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The Economic Importance of International Assistance Activities at Utah State University

E. Boyd Wennergren
Utah State University

Maria Lourdes del Rosario Juan
Utah State University

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ECONOMICS RESEARCH CENTER

Utah State University
Logan, Utah 84322

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Department of Economics
Utah State University
Logan, Utah 84322

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EXECUTIVE SUMMARY

In 1951, Utah State University became one of the first four Land Grant Universities to participate in U.S. technical assistance programs directed to the developing nations of the world. Since that early program in Iran, USU faculty have assisted in comparable developmental activities in many parts of the world. In the process, USU has attained a premier reputation for the high quality of its faculty and program achievements.

The study reported here focuses on the international dimension at USU in terms of its magnitude and the importance of the activities to the state of Utah. Four types of impacts are discussed: 1) Economic Effects of Technical Assistance Contracts, 2) Importance of International Students, 3) Results on Technology Transfer and International Commerce, and 4) Modifications of the Quality of Education. These four areas are first discussed in qualitative terms to provide a conceptual basis for understanding the overall importance of international programming at USU.

Two of the four impacts of international assistance were subjected to quantitative analysis to demonstrate their economic importance. The objective of that phase of the study was to estimate the monetary amounts of both technical assistance contracts at USU and the expenditures of international students attending the university. The effects of these added values on the economy of the state were analyzed using input/output analysis.

Results of the empirical analysis showed the following:

1) Since 1951, international assistance contracts at USU have amounted to an estimated $29.8 million. This averages a bit over $1.0 million annually.

2) Slightly more than one-half of the contract activity has occurred since 1972 with the annual amounts during those years (1972-79) approximating $2.0 million.

3) Of the total contract amounts, an estimated $19.6 million has been expended in Utah.

4) During the 29 years analyzed, international activities have generated an estimated $4.0 million in overhead returns for the state, or an average of $140,000 per year. Since 1972, the annual overhead returns have approximated $250,000.

5) The estimated salary support from international contracts (primarily for faculty abroad, but including short-term consultants and limited on-campus support) represents about 17.3 person years annually.

6) Major long-term technical assistance contracts have been completed in 10 developing nations while three such projects are currently in process.

7) The 924 international students at USU in 1979 expended an estimated $7.9 million, for an annual average of $8,591 per student.

8) Fifty-six percent of their expenditures were on tuition, food, and housing. From 1977-79, international students spent at least $1.0 million dollars annually on each of these items.

9) From 1951-79, international students' expenditures averaged $2.2 million annually in Utah, with considerably higher amounts occurring in more recent years.

10) Based on an input/output analysis for 1979, the overall multiplier effect of the USU technical assistance activities was 2.13.

11) In dollar terms, the $9.6 million expended in 1979 in Utah for technical assistance contracts and by international students generated approximately $20.0 million in economic activity.

These estimates of economic benefits represent a gross approximation of dollar amounts associated with two of the four aspects of international activities at USU. The absence of accurate data for some years made precision difficult, but the magnitude of the university's involvement is validly indicated. The values recorded in very recent years are in reality only a fraction of the potentials for expanded international activities, especially in relation to technical assistance contracting.

A conscious effort to increase the university's participation in international technical assistance and related activities would benefit the university and the state of Utah. These activities introduce "new dollars" to the economy, while tending to be low cost additions requiring minimal pre-investments by the university. The university's commitment to internationally related activities should be increased, however, only within a process that effectively integrates them into the structure and mission of the university.

Acknowledgment

The comments of former USU Directors of International Programs, Austin Haws, Clark Ballard, and Bruce Anderson; and colleagues Keith Roberts, Bartell Jensen and Herb Fullerton are gratefully acknowledged as is the editorial assistance of Lois Cox. However, the views and any errors are entirely the responsibility of the authors.

THE ECONOMIC IMPORTANCE OF INTERNATIONAL ASSISTANCE ACTIVITIES AT UTAH STATE UNIVERSITY

E. Boyd Wennergren*
and
Maria Lourdes del Rosario Juan

Historical Perspective

International economic cooperation and assistance to the developing world is, for the most part, a phenomenon of the post World War II period. The movement began with Congressional approval of the Marshall Plan for European reconstruction and was given more specific focus and impetus by President Truman in what became popularly known as the "Point Four" program. In his 1949 inaugural address, President Truman said,

> "Fourth, we must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas.
>
> More than half the people of the world are living in conditions approaching misery. Their food is inadequate. They are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas.
>
> For the first time in history humanity possesses the knowledge and the skill to relieve the suffering of these people.
>
> The United States is preeminent among nations in the development of industrial and scientific techniques. The material resources which we can afford to use for the assistance of other peoples are limited. But our imponderable resources in technical knowledge are constantly growing and are inexhaustible.
>
> I believe that we should make available to peace-loving peoples the benefits of our store of technical knowledge in order to help them realize their aspirations for a better life. And, in cooperation with other nations, we should foster capital investment in areas needing development."[1]

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*Director of International Programs, and Professor of Agricultural Economics; Graduate Assistant, Department of Economics, respectively.

[1]Inaugural Addresses of Presidents of U.S., 1789-1973, Vol. 5-10, 93d Congress, 1st Session, January 3 - December 22, 1973, House Documents 93-208, U.S. Government Printing Office, Washington, D.C., 1974.

Since then, the United States has accepted improving the economic welfare of developing nations as an integral part of its foreign policy. The rationale for this commitment ranges from a humanitarian responsibility to the world's needy to self-interest as reflected in development and politicial priorities of the United States. The commitment of the United States to providing economic and technical assistance to developing nations has expanded since 1949, but has periodically faced the critical evaluation of public opinion and Congress. While these criticisms have caused vacillations in the level of support, the United States' allocation is generally about $3 billion annually, which represents less than 0.5% of the Gross National Product. Nations, as recipients, qualify on the basis of criteria set by the U.S. Agency for International Development (USAID), a federal entity established by Congress to administer the economic assistance program.

The vital need for professionals who would provide in-country technical help to these nations was recognized early in the technical assistance program. The U.S. university system with its teaching, research, and extension expertise was a logical source for the required talent. Land Grant Universities were singled out for a special role because they had so effectively supported the evolution of a highly efficient agricultural sector in the United States. Developing nations are mostly agrarian, and their national priorities generally favor developing the agricultural sector.

Initially, five land grant institutions were asked to provide assistance abroad under "Point IV" sponsorship: 1) Utah State University (Iran), 2) University of Arizona (Iraq), 3) University of Arkansas (Panama), 4) Purdue University (Brazil), and 5) Cornell University (Philippines).[2] USU was the first of this initial group to place scientists in the field and therefore the first U.S. university to establish a formal, long-term technical assistance program abroad.

For nearly three decades (beginning in 1951), USU faculty members have participated in both long-term projects and shorter term consultancies throughout the world. Besides the initial project in Iran (1951-61), USU has directed long-term projects in: 1) Bolivia, 2) Brazil, 3) Iran, (a later project was interrupted by that country's internal problems, 4) Venezuela, 5) Colombia, Chile, Ecuador, Guatemala, and Honduras (a regional project), 6) Peru, 7) Cape Verde, and 8) Tanzania. In addition, the University has collaborated with outside contracting groups such as the Consortium for International Development and other universities by providing long-term staff for overseas assignments. Few regions and nations in the developing world have not had short-term consulting assistance in many disciplines from one or more members of the USU faculty. USU thus has gained extensive experience and competence in giving help throughout the world and has earned a premier reputation for the quality of its work.

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[2] Richardson, John Martin, "Partners in Development - An Analysis of AID/University Relationships, 1950-1966", MSU Press, East Lansing 1961, p. 18.

Rationale for University Participation in Technical Assistance Activities[3]

U.S. university involvement in technical assistance programming did not evolve without problems which have challenged both the management capability of each university and the basic rationale for university participation. On the other hand, these activities have exerted positive impacts on the universities and their states. The balance between the positive and negative issues related to university involvement is increasingly important since the U.S. university system houses the greatest concentration of scientific talent in the world. As global demand and supply imbalances for food intensify, this talent must be organized and systems developed to make it readily available to meet the needs of the developing world and ultimately the developed world. If universities are properly organized and committed, they can effectively transfer their technology and knowledge on a scientific, non-political basis.

USU is not uniquely different from other universities in confronting problems and issues because of its participation in technical assistance programs. What is said concerning the university system can generally be applied to USU and vice versa. USU has been motivated to sustain its relationship with U.S. assistance abroad on the basis of a felt responsibility to apply its expertise to solving problems which lie beyond the borders of the state of Utah. This philosophy was expressed by USU President Franklin S. Harris during his visit to Iran in 1939 at the invitation of that Government. But the foundation for these formal arrangements was prepared as early as 1912 by USU President John A. Widtsoe through the personal relationships he established with international representatives.[4] The commitment has remained valid through succeeding University administrations and was reiterated by President Stanford Cazier in recent testimony before a Senate Appropriations Subcommittee. President Cazier said,

> "I concur wholeheartedly with the position taken by the Presidential Commission on World Hunger in its preliminary report issued December 1979. The major recommendation of that report is that "the United States make the elimination of hunger the primary force of its relations with the developing world." It predicates that recommendation on a three-pronged rationale:
>
> 1. It is our moral responsibility to do so in view of our unique capability.

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[3] For a general discussion of this topic see: Turk, K.L., Darl E. Snyder, and J. T. Scott "Rationale for Involvement of University in International Education, Research and Development". Association of United States University Directors of Int'l Ag. Programs (AUSUDIAP), Publication No. 2, March, 1979.

[4] "Iran and Utah State University. Half a Century of Friendship and a Decade of Contracts." Utah State University, Logan, Utah, p. 7.

2. However paradoxical it may appear, it is in the economic interest of the United States to be so committed.

3. The United States has a vital security interest in attacking the problem of world hunger . . ."

"We (at Utah State) are committed to continuing the relationship between the U.S. development program and U.S. universities. We endorse the broad concepts that Congress approved by enacting the Title XII Amendment to the Foreign Assistance Act of 1975. In particular, we commend the mandate that universities should have a significant role in technical assistance, and the recognition of the need for a dependable source of federal funding to facilitate university participation in future efforts to assist developing nations."

"A major consideration of U.S. foreign aid should be to strengthen international agricultural development. This can best be done by giving high priority to the development of indigenous human resources and institutions that serve agriculture. The U.S. university community has special advantages over other multilateral developmental institutions to assist in this effort. Training and institutional building are among the things universities do best."[5]

Clearly, there are pragmatic concerns which affect the university's commitment to placing its faculty and expertise abroad. These include:

1) Economic Impact of Technical Assistance Contracts

All agreements to involve USU personnel abroad are covered by formal contracts between the university and the donor agency, i.e., USAID, World Bank, United Nations, etc. These contracts provide for budgetary support for all aspects of programming costs incurred by USU during contract administration. Faculty salaries abroad, transportation and shipping, supplies, and equipment are just a few examples of the costs paid by the contract in support of its activities. These contract monies have a positive impact on the local economy of Cache Valley and the state. Such impacts can be sizeable when large portions of the contract funds are expended in Utah for supplies, transportation, etc. Salary monies for USU faculty are disbursed through the regular university payment system and deposited in local banks. Only a portion is usually spent outside the U.S. Virtually all savings remain in local savings and investment accounts. Of added economic significance are the indirect costs paid by the contract to the university and state as overhead. International contracts pay the full indirect cost rate of the university for both faculty abroad and those who provide on-campus backup for the project. Currently, indirect costs represent 30 percent of overseas salaries and 60 percent of salaries for personnel assigned to the campus.

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5 Statement by President Stanford Cazier, Utah State University, before the Subcommittee on Foreign Operations of the Senate Appropriations Committee, April 1, 1980.

It should be emphasized, however, that while these instate expenditures impact on the economy of the state, all such expenditures are in support of the program being carried on in the developing country.

2) Importance of International Students

The involvement of USU abroad has been an important factor in attracting students from other nations to the USU campus. While some international students would attend USU irrespective of the university's overseas presence, there is no doubt that the programs abroad have significantly enhanced the number of students attending USU. The early relationships with Iran, for example, were associated with a continuing flow of students from that country. The same is true, though to a lesser degree, for almost every country to which the university has sent long-term advisory groups. Most international donors place considerable emphasis on having local participant trainees study abroad, which obviously increases the supply of students attending universities in the United States. These plus the international students who come with other sources of support, economically affect the state. They expend considerable monies on university fees, housing, taxes, entertainment and consumer items. Their per capita expenditures are probably more significant to the state's economy than those of other groups such as recreationists for which tax dollars are expended to promote visitations to Utah. International students on campus also extend the cultural dimension of the university and community. Domestic students, faculty, and townspeople benefit from the exposure to the cultural and social differences associated with students from a variety of nations.

3) Impact on Technology Transfer and International Commerce

Participation in foreign assistance offers the citizens of Utah benefits from interchanges of knowledge and information plus commercial trade contacts. This two-way flow of benefits is often overlooked as the United States transfers its expertise and technology to the developing world. Most developing nations have indigenous or "wild" varieties of crops that often are of potential use to U.S. agriculturalists. One dramatic result of this "reverse" flow of information to Utah was associated with tomato production. In the 1930s, Dr. H. Loran Blood of USU collected many indigenous tomato types from several countries in South America.[6] Although Dr. Blood died unexpectedly, his work and that continued by his associates such as Dr. Orson S. Cannon brought revolutionary developments to U.S. tomato production. Many new and disease resistant varieties of tomatoes for commercial and home production were developed. A major taxonomic revision of the tomato genus Lycopersicon resulted from introducing the South American collection.

USU staff members report that in Bolivia, for example, there are approximately 500 indigenous varieties of potatoes in their research nurseries and it is believed there are at least 500 more wild varieties in Bolivia that have not yet been collected. Any of these potatoes

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[6] A History of Tomato Breeding in Utah. Orson S. Cannon, College of Science Convocation presentation for the 90th anniversary of the founding of USU, March, 1978.

that provide resistance to cold, diseases, insects and have a quality that is desirable in the new methods of freezing, drying, or otherwise processing potatoes could result in enormous financial benefits to U.S producers.

Interchanges and linkages are not restricted to agriculture, even though this sector is the most likely recipient of such benefits due to the programming priorities it is given worldwide. Education, health, and international commerce are just a few of the other likely beneficiaries. Private sector benefits can also be realized by Utah businessmen engaged in international commerce as relationships are improved and new contracts made. One past example was the development of an artificial insemination training program and sales of semen by the Cache Valley Breeding Association to agencies in Guatemala.

4) Impact on Quality of Education

The curriculum enrichment international involvement brings to the educational process at USU is another remarkably positive result of this activity. Faculty who serve overseas develop a new perspective in their discipline which can give an added dimension of quality to the courses they teach. Departmental curriculum also benefits as courses are reoriented and changed to reflect this added perspective. Student interest in foreign situations is stimulated and the usefulness of their education is enhanced as the scope of their subject areas is extended to the international arena. Community interrelationships with the university are also improved as returning faculty are invited to address community groups and sometimes motivate action programs by civic and church groups. USU's relationship in Bolivia is one such example whereby the activities were eventually carried to the point of local grade school children pormoting fund drives to build elementary schools in Bolivia under program auspices of the Utah Partners of the Alliance.

UNIVERSITY INCENTIVES

The willingness of a university to commit itself to foreign assistance activities is partially determined by the costs (if any) which must be incurred. Contract agreements for specific projects should obviously meet the costs of implementation. The process of making a long-term commitment to international programs, however, requires that these activities be institutionalized into the university structure. Real costs arise from that process as well as from the implementation of specific projects which are relevant to both the decision to become involved and the successful operation of individual contracts.

College/Departmental Incentive Structure[7]

The responsibility for implementing technical assistance projects using university faculty falls on the college and department

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[7] For a more complete discussion of these issues, see, Whitaker, Morris D. and E. Boyd Wennergren, "U.S. Universities and the World Food Problem", Science, Vol. 199, October 29, 1976, pp. 497-500.

administrators. These units house and direct the technical manpower resources of the university. They also administer the domestic research, teaching, and extension programs within their discipline. A foreign project simply adds another dimension to already existing program responsibilities. When faculty go abroad for long-term assignments, resulting readjustments within the departmental structure can jeopardize existing programs. The overseas contract usually demands experienced faculty who by definition are equally needed by domestic programs. Their vacated teaching, research, and extension responsibilities must be accepted by someone else if domestic programs are to continue. Without proper management and financial support, this replacement process can lead to a reduction in domestic program quality, at least initially. Since the replacement faculty member generally cannot be offered employment beyond the time of expected absence for the faculty going overseas, replacements seldom include experienced faculty of the calibre being lost.

This disruption in domestic programming constitutes a negative incentive for college/department leadership. The disincentive is further heightened by more directly urgent domestic programs exerting more immediate pressures. In the case of agriculture, for example, if Utah's best wheat agronomist is sent abroad, there is a high probability that his absence will draw a negative reaction from local wheat producers. That probability is increased if domestic program quality is reduced by his departure. Yet, if a commitment to international involvement is to be successful, the foreign program must be integrated within the college/department domestic program and have the support of faculty and unit leadership.

Under present conditions, Deans and Department Heads are justifiably reluctant to integrate the international dimension. Not only must they face potential disruptions and criticisms, but they must also bear the risks of providing a salary to both the old and the new faculty member should difficulties arise with the foreign contract. If the contract is prematurely terminated, the administrators could find themselves committed to two faculty members but with only one funded domestic position. Also, the rotation of faculty between domestic and foreign projects can result in periods of duplicate staffing that require double salaries. Unfortunately, current contracting procedures with international donor agencies fail to recognize all of the "real" costs of university involvement in overseas contracts. Until they do, these costs are borne by the university.

Faculty Incentives

The individual faculty member who temporarily changes assignment by going abroad must consider several professional issues when making a decision. What will happen to his research and/or teaching programs while he is away? Will they be reassigned to him when he returns? Furthermore, the assignment abroad may involve work not sufficiently sophisticated or a time period insufficient to generate adequate professional output for promotion and tenure credits within the department.

Economically, concerns about salary differentials abroad and income tax regulation that may affect his net income position are paramount. Also, because the assignment will require two to three years abroad, will he be treated fairly on annual salary adjustments, promotions and academic positions? Although these are mostly administrative concerns, they are nevertheless real and worrisome.

Coupled with these considerations are the problems associated with family relocation and adjustments to a totally new environment. Issues of family safety, health, education and disruption of existing social relationships with school, church and extended family are all important to the decision process. Where negative incentives exist, they represent costs which are generally borne by the individual and not the university. Nonetheless, they are relevant to the total commitment of the university and its success abroad, since program performance is directly related to the quality and quantity of faculty assigned.

OBJECTIVES OF THE STUDY

The study reported herein was designed to analyze the economic importance of USU's international relations to the state of Utah. The reader should be aware that the international activities studied are those typically associated with food and fiber production and marketing programs of the U.S. Government. More recently, these have been defined by the Title XII Amendment to the Foreign Assistance Act. Not included in this analysis are other phases of university grant-supported research that may have international implications. The extensive atmospheric research program at USU is one such activity which is not represented in this analysis. Due to resource and measurement limitations, not all benefits and costs (as just discussed) could be included in the analysis.

Consequently, the specific objectives of the study were:

1. To determine the monetary value of technical assistance contracts conducted by USU.

2. To estimate the local expenditures of international students attending USU.

3. To estimate the economic impact of these two benefits on the economy of the state of Utah.

METHODS AND PROCEDURES

To fulfill these objectives, primary data were obtained on the dollar amounts of prior USU technical assistance contracts and the expenditures made by international students associated with the university. The level for each of these two impacts were estimated annually for the period 1951-1979, inclusive.

International Technical Assistance Contracts

Data used in estimating the quantity of technical assistance contracts were obtained from existing records at the university and personal interviews with knowledgeable faculty who had participated in various projects. Since 1973, the data on all university contracts have been computerized and were readily obtained from monthly financial printouts using the list of projects maintained in the Contracts and Grants Office. Total contract amounts plus sub-classifications for salaries, staff benefits, travel, current expenses, equipment purchases and indirect costs were identified from this source.

For years prior to 1973, other sources of information were used. Several university publications and contract termination reports held in the controllers office contained summaries of program finances. The major difficulty arose with the initial Iranian contract (1951-61), since contract records for this period were not complete. To estimate the value of these contracts, a list of person months for faculty assigned to the project was obtained from a reliable end of contract report.[8] Salary figures for each individual were obtained from microfische records. Based on the experience of people involved in the project and the records of other technical assistance projects, it was assumed for estimation purposes that salaries represented 20 percent of total contract costs. Consequently, total contract costs were estimated by increasing contract salary costs by 80 percent.[9]

In addition, records of short-term activities by university faculty were not available for the years prior to 1965. Consequently, the estimates of total contract activity in these earlier years are likely to be considerably understated.

International Student Expenditures

Data on international student expenditures were developed from a survey of these students during November and December, 1979. The sample was drawn from a population list of international students maintained by the International Student Office at USU for spring quarter, 1979. The sample was chosen using a stratified sampling process with a random start. All nations with student representation at USU were grouped into seven major regions consistent with the classification used by the International Student Office. The regions were: Africa, Asia, Canada, Europe, Mexico, Central America and Caribbean, South America and Oceana.

A fifty percent stratified sample was chosen from each region based on a total population of 907 international students. A preliminary

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[8] See: "Iran and Utah State University. Half a Century of Friendship and A Decade of Contracts", Utah State University, Logan, Utah, Appendix C, pp. 135-143.

[9] Appendix Table 1 contains the detailed estimates for Iran by year, 1951-61.

test of the survey questionnaire and the known mobility of students (which can reduce the response) were the basis of the large sample size. With follow-up efforts, the response rate was 36 percent. The number of questionnaires sent and returned for each region are shown in Appendix Table 2.

The 1979 survey was used as the basic data set for estimating international student expenditures for each year from 1951-1978. The 1979 average expenditures per students were adjusted by the Consumer Price Index for each of the previous years to estimate the annual per student expenditures per year. The total expenditures were derived by multiplying the C.P.I. adjusted average per student expenditure by the number of students enrolled at USU for each year. This procedure assumes that average expenditure per student among years 1951-78 increased in relation to general inflationary changes only and that no shifts in demand were present. This probably understates the expenditure estimates.

In addition to the expenditure data, other data were solicited from the questionnaire to develop a profile of international students. Such characteristics as age, sex, marital status, class rank, area of study and length of stay at USU were used to cross-classify the analysis of expenditure data.

Input/Ouput Analysis

Input/output analysis was used to measure the impact of international projects and student expenditures on the Utah economy. The analysis utilized the 80 sector input/output transaction table developed by the Bureau of Economic and Business Research at the University of Utah, which is based on a 1972 survey. For purposes of this study, the Bureau's 80 sector model was aggregated into 46 processing sectors. All sectors with zero gross output were dropped from the model (See Appendix Table 3).

The 1972 model was adjusted by estimating new gross output and final demand vectors for each year from 1951-79. The new vectors were estimated on the basis of a correction factor using the ratio of state personal income in each year to state personal income in the base year (1972) as follows:

$$\text{Correction Factor (I)} = \frac{\text{State Average Personal Income (I)}}{\text{State Average Personal Income (1972)}}$$

Where: I goes from year 1951 to 1979.

Two measures of the impact of international benefits on the state economy were calculated for each year from 1951-79. First, the multiplier effect (Type I multiplier) was measured for each of the 46 vectors in the model plus an overall average. The multiplier measures the increase in economic activity related to each dollar of new expenditures from international efforts at USU. A second measure of impact was the percentage change in gross output for the state of Utah associated with

the increased expenditures from international activites. The percentage change was calculated as:

$$\frac{\text{(Estimated Gross Output with New Expenditures)} \quad \text{Minus} \quad \text{(Original Estimated Gross Output)}}{\text{Original Estimated Gross Output}} \quad 100$$

RESULTS OF THE STUDY

International Assistance Contracts

Estimates of total annual dollar amount for international assistance contracts administered by USU from 1951-79 are shown in Table 1. The values represent several types of activities including both long and short-term consulting assignments by faculty staff. The expenditures by international students who come to USU under USAID sponsorship are excluded in this section, since their tuition and other expenses are analyzed in the section which follows. As indicated earlier, the figures presented here should be viewed as "best estimates" since data for the years prior to 1972 were not always easy to find. It is very likely that the values are understated since, for example, contracts for short-term consultant activities during the earlier years were not available.

Despite these potential deficiencies, the total amounts identified are impressive, both in dollar value and the number and distribution of contracts. Since 1951, international contracts have amounted to about $29,872,000. For the 29 years, this represents an average of $1,030,068 per year. However, the distribution per year has been unequal. The larger annual amounts have occurred since 1969. In fact, slightly more than one-half of the contract activity has occurred since 1972 (about $15.6 million). During this same period, the average contracts have amounted to almost $2.0 million per year. The largest annual amount was recorded in 1979.

The contract levels represent activities by USU faculty in diverse geographic regions of the world. Major long-term contracts have been completed in Iran, Brazil, Bolivia, Venezuela, Colombia, Chile, Ecuador, Peru, Guatemala, and Honduras. Projects are presently being implemented in Bolivia, Tanzania, and Cape Verde. Another major project in Somalia is currently under negotiation. All projects have also included the use of USU faculty for short-term consultation. Accurate data are not available on the number of faculty who have participated on foreign short-term assignments, but it has been extensive and has been well distributed among the various colleges. Especially significant are the international reputations developed by members of the Colleges of Engineering (particularly Agricultural Irrigation and Engineering), Agriculture, and Natural Resources.

The total contract amounts are indicative of the economic impact these contracts have had on the state of Utah. The contract funds are only partially expended within the state, since some portion is utilized in the developing country to carry out the objectives of the contract. The impact on the state obviously comes from that portion expended in Utah.

TABLE 1. VALUE OF INTERNATIONAL ASSISTANCE CONTRACTS AT UTAH STATE UNIVERSITY, 1951-1979

Year	Total	CLASSES OF EXPENDITURES					
		Staff Salaries	Staff Benefits	Travel	Current Expense	Equipment	Indirect Costs
		(1,000 Dollars)					
1951	140	28	18	24	29	20	21
1952	566	113	74	96	119	79	85
1953	654	131	85	111	137	92	98
1954	463	93	60	79	97	65	69
1955	800	160	80	120	200	96	144
1956	716	143	93	122	150	100	108
1957	254	51	33	43	54	36	38
1958	376	75	49	64	79	53	56
1959	598	119	78	102	125	84	90
1960	489	98	64	83	103	68	73
1961	345	69	45	59	72	48	52
1962	187	95	11	16	46	5	14
1963	222	104	8	8	80	11	11
1964	344	124	2	20	132	7	59
1965	841	357	31	93	152	32	176
1966	888	459	69	92	111	18	139
1967	1,090	519	75	185	117	46	148
1968	969	562	85	92	110	23	97
1969	1,007	550	73	97	108	55	124
1970	1,347	767	137	105	104	50	184
1971	1,911	1,001	117	201	262	25	305
1972	1,044	352	62	190	318	1	121
1973	1,870	766	175	243	300	71	315
1974	1,835	760	147	316	302	44	266
1975	2,085	916	231	286	320	38	294
1976	2,085	993	231	248	314	32	267
1977	2,338	1,041	283	282	413	55	264
1978	1,827	740	199	162	486	23	217
1979	2,580	1,403	208	194	515	8	252
Total Value	29,872	12,589	2,823	3,733	5,355	1,285	4,087
Percent Expended Utah		70	100	60	20	40	100
Amount Expended Utah	19,547	8,812	2,823	2,240	1,071	514	4,087

It was estimated that about $19.6 million of the 29-year total has been expended in Utah (Table 1). This estimate is based on assumptions regarding the proportion of each expenditure class of the total contract value that is dispensed within the state. The expenditure categories shown in Table 1 are those used in the accounting system of USU. The estimates of the percentage of each category expended in Utah is as follows:

1) Salary and Payroll: Percent Expended in Utah: 70 Percent

Salaries for long-term assignment are all paid as regular salaries through the university system. The proportion not used to support the family abroad is deposited in savings and other investments. Since rent, utilities, etc., are paid by the contract, the cash required for family maintenance is less than 100 percent of the salary. Also, the total salary costs listed in Table 1 include short-term salaries plus on-campus salaries for support of long-term projects, which increases the estimated expenditures in Utah, since all salaries for these two categories are expended within the state.

2) Benefits: Percent Expended in Utah: 100 Percent

Staff benefits are contract payments made by the university for fringe items received by the faculty for such things as insurance, retirement, etc. All of these expenditures impact directly on the state.

3) Travel and Transportation: Percent Expended in Utah: 60 Percent

Travel and transportation costs are expended in Utah and within the developing country for the transport of both people and goods. Airline tickets, baggage and shipment of household items plus the storage of household items, are handled in Utah. These items generally represent larger proportional expenditures than in-country travel and maintenance costs for technicians abroad.

4) Current Expenses: Percent Expended in Utah: 20 Percent

This expenditure category includes most of the in-country operating costs excluding those for travel and transportation. In-country expense for office needs, local employees, communications, etc., are included. A highly disproportionate amount of these expenditures occur in-country.

5) Equipment: Percent Expended in Utah: 40 Percent

Equipment purchases are for contract automobiles, laboratory equipment, animals, seed or whatever types of goods needed to support the project. Large amounts are purchased in-country. Of those purchased in the U.S., the purchases are often made from supply firms outside the state of Utah, with the university serving as purchasing agent only.

6) Indirect Costs: Percent Expended in Utah: 100 Percent

These are the overhead values that accrue to the university and the state in payment for use of buildings and other indirect values

provided by the university. The overhead rates are set by federal audit and a differential rate is charged for faculty abroad and those on-campus. These revenues go entirely to the state and the university.

During the 29 years covered by this analysis, international activities have generated an estimated $4.0 million in overhead returns for the state of Utah. This is an average of about $141,000 per year. The trend for the years since 1970 is in the neighborhood of $250,000 annually. The staff salary expenditures also represent a significant addition to the financial structure of the university. The $12.5 million in salaries represent an annual support of 17.3 person years if the average annual salary for the period is assumed to be $25,000. The proportion of total contract values spent in Utah is 65 percent overall.

As indicated before, no official data were available for the early years of the analysis, and it was necessary to resort to the best estimate of faculty who had served abroad both as technicians and as contract leaders. Among those contacted were five former Chiefs of Party for university contracts.

As one measure of their authenticity, the overall average of in-state expenditures can be compared with those published by USAID for U.S. technical assistance projects worldwide. Commonly, USAID estimates 90 percent of the dollars allocated for technical assistance outside the U.S. are spent for goods and services within the U.S. The estimate for Utah seems reasonable since the USAID estimates include all of the U.S. One would expect a smaller percentage to be expended in one state.

International Student Expenditures

The 1979 survey of international students provided data on their expenditures for that year. Both the average monthly and annual expenditures per student for various classes of expenditures are summarized in Table 2. Overall, each foreign student averaged an expenditure of $716 per month, or $8,591 per year. Tuition, food and housing accounted for 56 percent of the total expenditures. Of some significance also were expenditures for recreation, transportation, and repairs and maintenance for transportation, which amounted to $111 per month, or 16 percent of the total monthly amounts.

This estimate compares favorably with those being used by the Office of International Students at USU. Their estimates are $6,920 per year for single students, $9,320 for married students and $800 per year additional for each child. Based on the proportion of married and single students found by the 1979 survey (60 percent single and 40 percent married), and assuming one child per married family, the weighted annual expenditure would be (6920 x .60) + (10120 x .40) = $8,200.[10]

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[10] A study by Bradley, Edward, "Economic Impact of Non-Resident Student Expenditures in the State of Utah, Fiscal Year 1979-80", reports average annual expenditures of $7,258 for all non-resident students for all Utah institutions of higher education.

TABLE 2. AVERAGE ANNUAL INTERNATIONAL STUDENT EXPENDITURES, UTAH STATE UNIVERSITY, 1979.

Class of Expenditure	Average Annual Expenditure per Student	Average Monthly Expenditure per Student	Percent of Total
Tuition and Medical	$1931	$161	22
Food	1505	125	17
Housing	1443	120	17
Misc. Current Expense	776	65	9
Transportation, Repairs & Maint.	563	47	7
Recreation	455	38	5
Books and Supplies	361	30	4
Telephone	312	26	4
Transportation	312	26	4
Travel Fares	277	23	3
Clothing	200	17	2
Utilities	192	16	2
Insurance	168	14	2
Taxes	68	6	1
Furniture	15	1	#
Appliances	13	1	#
TOTAL	$8591	$716	100

#Less than 1%.

TABLE 3. ESTIMATED AVERAGE ANNUAL EXPENDITURES OF INTERNATIONAL STUDENTS
UTAH STATE UNIVERSITY: 1951-1979

YEAR	CONSUMER PRICE INDEX	RATIO	ANNUAL AVERAGE EXPENTITURE PER STUDENT	MEAN NO. OF INT'L STUDENTS	AVERAGE ANNUAL TOTAL EXPENDITURE
1951	77.8	2.766067	$3,106	95	$ 295,061
1952	79.5	2.706918	3,174	96	304,683
1953	80.1	2.686642	3,198	104	332,564
1954	80.5	2.673292	3,214	122	392,071
1955	80.2	2.683292	3,202	128	409,820
1956	81.4	2.643735	3,250	137	445,199
1957	84.3	2.552788	3,365	157	528,368
1958	86.6	2.484988	3,457	238	822,819
1959	87.3	2.465063	3,485	281	979,332
1960	88.7	2.426156	3,541	297	1,051,693
1961	89.6	2.401786	3,517	299	1,069,519
1962	90.6	2.375276	3,617	289	1,045,286
1963	91.7	2.346783	3,661	360	1,317,896
1964	92.9	2.316469	3,709	388	1,438,986
1965	94.5	2.277249	3,773	464	1,750,487
1966	97.2	2.213992	3,880	548	2,126,454
1967	100.0	2.152000	3,992	516	2,059,961
1968	104.2	2.065259	4,160	534	2,221,356
1969	109.8	1.959927	4,383	516	2,261,837
1970	116.3	1.850387	4,643	448	2,080,017
1971	121.3	1.774114	4,843	475	2,300,189
1972	125.3	1.717478	5,002	527	2,636,155
1973	133.1	1.616829	5,314	600	3,188,149
1974	147.7	1.457007	5,896	609	3,590,931
1975	161.2	1.334988	6,435	689	4,433,976
1976	170.5	1.262170	6,807	755	5,139,023
1977	180.6	1.191584	7,210	888	6,402,356
1978	181.5	1.185675	7,246	960	6,955,959
1979	215.2	1.000000	8,591	924	7,938,226

The number of international students attending USU for the period 1951-79 has shown a consistent annual increase (Appendix Table 4). The highest number attended in 1978. The average attendance in 1979 was down slightly (924 students), but was still the second highest number ever to study at USU. International students represent approximately 10 percent of the total studentbody of the university.

The total expenditures by all international students attending USU in 1979 amounted to approximately $7,938,226 (Table 3).

As indicated previously, data from the 1979 expenditures survey of international students served as the basis for estimating the annual expenditures for 1951-79. The 1979 estimate was adjusted with the Consumer Price Index for each of the years to make the annual estimates (Table 3).

The breakdown of annual expenditures by the various classes show the importance of three major expenditures (Appendix Table 5). International students spent in excess of $1.0 million each for tuition, food and housing from 1977 to 1979 inclusive.

The average total expenditure for the period was about $2.2 million annually. The higher amounts have occurred in the past five years, but the total estimated expenditures have exceeded $1.0 million each year since 1960.

Total average expenditures in 1979 varied by geographic region (Table 4). Average expenditures ranged from a low of $6,356 for European students to $14,088 reported for those from Mexico and Central America.

TABLE 4. EXPENDITURES BY INTERNATIONAL STUDENTS BY GEOGRAPHIC AREA

UTAH STATE UNIVERSITY, 1979

GEOGRAPHIC AREA	AVERAGE ANNUAL EXPENDITURE PER STUDENT
Africa	$11,128
Asia	7,632
Canada	7,157
Europe	6,356
Mexico, Central America	14,088
South America	12,250
Oceania	9,024

Economic Impact

The impact of the technical assistance activities on the economy of Utah was measured by the economic multiplier and by the percentage change

TABLE 5: ESTIMATED PERCENT CHANGE IN STATE ECONOMIC OUTPUT RELATED TO INTERNATIONAL ACTIVITIES AT UTAH STATE UNIVERSITY, 1951-1979.

YEAR	CHANGE IN GROSS OUTPUT: ANNUAL ($ Million)	PERCENTAGE	YEAR	CHANGE IN GROSS OUTPUT: ANNUAL ($ Million)	PERCENTAGE
1951	.7	.03	1966	5.1	.09
1952	1.3	.05	1967	5.2	.09
1953	1.5	.06	1968	5.3	.08
1954	1.4	.05	1969	5.4	.08
1955	1.8	.06	1970	5.6	.07
1956	1.8	.06	1971	6.8	.08
1957	1.3	.04	1972	6.0	.06
1958	2.0	.06	1973	8.4	.08
1959	2.6	.07	1974	9.0	.07
1960	2.6	.06	1975	10.9	.08
1961	2.4	.06	1976	12.1	.08
1962	2.1	.04	1977	14.6	.08
1963	2.6	.05	1978	14.9	.08
1964	3.0	.06	1979	17.5	.08
1965	4.4	.08			

in gross state output resulting from the value added by these activities. The combined annual values for each year between 1951-1979 were processed through the adjusted input-output model for the state of Utah.

Based on the estimate for 1979, the overall multiplier effect of the USU technical assistance activities was 2.13 (Appendix Table 5). In other words, for each $1 of value interjected into the state's economy by these activities, $2.13 of added value was felt throughout the economy as the initial $1 was spent and respent in the continuing business transactions in the state.

In dollar values, the 9.6 million expended in 1979 in Utah for technical assistance contracts and by international students generated about $20.0 million in economic activity.

The multiplier impact was not uniform in all 46 sections of the economy identified earlier (Appendix Table 3). The range in multiplier values was from 1.28 to 3.61 (Appendix Table 5). The greatest impact was in local, state and federal government enterprises. The least impact was realized in real estate and rental sectors.

The second measure of impact, the percentage changes in state economic output, is summarized in Table 5. Since 1951, USU's technical assistance activities have resulted in an overall average increase in gross state output of about .06 percent. The percentage has been fairly stable since about 1965. These stable percentages have been maintained while the total state economic product has increased about ten-fold since 1951.

Net Benefits

Issues of net versus gross benefits inevitably enter analysis of economic impact. Of importance is whether the measures represent net additions to the economy or whether they involve a "best" choice of expenditures which must be netted out against the "second best" choice that would be selected if the first alternative was not available. A typical example is the benefit ascribed from boating expenditures, some portion of which would be spent for a second best alternative, say deer hunting in Utah. Therefore, the net benefit of boating activities in Utah is the difference between what is spent on boating and what would have been spent on the next best alternative, e.g., hunting, if boating were not available.

Neither of the expenditures categories considered in this study are subject to this type of analytical constraint. Both represent new additions to the economy of Utah and the benefits represent net values to the state. In the case of technical assistance contracts, the funds provided by the contract for paying faculty salaries, for example, do not replace or substitute for existing financial resources. They represent additional funds. Similarly, expenditures by international students are also net additions. If the monies were not spent in Utah, they would be expended elsewhere. Therefore, the expenditures represent new money and additive amounts to the state, and no netting out process is required to derive an appropriate estimate.

A further argument, however, impinges on the estimate of benefits from international student expenditures. In Utah, higher education is supported through public taxation. Tuition charges to attend the university represent less than the full cost of providing the education. At USU during the 1979-1980 school year, the average total cost per student for the year was $3,528. In-state students paid $501 per year and out-of-state students (including international students) paid $1,551. It is argued that the difference between the actual and tuition costs represent a subsidy to the student. For in-state residents, the subsidy is accepted without much concern. For out-of-state and international students, the subsidy is judged less desirable since Utah tax payers bear the cost of the subsidy. In the latter case, the subsidy to international students amounts to $1,979 per student year, which may be viewed as a negative impact or cost to the state. The net benefits of student expenditures might be more appropriately determined by reducing the total student expenditures by the amount of the subsidy. For the 924 international students, the 1979-1980 total subsidy was $1,878,596. Subtracted from the total expenditures, the net benefits would still approximate $6,109,630. The accounting process incorporates all university costs, including those which might be specifically related to the operation of the International Student Office. But, regardless of whether one accepts or rejects the subsidy argument, the economic impact of these students must still be considered as substantial.

SUMMARY OBSERVATIONS

The primary objective of this study was to demonstrate the economic importance of international assistance activities at USU. Only two indicators were used, i.e., international contracts and international student expenditures, since these data were the most readily quantifiable. Other benefits have accrued to the state and should not be overlooked. For example, improved quality and relevance of curriculum and teaching in many areas of the university have resulted from USU faculty involvement abroad. These improvements in teaching our young people about their world may be a more important long-run benefit than the dollar returns reported herein. Likewise, the flow of plant and animal materials plus international commerce relationships for Utah businesses abroad, which have not been well documented in the past nor the future potentials fully appreciated or explored, represent another phase of potentially meaningful benefits to the state of Utah.

These estimates of economic benefits represent a gross approximation of the dollar values that have resulted from two aspects of international activities at USU. The purpose in attempting a 29-year analysis was not to create a profile focused on exact dollar amounts, but rather to give the reader a better overall appreciation for the magnitude of the university's prior involvement. The absence of complete information for several years makes precision impossible when the entire 29 years are considered.

USU was one of, if not the first U.S. university to respond to world developmental assistance needs in 1952. But, as early as 1912, a USU president established rapport with Iranian officials and initiated

educational interchanges. While some other universities in the U.S. system may have moved beyond USU in total contract amounts and numbers of international students, USU has remained committed during this period and enjoys a very favorable international reputation for its contribution and scientific expertise.

The measured dollar values are of more importance in terms of the potentials these kind of activities have for the university and the state. The contract values for 1979 of about $2.5 million are in reality only a fraction of what might be possible. A doubling or tripling of these amounts is certainly realistic. Increases in international student enrollments are likewise possible.

A conscious effort toward that goal by the university is in the interest of the state and USU and should be encouraged. Aside from the obvious humanitarian commitment a state university should have to solving a major issue confronting mankind, international assistance activities offer a heretofore unexploited opportunity to bring economic benefits to the state. Utah, through the intermediary of its state university, has and can export scientific competence and education beyond its borders. The dollar amounts brought to the state by these activities represent "new dollars" injected into the economy. Both the contract dollars and those expended by foreign students represent net additions to the state's economy that otherwise would not be realized. For the most part, these are low cost additions that can be obtained with minimal pre-investments, generally within the fixed costs currently being expended by the university.

Based on the imprecise estimates reported in this study, about $2.00 of new economic activity could be created in the state for every $1.00 of new contract or international student expenditure. In terms of magnitude, one hundred new international students would create about $800,000 in added expenditures and an estimated $1.6 million in economic activity. Another $5.0 million in contracts expended in Utah would generate $10.0 million new activity plus many other academic and community-related benefits.

The university commitment to these types of internationally related activities should be increased, but only within a well-planned and articulated process that integrates them into the fiber of the university structure and mission. For example, as long as the university has excess capacity, which means it can accomodate new students without increasing faculty costs or denying admission to Utah residents, it seems reasonable as a minimum and consistent with the university's mission to increase the number of students. (Although our commitment to international education should not be structured only on the basis of excess enrollment capacity.) Enrolling the optimum number of students in the interest of maximum returns to the state's investment in the fixed facilities of the university would seem to be an objective of efficient management.

Similarly, increases in foreign assistance contract activities should be guided by the relative costs and benefits that accrue to the university. These contracts add both economic and non-economic benefits to the university and state communities. Within the university structure, there

likely exists a definable capacity for this type of activity beyond which other departmental programs suffer and the department is not appropriately compensated. So long as international contracts pay their "real" costs, they represent an opportunity for the university to fulfill a moral obligation to the world community as representatives of the people of Utah, as well as to contribute to state's economy by exporting this scientific competence abroad. To have a maximum impact and acceptance by university faculty and administrators, international contract activities should be integrated into the university structure as a fourth objective along with research, teaching and extension. By doing so, departmental acceptance and control of contract activities would be insured, a dimension would be added to the quality of education, and departments would have improved funding flexibility for university operation which can be of considerable importance during periods of recession and retracted state funds.

The ultimate in acceptance by department heads and deans will come with the establishment of an effective incentive system for both administration and faculty participants. When the risks and uncertainties are borne by the contracts and a higher level of university administration, when faculty can feel professionally secure in accepting foreign assignments, and when the economic incentives are adequate, then international contract activities can be institutionalized and relations established that will facilitate a two-way cultural and economic opportunity for university faculty and students and community citizenry.

The opportunities and benefits associated with technical assistance activities at USU have not been clearly recognized, enunciated or fully exploited despite its long history of participation. The potentials are extensive and can be realized with support from university and state officials interested in forging an effective international dimension at USU.

To the benefits estimated for USU should be added the international activities and contributions of students involved with the other institutions of higher learning in Utah if we are to derive a full picture of the participation of the public sector in international assistance. These estimates are left for others to make but they will undoubtedly double, as a minimum, the estimated economic activity reported here for USU. That would represent about $42.0 million in economic activity in 1979 from this source, making the export of education and technical assistance one of the more important sectors in the state.

USU, like most U.S. universities, has not totally prepared to adequately train international students and provide technical assistance to other nations. Therefore, if we are serious about truly effective international education and technical assistance, our universities need to adjust so they can serve our own students and communities and those of other countries more effectively. Universities offer a unique scientific and nonpolitical means of communication with other nations that can promote development and fulfillment of the felt needs and desires of other peoples without the barriers of strict protocol and alterior motives so common in the world today.

APPENDIX TABLES

APPENDIX TABLE 1

Estimated Values for Iranian Contracts, 1951-1962

YEAR	TOTAL SALARIES[2]	ESTIMATE OF PROJECT COST[1]
1951	$ 13,845.59	$ 69,227.95[3]
1952	113,080.74	565,403.70
1953	130,863.04	654,315.20
1954	92,570.20	462,851.00
1955	159,862.87	799,314.35
1956	143,285.66	716,428.30
1957	50,922.84	254,614.20
1958	75,236.26	376,181.30
1959	119,578.69	597,893.45
1960	97,776.67	488,883.35
1961	68,917.43	344,587.15
TOTAL	$1,065,939.99	$5,329,699.95

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[1] Assume that total salaries are 20% of the total project cost.

[2] Includes only the total salaries paid during assignment in Iran

Source of Basic Data:
Microfische records of salaries and payroll, USU Payroll Office.

[3] Correction from Manual Tabulation

APPENDIX TABLE 2

Distribution of Population & Sample International Students by Region
Utah State University, Fall 1979

Region	Total Number Students	Number Questionnaires Mailed	Number of Responses	Percentage Total Students in Region
	NUMBER	NUMBER	NUMBER	PERCENT
1. Africa	93	47	16	10
2. Asia	639	319	120	70
3. Canada	32	16	3	3
4. Europe	16	8	1	2
5. Mexico, Central America, and Caribbean	25	12	7	3
6. South America	87	43	11	10
7. Oceania	15	8	5	2
TOTAL	907	453	163	100

APPENDIX TABLE 3

Aggregate Classifications of Sectors from 1972 Input/Output Model

SECTOR	DESCRIPTION	OLD SECTOR NUMBER
1	Livestock Products	1
2	Other Agricultural Products	2
3	Forestry and Fishery Products; Agricultural Forestry and Fish Services	3, 4
4	Iron Ore Mining; Non-Ferous Ore Mining; Coal Mining; Petrol and Natural Gas Stone and Clay Mining	5, 6, 7, 8, 9
5	Chemical and Fertilizer Mining	10
6	New Construction	11
7	Maintenance and Repair Ordnance and Accessories	12, 13
8	Food and Kindred Products Tobacco Manufacturers	14, 15
9	Fabrics; Misc. Textile and Floor Covering; Apparel; Misc. Fabricated Textiles	16, 17, 18, 19
10	Rubber and Wood Products; Wooden Containers	20, 21
11	Household Furniture	22
12	Other Furniture and Fixtures	23
13	Paper and Allied Products; Paper-Board Containers	24, 25
14	Printing and Publishing	26
15	Chemicals and Chemical Products; Plastics and Synthetic Matter	27, 28
16	Drugs, Cleaning and Toilet Products; Paints and Allied Products	29, 30
17	Petrol Ref. and Related Ind.	31

SECTOR	DESCRIPTION	OLD SECTOR NUMBER
18	Rubber and Misc. Plastic Products; Leather Tan, and Industry Leather; Footwear and Other Leather	32, 33, 34
19	Glass and Glass Products Stone and Clay Products	35, 36
20	Primary Iron and Steel Manufacturing Primary Nonferous Activity Manufac. Metal Containers	37, 38, 39
21	Heat, Plumbing and Struc. Prod. Stampings, Screws and Bolts Other Fab. Metal Products	40, 41, 42
22	Engines and Turbines Farm Machinery and Equipment	43, 44
23	Construction Mining and Oil Mach.	45
24	Water Handling Mach. and Co. Metalworking Mach. and Equipment Special Industrial Mach. and Equipment General Industrial Machinery and Equip.	46, 47, 48, 49
25	Machine Shop Products	50
26	Office, Computer and Acct. Machinery	51
27	Service Industrial Machines Electric Industrial Equipment and App.	52, 53
28	Electrical Lighting and Wire Equipment Radio, T.V. and Communication Equipment; Electronic Component and Acc.; Misc. Electrical Machinery Equipment and App.	54, 55, 56, 57, 58
29	Meter Vehicles and Equipment	59
30	Aircraft and Parts	60
31	Other Transport Equipment	61
32	Scientific Control Equip.	62
33	Optics, Opthamological and Photo Equipment	63
34	Misc. Manufacturing	64
35	Transport and Warehousing, Communic., Radio and T.V.	65, 66, 67

SECTOR	DESCRIPTION	OLD SECTOR NUMBER
36	Elect. Gas, Water, Sanitation	68
37	Wholesale and Retail Trade	69
38	Finance and Insurance	70
39	Real Estate and Rental	71
40	Hotels, Personal and Rep. Services	72
41	Business Services	73
42	Auto Repair and Services	75
43	Amusements	76
44	Med., Educ., Serv., and Nonprofit	77
45	Fed., State and Local Gov. Enterprises	78, 79
46	Business Travel, Entertainment and Gifts; Office Supplies; Scraps and Byproducts	81, 82, 83

APPENDIX TABLE 4. NUMBER OF INTERNATIONAL STUDENTS BY YEAR & QUARTER
UTAH STATE UNIVERSITY, 1951-1979

YEAR	QUARTER			ANNUAL AVERAGE
	SPRING	WINTER	FALL	
1951	95	95	95	95
1952	96	95	96	96
1953	98	108	105	104
1954	122	113	132	122
1955	134	128	122	128
1956	147	137	128	137
1957	171	163	136	157
1958	243	250	220	238
1959	288	287	269	281
1960	289	285	318	297
1961	298	299	301	299
1962	288	295	284	289
1963	364	361	354	360
1964	368	361	436	388
1965	442	420	529	464
1966	563	554	526	548
1967	509	516	524	516
1968	554	521	527	534
1969	559	516	473	516
1970	454	433	457	448
1971	510	442	472	475
1972	520	496	565	527
1973	606	572	622	600
1974	576	581	670	609
1975	674	655	738	689
1976	750	738	776	755
1977	856	821	988	888
1978	953	936	991	960
1979	923	942	907	924

SOURCE: USU INTERNATIONAL STUDENTS OFFICE

APPENDIX TABLE 5. ESTIMATED TOTAL ANNUAL EXPENDITURES
OF INTERNATIONAL STUDENTS BY ITEM AND YEAR
UTAH STATE UNIVERSITY
1951 - 1979

	($1,000)							($1,000)	
YEAR	FOOD	CLOTHING	HOUSING	UTILITIES	TUITION & MEDICAL	TELEPHONE	BOOKS & SUPPLIES	INSURANCE	RECREATION
1951	52	7	50	7	66	11	12	6	16
1952	53	7	51	7	68	11	13	6	16
1953	58	8	56	7	75	12	14	7	18
1954	69	9	66	9	88	14	16	8	21
1955	72	9	69	9	92	15	17	8	22
1956	78	10	75	10	100	16	19	9	24
1957	92	12	89	12	119	19	22	10	28
1958	144	19	138	18	185	30	35	16	44
1959	172	23	164	22	220	36	41	19	52
1960	184	25	177	23	236	38	44	21	56
1961	187	25	180	24	240	39	45	21	57
1962	183	24	176	23	235	38	44	20	55
1963	231	31	221	30	296	48	55	26	70
1964	252	34	242	32	323	52	61	28	76
1965	308	41	294	39	393	64	74	34	93
1966	373	50	357	47	478	77	89	42	113
1967	361	48	346	46	463	75	87	40	109
1968	389	52	373	50	499	81	93	43	118
1969	396	53	380	51	508	82	95	45	120
1970	364	48	349	46	468	75	88	41	110
1971	403	54	386	51	517	83	97	45	122
1972	462	61	442	59	593	95	111	52	140
1973	559	74	535	71	717	116	134	63	169
1974	629	84	603	80	807	130	151	71	190
1975	777	103	744	99	997	160	186	87	235
1976	900	120	863	115	1155	186	216	101	272
1977	1122	149	1075	143	1439	232	269	126	339
1978	1219	162	1168	155	1564	252	292	136	369
1979	1391	185	1333	177	1784	288	334	156	421

APPENDIX TABLE 5
PAGE 2

YEAR	TRANSPORTATION REPAIR & MAINTENANCE	TRAVEL FARES	FURNITURE	TRANSPORTATION	APPLIANCES	MISC. CURRENT EXPENDITURES	TAXES	TOTAL
1951	19	9	1	11	1	27	2	296
1952	20	10	1	11	1	28	2	305
1953	22	11	1	12	1	30	2	333
1954	26	13	1	14	1	35	3	393
1955	27	13	1	15	1	37	3	410
1956	29	14	1	16	1	40	3	445
1957	35	17	1	19	1	48	4	528
1958	54	27	1	30	1	74	7	823
1959	64	32	2	36	1	88	8	980
1960	69	34	2	38	2	95	8	1052
1961	70	34	2	39	2	97	8	1070
1962	69	34	2	38	2	94	8	1045
1963	86	43	2	48	2	119	10	1318
1964	94	46	3	52	2	130	11	1438
1965	115	56	3	64	3	158	14	1750
1966	139	68	4	77	3	192	17	2126
1967	135	66	4	75	3	186	16	2060
1968	146	72	4	81	3	201	17	2222
1969	148	73	4	82	3	204	18	2262
1970	136	67	4	76	3	188	17	2080
1971	151	74	4	84	3	208	18	2300
1972	173	85	5	96	4	238	20	2636
1973	209	104	5	116	5	288	25	3188
1974	236	116	6	131	5	324	28	3591
1975	291	143	8	161	7	401	35	4434
1976	337	166	9	187	8	464	40	5139
1977	420	206	11	233	10	578	50	6402
1978	456	224	12	253	11	628	55	6956
1979	520	256	14	288	12	717	62	7938

APPENDIX TABLE 6: MULTIPLIER IMPACT OF TECHNICAL ASSISTANCE ACTIVITIES ON UTAH ECONOMY SECTOR, 1979.

PROCESSING SECTOR	OUTPUT MULTIPLIERS[1]	GROSS OUTPUT $ MILLION[2]	CHANGE IN GROSS OUTPUT $ THOUSAND	EXPENDITURE RANK
1	2.83	706	705	8
2	1.94	185	201	19
3	1.74	46	43	28
4	1.89	1012	271	17
5	1.64	31	10	37
6	2.27	1125	51	26
7	1.87	415	195	20
8	2.87	1625	2156	2
9	2.70	216	225	18
10	2.40	123	27	30
11	2.29	62	25	31
12	2.21	10	14	34
13	2.61	47	396	12
14	2.06	278	181	21
15	2.09	223	89	24
16	2.04	27	3	41
17	2.53	481	118	23
18	2.06	52	37	29
19	2.07	297	25	31
20	2.53	1174	160	22
21	2.34	320	75	25
22	2.45	12	6	38
23	2.30	133	10	37
24	2.13	71	12	36
25	1.95	32	13	35
26	2.32	203	4	40
27	2.22	102	16	33
28	2.17	97	12	36
29	1.75	68	316	16
30	2.23	372	12	36
31	2.66	94	18	32
32	2.08	37	5	39
33	1.92	10	3	41
34	2.22	117	48	27
35	1.70	1124	988	6
36	1.79	757	389	13
37	1.42	3385	2243	1
38	2.00	667	608	10
39	1.28	1927	1801	4
40	1.80	703	352	15
41	1.56	1161	772	7
42	2.00	203	619	9
43	1.36	183	511	11
44	1.35	954	1943	3
45	3.61	94	371	14
46	3.05	1643	1381	5
AVERAGE	2.13	TOTAL - 22604	TOTAL - 17460	

[1]Type 1 Multiplier based on the 1972 Utah Transaction Matrix

[2]Represents the Gross Output augmented by the Contributions of the International Assistance Contracts and International Students.