilities. A summarization of answers to the questions and other observations is presented in this chapter.

The first section is concerned with the manner in which the BIA actually chooses a firm to conduct training. This is followed by an enumeration of some of the more important aspects of contract negotiation. The concluding section deals with the method of screening and referring potential trainees to participating firms.

BIA Selection of Eligible Firms

The selection of the firm to conduct OJT is one of the more crucial decisions in the BIA-OJT program. Many of the Bureau's trainees have experienced only seasonal employment, or have poor job stability records. The experience of having an eight-hour a day, five-day a week job, with accompanying regular paychecks, is new to most

Indian applicants. Clearly, the BIA should make a special effort to obtain reasonable assurance that a chosen employer is financially secure and expects sufficient workforce stability so that the probability of trainee termination due to inadequate product demand is low.

Six of the nine firms included in this study are still in operation. Five of these were visited and the person in charge of the OJT project was interviewed. The other operating firm, which trained only one Indian, was not visited. The requirement that all firms be equal opportunity employers was roughly confirmed by observation while touring their respective facilities. With respect to other legal requirements, none of the firms were owned by an individual. Only two of the firms visited indicated they had an established training program of any sort. This is a period of time, beginning with initial placement, during which the trainee acquires a threshold skill level and requires extraordinary supervision. The other three firms visited did not speak directly of an established training program, but their method of training new employees was essentially the same as for those who said they had an established program. A man is hired and works closely with a supervisor until his task can be performed satisfactorily without help.

These descriptions of OJT programs of firms conform to those described by Michael Piore in a recent article. Management officials whom he interviewed reported that

blue collar jobs in their plants were learned through "osmosis," "hanging around," or "exposure." For the more simple operating jobs (which is a good general description of the BIA-OJT occupations), new workers are typically given a brief job demonstration, after which they begin to produce on their own, receiving occasional help from foremen or neighboring workers.[1]

None of the management personnel interviewed indicated they became aware of the BIA-OJT program through the Area Industrial Development Specialist. The Bureau's explanation for this is that the Area Industrial Development Specialist dealt with only the higher echelon in the firm. By the time the persons interviewed first became aware of the program, the Industrial Specialist's functions had already been fulfilled and other BIA officials had taken over. In some instances initial contact was made by the interested firm, at which time the Industrial Development Specialist was notified and he carried out subsequent negotiations.

Contract Negotiations

Once a firm is selected, three factors are negotiable--(1) the portion of the wage rate to be borne by the BIA, (2) the length of the training period, and (3)

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[1]Michael Piore, "On-the-Job Training and Adjustment to Technological Change," Journal of Human Resources, III (Fall, 1968), p. 437.

the number of Indians to receive training. In the past, the first has not been negotiated because the area officials feel a smaller subsidy would be unacceptable to the firms. The participating firms have been granted the maximum hourly subsidy and then the length of the training period for which the subsidy is to be paid and the number of Indians to be trained have been negotiated.

A comparison of the length of these negotiated training periods with the time subjectively estimated--by this investigator, former Indian trainees, and current employees at work stations--to be necessary to acquire a skill suggests that the negotiated time period is frequently longer than the time required to learn a task.[2] Two of the more striking comparisons are illustrated in the following job descriptions taken from actual contracts.

> Taper (cardboard box maker): 32 week training period. Folds ready-cut box blanks along scored lines and fastens edges together by one of the following methods: (1) coats flaps with glue and presses them together, (2) interlocks corners by means of tabs, (3) seals edges with strip of gummed tape.
>
> Furniture Assembler: 12 month training course. Assembles and fastens together prefabricated

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[2]Henceforth, it is assumed that the trainee has acquired a skill or learned his task when he can perform his task satisfactorily without extraordinary supervision.

> Parts into frames, sections or complete articles of furniture. Trims and sands component parts to make them fit together forming sections or sub-assembleis, and clamps parts tightly together with hand or machine clamps. May drive nails, screws or dowels through joints or reinforce them.

Further evidence is presented in Table II. In the post-training mailed questionnaire, former trainees were asked to respond to the following question: "When you were in the on-the-job training program, how many WEEKS did it take you to learn to do your job without help?"

It should be noted that trainees are generally not aware of the length of their negotiated training period. The replies of 72 respondents are listed opposite the length of training period negotiated for their particular OJT skill.

One respondent indicated it took him longer to learn a task than the time period negotiated. An additional two respondents indicated it took them the full length of the negotiated training period to learn their task.

While touring the facilities of the five plants which were visited, employees and plant managers were asked to estimate the length of time required to learn given tasks. Their answers were similar to those illustrated in Table II. In only one case did a plant manager estimate a training period longer than the negotiated training period for a particular task.

TABLE II

A COMPARISON OF NEGOTIATED TRAINING PERIOD WITH AMOUNT OF TIME TRAINEES THINK WAS REQUIRED TO LEARN TASK

Length of negotiated training period (weeks)	Number of weeks trainees indicated was required to learn task
6	4, 24*
8	3
11	1
12	1, 1, 2
13	1, 2, 2, 4
14	2, 2, 3, 4, 6
26	1, 2, 2
32	1, 2, 2, 3, 32**
39	1, 1, 1, 1, 1, 2, 6
46	1, 1, 3, 4, 5, 6, 8, 12
52	1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 3, 3, 3, 4, 4, 4, 4, 6, 12, 16, 52**
78	1, 6, 7

NOTES: * - the only respondent whose estimate exceeded the contract time.

** - respondent's estimate identical with negotiated period, suggesting knowledge of the contract stipulation.

When asked how the length of the negotiated training period was determined, management personnel referred to their own experience and knowledge in regard to training unsubsidized employees. Three firms gave reference to the Dictionary of Occupational Titles as a basis. However, this document did not publish estimated training

periods at that time.[3] Management did indicate that their estimates were not accepted without question, but were compared with the Bureau's estimate from which point negotiation took place. The Area Employment Assistance Officer said his estimate was based on his experience and knowledge concerning training periods.

The number of Indians to receive training under one contract is dependent on (1) how many employees the firm can utilize and (2) the number of Indians seeking employment in the area.

When the various negotiations are completed, the contract is sent to the central BIA office in Washington, D. C. It is there placed on a priority list with other OJT contracts until funding is available. Once funds are freed, contracts are awarded on a first-come, first-served basis.

Selection of Trainees

Once the contract is finalized, Indians desiring OJT are screened by the Bureau and referred to the participating firm for employment and training. One plant manager felt this was the most valuable aspect of the program.

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[3]Training periods are now estimated in the DOT; however, their length is questionable in some cases. For example, the DOT suggests a training period of "over 30 days" to become an usher. Dictionary of Occupational Titles: Occupational Classification and Industry Index, U. S. Department of Labor, Volume II (Washington, 1935), p. 509.

He wanted to train a core staff and the Bureau sent him the best people they had available. A less enthusiastic response was expressed by another plant manager, who recalled that the first round of referrals included "every drunk in town." This BIA pre-screening aspect of the program appears to have varied widely among the firms. For instance, sometimes this BIA screening-referral function is not involved at all in placing the trainees. Two firms (whose contracts involved 121 trainees) indicated that if an Indian came to the firm looking for a job and if he appeared employable, the firm hired him, then contacted the local BIA office to determine if he was eligible for subsidy.[4] It is possible that this action is justified if the firm is certain that the BIA would subsidize the new employee. It may well be that the Indian would not have been hired in the absence of the BIA-OJT program. The Bureau may have been unable to supply the firm with the number of applicants stipulated in the contract. The existence of such a condition was confirmed in an interview with one management official who indicated the reason his firm no longer had an OJT contract was because the Bureau could not provide them with enough trainees.

All five firms stated they were actively hiring

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[4]One trainee wrote that he was working for a participating firm and one day he was called into the office and informed that he was now a BIA trainee and his wage would be paid in part by the Bureau.

Other personnel at the time they began participation in the BIA-OJT program. Each also stated that hiring was carried out only to fill normal vacancies and that the subsidy had not encouraged the creation of new jobs.

Table III shows the rankings in five categories of the BIA trainees by the representatives of the firms visited, relative to other new employees. BIA trainees were estimated to have compiled higher absentee rates and poorer punctuality records than other new employees. These were generally thought to be inherent characteristics of Indian employees which tend to improve the longer the employees stay with the firm.[5] If they do not improve, the worker is dismissed. Those trainees who completed their training were given above average ratings on productivity and work attitudes by all five firms. No concensus was discernable with respect to turnover rates. On the whole, all five firms believed the program was a success in their plants.

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[5]Piore offers another explanation. He suggests that these hard-core unemployables are on the periphery in a dual labor market. Workers in this peripheral labor market are often hired daily and absence one day does not affect the chance of employment the next. Lateness and absenteeism are tolerated. There is little incentive to work regularly since the frequency of layoff or discharge makes it unlikely that the job will last in any case. All these poor work habits must be "unlearned" when these people move from the periphery to the central labor market where employment is steady and higher paying, and there are opportunities for advancement. Michael J. Piore, "Public and Private Responsibilities in On-the-Job Training of Disadvantaged Workers" (unpublished working paper, Department of Economics, Massachusetts Institute of Technology, 1968), pp. 2-7.

TABLE III

A COMPARISON OF BIA TRAINEES RELATIVE TO OTHER NEW EMPLOYEES

Criterion	Firm				
	1	3	4	5	9
Turnover	higher	lower	same	higher	same
Absenteeism	higher	lower	same	higher	higher
Punctuality	poorer	better	better	poorer	poorer
Work attitudes	higher	higher	higher	higher	much higher
Productivity	same	higher	same	higher	higher

Summary

Statements by representatives of the five firms visited to the effect that the training slots filled by BIA subsidized Indian trainees would have been filled anyway by qualified Indians or non-Indians brings the subsidy issue into question. It may be that the training slots would have been filled by others, but that it is socially desirable to move further down the productivity queue, or into the secondary queue in Piore's terms, and make up the difference between the value to the employer of the designated less productive Indian and the employer's best alternative applicant. No evidence is available that indicates the existence of such a productivity differential.

This is mainly because the characteristics of the employer's best alternative applicant are not known.

Additional evidence strongly suggests that one of the most attractive aspects of the program is the recruiting and screening function, since the time span covered has been one of increasingly tight labor markets (an increasing relative scarcity of qualified applicants for job openings at current market wage rates). All this evidence may not mean that no subsidization is needed, but it does seem to imply that the observed pattern of contractual subsidy at the statutory limit in all cases is not necessary. There is a hierarchy of embodied productivity represented among Indian applicants for OJT, which suggest that a continuumof subsidy rates, as a proportion of the market wage up to half the hourly wage rate, should be observed. This does not mean that the BIA should negotiate the subsidized portion of the wage rate for each and every Indian trainee. The administrative costs (both to the BIA and participating firm) would in all likelihood be prohibitive. But for any one contract in a given labor market area the BIA should have some notion of the productivity level of the employer's best alternative applicants. This, coupled with the Bureau's knowledge of the average capabilities of the unemployed Indian population in the area, could form the basis for negotiating that portion of the wage bill subsidized.

This chapter has also presented evidence to the effect that the length of the prescribed training period may be too long. In light of the responses received from both participating employers, former trainees, and current employees at work stations, the job duties are usually performed competently (i.e., without extraordinary supervision) within a few weeks from the date of initial employment. If this is so, and if the job slot was not a new one designed especially for the Indian trainee, the employer could reasonably be expected to bear the full wage cost after the extraordinary supervision is withdrawn.

Two possible areas in which the BIA might reduce their subsidy payments to firms without affecting participation as measured by number of Indian trainees hired, have been enumerated. What might be done with the savings? Perhaps it could be used in other OJT contracts and thus result in the employment of more Indians. Whether these savings <u>should</u> be allocated to more OJT contracts depends on whether the OJT program has been a worthwhile investment in human capital--both from the point of view of the individual trainee and society as a whole. These are the topics of Chapters V and VII, respectively.

CHAPTER V

DIRECT BENEFITS TO THE TRAINEES

Because their chief objective is to improve the economic status of Indians, this chapter, which enumerates the program's private benefits, may be the most important and relevant one of this study from the standpoint of the Bureau of Indian Affairs. Selected characteristics of the trainees in the sample and total population are presented in the initial section. The second section explores the actual private benefits as measured by appropriately adjusted pre-post changes in the trainees' earnings and employment. Alternative figures for the present value of the private benefits of the program are also tabulated in this section.

Trainee Characteristics

Between 1960 and December, 1967, the Oklahoma Area Offices of the BIA initiated and completed nine OJT contracts with firms located in Mississippi and Oklahoma. A firm-by-firm breakdown of the number of entering trainees, completions, non-completions, and percentage completing training is shown in Table IV.

Of the 226 Indians who participated in the program

TABLE IV

TRAINEE ENTRANTS, NON-COMPLETIONS, COMPLETIONS AND PERCENTAGE OF COMPLETIONS BY FIRMS

Firm	Number Entering Training	Number of Completions	Number of Non-Completions	Percent Completing Training
1	76	43	33	57
2	19	3	16	16
3	21	11	10	52
4	18	7	11	39
5	8	6	2	75
6	26	9	17	35
7	12	10	2	83
8	1	1	0	100
9	45	28	17	62
Totals	N=226	N_c=118	N_{nc}=108	$Percent_c$=52

during this period, 118, or 52 percent, completed their training. Firm number two, which experienced a large percentage of non-completions, was the first firm granted an OJT contract by the Oklahoma Area Offices. The firm went out of business before several of the trainees had a chance to complete their training periods. Firms six and seven are also not operating at this time.

Selected characteristics of the trainees in the sample and the total population are illustrated in Table V. Pre-training population data were secured from the trainees' employment assistance applications on file at the BIA. The post-training data were solicited through a mailed questionnaire.[1] A sociologist with experience in interviewing disadvantaged persons critically evaluated the questionnaire and suggested several substantial changes. Further important adjustments were made after a pre-test of the questionnaire in which Indians presently enrolled in the BIA-OJT program were involved. Chiefs of those tribes with heavy representation in the program were asked to sign the cover letter sent with the questionnaire. All of the chiefs of the Five Civilized Tribes cooperated even to the point of allowing the use of their letterheads. One hundred forty-seven trainees or sixty-five percent of the population were members of tribes headed by these chiefs. Forty-five of them, or fifty-eight percent of the

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[1] A copy of this instrument and accompanying cover letter are included in Appendix C.

TABLE V

SELECTED CHARACTERISTICS OF THE 78 RESPONDENTS AND POPULATION AT THE TIME OF ENTERING TRAINING

	Sample		Population	
Description	Number	Percent	Number	Percent
Total	78	100.	226	100.
Sex:				
Male	61	78.	172	76.
Female	17	22.	54	24.
Age:				
18-20	8	10.	34*	15.
21-25	23	29.	68	30.
26-30	20	26.	58	26.
31-35	10	13.	28	12.
36-40	9	12.	17	8.
Over 40	8	10.	17	8.
Education: (Highest Grade Completed)				
0 - 8	24	31.	58*	26.
9 - 11	22	28.	68	31.
12 or more	32	41.	96	43.
Marital Status:				
Married	57	73.	153	68.
Single	17	22.	57	25.
Widowed, Divorced, Separated	4	5.	16	7.
Training Completion Status:				
Completes	52	67.	118	52.
Non-completes	26	33.	108	48.

*This information was not available on four trainees.

sample, replied to questionnaires which indicated that this extra effort apparently did not improve the number of responses. Seventy-eight usable replies to a mailed questionnaire were received. This represents a thirty-five percent response rate which is reasonable for this method of data collections.[2]

P. L. 959 states that this program is ". . . primarily for Indians who are not less than eighteen and not more than thirty-five years of age." Population age characteristics indicate a close adherence to this legislative directive. One trainee was seventeen, and thirty-four were over thirty-five years of age, representing 15 percent of the total. Sixty-eight percent of the population were married at the time of entry into training and seventy-six percent are males, denoting an emphasis on providing training for primary breadwinners. Only forty-one percent of the population had completed high school.

In all categories except training status there is a close correspondence between the characteristics of the sample and those of the population. It is particularly important to check the similarity of the sample and population because the former is not a random sample. Hence, it is not statistically correct to generalize from the sample to the population. However, once this limitation is recognized, the more that characteristics of the sample

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[2]Vernon T. Clover, Business Research: Basic Principles and Techniques (Lubbock, Texas, 1959), p. 105.

correspond to those of the population, the more confident one can be in generalizing the experience of the sample trainees to the unknown experience of the population. In this case one gains even more confidence in such generalization from the rather large size of the sample in relation to the total population size.

At first glance, it would appear that because the sample is made up of one-third non-completes compared with almost one-half for the population, the average increases in monthly earnings and number of months worked calculated for the responding sample should be reduced somewhat if these measures are to be interpreted as estimates of population values. However, the reader will recall that Table II compared the length of the negotiated training period and the number of weeks the trainees thought was required to learn a task. Because the negotiated "training" periods appear to be substantially inflated the influence of training completion status on productivity increase should be small. The actual relationship is tested in the regression analysis presented in Chapter VI. However, completion of training is one measure of job-stability, and one might expect higher monthly earnings to be associated with a better job-stability record.

Direct Economic Returns to Training

As mentioned in Chapter III, the two factors used to measure the direct economic returns of training accruing

to the trainees themselves are:

(1) the adjusted difference between the trainee's average monthly earned income in his last job before entering training and his average monthly earned income two years after the contractual training period was completed, and

(2) the adjusted difference between the average number of months employed per year in the pre-training period and the same measure in the post-training period.

The Earnings Measure

The two major components of earnings require further explanation. The adoption of average monthly earnings in the last job before entering training as the appropriate measure of the unadjusted "without training" expectation of the trainee, assumes that this job was the best opportunity known to the individual for which he qualified and was willing to accept. The two-year post-training figure arose because that was the shortest post-training time figure among all the trainees, i.e., it was the longest post-training period that could be chosen and still include all the respondents to the questionnaire. The length of the post-training follow-up period varied among the trainees. Some finished their training in 1963 while others finished in 1966. If an average of the earned incomes in the full post-training period was calculated, those with longer post-training periods would be

expected to bias the short-run average differential upward so in order to avoid such a bias, a uniform two-year period was adopted. It is argued later in this chapter that if the with-without training earnings differential does tend to increase over time, then the two-year cut off results in an understatement of the returns to the program. As a matter of fact, a five-year follow-up study of another program shows that the gains from training do increase over time.[3] Again, it is assumed that given the trainee's skill level two years after completion of training there was no other job available and acceptable to him in which he could earn more money.

Adjustments for age, marital status and dependents. The difference between the trainee's pre- and post-training monthly earnings may not be due solely to the training he received. Other factors have changed between the two observation points which might have caused part (or all) of the observed difference to have occurred whether training was received or not. For example, the trainee's age has changed, as has the level of economic activity over the intervening period. Marital status and number of dependents may also have changed. On the other hand, some factors that affect earnings have not changed, such as educational level and sex. For reasons presented in Chapter III the changes that have taken place may have been

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[3]Michael E. Borus and Einar Hardin, "Time Trends in the Gains from Retraining," 1967 Proceedings of the Indiana Manpower Research Conference, November 29-30, 1967, p. 81.

partially responsible for the size of the gap and their influence must be removed so as to measure that difference in monthly earnings attributable solely to training or to unmeasured factors that affect monthly earnings or number of months worked annually.

The results from regressing pre-training monthly earnings on age, marital status, and number of dependents are shown below:

[8] $Y_1 = 131 + 2.34X_1^{**}$ $R^2 = .044$ $F = 6.689^*$
(.9028)

[9] $Y_1 = 183 + 18.58X_2$ $R^2 = .017$ $F = 2.758$
(11.1909)

[10] $Y_1 = 194 + .94X_3$ $R^2 = .001$ $F = 0.107$
(2.8808)

where

Y_1 = average pretraining monthly earnings

X_1 = age

X_2 = marital status (1=married, 0=not married)

X_3 = number of dependents

** = significant at the .01 level

* = significant at the .05 level

(Note: Throughout this study standard errors are placed in parentheses under their regression coefficients.)

Only age (X_1) was found to be significantly related to pre-training earnings.[4] The small size of the R^2 is

[4]After the above adjustment had been made and the calculations both in this chapter and the two chapters

of no concern since the purpose of the regression equation is not to try to explain the variation in the dependent

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that follow had been carried out concern arose over the possibility of multicollinearity among the variables used in equations [8], [9], and [10]. Subsequently, the matrix of simple correlation coefficients between X_1, X_2, X_3 was calculated. These values are presented below:

TABLE VI

MATRIX OF SIMPLE CORRELATION COEFFICIENTS BETWEEN AGE, MARITAL STATUS, AND NUMBER OF DEPENDENTS

	X_1	X_2	X_3
X_1	1.00	.13	.33
X_2	.13	1.00	.59
X_3	.33	.59	1.00

The simple correlation coefficient between marital status and number of dependents is large enough to cast doubt on the independence of the coefficients estimated in equations [9] and [10], and therefore on their appropriateness as measures of the net relationship between X_2 and X_3, and Y_1. Additional equations were estimated in which Y_1 was regressed on all three independent variables at once and then one variable was deleted at a time to determine the effect on the remaining estimated coefficients. This procedure is suggested by Emanuel Melichar in "Least Squares Analysis of Economic Survey Data," 1965 Proceedings of the Business and Economics Section of the American Statistical Association, p. 382. The results showed a considerable variation in the magnitude of the coefficients of X_2 and X_3. The coefficient for X_1 remained approximately the same and was always statistically significant. Twice the coefficient for X_2 became significant, but because the net relation between X_2 and Y_1 is unclear it was decided not to readjust for this factor. An appropriate method for determining the net effect of intercorrelated independent variables might be the use of interaction terms.

variable but just to determine if there is a relationship between X_1 and Y_1. The regression equation indicates that each year the trainee's average monthly earnings tend to increase by $2.34 as the trainee's age increases by one year. As a result, once the difference between the trainee's pre- and post-training average monthly earnings was calculated, it was reduced by $2.34 times the number of years that had passed from the time the trainee entered training until two years after he had completed training.

Adjustment for economic activity. The problem remains of how to adjust the remaining difference between pre- and post-training monthly earnings for the effects of changes in the level of economic activity. In attempting to measure the earnings effect of increasing the productivity of disadvantaged groups through OJT several possible interactions with changes in the level of economic activity arise. Cursory observations of the pre-training earnings of the trainees suggested that they were unaffected by changes in the level of economic activity even though weekly earnings in a cross-section of Oklahoma employment sectors increased by fourteen per cent between 1960 and 1964.[5] The following equation was used to test

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[5]This is based on an average of weekly earnings in contract construction, wholesale and retail trade, services, and agriculture. Oklahoma Employment Security Commission, Handbook of Oklahoma Employment Statistics 1939-1966 (Oklahoma City, March, 1967), p. 45; State Board of Agriculture, Oklahoma Agriculture Annual Report (Oklahoma City, 1960-1969), Table S-69 in all issues.

the accuracy of this casual observation for the pre-training period:

$$[11] \quad Y_{i_t} = a + b \; Y_{OM_t}$$

where

Y_{i_t} = the percentage change in the average monthly earnings of trainee i between the years t and t-1.

Y_{OM_t} = a proxy variable for changes in the level of economic activity. It is the percentage change in average monthly earnings in the Oklahoma manufacturing sector between the years t and t-1.[6]

The assumption is made that the increases that have occurred each year during this period in earnings in the Oklahoma manufacturing sector are basically a result of changes in the level of economic activity. Consequently, the relation between changes in pre-training earnings of Indians and changes in earnings in the manufacturing sector is introduced as a measure of the change in Indian earnings due to the effect of changes in the level of economic opportunity. The computed equation for the pre-training period was:

$$[12] \quad Y_{i_t} = .157 - 4.67 \; Y_{OM_t} \qquad R^2 = .002$$
$$(10.7022) \qquad F = .191$$

These results suggest that pre-training earnings of the trainees were not significantly related to this measure

[6] Ibid.

of economic activity. A possible explanation for this result lies in the types of jobs held by the trainees in the pre-training period. Most can be characterized as casual labor occupations for which there has been an essentially constant hourly wage rate of $1.00 to $1.25. Individuals are hired to work through the harvest season, or are hired from day to day or week to week for such jobs as hauling lumber or unloading trucks. In effect, the trainees were participating in a labor market characterized by excess supply throughout the pre-training period.

This discovery led to the delineation of three "effects" of retraining which will be called the "market effect," the "productivity effect," and the "training effect." Each is explained in the discussion to follow and all are shown diagramatically in the next two figures.

The estimated absence of a relationship between earnings and changes in the level of economic activity before training suggests some interesting possibilities which are illustrated graphically in Figure 1. OJT increases productivity and moves a worker up the economic ladder. Training may do even more. Participation in the BIA-OJT program may move the trainee out of a market characterized by perpetual excess supply and into the "economic mainstream," so that observed earnings after participation in the BIA-OJT program may have increased due to changes in the level of economic activity. This latter effect may be called the "market effect," and may

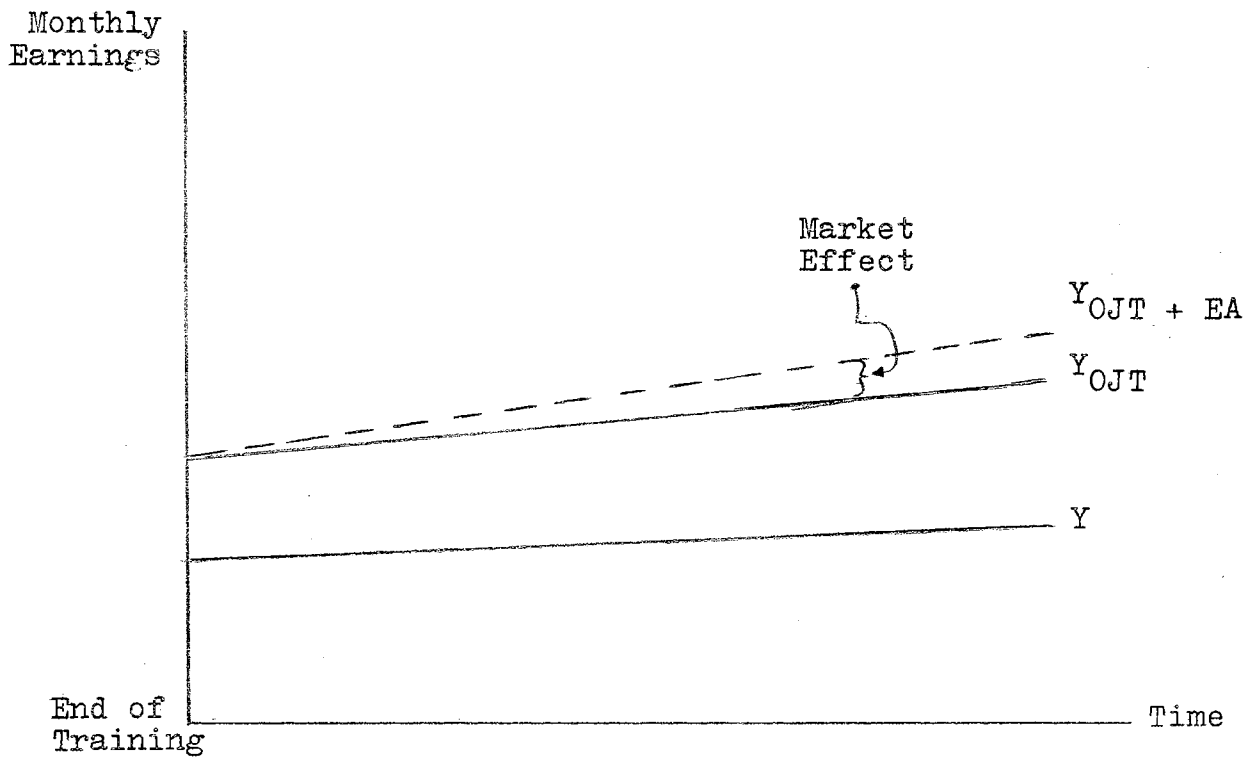

Figure 1. The Market Effect of Retraining

justly be counted as a benefit of the training program, although not to the training itself. When this "market effect" is subtracted from the difference between adjusted pre- and post-training earnings, the residual is accepted as the increase in earnings which would have occurred with no change in the level of economic activity.

The existence of the "market effect" was not confirmed statistically for the BIA-OJT program studied. The estimated equation for the post-training period was:

$$[13] \quad Y_{i_t} = .148 - 1.70 \; Y_{OM_t} \qquad R^2 = .005$$
$$(1.8640) \qquad F = 0.831$$

where again

Y_{i_t} = the percentage change in the average monthly earnings of trainee i between the years t and t-1.

Y_{OM_t} = a proxy variable for changes in the level of economic activity. It is the percentage change in the average monthly earnings in the Oklahoma manufacturing sector between the years t and t-1.

Again, it is postulated that the extent to which changes in post-training trainee earnings move with changes in earnings in the manufacturing sector is a measure of the change in trainee earnings due to the effect of changes in the level of economic activity.

One possible reason for this lack of "market effect" is that the industries which have been experiencing the

largest growth in Oklahoma because of changes in the level of economic activity have not been locating in the rural areas of the state where the BIA-OJT trainees live. Instead, federal services and durable goods manufacturing industries[7] have been locating in the urban areas such as Oklahoma City, Tulsa, Enid, Lawton, and McAlester. The result has been a relative lack of pressure on wages in the rural areas because of a persisting excess supply of labor even in the occupations entered by the Indian participants in the BIA-OJT program. The post-training records of those who are still employed by their training firm do indicate an increase in their wage rates, but this might be attributed basically to steady increases in their productivity rather than to changes in the level of economic activity.[8]

It is important to note that just because the evidence implies that the earning of Oklahoma Indian trainees

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[7]These are the two sectors experiencing the most rigorous expansion in Oklahoma in the 1963-67 period. See Larkin Warner, "The Oklahoma Economy: Sources of Recent Growth," paper presented at Oklahoma State University, Spring, 1969, p. 21.

[8]Another factor contributing to the fact that no relationship was found between Yi_t and Y_{OM_t} is the behavior of some of the trainees. An example is the practice of rushing to the bedside of an ailing relative and remaining until normal health is restored. Occupational commitments of any sort are dropped completely. Jobs are lost and employment is sought near the family where wage possibilities might be lower. There are other culture-based actions which undoubtedly effect Indian earnings, the pros and cons of which lie in the realm of sociology and anthropology.

do not appear to have been affected by changes in the level of economic activity--either in the pre- or post-training periods--this does not mean the same conclusion holds for trainees in other programs. Nevertheless, the relevance of the concept, and the policy implications attendant to its presence, suggest the desirability of testing for a "market effect" in subsequent evaluations of training programs.

Borus questions whether the relation specified really tests for an earnings-level of economic activity relationship. The implicit assumption of the pre-post technique is that since pre-training earnings were not found to be affected by changes in the level of economic activity that this trend would continue in the same way into the post-training period even if the individual had not received training. Borus is unwilling to accept this assumption. If economic activity continues to increase as it has in the 1960's, then a cumulative market effect may only have appeared in the post-training period, so that the untrained Indian's earnings would have begun to be affected by changes in the level of economic activity. A control group methodology would be necessary to determine if there would have been an economic activity effect on the untrained person.[9] Borus's procedure is also not a precise measure of the effect of economic changes to

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[9]Michael E. Borus, in private discussion with David W. Stevens in Washington, D. C., April, 1969.

to the extent that it is impossible to find a perfect control group, i.e., one whose actions in the post-training period are truly representative of what the actions of the trainees would have been in the absence of training.

It is apparent from comparing pre-training and post-training earnings records that wage increases are much more significant in magnitude and appear much more frequently in the post-training period. Because most of the occupations in the pre-training period are of the casual labor type, the opportunities to increase one's productivity or progress upward in a firm are not as great as in the post-training period. For example, if one is working as a farm-hand in rural Oklahoma, there is little or no room at the top to which the worker can be promoted. Various tasks are not very difficult or varied, so that mastering them does not increase the worker's productivity enough to justify frequent wage increases. In addition, the supply of casual labor is large relative to demand so that the threat of quitting does not wield much power in wage demands. Contrast these conditions to those surrounding the trainee employed in a carpet mill. There are many different, difficult tasks to be performed in the plant. There is a hierarchy of positions to which the worker can be promoted--ranging from foreman, to supervisor, on up to plant manager. New responsibilities are available for those who desire them and are capable of handling them. Wage rates are reviewed regularly by management, and adjustments and promotions are made where

market forces justify them.

This difference in the changes in the monthly earnings streams over time of the BIA-OJT program participant and non-participant is reflected in the different slopes of Y_{OJT} and Y that were shown in Figure 1. These profiles are redrawn in Figure 2. Assume that the distance between them has been adjusted for the effects of age increases and taxes which had to be paid on the increased earnings. The line labeled Y'_{OJT} represents the monthly earnings stream of a program participant whose productivity increases over time are the same as the non-participant's. The distance between Y'_{OJT} and Y is attributable to an "extraordinary" increase in the productivity of the participant due to the OJT he received during the contractual training period. It is the distance between Y'_{OJT} and Y that properly measures the increase in monthly earnings <u>due to training</u>. Let this be called the "training effect." This is the earnings measure that should be used in calculating the private benefits to the trainees <u>of OJT</u>. The distance between Y_{OJT} and Y'_{OJT} measures the increase in monthly earnings of the trainee because he has shifted into a market area where the opportunities for participating in non-extraordinary increases in productivity are enhanced, either through personal advancement or trend increases in productivity. This distance, called the "productivity effect," should not be attributed to training per se, but should be included in the

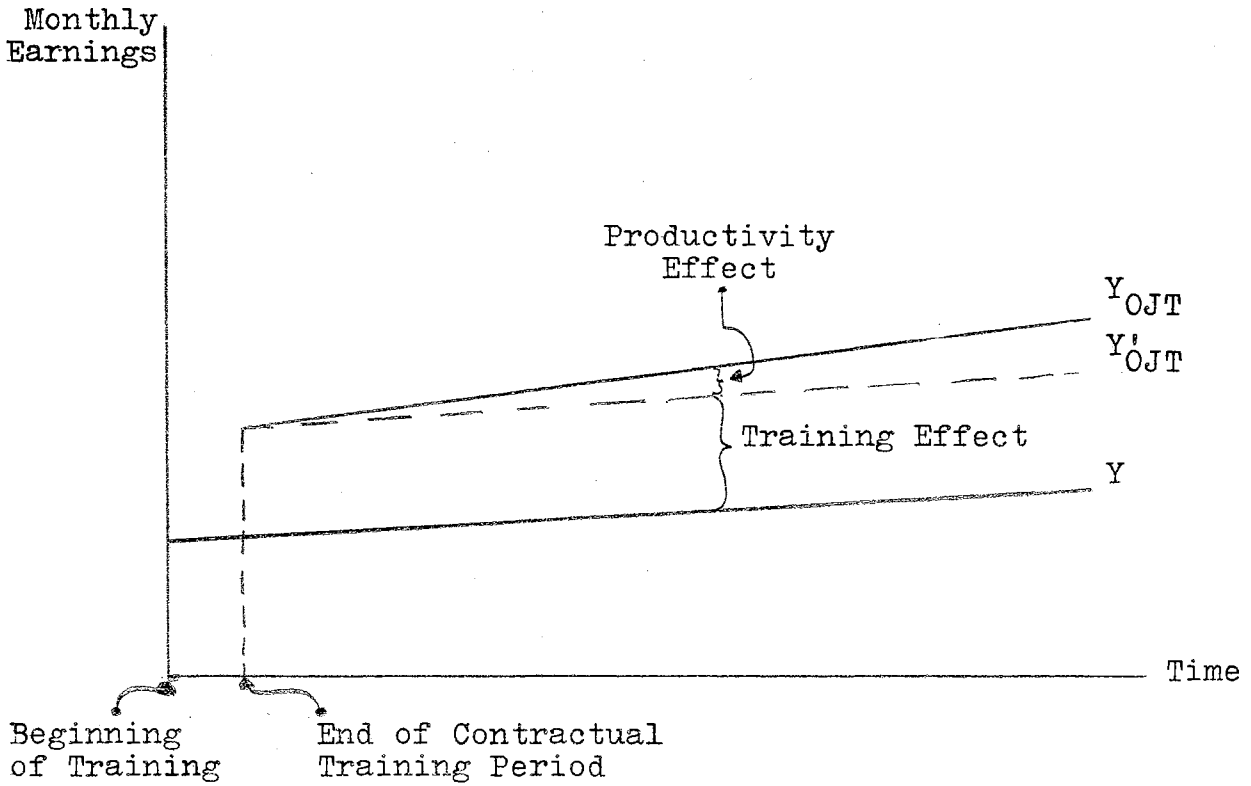

Figure 2. The Productivity and Training Effects

earnings measure of the private benefits of the training program.

Unfortunately, data on monthly earnings of trainees on the completion of training were not available so that it was not possible to calculate the size of the training effect for this program. A further complication in measuring the training effect is the fact that it is not clear exactly when training was completed. Table II certainly suggests that the end of the negotiated training period would be an inappropriate measure of the end of training.

There remains the selection of the change in monthly earnings measure to use in calculating the private return to the trainees of the training program. Reiterating what has been said above, this analysis uses the adjusted difference between the trainee's monthly earned income in his last job before entering training and his monthly earned income two years after the contractual training period was completed. A diagramatic illustration of this measure is shown in Figure 3. Point A represents a point in time two years after the contractual training period ends, and the earnings difference BC is the measure used in this study. The desired measure should be the distance BD (and it would be desirable to be able to separate BD into $Y_{OJT} - Y'_{OJT}$ and $Y'_{OJT} - Y$). Using BC results in an over-statement of the change in monthly earnings attributable to the program two years after the contractual

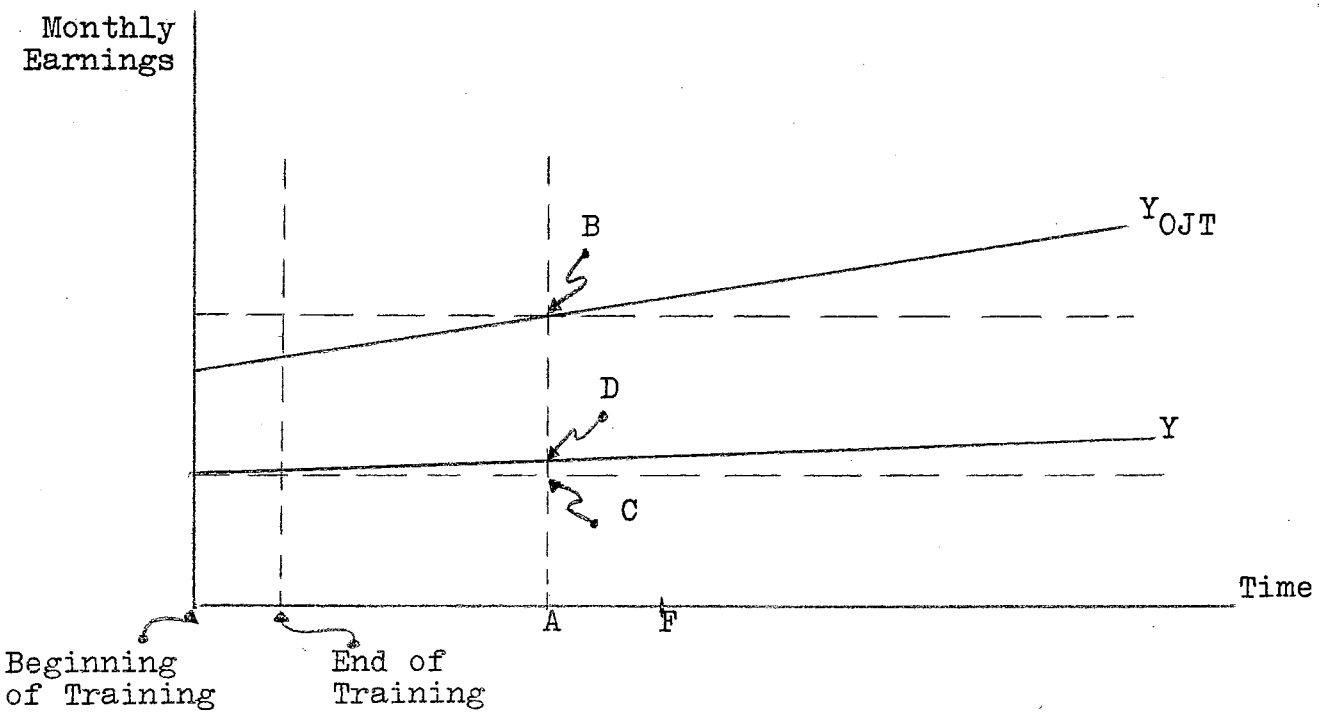

Figure 3. The Earnings Measure

training period is completed. This is shown in Figure 3 by the fact that BC is greater than the distance between Y_{OJT} and Y up to some point beyond two years, say F. Beyond this point, BC understates the change in earnings, since BC is smaller than the distance between Y_{OJT} and Y. It is clear that projecting this or any other constant difference over longer time horizons would result in an understatement of the return to participation in the program.[10] Therefore, it is again emphasized that the earnings differences reported here are undoubtedly conservative estimates of the differences in actual lifetime earnings profiles.

The mean value of C, monthly earned income on the job immediately before entering training, for the respondents to the questionnaire was $186. The mean value for B, adjusted monthly earned income in the job held two years after the end of the contractual training period, was $311. Thus, the mean difference, BC, is $125, which is significant at the .01 level.

The Employment Variable

The discovery that average monthly earnings increased by $125 is only one component of the direct economic returns to the trainees of the BIA-OJT program. The trainee

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[10] Again, Borus and Hardin have shown that the postulated divergence of Y_{OJT} and Y did take place in the training program they evaluated. Borus and Hardin, p. 81.

may also be employed a different number of months per year than in the pre-training period. The second measure of direct returns, then, is the difference between the average number of months employed per year in the pre-training period and that same variable in the post-training period, adjusted if necessary for changes in age, marital status, number of dependents, and the level of economic activity.

Adjustments for age, marital status, and dependents. Once again, the change in the average number of months employed per year between the two periods may not be due solely to the receipt of training. As suggested in Chapter III, changes in the trainee's age, marital status, number of dependents, and changes in the level of economic activity may have affected his employment stability whether he had undergone OJT or not. To determine if changes in any of the demographic variables affected employment the average number of months employed per year in the pre-training period was regressed on age, marital status, and number of dependents. The following equations were estimated:

$$[14] \quad E_1 = 4.67 + .10X_1^{**} \qquad R^2 = .048$$
$$(.0365 \qquad F = 7.5256^{*}$$

$$[15] \quad E_1 = 6.97 + .69X_2 \qquad R^2 = .015$$
$$(.4549) \qquad F = 2.2957$$

$$[16] \quad E_1 = 7.51 - .01X_3 \qquad R^2 = .000$$
$$(.1170) \qquad F = .0021$$

where

E_1 = average number of months employed in the pre-training period

X_1 = age

X_2 = marital status (1 = married, 0 = unmarried)

X_3 = number of dependents

** = significant at the .01 level

* = significant at the .05 level

The only variable found to be significantly related to the employment measure was age (X_1). The equation indicates that each year a trainee tends to be employed 0.1 more months as his age increases by one year. Since the post-training component of the employment measure is the average number of months employed per year in that period, then it was necessary to reduce the post-training component by 0.2 months to remove the increase in employment due to the change in age.

Since the independent variables included in equations [14] through [16] are the same as those in equation [8] through [10], the matrix of correlation coefficients in Table VI apply also to these equations. The reader will recollect that there is a rather high correlation between the variables X_2 and X_3 which makes suspect any coefficient that is estimated for each of them separately without including an interaction term. Further regressions were run in which E_1 was regressed on all three independent variables at once, and then one independent variable

was deleted at a time to determine the effect on the estimated coefficients. The magnitude of the coefficient for X_1 remained about the same and was always significant. Coefficients for X_2 and X_3 varied widely in magnitude and became significant only when E_1 was regressed on all three independent variables at once.

Adjustment for economic activity. There remains the adjustment in employment for the effect of changes in the level of economic activity. The regression equation adopted to measure this effect was:

$$[17] \quad E_{i_t} = a + b\, E_{NW_t}$$

where

E_{i_t} = the number of months trainee i was employed in the year t

E_{NW_t} = a proxy measure for minority group employment opportunity. It is the national unemployment rate for nonwhites, 16 years of age and older in the year t.[11]

As E_{NW} changes because employment opportunities have changed for this group due to changes in the level of economic activity, there should be a change in the average number of months employed for Indian trainees if they are affected by economic activity changes.

The estimated regression equation was:

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[11] Manpower Report of the President, 1968, p. 234.

$$[18] \quad E_{i_t} = 8.83 + .26\ E_{NW_t} \qquad R^2 = .005$$
$$(.2279) \qquad F = 1.3389$$

This analysis suggests that the employment measure is not affected by changes in E_{NW_t} since the coefficient of E_{NW_t} is not significant. As the unemployment rate for non-whites dropped over this time period there was no apparent tendency for the Indians in the sample to be employed more months during the year. By and large, this can be explained by the fact that 49 of the 78 Indians in the sample were fully employed for the duration of their post-training period so that with each drop in the non-white employment rate, they continued to work the same number of months per year--twelve. The occupations they were trained for--unlike those of their pre-training period--were not seasonal in nature. Once their task is learned and their position in the firm has been found, upswings in economic activity, such as these which occurred over this period, do not change the number of months they work. There may be a recognizable increase in their job security due to a tightening of the labor market, and there may be more opportunities to work overtime, but the number of <u>months</u> worked annually would not change. Again, Borus would question whether equation [18] really tests for an employment-level of economic activity relationship and would suggest again the use of a control-group for proper measurement.[12]

[12]Borus, private discussion with David Stevens.

The average number of months worked per year in the pre-training period for the sample was 7.3 months. The value of the same measure for the post-training period, after adjustment for age changes, was 10.7 months. Hence, the mean difference in average number of months employed annually is 3.4 months which is significant at the .01 level of confidence. Prior to training, eleven of the seventy-eight trainees in the sample were employed year-round. After training, forty-nine were employed 12 months each year.

Net Direct Returns to the Trainees

Now that the values of the economic measures have been determined, what is the combined effect of the training program on annual earnings? From Chapter III, it will be recalled that the formula adopted for determining the private benefits of the program is:

[19] $$B'_{p_t} = \sum_{i=1}^{226} [(I_{a_i} - I_{b_i}) - TX_i]*$$

where

B'_{p_t} = net private benefits of the program to the trainees in the year t

I_{a_i} = gross annual earnings of trainee i after training

I_{b_i} = gross annual earnings of trainee i before training

TX_i = the taxes which were paid on $I_{a_i} - I_{b_i}$

* = the amount in brackets has been adjusted for the effects of the increased age of the trainee

Before training, the mean duration of annual employment was 7.3 months per year at $186 per month for an unweighted gross annual earnings figure of $1,358. In the post-training period the mean duration of annual employment was 10.7 months per year at $317 per month. This represents an unweighted average gross annual earnings of $3,392. The average trainee paid $64 per year in taxes on the increase in their annual earnings, $(I_a - I_b)$, so the net (but as yet undiscounted) private benefits per year to the average trainee was $1,970 per year, i.e., average annual earnings more than doubled. Under the assumption that the results of the sample can be generalized to the population, this means the combined net private benefits to the 226 trainees who participated in the program amounted to 226 times $1,970 or $445,220 annually.

The "minimum" nature of this estimate is emphasized. It does not include implicit benefits--such as the psychic and social effects of increased well-being--nor the increased fringe benefits which are assumed to be present in the post-training occupations. As shown earlier, the adjusted difference in monthly earnings component is also thought to be understated for time horizons longer than two years. (See Figure 3.)

The question remains as to the present value of the private benefits to the trainees of the program. Benefits are expected to accrue not for just two years but for an extended period into the future. It is assumed that a dollar received today is worth more than a dollar received next year since a dollar received today can be invested and in one year will be worth one dollar plus interest. What then is the value today of all the benefits expected to be secured in the future? The answer depends upon (1) the choice of the interest rate for discounting the benefits (r) and (2) a determination of how far into the future these benefits are expected to occur (N). Different choices for r and N will yield different present value figures. This study begs the issue, as have others,[13] by using sensitivity analysis. This technique is illustrated in Table VII where different present value figures are shown using different combinations of discount rates and time horizons. The figures in parentheses are the present values of the private benefits of the program per trainee while the other figures represent the present values of the total private benefits to the 226 trainees who have participated in the program. The reader is now free to choose that present value figure calculated using the combination of r and N commensurate with his value judgment concerning their "correct" values.

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[13] See Footnote 30 in Chapter III.

TABLE VII

THE PRESENT VALUE OF THE PRIVATE BENEFITS TO THE TRAINEES OF THE BIA-OJT PROGRAM

Discount Rate \ Time Horizon	5 Years	10 Years	36 Years
6%	$1,875,445 ($8,298)	$3,276,864 (14,499)	$6,509,562 (28,621)
10%	$1,687,740 (7,468)	$2,735,699 ($12,105)	$4,308,038 ($19,069)

Thirty-six was chosen for the last column of time profiles because this is the number of years from the average age of a trainee (29) to age sixty-five, the latter being the generally accepted retirement age. The formula for determining the present value of net private benefits is:

$$[20] \qquad Z = \sum_{t=1}^{N} \frac{B'_{p_t}}{(1+r)^t}$$

where

Z = present value of the private benefits to the trainees of the program

B'_{p_t} = the net private benefits to the trainees of the program in year t

r = discount rate

N = time horizon of benefits

These present value figures are particularly encouraging in light of the conclusion in Chapter III that they were secured at no private cost to the trainees. It is for this reason that the derivation of a private benefit-cost ratio was not possible.

The reader is also reminded that the figures in Table VII represent the present value of the private benefits to the trainees of the program.

To arrive at the present value of the total private benefits of the program, BIA subsidy payments to the participating firms must be added to the figures in Table VII since the theoretical interpretation of Becker's analysis in Chapter III suggests that these subsidies are benefits rational firms would not have received in the absence of the program. The resulting present value figures are illustrated in Table VIII. They were calculated using the following equation:

$$[21] \qquad X = B_f + \sum_{t=1}^{N} \frac{B'_{p_t}}{(1+r)^t}$$

where

X = present value of the total private benefits of the BIA-OJT program

B_f = benefits to the firms as measured by wage subsidy payments received from the BIA

B'_{p_t}, N, and T are defined as in equation [20].

TABLE VIII

THE PRESENT VALUE OF TOTAL PRIVATE BENEFITS OF THE BIA-OJT PROGRAM

Discount Rate \ Time Horizon	5 Years	10 Years	36 Years
6%	$2,021,604	$3,423,023	$6,655,721
10%	$1,833,899	$2,881,858	$4,454,197

Summary

The subject of this chapter has been the determination of the private benefits of the BIA-OJT program. Statistical analysis has shown that because he participated in this program, the average trainee was employed 3.4 more months per year and average net monthly earnings increased by $125, so that unweighted annual earnings increased by $1,970, which more than doubled pre-training annual earnings. The present value of private benefits of the program, shown in Table VIII, are also impressive.

Based on the efficiency level and results of the program in the past, are there any guidelines which the BIA might follow in selecting OJT trainees which will enable them to increase private returns in the future? This is the topic of the next chapter.

CHAPTER VI

GUIDELINES FOR INCREASING PROGRAM BENEFITS

In an effort to attain an efficient allocation of OJT funds within a given budget constraint, the BIA should be interested in guidelines to follow which will enable them to choose among several qualified applicants the one(s) who will achieve a specified employment-earnings objective with the least expenditure of public sector resources. This chapter is directed toward providing these guidelines. In particular, among a set of selected characteristics of trainees, are there certain characteristics which are associated with (1) higher monthly earnings, (2) higher rates of annual employment, and/or (3) better training completion records? This is the subject of the first three sections of this chapter.

Selected Trainee Characteristics and Earnings

Multiple regression analysis was chosen to determine if there are certain characteristics of trainees which are associated with the pre-post change in monthly earnings due to training. The earnings measure used in the regression equation is the adjusted difference between the pre- and post-training level of monthly earnings (Y_2). The

other six variables included in the relation are age (X_1), marital status (X_2), sex (X_5), educational level (X_6), tribal affiliation (X_7), and training status (T_1). The theoretical rationale for inclusion was explained in Chapter III.

Two tests were conducted to determine if collinearity among variables was a serious problem. First, the matrix of simple correlation coefficients between variables was computed. The results are presented in Table IX.

TABLE IX

MATRIX OF SIMPLE CORRELATION COEFFICIENTS

	X_1	X_2	X_5	X_6	X_7	T_1
X_1	1.00					
X_2	.11	1.00				
X_5	.19	.31	1.00			
X_6	-.20	-.08	-.06	1.00		
X_7	.27	.12	.05	-.24	1.00	
T_1	.15	-.12	-.10	.09	-.09	1.00

Although none of the correlation coefficients are very large, those between X_1 and X_7, X_2 and X_5, and X_6 and X_7 are large enough to be a cause of concern. To better

assess the importance of these interrelations, a second procedure was employed. The equation was specified six times, in each case one variable being dropped from the relation.[1] The results of this test are presented in Table X. As the deletions were made there was some change in the coefficients but none of a magnitude to cause concern.

The following regression equation was computed:

[22]

$$Y_2 = 250 - \underset{(1.3543)}{3.69X_1}^{**} + \underset{(23.5432)}{55.10X_2}^{**} - \underset{(25.4979)}{38.86X_5} - \underset{(20.8399)}{18.25X_6} - \underset{(21.2494)}{28.96X_7} - \underset{(21.3880)}{7.21T_1}$$

$$R^2 = .146$$

F-Ratio = 2.0234

** = significant at the .01 level

Only the variables age (X_1) and marital status (X_2) were found to be significantly related to the adjusted change in monthly earnings. Both were significant at the .01 level.

The age coefficient suggests that to increase <u>private</u> returns the BIA should choose younger Indians before older ones.[2] The effected earnings differential favoring

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[1]Melichar, p. 382.

[2]The reader is cautioned against interpreting the regression coefficient as the amount by which the younger person's post-training earnings level <u>exceeds</u> that of the

TABLE X

TESTING FOR MULTICOLLINEARITY THROUGH VARIABLE DELETIONS - THE EARNINGS PAYOFF MEASURE

Dependent Variable	Intercept	B_{X_1}	B_{X_2}	B_{X_5}	B_{X_6}	B_{X_7}	B_{T_1}	F-Ratio	R^2
Y_2	250	-3.69** (1.3543)	+55.10** (23.5432)	-38.86 (25.4979)	-18.25 (20.8399)	-28.96 (21.2494)	-7.21 (21.3880)	2.0234	.146
Y_2	164		+53.29* (24.1605)	-50.49* (25.7763)	-10.16 (21.1777)	-42.74* (21.1902)	-15.14 (21.7538)	1.3800	.087
Y_2	275	-3.60** (1.3765)		-21.25 (24.8626)	-19.17 (21.2025)	-24.73 (21.5501)	-11.39 (21.6937)	1.6612	.103
Y_2	234	-4.05** (1.3367)	+44.94* (22.6577)		-17.95 (20.9091)	-27.58 (21.3008)	-4.16 (21.3632)	2.1157	.128
Y_2	236	-3.52** (1.3345)	+55.72** (23.4512)	-38.15 (25.4086)		-25.63 (20.8330)	-8.68 (21.2483)	2.3529*	.140
Y_2	242	-4.13** (1.3161)	+52.37 (23.4933)	-36.86 (25.5126)	-13.16 (20.5337)		-4.03 (21.2927)	2.2000	.132
Y_2	245	-3.75** (1.3333)	+55.77** (23.3096)	-37.55 (25.2506)	-18.80 (20.6418)	-28.18 (20.9865)		2.4431*	.145

* significant at the .05 level
**significant at the .01 level
Y_2: the adjusted difference between pre- and post-earnings
X_1: Age
X_2: 1=Married
0=Not Married
X_5: 1=Male
2=Female
X_6: 1=High School Graduate
0=Non-High School Graduate
X_7: 1=Member of one of the Five Civilized Tribes
0=Not member of one of the Five Civilized Tribes
T_1: 1=Training completed
0=Training not completed

a participant one year younger than another participant is estimated to be $3.69 per month or an annual difference of nearly $40. This annual earnings difference figure is based on the adjusted average number of months employed in the post-training period which was found to be 10.7 months in the preceding chapter. These earnings difference figures were calculated for two persons whose ages differ by only one year. The wider the age spread, the larger would be the expected difference in earnings, assuming the linear form specified is valid.

Table XI adds credence to the estimated parameters in equation [22]. Before entering training younger Indians held lower paying jobs than older Indians and two years after the receipt of training younger Indians held higher paying jobs.

The regression results also suggest that earnings are related to marital status, so the BIA might give preference to married applicants.[3] The expected earnings differential favoring married participants is estimated to be $55 each month, or an annual difference of nearly $590. Table XII shows that although married trainees in the sample started from a somewhat higher pre-training earnings level, their

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older persons. It may well be that their post-training levels are nearly the same, but because the younger person's pre-training earnings level was lower than the older person's, the former was able to register a more impressive increase in earnings. See Tables XIV and XV for illustrations of this phenomenon.

[3]"Unmarried" in this study includes single, widowed, divorced, and separated persons.

TABLE XI

PRE-POST COMPARISONS OF EARNINGS, BY AGE

	18-20 (N=8)	21-25 (N=23)	25-30 (N=20)	31-35 (N=10)	36-40 (N=9)	Over 40 (N=8)
Average (mean) monthly earnings in job prior to entering training	$145	$187	$163	$205	$228	$211
Average (mean) monthly earnings in job two years after receipt of training[a]	$328	$323	$319	$308	$296	$269
Mean difference	$183**	$136**	$156**	$103**	$ 68	$ 58**

[a]adjusted for age and taxes

**= significant at the .01 level

* = significant at the .05 level

their mean difference in monthly earnings after training was much larger than for the unmarried trainees.

TABLE XII

PRE-POST COMPARISONS OF EARNINGS, BY MARITAL STATUS

	Married (N=57)	Unmarried (N=21)
Average (mean) monthly earnings in job prior to entering training	$192	$170
Average (mean) monthly earnings in job two years after receipt of training[a]	$326	$273
Mean difference	$134**	$103**

[a] adjusted for age and taxes
**= significant at the .01 level

No other significant relationships were found in estimating the relation specified in equation [22]. It may surprise some readers that the coefficient of T_1, the training status variable, was not related to the change in earnings. However, it will be recalled that the period of extraordinary supervision varied sharply from the contractual training period, and since T_1 is based on the latter it is not a meaningful measure of the degree to which

"training was completed," i.e., the degree to which a task was mastered.

Selected Trainee Characteristics and Employment

The same statistical techniques employed in the previous section are used in this section to determine if there are certain characteristics of trainees associated with large increases in the number of months employed annually after participation in training. The same independent variables as those of the previous section are included in this equation. However, the dependent variable is the adjusted difference between the average number of months employed annually in the pre- and post-training periods (E_2).

Tests for the existence of multicollinearity among the independent variables in this equation are really unnecessary since it includes the same independent variables as in equation [22] where no harmful multicollinearity was found. The matrix of simple correlation coefficients illustrated in Table IX which were applicable for the first regression equation apply equally to this regression equation. By duplicating the procedures used to develop Table X, Table XIII was derived for the dependent variable E_2. Again, there were no large changes in the magnitudes or signs of the regression coefficients as various variables were deleted which indicates that multicollinearity is also

TABLE XIII

TESTING FOR MULTICOLLINEARITY THROUGH VARIABLE DELETIONS - THE EMPLOYMENT PAYOFF MEASURE

Dependent Variable	Intercept	B_{X_1}	B_{X_2}	B_{X_5}	B_{X_6}	B_{X_7}	B_{T_1}	F-Ratio	R^2
E_2	7.2	-.09* (.0460)	-.75 (.7991)	-.32 (.8655)	-1.94** (.7074)	-.89 (.7213)	+1.32* (.7269)	1.8527	.137
E_2	5.1		-.80 (.8078)	-.63 (.8618)	-1.74** (.7081)	-1.23* (.7094)	+1.12 (.7282)	1.6605	.102
E_2	7.0	-.09* (.0458)		-.56 (.8267)	-1.92** (.7050)	-.95 (.7166)	+1.37* (.7222)	2.1196	.130
E_2	7.1	-.09* (.0449)	-.84 (.7607)		-1.94** (.7029)	-.88 (.7160)	+1.34* (.7181)	2.2331	.137
E_2	5.7	-.07 (.0467)	-.69 (.8203)	-.30 (.8887)		-.54 (.7287)	+1.16 (.7432)	1.1735	.073
E_2	7.0	-.11** (.0446)	-.85 (.7962)	-.28 (.8647)	-1.78** (.6959)		+1.41* (.7226)	2.0227	.123
E_2	8.0	-.08* (.0459)	-.87 (.8027)	-.47 (.8685)	-1.84** (.7108)	-1.03 (.7236)		2.4480	.109

* significant at the .05 level
**significant at the .01 level
E_2: Pre-post differential in average number of months employed annually
X_1: Age
X_2: 1=Married
0=Not Married
X_5: 1=Male
0=Female
X_6: 1=High School Graduate
0=Non-High School Graduate
X_7: 1=Member of one of the Five Civilized Tribes
0=Not member of one of the Five Civilized Tribes
T_1: 1=Training completed
0=Training not completed

not a problem in the following estimated relation:

[23]

$$E_2 = 7.2 - .09X_1^* - .75X_2 - .32X_5 - 1.94X_6^{**} - .89X_7 + 1.32T_1^*$$
$$(.0460) \quad (.7991) \quad (.8655) \quad (.7074) \quad (.7213) \quad (.7269)$$

$$R^2 = .137$$

F-Ratio= 1.8527

** = significant at the .01 level

* = significant at the .05 level

Three variables--age (X_1), education level (X_6), and training status (T_1)--were found to be significantly related to employment. Once again the estimated relation suggests that the BIA might consider giving preference to younger applicants. Between two applicants whose ages are nearly the same the difference is hardly worth considering, but between two applicants whose ages differ by say ten years, the younger applicant's employment payoff to participation should be almost a month greater than the older applicant's, assuming the linear form specified is valid. Table XIV lends an important clue to the reason for the significant relationship between age and the employment payoff measure. Though mean differences tend to decrease from left to right across the table, it is important to note that older trainees come very close to matching the post-training level of employment of the younger trainees. However, the younger trainees entered training with a much poorer employment record than their older counterparts, so the mean difference is statistically significant at the .05 level.

TABLE XIV

PRE-POST COMPARISONS OF EMPLOYMENT, BY AGE

	18-20 (N=8)	21-25 (N=23)	26-30 (N=20)	31-35 (N=10)	36-40 (N=9)	Over 40 (N=8)
Average (mean) number of months employed annually prior to training	7.3	7.0	7.0	6.7	8.9	8.6
Average (mean) number of month employed annually after training[a]	11.0	10.7	11.1	10.2	10.8	10.3
Mean Difference	3.7**	3.7**	4.1**	3.5**	1.9	1.7

[a] adjusted for age

**= significant at the .01 level

The coefficient for X_6, educational level, is the opposite of what some readers might have expected. The estimated relation suggests that non-high school graduates realized nearly a two month greater increase in annual employment than that of high school graduates. The figures in Table XV reveal an explanation for this result. Trainees who are high school graduates achieve approximately the same post-training level of employment as non-high school graduates. But non-high school graduates entered training with much poorer employment records--hence, the comparatively large difference in the change in employment experienced. Actually, a larger percentage of high school graduates were fully employed in the post-training period.

According to the coefficient for training status (T_1), the employment payoff measure for those individuals who complete the contracted training period tends to be 1.32 months larger than for those who do not complete. This information may not prove too helpful to the BIA in their attempt to choose applicants so as to achieve the largest private returns to the program. To jump the gun somewhat, equation [24] in the next section will reveal that none of the variables specified are related to the training completion variable. Thus, to the extent that the Bureau cannot tell just who will be completors, they will be unable to use the significance of T_1 as a means to increase the private returns to the OJT program in the future.

TABLE XV

PRE-POST COMPARISONS OF EMPLOYMENT BY EDUCATIONAL LEVEL

	High School Graduates (N=32)	Non-High School Graduates (N-46)
Average (mean) number of months employed annually prior to training	8.0	6.9
Average (mean) number of months employed annually after training[a]	10.6	10.8
Mean difference	2.6**	3.9**
Per cent fully employed in the post-training period	69%	59%

[a]adjusted for age
**significant at the .01 level

The information in Table XVI indicates that those who did complete training, on the average had a poorer pre-training employment record than those individuals who did not complete training, and they enjoyed more favorable post-training employment records than non-completors.

TABLE XVI

PRE-POST COMPARISONS OF EMPLOYMENT, BY COMPLETION OF CONTRACTUAL TRAINING PERIOD

	Completed (N=52)	Did not Complete (N=26)
Average (mean) number of months employed annually prior to training	7.2	8.0
Average (mean) number of months employed annually after training[a]	10.8	10.5
Mean difference	3.6**	2.5**

[a]adjusted for age
**significant at the .01 level

Selected Characteristics and the Training Completion Variable

Are there certain trainee characteristics associated with completion of the contractual training period? To answer this question, a dummy variable T_1 (1 = completed; 0=not completed) was regressed on age (X_1), marital status (X_2), sex (X_5), educational level (X_6), and tribal affiliation (X_7). It may be that Congress, in considering the size of appropriations to the program, will judge the success of the program partially on the basis of job stability as measured by the desire and ability of participating employers to retain Indian trainees through the

contractual training (subsidized) period.

The results of estimating equation [24] provide little on which to basesuch decisions.

[24]

$$T_1 = .61 + .01X_1 - .09X_2 - .11X_5 + .08X_6 - .11X_7$$

$$(.0074) \quad (.1293) \quad (.1399) \quad (.1145) \quad (.1164)$$

$$R^2 = .051$$

$$\text{F-Ratio} = 0.77518$$

Collinearity tests conducted in the first two sections of this chapter suggested that there may not be significant relationships between X_1, X_2, X_5, X_6, X_7, and T_1, but it is difficult to estimate the true coefficients of the independent variables when the dependent variable is in dummy form.[4]

Summary

The purpose of this chapter has been to determine if the experience of the 1960-68 OJT program can provide guidelines to the BIA which will enable them to establish criteria to choose among alternative applicants, so as to achieve the greatest private benefits to the program once contracts have been secured. The statistical analysis conducted suggests that the Bureau might want to: (a) choose younger applicants before older ones, (b) prefer married applicants ahead of single, separated, or

[4]Goldberger has shown thatthe disturbance term will no longer have a constant variance, that is to say there is a problem of heteroscedasticity. J. Johnston, Econometric Methods (New York, 1963), pp. 227-228.

divorced applicants, and (c) select non-high school graduates over high school graduates, because the latter group might be judged better able to help themselves.

If the OJT program is administered as it has been in the past, this information will be of little use to the BIA. In the nine contracts studied, the problem has not been one of having to choose among several qualified applicants. Instead, there has usually been a dearth of applicants, so that the Bureau has had to recruit prospective trainees to participate in the contracts they have secured. This is partially because the OJT program is not a continuous program like the AVT and DE programs. Its availability in a certain area depends on whether a contract happens to have been secured in that area. Qualified Indians do not become aware of its availability until notified by the BIA that a contract has been negotiated in their area. On the other hand, AVT or DE is ostensibly available in all areas, though participation is limited by lack of appropriations.

What if conditions were to change, and the Bureau began to place more emphasis on OJT as an employment source, as will be shown they already have? What if the continous negotiation of OJT contracts made the program and need for trainees a continuous one? Then the results of this chapter would be relevant for program decision makers.

CHAPTER VII

SOCIAL COSTS AND BENEFITS

The objective of the on-the-job training program of the Bureau of Indian Affairs is a narrow one. To paraphrase P. L. 959, their goal is to achieve a threshold combination of employment and earnings for Indians who have experienced intermittant employment and extremely low earnings in the past. The present value of the private economic returns to participation, illustrated in Table VII in Chapter V, is quite impressive. Annual earnings of the average participant have more than doubled, and individuals with sporadic employment records in the past have generally showed stable employment patterns after training. This private return is even more striking when it is recalled that the benefits were secured at zero private costs--a position established in Chapter III.

There <u>were</u> costs incurred, but they were borne by society. Whether society should continue to invest in the program depends partially on a comparison of these <u>social</u> costs with the <u>social</u> benefits of the program. Even if the social benefits are greater than the social costs, the decision of <u>whether</u> to invest, and at what <u>level</u> to invest, should be based in part on a comparison with the expected

net return on other public investment opportunities. Again, as was pointed out in Chapter III, a simple, straightforward comparison of benefit-cost ratios between projects may be also inappropriate since such ratios only evaluate a project on the basis of economic efficiency (i.e., how much national product is increased). The redistributive aspects of various projects may be as important or possibly even more important. In addition, there is the problem that externalities, which have not been included in the calculation of the ratios, may be significantly different between projects, so that the calculated ratios may be decidedly wide of the mark even as a measure of the economic efficiency of a project.

It is toward the development of a benefit-cost ratio for the BIA-OJT program that this chapter is directed. The model set forth in Chapter III provides a theoretical framework for this derivation. Social costs are estimated in section one, followed by an estimate of the associated social benefits in section two. The two are brought together as a social benefit-cost ratio in the concluding section.

Social Costs

The social (opportunity) cost (C_s) of the BIA-OJT program is the welfare foregone in connection with the provision of the training. Its value is approximated by the summation of four elements: (1) BIA administrative

costs (C_a), (2) BIA subsidy payments to the firm (C_{sp}), (3) net cost to the firm of supplying the training (C_f), and (4) output foregone while the trainees were in training (Q_f).

BIA Administrative Costs

The BIA estimates administrative costs attributable to the OJT program from 1960 to 1967 to be $82,000. Since the Employment Assistance Branch also administers the Direct Employment Assistance (DE) and Adult Vocational Training (AVT) programs, it was necessary to consider whether an acceptable methodology exists to allocate these joint administrative costs to arrive at a level attributable only to the OJT program. Figures in Table I of Chapter II indicate that approximately eleven percent of the persons receiving employment assistance received OJT while the remainder received either DE or AVT. However, it seems incorrect to simply tag eleven percent of total administrative costs as applicable to the OJT program since external economies must exist in administering all three employment assistance programs within the same branch. In other words, if there were no AVT or DE program, the OJT administrative costs would in all likelihood be greater than eleven percent of the present total. Consequently, it was decided to allocate one quarter of the total administrative costs to the OJT program. The result is the $82,000 figure. Admittedly, this procedure

does not take full cognizance of the joint cost problem, but given the information available it seems a liberal estimate.

Subsidy Payments

The amount of total BIA subsidy payments to the participating firms was available directly from the Bureau's payment forms. Total subsidy payments amounted to $146,159, apportioned among the firms as shown in Table XVII.

TABLE XVII

BIA SUBSIDY PAYMENTS, BY FIRM

Firm Number	BIA Subsidy Payments
1	$ 64,068
2	5,348
3	4,103
4	4,093
5	2,210
6	17,130
7	8,161
8	2,600
9	38,446
Total	$146,159

Net Costs to the Firm

Gary Becker has demonstrated that no rational firm would provide training at a positive net cost. The

trainee will bear the cost of training either through receiving a wage less than his marginal revenue product to the firm during or after training. The firm has an interest in front-loading this wage-marginal revenue product difference to recoup the costs as soon as possible to reduce the risk that the employee will leave. Becker also shows that for a firm in a purely competitive labor market, the market conditions will assure that the returns from training equal the cost of training. Relaxation of these purely competitive conditions would allow the possibility of positive net returns.[1] It is probable then, that the net cost of training for a firm participating in the BIA-OJT program, is zero, and quite likely negative. Becker's analysis applies to firms who incur the full wage bill. If part of the wage bill is subsidized during training, as is the case in the BIA-OJT program, and if the firm is rational in Becker's terms, the amount of the subsidy is a clear net benefit to the firm. Accordingly, the amount of the BIA subsidy payment to the participating firms was included as part of the private benefits of the program. (See Chapter V).

Output Foregone While in Training

When the institutional method of training is employed, the trainees attend a vocational school and for all

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[1]Becker, pp. 10-25.

practical purposes are out of the labor force. Society gives up the output the trainees could have produced had they been employed, and this foregone output should properly be calculated as part of the social cost of the training program. Society may not forego any output, however, if the "vacuum effect" is operative. This phenomenon occurs if the participants' pre-training jobs are filled from among the ranks of the unemployed who would not have gotten jobs otherwise. (It is the latter point that leads most analysts to discount the liklihood of such an effect occurring).

In on-the-job training, unlike the institutional method, trainees are producing output during the training. If the vacuum effect is operative, then not only does society not forego any output, it actually gains output in an amount equal to the total output of the trainees while in training. In fact, it may be that by engaging in OJT the trainees remove bottlenecks which would allow more workers to become employed with the contracting firm than would have been employed otherwise. This "bottleneck effect" would add to the gains that society receives from OJT, or conversely, makes more negative the foregone output component of social cost of OJT. Because the degree to which the bottleneck and vacuum effects are operative is not known, it is assumed that the cost component, output foregone by society, has no effect on the magnitude of social costs. This assumption thus

increases the probability that the social cost measure will be overstated resulting in a conservative social cost-benefit ratio.

Social costs can now be estimated as follows:

[25] $C_s = C_a + C_{sp} + C_f + Q_f$

[26] $Q_f = Q_{tp} - Q_v - Q_{tt} - Q_b$

where

C_s = social cost of training

C_a = BIA administrative cost of the OJT program

C_{sp} = BIA subsidy payments to participating firms

C_f = costs to participating firms of supplying the training

Q_f = output foregone by society while trainees are in training

Q_{tp} = output of trainees prior to training

Q_v = output of workers who replace trainees in their pre-training jobs--the vacuum effect

Q_{tt} = output of trainees while in training

Q_b = output of those who were hired because the trainees removed bottlenecks in the participating firms

Since the assumption was made that C_f and Q_f are probably negative and at most zero under conditions of rational decision making, a maximum estimate for C_s is

C_a plus C_{sp} which equals $228,159, for the 1960-1967 period.

Social Benefits

The social benefits of the BIA-OJT program may be defined as the increase in welfare attributable to participation in training. To the extent that the employment and earnings measures used in Chapter V capture all (and only) changes in the trainees' productivity and employment stability, these measures of private benefit approximate social benefits also.[2]

Certain features which cause these two measures of benefits to differ were discussed at length in Chapter III, where it was concluded that taxes should be readded to private benefits to arrive at social benefits since the gains from training to society are the total gains in real output as reflected in an individual's gross earnings. Furthermore, it should be emphasized that the figure calculated for social benefits should be considered a minimum estimate of the social benefits of the program since the measure does not include externalities (which may be beneficial or undesirable but whose net effect, in all likelihood, would be beneficial) or the redistributive effects of the training.

The equation for calculating the annual social benefits of the program is:

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[2] Total private benefits of the program could not be used because this figure includes the private benefits to the firm which are not a part of social benefits.

[27] $$B_{s_t} = \sum_{i=1}^{226} (I_{a_i} - I_{b_i})^*$$

where

B_{s_t} = social benefits of the program in the year t

I_{a_i} = gross annual earnings of trainee i after training

I_{b_i} = gross annual earnings of trainee i before training

* = symbol to indicate the amount in parenthesis has been adjusted for the increased age of the trainee

226 = total number of trainees who participated in the program

The average annual income after training, I_a, amounted to \$3392, and the mean value of I_b is \$1358, giving a difference (or social benefits) per trainee, of \$2034 per year. For all 226 trainees in the program the social benefits in the year t (B_{s_t}) come to \$459,684. The assumption is made that this value remains constant over time. The reader may recall the with-without training earnings profiles illustrated in Figure 3. It was hypothesized that these two earnings profiles diverge from each other (a phenomena which has been verified empirically for another training program). As a result, by choosing as the post-training earnings measure the monthly earnings in the job two years after the receipt of training, the assumption of

a constant social benefit value over time leads to an overstatement of social benefits in the first couple of years, but for time horizons of the length used in calculating the benefit-cost ratios below, the assumption will render an understatement of social benefits.

Social Benefit-Cost Ratios

It is now possible to estimate social benefit-cost ratios for the program. The costs of the program are assumed to be incurred only in the current period and are therefore undiscounted. The social benefits, however, just as the private benefits, are expected to continue to occur for some period of time into the future. To determine the present value of the stream of benefits it is necessary to know how far into the future the benefits are expected to accrue, and at what rate they should be discounted. A matrix of present values is derived using different choices of the discount rate and time horizon. As was the case in calculating the present value of private benefits, two different discount rates are combined with three different time horizons. The resulting matrix is illustrated in Table XVIII. It enables the reader to choose that social benefit-cost ratio most in line with his judgments concerning the "correct" discount rate and time horizon.

TABLE XVIII

SENSITIVITY ANALYSIS: SOCIAL BENEFIT-COST RATIOS FOR THE BIA-OJT PROGRAM

Discount Rates \ Time Horizon	5 Years	10 Years	36 Years
6%	8.7	14.8	29.4
10%	7.6	12.4	19.5

Summary

During the years 1960 to 1968, the Oklahoma offices of the BIA enrolled 226 Indians in Bureau subsidized on-the-job training programs. The direct cost of training these individuals amounted to $228,159, derived by summing prorated administrative costs ($82,000) and subsidy payments to participating firms ($146,159). The undiscounted direct social benefits of the program, which are expected to accrue for some time into the future, are estimated to have been $459,684 annually. This figure does not take third-party effects into consideration.

A matrix of social benefit-cost ratios for the program was presented using various time horizons and discount rates. The most conservative of these ratios is 7.6 which means that if the earnings and employment benefits of the program only accrued for five years after training,

the estimated present values of the social benefits of the program would still be 7.6 times greater than direct costs. The most liberal ratio calculated was 29.4. These figures appear favorable to continued investment in the program, but a statement as to whether they are high or low cannot be made without knowing the value of similar ratios for other public projects. Two additional precautions concerning these ratios are important. First, it is not known whether the BIA-OJT program has been administered in the most efficient manner possible in the past. If it has not, this means the benefit-cost ratios for OJT could have been even larger than the ones calculated. Secondly, one cannot suggest that the program be expanded strictly on the basis of these ratios since there may be diseconomies of scale involved which could affect significantly the magnitude of the ratios applicable at larger scales of operation.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

As an aid in making judgments as to the economic value of the BIA-OJT program it is useful to recapitulate the results and conclusions of the preceding chapters. This is done in the first section of this chapter. Section two presents evidence of the trainnes' evaluations of the program. In section three some comparisons are drawn between the results of the BIA-AVT program evaluation and Blume's evaluation of the BIA-OJT activity through April, 1969.

Summary

According to the definition employed in this study an individual is "trained" or has learned his task when he can perform his duties without extraordinary supervision. Using this criterion, former trainees indicated they were trained long before their negotiated training periods were complete.[1] Bureau officials seem to recognize that Indians are "trained" before the negotiated training period is completed but they think a wage-subsidy beyond that

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[1] See Table II, p. 49.

point is necessary in order to persuade firms to engage in the program since by and large (they say) firms regard Indians as having a lower productivity potential than other workers. Taken as a whole, the program is really a combination OJT-wage subsidy program, but the Bureau officials think that to call it such would reduce their ability to acquire appropriations from Congress.

Two observations on this point seem worthwhile. First, when negotiating future OJT contracts if a firm's management argues for longer than necessary training periods because of an assumed productivity differential between Indians and other persons, they should be confronted with the evidence that past participating firms have judged that such a productivity differential does not exist.[2] As a matter of fact, three out of five firms surveyed suggest that Indians are more productive than other workers.

Secondly, subsidized training periods of fifty-two to seventy-eight weeks in length could probably be eliminated entirely. Given the present legal minimum wage level, training periods of this length represent total subsidies of $1,664 and $2,496 per trainee, respectively. These outlays appear to be out of line with the job skills for which Indians have been trained in the past. The Bureau might make use of the results of this study to show firms that these extended training periods are not justifiable.

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[2]See Table III, p. 53.

Mention was also made in Chapter IV of the importance of selecting firms that are financially secure and expect sufficient work-force stability so that trainees will not be laid off from time to time because of inadequate product demand. Three of the nine firms included in this study had to be shut down completely, so that in some cases trainees were not even able to complete their negotiated training periods. The Bureau's record in this respect has improved considerably in their more recent contracts. From the cut-off date of this study to the spring of 1969, the BIA initiated eleven new contracts and all eleven firms are still in operation.

The benefits of the program appear impressive. As a result of training, the trainees were employed an average of 3.4 more months annually and earned $125 more per month than in the pre-training period. This represents an adjusted net annual increase in earnings of $1,970, more than doubling pre-training annual earnings. These benefits were secured at no private cost to the trainee. Given that 226 individuals participated in the program, the total undiscounted private benefits to the trainees each year amounted to $445,200.

The explicit goal of the Employment Assistance Branch as stated in P. L. 959 is to obtain satisfactory employment for adult Indians. However, once an OJT contract is negotiated and the number of persons to be trained has been decided, the BIA should be interested in filling the

training slots with those Indians who will achieve the largest increase in earnings and employment. Multiple regressions analysis conducted in Chapter VI suggests three directives for increasing earnings and employment returns in the future: (1) choose younger applicants over older ones, (2) select married applicants over single, widowed or divorced applicants, and (3) choose non-high school graduates over high school graduates.

Though there were no private costs associated with the receipt of training, taxpayers in general did bear the expenses of its provision. A maximum estimate of these societal costs is $228,159 or $1,010 per trainee. This is believed to be a maximum estimate since one component of social costs--output foregone while the trainees were in training--is thought to be a negative figure, so that social costs would be less than the calculated amount.

Should society continue to make outlays of this magnitude? This depends on (1) the social benefits that result from the expenditure and (2) whether greater benefits could be received with the same expenditure of funds in another project. Social benefits of the program were determined by adding back to adjusted net private benefits to the trainees the taxes which were paid on the increase in their annual earnings. The resulting figure was $459,684 or $2,034 per trainee each year. This figure and the estimate of private benefits should be considered

conservative estimates since they do not include many externalities such as reduced crime, reduced welfare expenditures, psychic benefits of increased well-being, etc., and because evidence presented in Chapter V suggests that the average monthly earnings component of private benefits may be understated.

One tool for deciding whether one project is economically more desirable than another is the social benefit-cost ratio. However, given the size of the social costs and benefits calculated, different ratios are derived depending upon one's choice of a discount rate and time horizon. Since the selection of the appropriate size of these latter two factors is based on different judgments as to their "correct" values, this study has employed a sensitivity analysis table[3] in which several ratios were computed using various combinations of discount rates and time horizons. The estimated social benefit-cost ratios ranged in magnitude from a conservative 7.6 (discounted at a ten percent rate over five years) to a more liberal 29.4 (discounted at a six percent rate over thirty-six years).

Trainee Evaluations of the Program

To this point little has been said concerning the trainees' evaluations of the BIA-OJT program. A section of the mailed questionnaire was designed to solicit their

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[3] See Table XVIII, p. 115.

opinions of the training they received. Three questions were structured so that answers could be compared among the trainees. Two other questions were left open ended.

The subject of the first structured question was the type of supervision the respondents received while in training. The proportion choosing each answer is shown in Table XIX.

TABLE XIX

TRAINEES' EVALUATION OF SUPERVISION

Question	
Which of the following statements best describes the help that you received in learning your job while in on-the-job training?	
Answers	Percent of Total
The help I received in learning my job was <u>good</u>.	55%
The help I received in learning my job was <u>acceptable</u>.	37%
The help I received in learning my job was <u>bad</u>.	8%

Only eight percent of the respondents complained of poor supervision. Trainees accounting for five of these eight percentage points were trained in firm number six,

a furniture factory which shut down in 1968. In one of the open-ended questions trainees were asked to tell what they did not like about their training. Almost to a man, trainees in firm number six complained of poor supervision and wage increases that came only with changes in the minimum wage law. After his contract was terminated the owner of the factory admitted in a letter to the Commissioner of Indian Affairs that his own investigations of supervisory practices in his plant had led to the dismissal of several foremen.

The purpose of the other two structured questions was to discover how the respondents thought OJT had affected their job and earnings situations. Their replies are illustrated in Tables XX and XXI.

TABLE XX

TRAINEES' EVALUATION OF EFFECT OF BIA-OJT ON JOB SITUATION

Question	
Which of the following best expresses your opinion about the training your received?	
Answers	**Percent of Total**
The training has helped me very much in getting better jobs.	37%
The training has been of some use to me in getting better jobs.	37%
The training has not helped me get better jobs.	26%

TABLE XXI

TRAINEES' EVALUATION OF EFFECT OF BIA-OJT ON EARNINGS

Question	
Which of the following best expresses your opinion about the training you received?	
Answers	**Percent of Total**
The training has helped very much in making more money.	38%
The training has been of some use to me in making more money.	32%
The training has not helped me make more money.	30%

The responses were almost evenly divided among the possible answers. It is noteworthy, however, that over two-thirds in each case indicated that training did affect their job and earnings positions in some way.

With the exception of the universal condemnation of the supervisory tactics of firm number six, there was no pattern in the answers to the open ended questions. The questions did serve the purpose of giving the investigator a "feel" for the attitudes of the respondent toward training. It was apparent that because of a lack of basic education, many respondents were unable to engage in meaningful written communications--a fact which

is almost certain to be an obstacle in their attempts to break into the white-collar, management structure of most firms.

The BIA-OJT Program Versus the BIA-AVT Program

In the summer of 1968, Paul Blume completed a study of the institutional training program of the BIA in Oklahoma. It would naturally follow that the results of the evaluations of the two programs be compared, and perhaps trade-offs suggested between them. Unfortunately, it is not possible to do this for several reasons.

First of all, this investigator disagrees with Blume's method of adjusting the monthly earnings and employment variables for the effects of changes in the level of economic activity. Blume begins with the assumption that these measures <u>are</u> affected by economic activity changes and proceeds to create an index to allow for the effects of these changes.[4] If the conceptual arguments and regression techniques employed in Chapter V of the present study are accepted, then it is clear that this initial assumption may be incorrect. If economic activity changes did not affect the AVT variables or did not affect them in the magnitude Blume indicates, the result is an understatement of the benefits of the AVT program. Using his methodology, any increase in the level of economic activity (as was the case over the time

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[4]Blume, pp. 242-249.

period of his study) will lead to a downward adjustment of the employment and earnings measures. Because the original data he used were not available to the author, it was not possible to determine what corrections in his results are necessary.

Too, there is an error in benefit calculation in Blume's study which appears to overstate, but which ultimately understates, the benefits of the program. Blume found that average gross monthly earnings per trainee increased by $160.75. He then concludes that this means an adjusted gross annual increase in earnings of $1,929 per trainee assuming a 100 percent employment rate (12 · $160.74).[5] Later, he deducts taxes from the $1,929 figure at a 20 percent rate and uses the result ($1,543) as a measure of the private benefits per trainee of the program. His own data, however, indicate the assumption of a 100 percent employment rate is incorrect. He shows that the average number of months that AVT trainees were employed in the pre-training period was 5.7 months,[6] and that because of training the trainees were employed an average of 3.5 more months per year.[7] This means that in the post-training period the AVT trainees were employed an average of only 9.2 months per year--not twelve. The correct calculation of the private benefits per

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[5] Ibid., pp. 160-161.

[6] Ibid., p. 108.

[7] Ibid., p. 161.

trainee of the AVT program would be:

[28]

$$B_{p_i} = [(I_{a_i} - I_{b_i}) - TX_i]^*$$

where

B_{p_i} = net private benefits to trainee i of the AVT program

I_{a_i} = gross annual earnings of trainee i after training

I_{b_i} = gross annual earnings of trainee i before training

TX_i = the taxes paid on $I_{a_i} - I_{b_i}$

* = symbol to indicate the amount in brackets has been adjusted for the effects of changes in demographic factors and the level of economic activity.

It can be shown that average monthly earnings of the AVT trainees in the pre-training period was \$169.[8] Since they were employed an average of 5.7 months per year, this makes I_b equal to \$963. Monthly earnings in the post-training period increased by approximately \$161 to \$330 per month. Hence, I_a equals \$330 times 9.2 or \$3,036. The gross increase in annual earnings for the average AVT trainee was $I_a - I_b$ or \$2,073. Blume would deduct 20 percent from this for taxes for a net increase in annual earnings of \$1,658,[9] rather than \$1,543.

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[8] Ibid., p. 108.

[9] In view of the level of this post-training gross

In arriving at his estimate of a social benefit-cost ratio for the AVT program, Blume uses as his measure of social benefits the net (of taxes) private benefits of the program.[10] However, the gains from training to society are the total gains in real output which would be reflected in the trainee's gross earnings. The social benefits per trainee of the AVT program would be $2,073 derived in the following manner:

[29]

$$B_{S_i} = (I_{a_i} - I_{b_i})*$$

where

B_{S_i} = societal gains from training trainee i

I_{a_i}, I_{b_i}, * are defined as in equation [27].

Table XXII illustrates estimates of various economic measures associated with the two programs for comparative purposes.

Two precautions concerning a comparison of the measures bear repeating. First, because the findings in this study suggest that Blume's adjustment of the earnings and employment measures for the effect of economic activity changes may have been too large, it is

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earnings figure a 20 percent tax rate seems excessive. If the tax bill for each individual trainee was calculated it is quite probable that the average deduction would be under 20 percent. For example, by using this procedure in the OJT study, the average tax rate turned out to be only three percent.

[10] Blume, pp. 164-165.

quite possible that all the AVT figures are underestimated. Secondly, the $129 and $1,658 measures of private benefits are in all likelihood understated because of the high tax rate which Blume employed.

TABLE XXII

A COMPARISON OF ECONOMIC MEASURES OF THE AVT AND OJT PROGRAMS

Description	Revised AVT Estimate	OJT Estimate
Adjusted gross increase in monthly earnings per trainee	$ 161	$ 131
Adjusted net increase in monthly earnings per trainee	$ 129	$ 125
Adjusted increase in average number of months employed annually	3.5	3.4
Adjusted net increase in annual earnings per trainee	$1,658	$1,970
Adjusted benefits to society per trainee	$2,073	$2,034
Average direct costs of training each trainee	$5,472[a]	$1,010

[a]Blume, p. 166.

The cost figures in Table XXII should serve as a vivid reminder of the fallacy of simply comparing the benefits of different programs without taking into

account the costs of securing those benefits. The direct cost of AVT is over five times that of OJT. Even if the AVT benefit figures are understated it is obvious they are not five times greater than OJT benefits. It is useful at this point to compare the social benefit-costs ratios of the two programs. Sensitivity analysis is again employed to derive the ratios using different combinations of discount rates and time horizons. The OJT ratios are in parentheses.

TABLE XXIII

SOCIAL BENEFIT-COST RATIOS FOR THE AVT AND OJT PROGRAMS

Discount Rate \ Time Horizon		5 Years	10 Years	36 Years
6%	AVT	1.6	2.8	5.5
	OJT	(8.7)	(14.8)	(29.4)
10%	AVT	1.4	2.3	3.7
	OJT	(7.6)	(12.4)	(19.5)

The evidence in Table XXIII suggest that the BIA consider placing more emphasis on the on-the-job training program rather than the institutional training component in an attempt to upgrade the skills of the American Indian. However, the reader should be cognizant of the limitations

inherent in decision-making based strictly on a comparison of benefit-cost ratios. First, it is not clear what the "scale effects" of expanding or contracting the programs may be. It may be that an expansion in the OJT program could run up against severe diseconomies (or economies) of scale so that at higher levels of operation, the OJT program would produce a smaller (larger), perhaps a much smaller (larger), ratio than operations at the past level. The same possibilities exist for the AVT program. Secondly, neither the present study nor Blume's made any attempt to determine if the AVT or OJT programs have been administered in the most efficient manner possible. It may be that AVT has been administered much less efficiently than OJT, so that if the efficiency of AVT operations were improved, its benefit-cost ratio might equal or possibly surpass that of OJT. Of course, the evidence could just as easily reveal that OJT is presently run much less efficiently than AVT so that the differences in ratios illustrated in Table XXIII might be even larger. Thirdly, it is apparent that there are externalities that arise because the trainees engaged in either AVT or OJT, but it may be that the magnitude of the externalities attributable to each program are significantly different. For example, unlike OJT, the AVT program provides supportive services such as courses in reading, writing, mathematics, public speaking, etc. There are psychic benefits which AVT trainees receive from taking these courses which

are not enjoyed by OJT trainees. There may or may not be off-setting benefits which OJT trainees enjoy which in turn are not available to AVT trainees. Whatever the case, without a reasonable knowledge of the magnitudes of the externalities attributable to each program, the decision-maker should exercise caution in making decisions strictly on the basis of comparative benefit-cost ratios.

There is one statutory hurdle which is hindering the Bureau's efforts to redirect Indians from the AVT into the OJT program. Each Indian is eligible for twenty-four months of training subsidized under P. L. 959. Therefore, participation in one type of training precludes entry into the other to an equal extent. According to both BIA officials and former Indian trainees this constraint is a strong disincentive to "take a chance" on an OJT assignment which may not be satisfactory from either the employee or employer standpoint. The risk involved is the loss of eligibility and priority in the queue of applicants for institutional training. This risk is magnified by the knowledge that many of the institutional training programs are of two-year duration, so that the use of any of the twenty-four months eligibility bars an Indian from subsidized participation in such curricula.

Actually, much uncertainty on the part of Indians concerning OJT is unfounded and might be removed through the use of the information contained in this study. The evidence in Table XXII should eliminate any preconception

that the AVT payoffs are greater than OJT payoffs. Furthermore, the tasks which OJT participants perform enable them to acquire skills which are useful in many other firms. This was confirmed during interviews with management officials in the firms in this study. In addition, if Congress could be persuaded to remove the statutory stipulation that OJT time be deducted from potential AVT time, more Indians might be persuaded to take OJT and possibly never require the more expensive AVT.

Conversations with Bureau officials in the Oklahoma region reveal that they connect AVT training with mobility characteristics. If Indians are willing to move geographically they are placed in the AVT or DE programs. OJT contracts are secured to service those Indians who are geographically immobile. There is no reason why the OJT contracts cannot also be used to service those who are mobile, too. For example, the Bureau should have no difficulty in obtaining OJT contracts with large manufacturing concerns in Tulsa, Oklahoma City, and other urban areas in Oklahoma. Prospective trainees should have no difficulty in discerning that a job in one of these firms means the acquisition of a useful skill. In addition, the evidence that AVT is much more expensive than OJT suggests a possible source of substantial reductions in BIA outlays per trainee in a switch from AVT to OJT in these areas. As a matter of fact, BIA officials indicate that wage subsidies may not be necessary at all in the major urban areas because they say any Indian who wants a job there can get

one. Perhaps all that is needed is to make Indians aware of the employment opportunities available in these areas and the provision of funds for relocation expenses. This might be handled within the established Direct Employment Assistance Program (DE) framework.

The Present BIA-OJT Program

From the time P. L. 959 became operational in 1958 until the cut-off date of this study, 1967, the BIA initiated and completed OJT contracts with nine firms involving 226 persons. Their efforts in this area have stepped up considerably since that time. During the time period January, 1968, through May, 1969, the Bureau had contracts in force with eleven new firms. One hundred and ninety-seven Indians have begun training so far in these new firms. Their progress through May, 1969, is illustrated in Table XXIV.

Completion rates have not improved in the new contracts. It may be recalled that fifty-two percent of the participants in this study completed their training.[11] To date, the proportion of non-completions and completions is about the same in the new contracts. Some of the newly contracted firms, e.g., firms twelve and seventeen, have not begun training Indians because funds have not been released yet.

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[11] See Table IV, p. 57.

TABLE XXIV

STATUS OF PRESENT BIA-OJT CONTRACTS

Firm	Number to Receive Training	Number Entering Training	Number of Completes	Number of Non-Completors	Number Still in Training
10	54	54	27	24	3
11	24	15	1	12	2
12	10	0	0	0	0
13	89	35	0	2	33
14	17	5	1	1	3
15	25	16	3	11	2
16	*	41	27	7	7
17	29	0	0	0	0
18	25	18	0	10	8
19	10	1	0	1	0
20	*	12	11	1	0
Totals		197	70	69	58

*Information not available

Area officials report that due to an increasing knowledge of the availability of the BIA-OJT program and due to a very recent influx of firms into the rural Oklahoma area, there has been a marked increase in the desire of firms to participate in the program. As of May, 1969, the Muskogee Area Office has sent nineteen new contracts to the Central Office in Washington for final approval and funding. Potentially, 553 additional Indians may receive on-the-job training under these new contracts.

The employment and earnings change figures tabulated in Table XXII for the Bureau's OJT and AVT programs are impressive. Yet, as significant as these improvements are, they barely scratch the surface of the underlayer of Indian poverty in Oklahoma. One notes that in 1960, nearly sixty percent of the approximately 31,000 Indian males in Oklahoma earned less than $2,000 annually,[12] but mainly due to limited funding, the Employment Assistance Branch of the Oklahoma BIA has only been able to render employment assistance to approximately 1,300 Indians in the last ten years. The task of lifting an appreciable percentage of the Indian population out of poverty is a herculean one Perhaps Sar Levitan put the problem in proper perspective when he wrote:

> One doubts if the task is even within the reach of the present level of federal government expenditures for Indians. Until

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[12]Oklahoma Employment Security Commission, Indians in Oklahoma (Oklahoma City, September, 1966), pp. 26 and 35.

> the nation adopts a comprehensive program supported by adequate funds and actively involving Indian leadership, significant progress toward the elimination of poverty in which our "first Americans" have too long been living is very unlikely.[13]

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[13] Sar A. Levitan, The Great Society's Poor Law: A New Approach to Poverty (Baltimore, 1969), p. 270.

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APPENDIX A

P.L. 959 AND 1961 AMENDMENT

Public Law 959 - 84th Congress

Chapter 930 - 2d Session

S. 3416

AN ACT

Relative to employment for certain adult Indians on or near Indian reservations.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in order to help adult Indians who reside on or near Indian reservations to obtain reasonable and satisfactory employment, the Secretary of the Interior is authorized to undertake a program of vocational training that provides for vocational counseling or guidance, institutional training in any recognized vocation or trade, apprenticeship, and on-the-job training, for periods that do not exceed twenty-four months, transportation to the place of training and subsistence during the course of training. The program shall be conducted under such rules and regulations as the Secretary may prescribe. For the purposes of this program the Secretary is authorized to enter into contracts or agreements with any Federal, State, or local governmental

agency, or with any private school which has a recognized reputation in the field of vocational education and has successfully obtained employment for its graduates in their respective fields of training, or with any corporation or association which has an existing apprenticeship or on-the-job training program which is recognized by industry and labor as leading to skilled employment.

Sec. 2. There is authorized to be appropriated for the purposes of this Act the sum of $3,500,000 for each fiscal year, and not to exceed $500,000 of such sum shall be available for administrative purposes.

Approved August 3, 1956.

Public Law 87-273

87th Congress, S. 200

AN ACT

To amend the Act entitled "An Act relative to employment for certain adult Indians on or near Indian reservations," approved August 3, 1956.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 2 of the Act entitled "An Act relative to employment for certain adult Indians on or near Indian reservations," approved August 3, 1956 (70 Stat. 986), is amended by striking out "$3,500,000" and inserting in lieu thereof "$7,500,000" and by striking out "$500,000" and inserting in lieu thereof "$1,000,000."

Approved September 22, 1961.

APPENDIX B

GENERAL FORM AND CONDITIONS OF A BIA-OJT CONTRACT

GENERAL PROVISIONS

NEGOTIATED CONTRACT

1. Assignment of Claims. (a) Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), if this contract provides for payments aggregating $1,000 or more, claims for moneys due or to become due the Contractor from the Government under this contract may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Any such assignment or reassignment shall cover all amounts payable under this contract and not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing. Unless otherwise provided in this contract, payments to assignee of any moneys due or to become due under this contract shall not, to the extent provided in said Act, as amended, be subject to reduction or setoff. (The preceding sentence applies only if this contract is made in time of war or national emergency as defined in

said Act and is with the Department of Defense, the General Services Administration, the Atomic Energy Commission, the National Aeronautics and Space Administration, the Federal Aviation Agency, or any other department or agency of the United States designated by the President pursuant to Clause 4 of the proviso of section 1 of the Assignment of Claims Act of 1940, as amended by the Act of May 15, 1951, 65 Stat. 41.)

(b) In no event shall copies of this contract or of any plans, specifications, or other similar documents relating to work under this contract, if marked "Top Secret," "Secret," or "Confidential," be furnished to any assignee of any claim arising under this contract or to any other person not entitled to receive the same. However, a copy of any part or all of this contract so marked may be furnished or any information contained therein may be disclosed, to such assignee upon the prior written authorization of the Contracting Officer. (41 CFR 1-7.101-8.)

2. Disputes. (a) Except as otherwise provided in this contract, any dispute concerning a question of fact arising under this contract which is not disposed of by agreement shall be decided by the Contracting Officer, who shall reduce his decision to writing and mail or otherwise furnish a copy thereof to the Contractor. The decision of the Contracting Officer shall be final and conclusive unless, within 30 days from the

date of receipt of such copy, the Contractor mails or otherwise furnishes to the Contracting Officer a written appeal addressed to the Secretary. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this clause, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its appeal. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of the contract and in accordance with the Contracting Officer's decision.

(b) This "Disputes" clause does not preclude consideration of law questions in connection with decisions provided for in paragraph (a) above: PROVIDED, That nothing in this contract shall be construed as making final the decision of any administrative official, representative, or board on a question of law. (41 CFR 1-7.101-12)

3. Covenant Against Contingent Fees. The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon an agreement or understanding for a commission, percentage,

brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty the Government shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee. (41 CFR 1-1.503)

4. Officials Not to Benefit. No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this contract, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit. (41 CFR 1-7.101-19)

5. Examination of Records. (a) The Contractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under this contract, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

(b) The Contractor further agrees to include in all his subcontracts hereunder a provision to the effect

that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of three years after final payment under the subcontract, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this clause excludes (i) purchase orders not exceeding $2,500 and (ii) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public. (41 CFR 1-7. 101-10)

6. Equal Opportunity. The Act of August 3, 1956, (70 Stat. 989; 25 U.S.C. 309) authorizes a program of on-the-job training for adult Indians and as a project authorized under the provisions of the Act, the Contractor will furnish on-the-job training for Indians. Except as regards applicability to Indian trainees, during the performance of this contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color,

or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency Contracting Officer, advising the said labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24,

1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of Paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulation, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order No. 11246 of September 24,

1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for noncompliance: PROVIDED, HOWEVER, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

7. Preference in Employment. Preference in employment for all work to be performed under this contract, including subcontracts thereunder shall be given to local residents subject to the provisions of the preceding clause on nondiscrimination in employment.

8. Representation. The offeror represents that he ☐ has, ☐ has not, participated in a previous contract or subcontract subject to either the Equal Opportunity Clause herein; that he ☐ has, ☐ has not, filed all required compliance reports; and that representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained prior to subcontracts awards. (The above representation need not be submitted in connection with contracts or subcontracts which are exempt from the clause.)

9. Contract Term - Termination - Renewal - Modification. This contract shall be for a term beginning on the date of this contract and ending on June 30, 19 , subject to termination at any time upon 60 days' written notice given by either party to the other. Unless so terminated, the contract may be renewed annually by the Contracting Officer for successive one-year terms commencing July 1 of each year, subject to the availability of appropriations and subject to termination during any such term as provided above. This contract may be modified in writing by mutual consent of both parties.

10. Access to Facilities. The Contracting Officer shall have access to the Contractor's facilities at any reasonable time for the purpose of inspecting and observing the status and progress of the training program and trainees.

11. Reporting Requirements. (a) The Contractor shall report to the Contracting Officer the name of each trainee accepted and employed for training.

(b) Upon termination of any trainee or upon completion of the training period by each trainee the Contractor shall furnish the Contracting Officer with a report.

(c) Reports shall be made on forms furnished for the various purposes by the Contracting Officer and the Contractor shall furnish all information required by the forms.

12. The Parties recognize that processes and techniques in the Contractor's business are subject to change from time to time and that such changes may result in changes in the training afforded trainees. When changes in the Training Program are desirable, the Bureau of Indian Affairs shall be furnished a current Training Program, which shall not be placed into effect until approved by the Contracting Officer.

13. The Parties recognize that due to the nature of the Contractor's business, it will be necessary from time to time for the Contractor to use some of the trainees for short periods of time on other than the specific work for which the trainee was employed. The Contractor shall have the right to do so; however, such time shall not be included as part of the basic training period and shall be compensated for by the Contractor.

14. A trainee hired in an Approved Training Objective may be transferred to another Approved Training Objective whenever the Contractor feels it is in the best interest of the Trainee's skills, aptitudes, and physical adaptation to do so. In cases where the transfer is effected, the time spent in the first Training Objective shall be applied as training in the second Training Objective. The maximum time in the second Training Objective for which the Contractor may claim reimbursement shall be the training period of the second Training Objective less the training time consumed

in the initial Training Objective. Any additional expenses needed to complete the second Training Objective shall be borne by the Contractor unless an extension of the training period is approved as provided under Paragraph 4. Should the time spent in the first Training Objective exceed the training period in the second Training Objective, expenses necessary to complete the second Training Objective shall be borne by the Contractor.

15. Individuals previously trained or partially trained who were involuntarily terminated are to be furnished first consideration for employment and training. The contractor shall have the responsibility for final selection.

16. Training Employment Schedule.

Job Title	No.	Training Period

APPENDIX C

COVER LETTER AND QUESTIONNAIRE

January 6, 1969

PERSONAL AND CONFIDENTIAL

Beginning in 19 , you received on-the-job training sponsored by the Bureau of Indian Affairs. Mr. David Stevens and myself of Oklahoma State University are attempting to find out if your training was satisfactory and if you think it can be changed to better help other American Indians. Therefore, I am asking for a few minutes of your time to answer the questions which are attached. In this way, you can help your tribal members and many other American Indians who will receive similar training in the future.

To make things as easy as possible for you, a stamped envelope has been enclosed for returning the questionnaire. I would appreciate your filling out all of the items on the questionnaire and returning it today.

Your cooperation is the key to a successful evaluation of the program. Let me assure you that your answers will be held in strictest confidence and will not be seen by anyone except Mr. Stevens and myself.

Respectfully,

Loren C. Scott

LCS/jlb

Enclosures

EVALUATION OF ON-THE-JOB TRAINING PROGRAM

Please answer every question so that we can use your experience to improve the training program that others will receive. Your answers will be combined with other trainees' answers so that no one will know what you write down. Thank you.

1. Are you now ☐ Married?
(Check correct Box) ☐ Single?
☐ Other? (Separated, Divorced, Widowed)

2. How many people depend on you to provide at least one-half of the money to support them? (This would include both those who live with you and others who you may help support. If none, use a zero.) Write the number in this **box.** ☐

3. We want to know when you were working and not working, from _____ until the present time. It is very important that you tell us about your activities for the entire time.

Start with what you were doing in _____, and show each job held since then up to the present time.

For times when you were not working, show the dates, write UNEMPLOYED, and say why you were not working.

FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $_____ each _____ (hour, week or month?)		IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?
FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $_____ each _____ (hour, week or month?)		IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?

FORMS ARE CONTINUED ON NEXT PAGE.

FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $______ each ________ (hour, week or month?)	IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?	
FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $______ each ________ (hour, week or month?)	IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?	
FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $______ each ________ (hour, week or month?)	IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?	
FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $______ each ________ (hour, week or month?)	IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?	
FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $______ each ________ (hour, week or month?)	IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?	
FROM:	EMPLOYER	LOCATION OF FIRM
TO:	WHAT KIND OF WORK DID YOU DO?	AVERAGE HOURS WORKED PER WEEK
MONEY MADE: $______ each ________ (hour, week or month?)	IF NO LONGER WORKING HERE, WHY DID YOU LEAVE?	

FORMS ARE CONTINUED ON NEXT PAGE.

4. When you were in the on-the-job training program, how many **WEEKS** did it take you to learn to do your job without help. Write the number in this box. ☐

5. Which of the following statements best describe the help that you received in learning your job while in on-the-job training?

(Check correct Box)
- ☐ The help I received in learning my job was good.
- ☐ The help I received in learning my job was acceptable.
- ☐ The help I received in learning my job was bad.

6. How did you get into the on-the-job training program?

(Check correct Box)
- ☐ I went to the Bureau of Indian Affairs and asked them to place me in the program.
- ☐ The Bureau of Indian Affairs asked me to participate in the program.
- ☐ Other (how?) _____

7. Which of the following best expresses your opinion about the training you received?

(Check correct Box)
- ☐ The training has helped me **very much** in getting better jobs.
- ☐ The training has been of **some use** to me in getting better jobs.
- ☐ The training has not helped me get better jobs.

8. Which of the following best expresses your opinion about the training you received?

(Check correct Box)
- ☐ The training has helped me **very much** in making more money.
- ☐ The training has been of **some use** to me in making more money.
- ☐ The training has not helped me make more money.

9. Do you provide over one-half the money to support your household?

(Check correct Box)
- ☐ Yes
- ☐ No

10. Sometime since you entered training your family may have received money from **sources other than your jobs**—such as other workers in the family, unemployment compensation, social security payments, welfare payments, tribal per-capita payments, and others. Which of the following best describes the **average** amount of money you have received **each year** since you entered training from sources **other than your jobs?**

(Check correct Box)
- ☐ None
- ☐ $1 - $500
- ☐ $501 - $1,500
- ☐ over $1,500

QUESTIONNAIRE CONTINUED ON NEXT PAGE.

11. What did you like about your training?

12. What did you **not** like about your training? How can the training be changed to better help the American Indian?

13. Do you think that your being an Indian has made it hard to find good jobs? If so, in what way?

VITA

Loren Charles Scott

Candidate for the Degree of

Doctor of Philosophy

Thesis: AN ECONOMIC EVALUATION OF ON-THE-JOB TRAINING CONDUCTED UNDER THE AUSPICES OF THE BUREAU OF INDIAN AFFAIRS IN OKLAHOMA

Major Field: Economics

Biographical:

Personal Data: Born in Odessa, Texas, January 25, 1942, the son of Mr. and Mrs. Jack M. Scott.

Education: Graduated from Permian High School, Odessa, Texas, in May, 1960; attended Odessa Junior College from 1960-62 and received the Associate in Applied Science degree; attended Texas Technological College from 1962-66, receiving the Bachelor of Science degree in May, 1965, and the Master of Arts degree in August, 1966; completed requirements for the Doctor of Philosophy degree at Oklahoma State University in August, 1969.

Professional Experience: Served as graduate teaching assistant two semesters at Texas Technological College and taught labs in Development of Business Enterprise; served as graduate teaching assistant five semesters at Oklahoma State University and taught Principles of Economics for four of those semesters; was on dissertation research grant from February through August, 1969.

Professional and Scholastic Organizations: American Economic Association; Phi Kappa Phi; Omicron Delta Epsilon; Phi Theta Kappa.

Other Scholastic Information: Recipient of Odessa College Tuition Scholarship, Spring, 1960;

recipient of two scholarships at Texas Technological College, 1964 and 1965; National Science Foundation Summer Research Traineeship, 1968; ranked seventh academically in undergraduate graduating class.