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LOCAL ECONOMIC CONSEQUENCES STUDY (LECS) PRELIMINARY USER MANUA--ETC(U)
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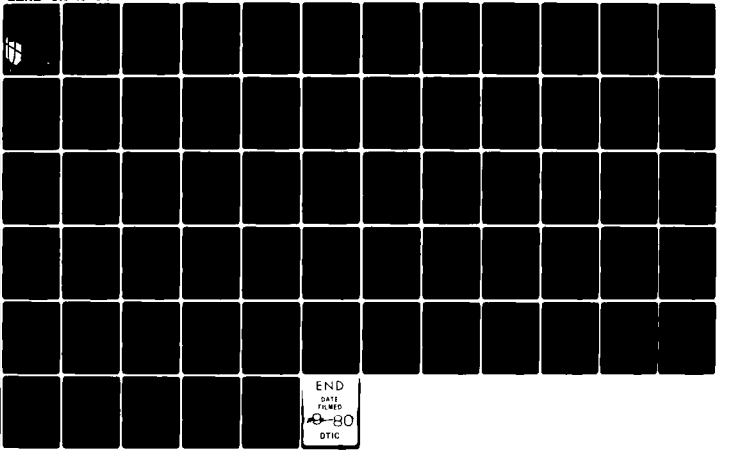

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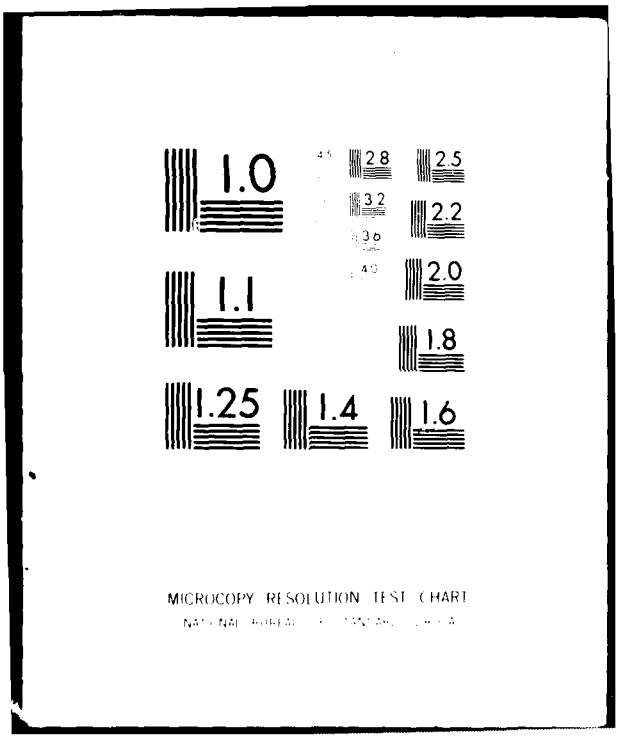
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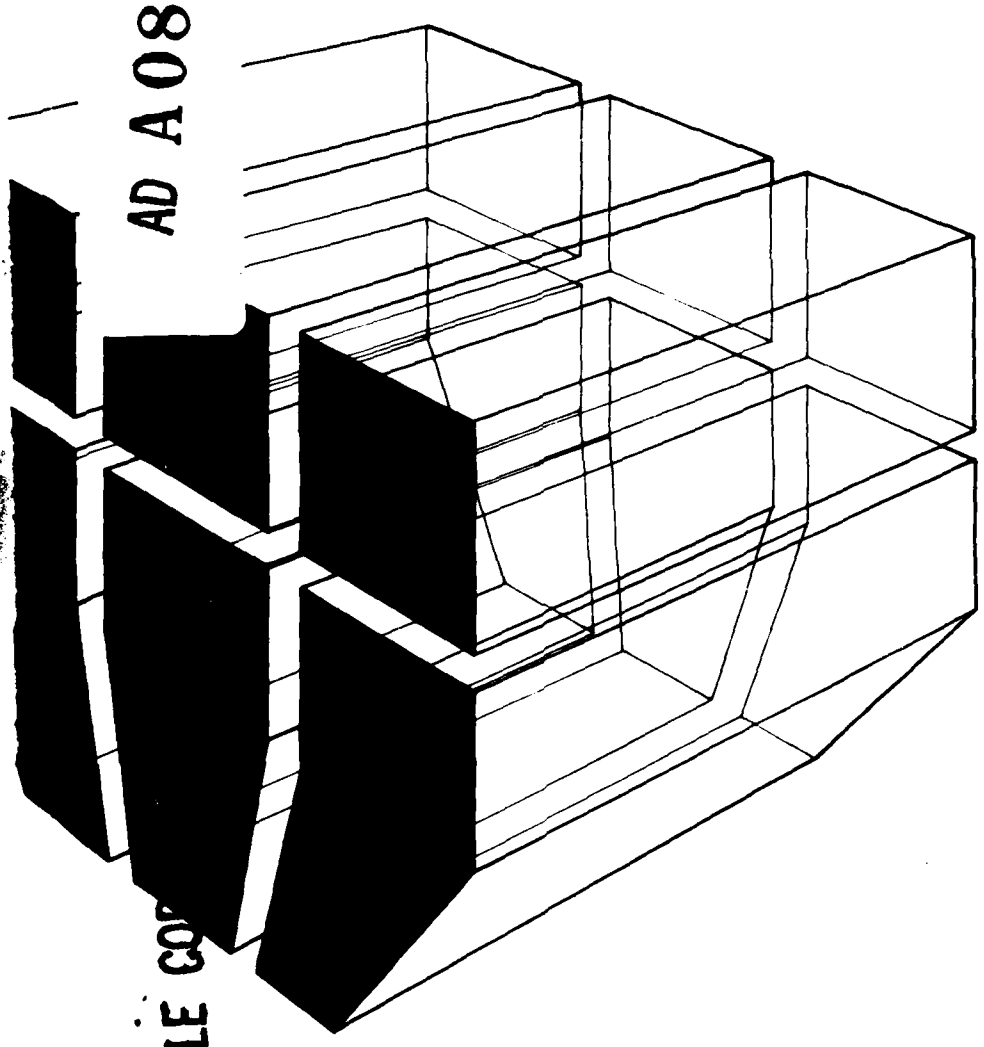
INTERIM REPORT N-94
July 1980

LOCAL ECONOMIC CONSEQUENCES STUDY (LECS) PRELIMINARY USER MANUAL



by
J. W. Hamilton
R. D. Webster

CERL

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This study has developed and documented a subsystem of the Environmental Technical Information System (ETIS) which provides easy, systematic access to the U.S. Air Force Local Economic Consequences Study (LECS) methodology. The system has been implemented and is now available to Air Force users as a pilot system until further modifications and extensions are made. This document provides user instructions and identifies sources of required data.

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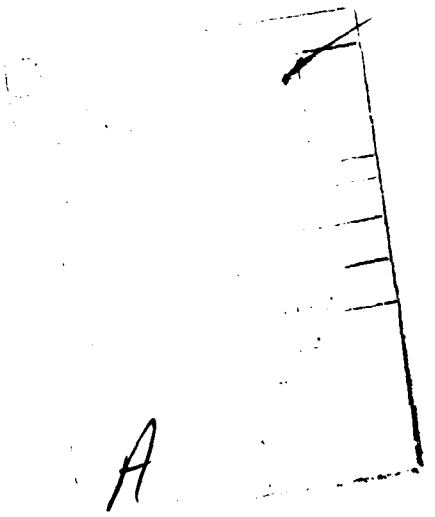
FOREWORD

This project was performed for the Department of the Air Force Engineering and Services Center (AFESC) under JON 80 and provided to CERL through Project Order #F-79-22, 25 September 1979.

The work was performed by the Environmental Division (EN), U.S. Army Construction Engineering Research Laboratory (CERL), Champaign, IL.

This research was made possible through the efforts of Air Force personnel and contractors, and the scientists and engineers of CERL. Administrative support and counsel were provided by Dr. R. K. Jain, Chief of EN.

COL L. J. Circeo is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.



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LOCAL ECONOMIC CONSEQUENCES
STUDY (LECS) PRELIMINARY USER MANUAL

1 INTRODUCTION

Background

The requirement for adequate assessment of socioeconomic impacts when preparing environmental impact statements has become increasingly important to military planners. To this end, Department of Defense (DOD) guidelines and suggestions have encouraged the use of a systematic approach and uniformity of documentation when considering the socioeconomic impacts of new military projects. This desire is due in part to the uniqueness of the DOD installations and their effects on local economies, the geographic distribution of those installations, and the complexity of problems associated with determining the economic and related social impacts associated with DOD actions. The approach to be selected must be efficient, systematic, and capable of providing "first-cut" estimates of impact before case-specific studies are undertaken.

To address the need for a systematic, first-cut approach to socioeconomic impact assessment, the Department of the Army (DA), with cooperation and substantial support from the Department of the Air Force, has developed the Economic Impact Forecast System (EIFS), which provides information useful for calculating socioeconomic changes caused by DOD actions.[1] This computerized system is designed to be a user-oriented, low-cost, systematic approach to socioeconomic impact analysis. EIFS also has an economic model of analysis which predicts community-level impacts on income, employment, population, schools, and public finance that would result from implementing the various alternative actions.

New and changing laws, guidelines, directives, and executive orders have determined that a more detailed methodology to assess controversial proposed actions is necessary. In September 1978, the Air Force Engineering and Services Center (AFESC) developed a highly disaggregated socioeconomic model of analysis and used the procedure to analyze Air Force installation realignments and closures announced in April 1978. This model was termed the Local Economic Consequences Study (LECS) methodology and provides more temporal and geographical detail in the output results than does the existing version of EIFS. Substantial quantities of community-specific input data and numerous hand calculations are necessary to use the LECS methodology. Much of the required input data is already stored in the EIFS data base, and mathematical calculations are a simple task for the PDP 11/50 minicomputer on which the

[1] R. Webster, R. Mitchell, R. Welsh, E. Shannon, and M. Anderson, *The Economic Impact Forecast System: Description and User Instruction*, Technical Report N-2/ADA027139 (U.S. Army Construction Engineering Research Laboratory [CERL], June 1976); R. Webster, et al., *The Rational Threshold Value (RTV) Technique for the Evaluation of Regional Economic Impacts*, Special Report N-49/ADA055561 (CERL, May 1978).

EIFS operates. Therefore, it was both logical and beneficial to integrate the LECS methodology as a component of the Environmental Technical Information System, the overall computerized system for providing information useful in preparing environmental and socioeconomic studies.[2]

The LECS development is actually an ongoing effort which involves coordination and consultations among a number of AFESC contractors, AFESC personnel, and CERL staff. LECS development will involve many continuing improvements of the system. The following plans are involved:

1. Implement LECS within ETIS

2. Restructure and extend original LECS equations

3. Calibrate and document all changes

4. Restructure the system to meet users' changing needs.

Updates of a manual (documenting revisions and extensions to LECS) will be made annually. In future efforts, the end product will be creation of an expanded LECS predictive model with a supporting data base display capability. Also, the LECS system will be capable of being processed as either interactive or batch output.

Approach of Overall Study

LECS was implemented in four steps:

1. LECS documentation was obtained and reviewed by CERL staff.

2. The algorithms were restructured for inclusion in the ETIS software.

3. The EIFS data base was refined and updated to insure that predictions from the LECS methodology would be as adequate as possible.

4. The LECS methodology was implemented as a separate profile in the EIFS structure.

This report presents information necessary for the pilot implementation of LECS by AFESC personnel and contractors.

Objective

The objectives of this phase of the work were (1) to establish the LECS methodology as a profile available under EIFS, and make it accessible to Air Force personnel through the currently existing ETIS software (specifically, a

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[2] R. D. Webster, R. L. Welsh, and R. K. Jain, *Development of the Environmental Technical Information System*, Interim Report E-52/ADA009668 (CERL, April 1975).

special profile of EIFS); and (2) to provide interim user instructions for using LECS and information on how the system operates.

2 DATA REQUIREMENTS

General

LECS departs from the EIFS in that user input requirements become considerably more extensive. LECS also requires new software techniques to allow users to make successive runs without having to duplicate extensive input. The input of more extensive data and the increase in marginal commitment of resources by the user significantly improves the quality and sensitivity of the projected attribute impacts for specific community situations.

Problems regarding the adequacy of the data base will exist in all models. Such problems often concern the timeliness of the data and the lack of inputs for a designated time period (i.e., the "baseline" period). Such problems were addressed in LECS by adding a time-adjustment factor to the model analysis using price deflator ratios. The time-adjustment factor allows users to adjust all dollar impacts to a given baseline year and thus account for inflationary pressures.

LECS Data Requirements

The LECS model requires inputs from the national, state, and local level. All LECS data inputs are entered manually into an input file in the current version. Many of the required inputs are now available in the EIFS data base. In this manual, the list of LECS input requirements is broken into three categories:

1. Currently available in the EIFS data base,

2. Programmed for inclusion into the EIFS data base,

3. Available only from primary sources.

Appendix A presents the data requirements of the current version of LECS and identifies the dates of coverage. Sources of Table A1 data are detailed in Chapter 7.

3 TUTORIAL INTRODUCTION

For an intuitive understanding of the LECS Editor/Model system, consider an analogy to a non-computer mode of operation that provides the same results. This analogy is rather simplistic in some respects and is certainly implausible, but it should clarify how various options of the computer system behave.

The Analogy

You have been hired to make realignment impact assessment reports ("Local Economic Consequences Studies").

In your office is a blackboard and a file cabinet. The file cabinet contains manila folders, each of which is labeled and contains a document describing one realignment scenario. (A realignment description consists of information about the economic conditions of the affected area, existing Air Force activities and force levels, housing and spending characteristics of affected Air Force personnel, and the proposed changes in Air Force activities and force levels.)

In an office adjoining yours is Ms. J., your secretary. She performs the following functions:

* Typing up whatever is written on your blackboard and filing it in a manila folder in your file cabinet.

* Retrieving a folder from your file cabinet and transcribing the contents on your blackboard.

* Noting when documents are stored in or retrieved from the file cabinet.

* Disposing of old manila folders and documents.

In another adjoining office is Dr. S., an economist who can perform impact calculations in her head. She is terse and quiet and won't tell you anything until you ask her -- and even then only *what* you ask her. She operates by studying a realignment description, thinking for a moment, and then providing the assessment. You interpret and discuss the economist's assessments in your written report.

Your job requires you to do combinations of several tasks; you must:

1. Write a description of a realignment on the blackboard.

2. Use eraser and chalk to alter the description on the blackboard.

3. Call in Ms. J. to retrieve a description stored in a folder in the file cabinet and transcribe it to the blackboard; you must tell her how the needed folder is labeled.

4. Have Ms. J type the description written on the blackboard and file it in the cabinet; you must tell her what label to use on the manila folder. If

there is already a folder with that label, she will give you the option of picking another label or of throwing away the old description filed under that label.

5. Call in Ms. J. and ask her to read you the labels on the manila folders in the file cabinet, and tell you the date and time when each folder was placed in the cabinet, and the date and time each folder was last retrieved from the cabinet.

6. Call in Ms. J. and ask her to dispose of folders in the file cabinet as necessary.

7. Call in Dr. S. and have her provide an assessment and ask her questions about her assessment; if the blackboard is blank, describe the realignment to her orally.

8. Call in Dr. S. and have her study and assess the description in a specific folder in the cabinet and ask her questions about her assessment.

9. Call in Ms. J. and ask her to type up a prototype realignment description; this is a "fill-in-the-numbers" questionnaire that will indicate what areas Dr. S. must study to provide an assessment.

There are a few details to keep in mind:

Whenever you leave your office, someone (the janitor?) erases your blackboard.

You first begin work with an empty file cabinet. If the file cabinet gets too full, Ms. J. may destroy folders that have not been used for a long time.

When Ms. J. hears of interesting new office management methods from other personnel, she may adopt them herself. When she does so, she will send you a memo describing the new arrangement.

Dr. S. is constantly reading journals and attending conferences; when she learns interesting new economic analysis techniques, she also may change her habits; if she does, she will also send you memos.

Ms. J. and Dr. S. are receptive to any comments, complaints, or suggestions you send by memo about their work. Dr. S. can provide either a specific portion of an assessment related to a particular topic, or the complete assessment.

The quickest and easiest way to get a one-time assessment would be to use step 7, or to use step 1 followed by step 7.

Using step 1 followed by step 4 will save a copy of the description written on the blackboard for later use. This is handy in case you leave your office (and your blackboard is erased) before you have a chance to call in one of your economists.

With the addition of steps 2 and 3, you can compare alternative realignments by following a sequence like:

Step 1	load first or basic realignment alternative
Step 4	save it by loading in a file
Step 3	retrieve the first or basic realignment alternative
Step 2	change it
Step 7	run the model and obtain LECS outputs

Once you have done steps 1/4, steps 3/2/7 or 8 can be done as often as necessary during different sessions in your office. You can even make a copy of each alternative you try by repeating step 4 each time step 2 is completed (but be careful; there isn't much room on the folders for a label to describe the contents, and it's up to you to remember which alternative is filed under which label).

If you use step 4 very often, you should also use steps 5 and 6 periodically (monthly, for example) to keep the file cabinet neat and up-to-date. (If you don't, Ms. J. may do it for you, and she may throw out something you want to keep.)

Step 9 is equivalent to steps 3/7, and step 8 is equivalent to steps 3/7 -- except that Ms. J. doesn't have to fill your blackboard; thus, step 8 is slightly faster.

The Reality

LECS is composed of two computer programs: the Editor and the "new" or "experimental" model. These programs largely correspond to the two characters used in the analogy above. The Editor is Ms. J. and the "new" model is Dr. S. Of course, the analogy is not perfect; personifying the computer programs may have made their gross functions easy to understand, but consequently, their details have been hidden.

The Editor is more important than the description of Ms. J. implies; it provides to your economists the functions of the blackboard, the file cabinet, and the intercom. LECS users will typically spend almost all of their computer session time running the Editor. When the other programs are required, the Editor acts as the user's agent to invoke them, and when they terminate, the Editor resumes operation.

The model is rather faithfully rendered in the analogy, except that the mechanism by which it studies realignment descriptions has been glossed over. This mechanism -- for specification of model inputs -- dictates the architecture of both programs. So a brief background discussion is in order.

The Editor

With the UNIX system, it is possible to use a general-purpose text editor to store inputs in a file for use by a program as an alternative to "live" input typing. This procedure requires at least minimal training in UNIX concepts and facilities. A special-purpose editor has been designed and implemented especially for the LECS model. The basic objectives of this program are:

1. To allow inputs to be typed in conveniently and recalled later for review and possible modifications,

2. To provide users with technical capabilities without requiring advanced programming knowledge of UNIX, and

3. To establish a framework for future development.

Model Inputs

A fundamental concept in using LECS is a "set of inputs" (SOI), which corresponds to the "realignment description" of the analogy. The model accepts an SOI in order to perform calculations and produce output, and the bulk of the Editor is devoted to facilitating the acquisition, examination, modification, storage, and transmission of SOIs. The remainder of this report is a detailed description of the structure and contents of an SOI.

The model can prompt the user for an SOI. This is the original CERL implementation, adequate for occasional, non-repetitive analyses, but inconvenient for large-volume use. The model program has been extended to accept specification of a UNIX file as an alternative input source. UNIX files correspond to the labeled file folders containing realignment descriptions. When a model is invoked from the Editor, the user can either load a particular SOI, or have the Editor invoke a previously loaded SOI to be used as model inputs. In the latter case, the model will access the file and read the previously loaded SOI.

The Editor possesses an expanded capability for SOI-prompting; in addition to being able to prompt for an entire SOI in sequence like the model, the Editor can display user-selected parts of an SOI and re-prompt for new values of those parts that the user wants to change. The Editor has a work area (like the blackboard) in which it keeps the SOI currently being input or edited. Once a complete SOI has been assembled there, the user can invoke the model, using the contents of the work area as input (as in step 7 of the analogy above). The Editor also maintains the user's private "file cabinet" of stored SOIs, and provides the user with the ability to:

1. Retrieve an SOI from a file to the work area (see step 3 of the analogy).

2. Store the SOI currently in the work area in a file (see step 4)

3. Invoke the model, using a filed SOI as input (see steps 7 and 8)

4. See the names and the date/time of creation and the last use of files (see step 5)

5. Destroy files (see step 6 above).

The work area, unlike files, lasts only the duration of an Editor session. New users start with an empty "file cabinet." If desired, arrangements can be made to seed the user's files with a sample SOI which can be used for familiarization. Currently, storage space limitations do not appear to be of concern; if this situation prevails, there will be no automatic removal of old files (contrary to the analogy).

Model Outputs

The model allows the user to pick which groups of output he/she wants to see (there are about 23 to choose from); in fact, it prints only the data requested by the user. The model is referred to as "experimental" because it is still undergoing development to enhance the presentation of model outputs.

Summary

The reader should now have a good overall view of how the LECS Editor/model system operates. Subsequent sections will describe in more detail how a user interacts with the programs.

4 GETTING INTO THE SYSTEM

The Terminal

The type of terminal most commonly used with UNIX is the Texas Instruments "Silent 700" series electronic data terminal, usually referred to as the "TI." The instructions given here are for the TI model 745; other terminals operate similarly, but for the details of your unit, consult the manufacturer's instruction book.

The TI resembles an electric typewriter with extra keys, continuous roll paper, and a receptacle for a telephone handset. Once the user has logged in, the terminal is operated like a typewriter, with a few exceptions. The user indicates the end of a line of input by depressing the RETURN key; generally, the computer will not reply until this is done. The RETURN key is often referred to by the symbol "<CR>."

On the UNIX computer system, lower case is predominant; in general, one should never use the upper case.

In addition to the lower- and upper-case letters and numbers common to typewriters, the terminal has a third set of letters called "control" characters. These letters are typed by holding down the CTRL key while striking a letter key, in the same manner that one types a capital letter. The user need not be concerned with control characters other than "control-d" and "control-h." Control-d (often referred to by the symbol "D") has special significance; it tells the program you are finished, and it will also be used during logout. Control-h is the backspace key; if a typing error is made, the user may backspace over the error and continue with the correct input.

The "at" (@) key instructs the computer to disregard the entire line typed so far and to begin again. It is used when the control-h backspace is inconvenient, as when the whole line is incorrect, or when backspacing and overstriking have obscured the line.

To prepare the terminal and connect to UNIX:

1. Set the terminal up in a work area near a telephone

2. Attach the power cord to the terminal and to an electric outlet

3. Turn the power switch on

4. Set the four rocker switches on the keyboard as follows:

   "UPPER CASE" off
   "HALF DUP" off
   "LOW SPEED" off
   "ON LINE" on

5. Dial the UNIX telephone number:

   (217) 333-1587 or FTS 957-1587

6. Wait for the computer to answer with a steady tone

7. Place the telephone handset in the receptacle.

A successful connection will be signaled by a green light near the edge of the terminal keyboard; the computer will display an identifying herald and prompt for login.

Logging Into UNIX

When a connection has been made, UNIX will reply with a brief identifying message and a prompt for the user login name. When the assigned login name has been typed, the computer will prompt for the matching password. For security, the password will not appear on the terminal printout when it is typed. If the login name is typed incorrectly, the computer will print "Login Incorrect" and return to the login prompt. If login cannot be completed, check to see that the login name and password are valid.

Invoking ETIS

After the user has logged in, the latest UNIX system messages will be printed; most or all of these messages will not concern the LECS user. Occasionally they will announce when the computer will not be available. The printing will end with a percent sign (%) on a line by itself; this is the UNIX general prompt, which indicates that UNIX is ready to take a command from the user. For example, the word "etis" causes UNIX to run the program ETIS (Environmental Technical Information System), a special umbrella or "shell" program which serves as a user receptionist for several systems, including LECS.

Invoking the LECS Editor

After typing "etis," a message will welcome the user to ETIS. To go directly to LECS, type either "14" or "Loser" for the losing scenario of LECS. Type "15" or "Gainer" for the gaining scenario of LECS. If there is any news regarding LECS, such as program changes, it will be reported at this time. The LECS Editor will announce itself with a welcoming herald.

Getting Out of the System

After finishing the Editor session, type control-d or -1 to return to ETIS; typing control-d once more will provide logout, as will hanging up the phone.

Other Features

For a description of other features of UNIX, see Appendix B.

5 EDITOR REFERENCE (LOSER)

Top Level

When you enter the Editor, it will greet you with:

AF LECS (LOSER) Editor (Version 1.0)

and prompt you with:

Which option (type ? for a menu) ?

for commands. This is called the "top level" of the Editor.

To get a menu of the options available at the top level, type a question mark ("?") followed by RETURN. The Editor will respond with:

Type:	To:
1	See a list of your existing files
2	Get a printout of the input questionnaire
3	Enter inputs from your terminal
4	Get the inputs from one of your files
5	Remove one of your files
6	See the inputs you have loaded
7	Run the AF LECS model
8	Examine/change your inputs
9	Store your inputs in a file
-1	Leave the editor

This menu may be accompanied by an additional message, such as:

You have loaded a set of inputs.

or:

You have loaded and edited a set of inputs.

These messages report the status of the Editor's work area. The first indicates that you have loaded at least part of an SOI, and the second means that you have changed some input in the work area.

When you are finished, type "-1" at the top level; this will return you to ETIS.

Option 1: See a List of Your Existing Files

This option requests the Editor to list the files in your "file cabinet." Such a listing looks like the following:

file name	last change	last use
sample	Jan 2 02:10 1980	Jan 2 02:10 1980
validation	Jan 2 02:10 1980	Jan 2 02:10 1980
goodfellow-1	Jan 2 02:10 1980	Jan 2 02:10 1980
goodfellow-2a	Jan 8 14:17 1980	Jan 8 14:17 1980
goodfellow-2b	Nov 25 09:57 1979	Jan 13 18:40 1980
loring	Jan 2 02:10 1980	Jan 13 20:46 1980

6 file(s) total

The column under "file name" shows the labels used to identify each stored set of inputs. File names consist of 1 to 14 letters, digits, and some punctuation marks; it is recommended that punctuation be limited to period, comma, colon, dash, sharp ("#"), plus ("+"), and parentheses.

The date and time under "last change" indicates when the file was last changed, or when it was created if it has never been changed. The date and time under "last use" shows when the file was last accessed by either the Editor or one of the Models. It is a good idea to remove files that have not been accessed for long periods of time (see option 5 below).

Option 2: Get a Printout of the Input Questionnaire

This option requests the Editor to print a copy of the input questionnaire. This is a printout of input prompts for a complete set of inputs, with blanks in which input values may be written. This printout may be used as a "shopping list" while inputs are gathered from various sources, or as a "notepad" to keep all inputs handy at the terminal.

Option 3: Enter Inputs From Your Terminal

This option causes the Editor to prompt the user for an SOI to be loaded into the work area. (See Chapter 7 for details about inputs.)

Option 4: Get the Inputs From One of Your Files

This option allows the user to retrieve a stored SOI and bring it into the work area. The Editor will ask:

Which file?

A null response (simply typing RETURN) will abort the operation and return the user to the top level. Typing the name of a file causes the Editor to load the SOI stored there into the work area. The previous contents of the work area will be overwritten during this process.

Option 5: Remove One of Your Files

This option allows the user to remove a file. The Editor will ask:

Which file?

A null response (simply typing RETURN) will abort the operation and return the user to the top level. Typing the name of a file causes the Editor to delete the named file, whose contents will be lost as a result.

Option 6: See the Inputs You Have Loaded

This option causes the Editor to print the inputs you have loaded (brought to the blackboard).

If the user has loaded a set of inputs (via option 3 or 4), the Editor will start printing out the input values by section and group. If you have not loaded a set of inputs, the Editor will print:

you haven't loaded a set of inputs yet!

When the printout terminates, the user is returned to the Editor's top level.

Option 7: Run the AF LECS Model

This option causes the Editor to invoke the "new" model.

If the user has loaded a set of inputs into the work area (via option 3 or 4), the Editor will ask:

Do you want to use the inputs you have loaded?

An answer of "y" or "yes" will cause the model to be invoked with input from the SOI currently in the work area. An answer of "n," "no," or simply RETURN causes the Editor to proceed to the next question.

The Editor will ask:

Do you want to use one of your input files?

An answer of "y" or "yes" causes the Editor to ask:

Which file?

Typing the name of one file will invoke the model with input from the SOI stored in the named file. A null response (simply typing RETURN) cancels the "yes" response to the previous question; that is, it aborts the option of using a stored SOI as model input.

Negative responses to the foregoing options will invoke the model without pre-assembled input; the model will prompt for inputs itself.

When the user leaves the model, he/she is returned to the Editor's top level.

Option 8: Examine/Change Inputs

This option allows the user to modify the set of inputs currently in the work area. An SOI is divided into "sections," which are divided into "groups." This option gives the user the capability to examine and optionally change the inputs of any group in any section. There are two "levels" in this option: (1) select a section, and (2) select a group within the current section.

The Editor will ask:

Which section (type ? for a menu) ?

To obtain the list of sections, type a question mark:

Type:	For:
1	Section 1 (national/regional productivity and wages)
2	Section 2 (ROI baseline conditions)
3	Section 3 (AF personnel characteristics)
4	Section 4 (parameters of proposed action)
5	Section 5 (current base conditions)
6	Section 6 (community baseline conditions)
-1	to quit editing

Responding "-1" will return the Editor to its top level. Selecting one of the six sections moves the user to the next level.

The Editor will ask:

Which group (type ? for a menu) ?

The groups and the menus listing them are different for each section. However, a response of "-1" for a group always returns the user to the "select-a-section" level.

The group menus, by section, are:

Section 1 National productivity and wages

Group 1: National employment and output in year t4
Group 2: National employment and output in year t6 (by sector)
Group 3: National employment and income in year tF
Group 4: Distribution of construction sector expenditures
Group 5: State or regional construction sector
Group 6: State or regional wholesale sector
Group 7: State or regional retail sector
Group 8: State or regional service sector

Section 2 ROI baseline conditions

Group 1: ROI income multiplier
Group 2: ROI labor force size
Group 3: ROI population
Group 4: ROI unemployment rate
Group 5: ROI unemployment rate timeseries
Group 6: Regional percapita income in year tH
Group 7: Regional income timeseries

Section 3 AF personnel characteristics

Group 1: Average wages of AF personnel
Group 2: %% of AF disposable income spent in ROI
Group 3: Working dependents
Group 4: Second jobs
Group 5: %% who leave ROI
Group 6: %% who do not seek/obtain work
Group 7: Ratio of nonwage income to wage income
Group 8: Taxes and savings
Group 9: %% of AF personnel who currently reside in ROI
Group 10: %% of AF military personnel who live on-base
Group 11: Number of on-base family housing units occupied at tl
Group 12: Rental/ownership status of off-base personnel
Group 13: Mean household size of AF personnel

Section 4 Parameters of proposed action

Group 1: Dates of realignment period
Group 2: Total terminated or relocated positions
Group 3: Disposition of terminated positions
Group 4: Change in procurement expenditures
Group 5: Current procurement expenditures

Section 5 Current base conditions

Group 1: Personnel currently assigned to installation

Section 6 AOA baseline conditions

Group 1: Number of cities in AOA analysis
Group 2: Name of city or AOA
Group 3: AF personnel population in AOA
Group 4: AOA population
Group 5: AOA population timeseries
Group 6: AOA housing stock size
Group 7: AOA housing vacancy rate
Group 8: AF personnel population in balance of ROI

When a group is selected, the existing values are printed, followed by the question:

Do you want to change anything?

A response of "n," "no," or simply depressing the RETURN key will leave the values unchanged and return the user to the group selection prompt. A positive answer, "y" or "yes," will cause the Editor to prompt the user for new inputs for the group.

The user is free to examine groups in any order, but it is recommended that changes be made, especially in section 6, in the numerical order of the groups. For example, change section 6, group 1, before changing section 6, group 2.

Gainer Model Variations

The Gainer model of LECS uses much of the same types of inputs. The sections of the Set of Inputs are the same (six in total); however, the Gainer model has changed certain groups within specific sections.

The changed group menus, by section, for the Gainer model are:

Section 2 - ROI baseline conditions

Group 4: ROI unemployment rate

Section 3 - AF personnel characteristics

Group 4: Second jobs, deleted
Group 5: Percent who leave ROI, deleted
Group 6: Percent who do not seek/obtain work, deleted
Group 9: Percent of AF personnel who currently reside in ROI, deleted
Group 10: Percent of AF military personnel who live on-base, deleted
Group 11: Changed to available on-base housing

Section 4 - Parameters of proposed action

Group 2: Changed to total new positions
Group 3: Changed to disposition of new positions

Section 5 - Current base conditions

Group 1: Change to total personnel currently assigned to installation

Section 6 - AOA baseline conditions

Group 3: Change to percent new personnel locating in city
Group 8: AF personnel population in balance of ROI, deleted

Option 9: Store Inputs in a File

This option allows the user to store the contents of the work area in a file. The Editor will ask:

Which file?

A null response (simply typing RETURN) will abort the operation and return the user to the top level. If the user types the name of an existing file, the Editor will respond:

That file already exists; are you sure?

If the contents of the file are to be overwritten with new inputs, the user should answer "y" or "yes"; answering "n," "no," or simply depressing the RETURN key will cause the Editor to ask for another file name. File names consist of 1 to 14 letters, digits, and some punctuation marks; it is recommended that punctuation be limited to periods, commas, colons, dashes, sharps ("#"), pluses ("+"), and parentheses. Once the Editor has determined the name of the file in which the inputs are to be stored, the contents of the work area are written to the file, and the Editor returns to the top level.

6 NEW MODEL REFERENCE

When the user enters the new model, Option 7, he/she is greeted by:

Experimental LECS

and prompted by:

Which profile (type ? for a menu) ?

for options. To obtain a menu of the options available, type a question mark ("?") and depress the RETURN key. The model will respond with:

Type:	For:
1	Aggregate productivity
2	Distribution of construction outlays
3	Construction supply productivity
4	State or regional sectors
5	Population projection
6	Change in AF procurement expenditures
7	Distribution of terminated or relocated positions
8	AF personnel spending
9	Distribution of secondary employment impact
10	Distribution of second jobs
11	Distribution of working dependents
12	Distribution of unemployment impact
13	Distribution of labor force impact
14	Labor force projection
15	Estimated labor force conditions at t2 with/without action
16	Estimated personal income at t2 without action
17	ROI population
18	ROI population impact
19	Distribution of military personnel currently at installation
20	ROI housing impact
21	City population impact
22	City housing impact
23	City housing vacancy impact
ALL	All of the above
-1	To leave LECS

When you are finished, type "-1"; this will return you to the Editor.

For the Gainer model, Profile 10 is deleted from the above table.

7 SET OF INPUTS

This chapter presents the input data for the LECS program; the data are called the SOI. These input requirements are presented according to section and group as they appear in the computer's input request.

The SOIs are essentially the same for both the Loser and Gainer scenarios of LECS. The SOIs shown in this chapter are for the Loser LECS program. Where inputs are different for the Gainer LECS program, a special notation will identify the differences unique to the Gainer LECS program.

The "synopsis" section identifies the variable name requested by the computer or shown on the input form if requested.

The "description" section explains the variables' utility in the overall LECS methodology and further defines the variables.

The "sources" section identifies common sources for the data elements.

The "example" section indicates the type or form of the user input.

Section 1, Group 1 -- National Total Output and Employment

Synopsis:

National output (GNP) in year t4: .....
National unemployment in year t4: .....
Date of year t4: .....

Description:

The model uses this group of inputs, along with groups 2 and 4 in this section, to calculate a weighted average productivity for the sectors supplying the construction sector. This group in particular is used to estimate the nation's aggregate productivity.

"National output" is the GNP of the nation in the baseline year (t4).

"National employment" is the number of employed persons in the nation in the same baseline year (t4).

The year t4 is the year in which the measurements of output and employment were made.

The year t4 is the base year the model will use to express all dollar-value quantities (productivity, wages, and income). The GNP input in this group is, by definition, in t4 dollars; other dollar-value inputs will be adjusted to t4 dollars by means of price deflator ratios. The data in this group are important enough to be determined and published frequently and promptly, so very recent values can be expected to be available. This allows considerable discretion in the choice of the base year (t4), subject only to the availability of price deflators for the chosen year. Currently, the

model's technique for applying price deflators is rather limited and inflexible; until this is corrected, the latest year that can be used as the base year is 1978. If it is important to obtain dollar-value outputs for a later year, the user may consider manually applying price deflators to the model's output.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

Survey of Current Business, U.S. Dept. of Commerce, Bureau of Economic Analysis, Annual Publications.
Employment and Training Report of the President, U.S. Department of Labor, Annual Publications.

Example:

National Output (GNP) in Year t4: 199,530,000,000
National Employment in Year t4: 91,964,000
Date of Year t4: 1978

Section 1, Group 2 -- National Total Output and Employment, by Sector

Synopsis:

National output (GNP) in year t6: .....
National output (GNP) in year t6, by sector:
Manufacturing: .....
TCPU: .....
Trade: .....
FIRE: .....
Services: .....

National employment in year t6: .....
National employment in year t6, by sector:
Manufacturing: .....
TCPU: .....
Trade: .....
FIRE: .....
Services: .....
Date of year t6: .....

Description:

This group of inputs, along with groups 1 and 4 in this section, is used by the model to calculate a weighted average productivity for the sectors supplying the construction sector. This group in particular is used to estimate the nation's sectoral productivities.

"National output" is the GNP of the nation in the observation year (t6). The sectoral breakdown shows the portions of total national output provided by the indicated sectors.

"National employment" is the number of employed persons in the nation in the same observation year (t6). The sectoral breakdown shows the distribution of national employment by sector.

The year t6 is the year in which the measurements of output and employment were made.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

Survey of Current Business, U.S. Dept. of Commerce, Bureau of Economic Analysis, Annual Publications.
Employment and Training Report of the President, U.S. Department of Labor, Annual Publications.
U.S. Bureau of the Census, National Input/Output Tables.

Example:

```
National output (GNP) in year t6:  1,887,177,000,000
National output (GNP) in year t6 by sector:
  Manufacturing:    451,606,000,000
  TCPU:             166,968,000,000
  Trade:            325,909,000,000
  FIRE:             261,493,000,000
  Services:         233,972,000,000

National employment in year t6:  90,553,700
National employment in year t6 by sector:
  Manufacturing:    19,559,200
  TCPU:              4,589,500
  Trade:            18,288,200
  FIRE:              4,508,000
  Services:         15,331,000
  Date of year t6:  1977
```

Section 1, Group 3 -- National Employment and Income

Synopsis:

```
National employment in year tF:                    ........
National 'wage and salary' income in year tF:      ........
National 'other labor' income in year tF:          ........
National proprietors' income in year tF:           ........
  Date of year tF:  ........
```

Description:

The model uses the inputs in this group to calculate average personal income of workers and proprietors in the sectors supplying the construction sector. The calculation actually yields average personal income for all employees in the nation, and this figure is used as a proxy for the more specific value.

"National employment" is the number of employed persons in the nation (including proprietors) in the observation year (tF).

The income inputs form a derivation of personal income at the national level among wages and salaries, labor income rather than wages and salaries (e.g., commissions), and proprietors' income.

The year tF is the year in which the measurements of employment and income were made. The income values will be adjusted to t4 dollars by means of the ratio of the Consumer Price Indexes for the years t4 and tF.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

Survey of Current Business, U.S. Dept. of Commerce,
Bureau of Economic Analysis, Annual Publications.

Example:

National Employment in Year tF:	90,553,700
Nation 'wage and salary' income in year tF:	983,642,000,000
National 'other labor income' in year tF:	90,426,000,000
National proprietors' income in year tF:	99,767,000,000
Date of Year t4: 1977	
Date of Year tF: 1977	

Section 1, Group 4 -- Distribution of Construction Sector Expenditures

Synopsis:

% of construction sector expenditures going to labor income: .....
% of construction sector expenditures going to property income: .....
% of construction sector expenditures going to purchases from:
Manufacturing: .....
TCPU: .....
Trade: .....
FIRE: .....
Services: .....

Description:

The model uses this group of inputs, along with groups 1 and 2 in this section, to calculate a weighted average productivity for the sectors supplying the construction sector. This group provides the sectoral weights that will be applied to sectoral productivities to yield aggregate productivity.

These inputs show the fractional or percentage distribution of construction sector expenditures at the national level among wage income, property income, and purchases from other sectors.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

U.S. Bureau of the Census, National Level Input/Output Tables

Example:

```
% of construction sector expenditures going to labor income:  .328
% of construction sector expenditures going to property income:  .093
% of construction sector expenditures going to purchases from:
  Manufacturing:    .393
  TCPU:             .031
  Trade:            .081
  FIRE:             .015
  Services:         .059
```

Section 1, Group 5 -- State or Regional Construction Sector Receipts and Employment

Synopsis:

```
State or regional construction sector:
  Receipts:     ........
  Employment:   ........
  Date:         ........
```

Description:

The model uses this group of inputs to calculate the construction sector's productivity.

"Receipts" refers to the dollar volume of new construction.

"Employment" refers to the number of persons employed in the construction sector.

"Date" is the year in which the measurements of receipts and employment were made.

... Either the state or the region in which the ROI is located may be used as the geographic base, but the base should be the same for all three data values. The region must be large enough to minimize commuting between the place of work and place of residence. It has always been common practice to use state-level data for this sector.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

State Development Office.
State Department of Labor.
Regional/Local Planning Commission Publication.

Example:

State or regional construction sector:

Receipts:	10,507,241,000
Employment:	310,343
Date:	1972

Section 1, Group 6 -- Wholesale Sector Receipts, Employment, and Payroll

Synopsis:

State or regional wholesale sector:

Output:	.....
Employment:	.....
Payroll:	.....
Date:	.....

Description:

This group of inputs, along with those of group 8 in this section, is used to estimate productivity and average wages in the aggregate wholesale trade and services sector. This aggregate sector is used as a proxy for the sectors supplying Air Force procurement needs.

"Output" refers to the dollar volume of sales or receipts.

"Employment" is the number of persons employed in this sector.

"Payroll" is the total of wages paid to workers in this sector.

"Date" is the year in which output, employment, and payroll were measured.

Either the state or the region in which the region of influence (ROI) is located can be used as the geographic base, but the base should be the same for all three data values. If possible, the base should be the same as for groups 7 and 8. The region must be large enough to minimize commuting between place of residence and place of work.

If the data for output, employment, and payroll are from different years, use the date of the employment data as the base and manually adjust the output and payroll data to that base using a ratio of wholesale price deflators (for output) or a ratio of consumer price indices (for payroll).

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

State Development Office.
State Department of Labor.
Regional/Local Planning Commission Publication.

Example:

State or regional wholesale sector:

Output:	207,775,000
Employment:	1573
Payroll:	9,470,000
Date:	1972

Section 1, Group 7 -- Retail Sector Receipts, Employment, and Payroll

Synopsis:

State or regional retail sector:

Output:	.....
Employment:	.....
Payroll:	.....
Date:	.....

Description:

This group of inputs, along with those of group 8 in this section, is used to estimate productivity and average wages in the aggregate retail trade and services sector. This aggregate sector is used as a proxy for the sectors supplying personal consumption.

"Output" refers to the dollar volume of sales or receipts.

"Employment" is the number of persons employed in this sector.

"Payroll" is the total of wages paid to workers in this sector.

"Date" is the year in which output, employment, and payroll were measured.

Either the state or the region in which the ROI is located can be used as the geographic base, but the base should be the same for all three data values. If possible, the base should be the same as for groups 6 and 8. The defined region should be large enough to minimize the effects of commuting between place of residence and place of work.

If the data for output, employment, and payroll are from different years, use the date of the employment data as the base and manually adjust the output and payroll data to that base using a ratio of retail price deflators (for output) or a ratio of consumer price indices (for payroll).

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

State Development Office.
State Department of Labor.
Regional/Local Planning Commission.

Example:

State or regional retail sector:

Output:	175,824,000
Employment:	4523
Payroll:	19,224,000
Date:	1972

Section 1, Group 8 -- Service Sector Receipts, Employment, and Payroll

Synopsis:

State or regional service sector:

Output:	.....
Employment:	.....
Payroll:	.....
Date:	.....

Description:

This group of inputs, along with those of groups 6 and 7 in this section, is used to estimate productivity and average wages in the aggregate retail trade and services sector (used as a proxy for the sectors supplying personal consumption) and in the aggregate wholesale trade and services sector (used as a proxy for the sectors supplying Air Force procurement needs).

"Output" refers to the dollar volume of sales or receipts.

"Employment" is the number of persons employed in this sector.

"Payroll" is the total of wages paid to workers in this sector.

"Date" is the year in which the output, employment, and payroll were measured.

Either the state or the region in which the ROI is located can be used as the geographic base, but the base should be the same for all three data values. If possible, the base should be the same as for groups 6 and 7. The defined region should be large enough to minimize the effects of commuting between place of residence and place of work.

If the data for output, employment, and payroll are from different years, use the date of the employment data as the base and manually adjust the output and payroll data to that base using a ratio of service price deflators (for output) or a ratio of consumer price indices (for payroll).

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

State Development Office.
State Department of Labor.
Regional/Local Planning Commission.

Example:

State or regional services sector:

Output:	27,110,000
Employment:	1569
Payroll:	6,339,000
Date:	1972

Section 2, Group 1 -- Income Multiplier

Synopsis:

ROI income multiplier: .....

Description:

This is the ROI net income multiplier, which is the ratio of non-basic or "service" income to basic or "export" income. The gross income multiplier provided by EIFS is the ratio of total income to basic income. A gross multiplier may be converted readily to a net multiplier by subtracting one from it.

Sources:

Economic Impact Fore[illegible] System (EIFS) profile 8.

Example:

ROI income multiplier: 1335

Section 2, Group 2 -- ROI Labor Force

Synopsis:

```
Estimate of ROI labor force size in year t2: ........
ROI labor force size in year t(Laz): ........
  Date of t(Laz): ........
ROI labor force size in year t(Lbz): ........
  Date of t(Lbz): ........
```

Description:

The inputs in this group are used to estimate the size of the ROI labor force at t2 (the end of the realignment period). This number would be an estimate of the size of the ROI labor force if no realignment were undertaken.

There are three options for supplying the required information:

1. The user may supply an estimate from local sources, such as a regional planning commission.

2. The model can interpolate the value from a measure of ROI labor force size at some period prior to t2 (referred to as t(Laz)), and from a measure of ROI labor force size at some period after t2 (referred to as t(Lbz)).

3. The model can extrapolate the value from two historical measures prior to t2 (the first referred to as t(Laz) and the second as t(Lbz)). The technique used to extrapolate labor force size involves estimating the labor force participation rate at time t(Lbz), extrapolating the participation rate from t(Lbz) to t2, and combining the participation rate at t2 with the population at t2. The estimation of the participation rate t(Lbz) requires an estimation of population at t(Lbz). To make this population estimate, at least two population measures must be available; these can be obtained from the inputs of group 3 in this section. The extrapolation of participation rate from t(Lbz) to t2 is based on an assumption that the participation rate grows at the rate of .007 per year.

The first option is taken by supplying a value for the first input; the remaining inputs should then be given zero values. Either of the second or third options is taken by supplying a zero value for the first input, and non-zero values for the remaining inputs. The model compares the date t(Lbz) to t2 and decides whether to use the interpolation or the extrapolation algorithms.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

TAB A-1, 4.2.2.1.1.
Economic Impact Forecast System (EIFS) BLS profile.
Bureau of Labor Statistics.
Regional/Local Planning Commission.
State Department of Labor.
Universities.

Example:

```
Estimate of ROI labor force size in year t2:  0
ROI labor force size in year t(Laz):  28,765
  Date of t(Laz):  3/70
ROI labor force size in year t(Lbz):  38,507
  Date of t(Lbz):  3/77
```

Section 2, Group 3 -- ROI Population

Synopsis:

```
Estimate of ROI population in year t2:  ........
ROI population in year t(RPaz):  ........
  Date of t(RPaz):  ........
ROI population in year t(RPbz):  ........
  Date of t(RPbz):  ........
```

Description:

The inputs in this group are used to estimate the size of the ROI population at t2 (the end of the realignment period) in the absence of the realignment.

There are three options for supplying the required information:

1. The user may supply an estimate from local sources, such as a regional planning commission.

2. The model can interpolate the value from a measure of ROI population at some period prior to t2 (referred to as t(RPaz)), and from a measure of ROI population at some period after t2 (referred to as t(RPbz)).

3. The model can extrapolate the value from two historical measures from prior to t2 (the first referred to as t(RPaz) and the second as t(RPbz)).

The first option is taken by supplying a value for the first input; the remaining inputs may then be given zero values. Either of the second or third options is taken by supplying a zero value for the first input and non-zero

values for the remaining inputs. Currently, the interpolation and extrapolation algorithms for population are identical.

The technique used to extrapolate labor force size at the end of the realignment period (see group 2) requires estimates of population at t(RPaz) and t(RPbz) in order to estimate population at t(Lbz). If the extrapolation option in that group is taken, those population values must be supplied here, even if option 1 is selected for estimating population in t2. In this case, values for all five inputs in this group must be entered; however, this will not adversely affect the t2 population estimate.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

TAB A-1, 4.1.1.1 or 4.1.1.2.
Regional/Local Planning Commission.
State Department of Labor.
Universities.

Example:

```
Estimate of ROI population in year t2:  0
ROI population in year t(RPaz):  74,792
  Date of t(RPaz):  3/75
ROI population in year t(RPbz):  79,508
  Date of t(RPbz):  3/80
```

Section 2, Group 4 -- ROI Unemployment Rate

Synopsis:

```
Estimate of unemployment rate in year t2:                    ........
Most recently recorded unemployment rate:                    ........
ROI unemployment rate for latest complete calendar year:     ........
ROI unemployment rate 2 years before most recent:            ........
Most recent seasonally adjusted state unemployment rate:     ........
```

Description:

The inputs in this group are used to calculate impacts on unemployment as a result of the realignment and to establish thresholds for the impact significance of the unemployment.

If the estimated unemployment rate at t2 is not available, the most recently recorded unemployment rate should be supplied.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

TAB A-1, 4.2.2.1.1.
Economic Impact Forecast System (EIFS) BLS profile.
Bureau of Labor Statistics.
Regional/Local Planning Commission.
State Department of Labor.

Gainer Model: The gainer model contains only one entry for this group:
Estimates of unemployment rate in year t2:.....

Example:

Estimate of unemployment rate in year t2: .035
Most recently recorded unemployment rate: .041
ROI unemployment rate for latest complete calendar year: .035
ROI unemployment rate 2 years before most recent: .037
Most recent seasonally adjusted state unemployment rate: .053

Section 2, Group 5 -- ROI Unemployment Timeseries

Synopsis:

Number of years of unemployment rate data (uR, uN): .....
(for each year of unemployment rate data:)
Year: .....
ROI annual average unemployment rate: .....
State or regional unemployment rate: .....

Description:

The inputs in this group are used to establish thresholds for the impact significance of unemployment. They form a timeseries of unemployment rates in the ROI and in the state or region of the ROI's location.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

TAB A-1, 4.2.2.1.1.
Economic Impact Forecast System (EIFS) BLS profile.
Bureau of Labor Statistics.
Regional/Local Planning Commission.
State Department of Labor.

Example:

```
Number of years of unemployment rate data (EE, EN):  2
 Year:  1976
 ROI annual average unemployment rate:  .035
 State or regional unemployment rate:  .053
 Year:  1977
 ROI annual average unemployment rate:  .035
 State or regional unemployment rate:  .056
```

Section 2, Group 6 -- Regional Per Capita Income

Synopsis:

```
Regional per capita income in year tH:  ........
  Date of year tH:  ........
```

Description:

These inputs are used to estimate personal income at time t2. The value of per capita income at time tH is adjusted to the base year (t4) by a ratio of consumer price indices. The year tH should be the most recent year for which both per capita income data and price deflators are available.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

```
Survey of Current Business, U.S. Dept. of Commerce,
  Bureau of Economic Analysis, Annual Publications.
Economic Impact Forecast System (EIFS) BEA profile.
Regional/Local Planning Commission.
```

Example:

```
Regional per capita income in year tH:  6003
  Date of year tH:  1976
```

Section 2, Group 7 -- Regional Income Timeseries

Synopsis:

```
Number of years of regional income data (Y, YL):  ........
(for each year of regional income data:)
  Year:                    ........
  Total personal income:   ........
  Labor income:            ........
```

Description:

These inputs provide a timeseries of total personal income and labor income, from which the model computes a ratio of non-wage income to total income.

These data are also used in income impact threshold computation.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

Survey of Current Business, U.S. Dept. of Commerce,
Bureau of Economic Analysis, Annual Publications.
Economic Impact Forecast System (EIFS) BEA profile.
Regional/Local Planning Commission.

Example:

```
Number of years of regional income data (Y, YL):  2
  Year:  1970
  Total personal income:  191,961,000
  Labor income:           119,317,000
  Year:  1971
  Total personal income:  209,765,000
  Labor income:           130,608,000
```

Section 3, Group 1 -- Average Wages of Air Force Personnel

Synopsis:

```
Average wages of Air Force personnel affected by action:
  Permanent military:  ........
  Military trainees:   ........
  Civilians:           ........
```

Description:

These inputs are used to estimate the change in local spending due to change in Air Force personnel income.

The input values should be annual wage and salary income for each class of Air Force personnel.

Sources:

TAB A-1, 4.2.2.2.
Base-Level Comptroller.
Commander's Management Information Review.

Example:

Average wages of Air Force personnel affected by action:
Permanent military: 12,180
Military trainees: 5467
Civilian: 14,370

Section 3, Group 2 -- Fraction of Air Force Personnel Disposable Income Spent in ROI

Synopsis:

% of Air Force personnel disposable income spent in ROI:
Permanent military: .....
Military trainees: .....
Civilians: .....

Description:

These inputs are used to estimate the change in local spending due to change in Air Force personnel income.

These inputs indicate the fraction of take-home pay spent in the ROI by each class of Air Force personnel. Off-base military personnel spend an average of about 59 percent of their income in an ROI; on-base military personnel spend only an average of 51 percent of their income within the ROI. If the proportion of the military which resides on and off base is known, then a weighted average of 51 percent and 59 percent can be used as input. (If more reliable information can be gathered, it should be used.)

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

Surveys.
Knowledgeable Personnel at the Base Level.
Historical Air Force Surveys.

Example:

% of Air Force personnel disposable income spent in ROI:
Permanent military: .55
Military trainees: .55
Civilians: .88

Section 3, Group 3 -- Working Dependents

Synopsis:

Average number of working dependents per Air Force employee:
Civilian: .....

Military: .....
Working dependent full-time equivalency factor: .....

Description:

These inputs are used to estimate the labor force impacts of vacated jobs due to dependents accompanying Air Force personnel out of the ROI.

The first two inputs are the average number of working dependents per Air Force personnel by type of personnel. The third input is a conversion factor representing the average full-time equivalency status of working dependents (1.0 equals full time).

Sources:

Surveys.
Commander's Management Information Review.

Example:

Average number of working dependents per Air Force employee:
Civilians: .37
Military: .25
Working dependent full-time equivalency factor: .50

Section 3, Group 4 -- Second Jobs

Synopsis:

% of Air Force personnel who hold a second job:
Civilian: .....
Military: .....
Second job full-time equivalency factor: .....

Description:

These inputs are used to estimate the labor force impacts of vacated second jobs held by Air Force personnel who leave the ROI.

The first two inputs are fractions of each type of personnel who hold a second job. The third input is a conversion factor representing the average full-time equivalency status of second jobs (1.0 equals full time).

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

Surveys.
Commander's Management Information Review.

Example:

```
% of Air Force personnel who hold a second job:
  Civilian:  .11
  Military:  .10
Second job full-time equivalency factor:  .25
```

Gainer Model: This group is removed.

Section 3, Group 5 -- Personnel Leaving ROI

Synopsis:

```
% Civilian retirees who leave ROI:  ........
% Military retirees who leave ROI:  ........
% Placed personnel who leave ROI:   ........
```

Description:

These inputs are used to estimate impacts on population and local spending by Air Force personnel.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

Example:

```
% Civilian retirees who leave ROI:  .20
% Military retirees who leave ROI:  .0
% Placed personnel who leave ROI:   .60
```

Gainer Model: This group is removed.

Section 3, Group 6 -- Personnel Leaving Labor Force

Synopsis:

```
% Civilian retirees who do not seek work:      ........
% Military retirees who do not seek work:      ........
% Separated personnel who remain unemployed:   ........
```

Description:

These inputs are used to estimate the labor force impacts resulting from Air Force personnel who retire or separate.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

Example:

% Civilian retirees who do not seek work: .60
% Military retirees who do not seek work: .65
% Separated personnel who remain unemployed: .50

Gainer Model: This group is removed.

Section 3, Group 7 -- Ratio of Non-Wage Income to Wage Income

Synopsis:

Ratio of non-wage income to wage income: .....

Description:

This input is used to estimate the impacts of non-wage income losses to the ROI resulting from the proposed action. Non-wage income includes rent, interest, and dividends. If a zero value is given, the model calculates this value from the data in group 7 of section 2.

Sources:

Example:

Ratio of non-wage income to wage income: 0

Gainer Model: This corresponding group is labeled group 4.

Section 3, Group 8 -- Taxes and Savings

Synopsis:

% of wages remaining after taxes: .....
% of after-tax wages remaining after saving: .....

Description:

These inputs are used to estimate disposable income from gross income.

On the average, Air Force personnel pay about 14 percent of their gross income for Federal, state, and local taxes; about 7 percent of after-tax income goes to savings.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

Example:

% of wages remaining after taxes: .86
% of after-tax wages remaining after saving: .93

Gainer Model: This corresponding group is labeled group 5.

Section 3, Group 9 -- Fraction of Personnel Residing in ROI

Synopsis:

% of Air Force personnel who currently reside in the ROI: .....

Description:

This input is used to calculate change in ROI population due to Air Force personnel leaving the ROI. For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

TAB A-1, 4.0.1.
Base Housing Office Survey.

Example:

% of Air Force personnel who currently reside in ROI: 1.00

Gainer Model: This group is removed.

Section 3, Group 10 -- Military Personnel Residing On-Base

Synopsis:

% of Air Force military personnel who live on-base:
Permanent military: .....
Military trainees: .....

Description:

These inputs are used to calculate population and housing impacts.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

TAB 1-1, 4.0.1.
Base Housing Office Survey.

Example:

% of Air Force military personnel who live on-base:
Permanent military: .29
Military trainees: .96

Gainer Model:

The inputs are changed to refer to available dormitory and family housing. This group is labeled group 6.

Synopsis for Gainer Model:

Number of on-base housing units available for new personnel: .....
Permanent parties (family housing): .....
Trainees (Dormitory units): .....

Section 3, Group 11 -- Number of On-Base Family Housing Units Occupied

Synopsis:

Number of on-base family housing units occupied at t1: .....

Description:

This input is used to calculate population and housing impacts.

Sources:

TAB A-1, 4.2.5.2.
Base Housing Office Survey.

Example:

Number of on-base family housing units occupied at t1: 99

Gainer Model: This group is removed.

Section 3, Group 12 -- Housing Tenure of Off-Base Personnel

Synopsis:

% of Air Force personnel living off-base who rent housing:
Permanent military: .....
Military trainees: .....
Civilians: .....

% of Air Force personnel living off-base who own housing:
Permanent military: .....
Military trainees: .....
Civilians: .....

Description:

These inputs are used to calculate housing impacts.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

TAB A-1, 4.2.4.5.1.3.2 or 4.2.5.1.6.2.
Base Housing Office Survey.

Example:

% of AF personnel living off-base who rent housing:
  Permanent military: .40
  Military trainees: 1.0
  Civilians: .33
% of AF personnel living off-base who own housing:
  Permanent military: .60
  Military trainees: 0
  Civilians: .67

Gainer Model: This group is labeled group 7.

Section 3, Group 13 -- Mean Household Sizes of Air Force Personnel

Synopsis:

Mean household size of Air Force personnel:
  Civilians: .....
  Permanent military: .....
  Military trainees: .....

Description:

These inputs are used to calculate population impacts.

The model is very sensitive to these inputs, and care should be taken when deriving the estimates.

Sources:

TAB A-1, 4.1.4.
Commander's Management Information Review.

Example:

Mean household size of Air Force personnel:
  Civilians: 2.86
  Permanent military: 2.47
  Military trainees: 1.06

Gainer Model: This group is labeled group 8.

Section 4, Group 1 -- Dates of Realignment Period

Synopsis:

Date of initiation of action: .....
Date of completion of action: .....

Description:

These two inputs define when the proposed action will begin to take place (t1) and when it will be completed (t2). It has always been the practice to designate the date of initiation, rather than the date that the action physically commences, as the date of the proposed action's announcement.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

Description of Proposed Action and Alternatives (DOPAA).

Example:

Date of initiation of action: 2/78
Date of completion of action: 9/80

Section 4, Group 2 -- Total Terminated or Relocated Positions

Synopsis:

Total terminated or relocated positions: .....

Description:

This input is a parameter of the realignment and shows the total number of affected positions at the installation (excluding contract employees located on-base).

Sources:

Description of Proposed Action and Alternatives (DOPAA).

Example:

Total terminated or relocated positions: 2581

Gainer Model:

The inputs are changed to show the "new" positions.

Synopsis for Gainer Model:

Total new positions opened at installation: .....

Section 4, Group 3 -- Disposition of Terminated Personnel

Synopsis:

% Terminated positions held by:
Permanent military who transfer: .....
Permanent military who retire: .....
Military trainees who transfer: .....
Civilians who transfer: .....
Civilians who retire: .....
Civilians who are placed by DoD: .....
Civilians who separate from AF: .....

Description:

These inputs are parameters of the realignment and show the distribution of terminated or relocated positions by personnel type and disposition.

Civilian personnel may transfer with the realignment, retire, separate from the Air Force, or be placed elsewhere by the Air Force. Military permanent parties may either transfer with the realignment or retire. Military trainees are assumed to transfer with the realignment. Since the model does not recognize any other dispositions, the sum of the inputs for this group should equal one.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

Description of Proposed Action and Alternatives (DOPAA).

Example:

% Terminated positions held by:
Permanent military who transfer: .39
Permanent military who retire: .04
Military trainees who transfer: .42
Civilians who transfer: .01
Civilians who retire: .02
Civilians who are placed by DoD: .09
Civilians who separate from AF: .03

Gainer Model:

The input references to personnel retiring, separating, or being placed elsewhere have been replaced by those for local and non-local hires.

Synopsis for Gainer Model:

% New positions filled by:
Permanent military who transfer .....
Military trainees who transfer .....
Civilians who transfer .....
Civilians hired locally .....
Civilians hired from outside ROI .....

Section 4, Group 4 -- Change in Procurement Expenditures

Synopsis:

Change in procurement expenditures due to action: .....
Change in construction expenditures due to action: .....

Description:

These inputs, which are parameters of the realignment, show the change in procurement and construction expenditures resulting from the proposed action.

The model provides the user with the option of supplying a value for change in procurement expenditures, or of having a value calculated from the inputs in group 5 of this section. A zero value for change in procurement expenditures will provide a calculated value.

Sources:

Base Procurement Office.
Commander's Management Information Review.

Example:

Change in procurement expenditures due to action: 4,236,570
Change in construction expenditures due to action: 150,000

Section 4, Group 5 -- Current Procurement Expenditures

Synopsis:

Current procurement expenditures: .....
Commissary and BX purchases by retirees: .....

Description:

These inputs are used to calculate a change in procurement expenditures when the user opts not to supply that input in group 4 of this section.

Sources:

Base Procurement Office.
Commander's Management Information Review.
Description of Proposed Action and Alternatives (DOPAA).

Example:

Current local procurement expenditures: 4,236,570
Commissary and BX purchases by retirees: 0

Section 5, Group 1 -- Personnel Currently Assigned to Installation

Synopsis:

Total personnel employed by/assigned to base: .....
Number of military personnel assigned to installation:
Military permanent parties: .....
Military trainees: .....

Description:

These inputs show the total assigned strength and employment at the affected installation (not including contract employees located on-base).

Sources:

Base Procurement Office.
Commander's Management Information Review.
Description of Proposed Action and Alternatives (DOPAA).

Example:

Total personnel employed by/assigned to base: 2581
Number of military personnel assigned to installation:
Military permanent parties: 1120
Military trainees: 1075

Gainer Model:

The breakdown of current military personnel into permanent party and trainee has been removed. The single inputs ask for the total number of people currently at installation.

Section 6, Group 1 -- Number of Cities in AOA Analysis

Synopsis:

Number of cities to be analyzed: .....

Description:

This input is used by both the model and the input procedure to control analysis of alternatives (AOA). Groups 2 through 7 in this section provide data for analysis of one AOA; inputs for those groups must be repeated for each AOA. By specifying the number of AOAs in advance, the input procedure knows how many times to prompt for the AOA input groups.

The order in which groups 2 through 7 are prompted when several AOAs are to be analyzed is as follows: group 2 for AOA 1, group 3 for AOA 1, ..., group 7 for AOA 1, group 2 for AOA 2, group 3 for AOA 2, ..., group 7 for AOA 2, ..., group 2 for AOA n, group 3 for AOA n, ..., group 7 for AOA n.

Sources:

Not applicable.

Example:

Number of cities to be analyzed: 1

Section 6, Group 2 -- Name of City or AOA

Synopsis:

Name of city: .....

Description:

This input is used only to label the outputs from AOA analysis. The actual value supplied may be any short text describing the AOA.

Example:

Name of city: San Angelo

Section 6, Group 3 -- Air Force Personnel Population in AOA

Synopsis:

Number of Air Force personnel currently residing in this city:
Civilian: .....
Military: .....

Description:

The inputs in this group, with the addition of group 8 in this section, group 1 in section 5, and groups 9, 10, and 11 in section 3, are used to distribute the effects of Air Force personnel migration among the AOAs.

Sources:

TAB A-1, 4.0.1.

Example:

Number of Air Force personnel currently residing in this city:
Civilian: 381
Military: 2195

Gainer Model:

The input reflects the percentage of incoming personnel that will locate in this city.

Synopsis:

% incoming personnel locating in this city .....

Section 6, Group 4 -- AOA Population

Synopsis:

City population in year t(Paz): .....
Date of t(Paz): .....
City population in year t(Pbz): .....
Date of t(Pbz): .....

Description:

These inputs are used to estimate the AOA population at t2 (the end of the realignment period) in the absence of the realignment. These inputs either consist of historical measures of AOA population or are a mixture of historical measure and projection. The model will use simple trend-line fitting to extrapolate (if t(Pbz) is prior to t2) or interpolate (if t(Pbz) is after t2) population at t2.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

TAB A-1, 4.1.1.1 and 4.1.1.2.

Example:

City population in year t(Paz): 71,940
Date of t(Paz): 3/78
City population in year t(Pbz): 73,300
Date of t(Pbz): 3/80

Section 6, Group 5 -- AOA Population Timeseries

Synopsis:

```
Number of years of city population data:  ........
(for each year of population data:)
  City population:  ........
  Date:             ........
```

Description:

These inputs are used to establish thresholds for population impact significance.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

TAB A-1, 4.1.1.1 and 4.1.1.2.

Example:

```
Number of years of city population data:  2
  City population:  67,974
  Date:  3/76
  City population:  71,940
  Date:  3/78
```

Section 6, Group 6 -- AOA Housing Stock Size

Synopsis:

```
City housing stock size in year t(Haz):  ........
  Date of t(Haz):  ........
City housing stock size in year t(Hbz):  ........
  Date of t(Hbz):  ........

Count of owned units in 1970:          ........
Count of rental units in 1970:         ........
Most recent count of owned units:      ........
Most recent count of rental units:     ........
```

Description:

These inputs are used to estimate the characteristics of the AOA housing stock at t2. The first four inputs consist of historical measures of housing stock size or a mixture of historical measure and projection. Housing stock size in t2 is either extrapolated (if t(Hbz) is prior to t2) or interpolated (if t(Hbz) is after t2) from these values.

The remaining inputs break down housing stock into owned and rental units.

Dates may be specified as a year (e.g., 1978), or a year-within-century (e.g., 78). When more precision is required, a month number followed by a slash ("/") may precede the year (e.g., 1/78).

Sources:

TAB A-1, 4.2.5.1.8.

Example:

City housing stock size in year t(Haz): 23,807
Date of t(Haz): 3/70
City housing stock size in year t(Hbz): 23,9?7
Date of t(Hbz): 3/77
Count of owned units in 1970: 15,614
Count of rental units in 1970: 8193
Most recent count of owned units: 16,015
Most recent count of rental units: 7912

Section 6, Group 7 -- AOA Housing Vacancy Rates

Synopsis:

Latest total housing vacancy rate: .....
Most recent owned vacancy rate: .....
Most recent rental vacancy rate: .....

Description:

These inputs provide an estimate of housing vacancy rates in t2.

If values for the latter two inputs are available, the first input should be entered as zero. The model is equipped to perform housing impact calculations on the basis of either total vacancies or rental/owned vacancies. A non-zero input for total vacancy rate signals that the aggregate impact computation should be used.

For percentage inputs, values less than or equal to one will be interpreted as fractions and automatically scaled by 100.

Sources:

TAB A-1, 4.2.5.1.7 and 4.2.5.1.8.

Example:

Latest total housing vacancy rate: 0
Most recent owned vacancy rate: .038
Most recent rental vacancy rate: .068

Section 6, Group 8 -- Air Force Personnel Population in Balance of ROI

Synopsis:

Number of Air Force personnel currently residing in rest of ROI:
Civilian: .....
Military: .....

Description:

These inputs, with the addition of those in group 3 of this section, group 1 in section 5, and groups 9, 10, and 11 in section 3, are used to distribute the effects of Air Force personnel migration among the AOAs.

Sources:

TAB A-1, 4.0.1.

Example:

Number of Air Force personnel currently residing in rest of ROI:
Civilian: 5
Military: 0

Gainer Model: This group is removed.

8 CONCLUSIONS AND RECOMMENDATIONS

This manual represents the initial work in the systemization and refinement of LECS. A number of deficiencies in the methodological algorithms will require additional work; therefore, a number of revisions in the methodology will be made which will have an impact on the final form of any user's manual document. Currently, there is only a select user community for LECS (AFESC personnel and a few consultants). Therefore, it is recommended that this document and subsequent related work be compiled in binders to allow for addition of updates and modifications. When LECS is more refined, a formal user publication will be desirable; this material can then be the basis of that document.

APPENDIX A:

DATA REQUIREMENTS FOR LECS

The following symbols are used in Table A1:

A - Already available in EIFS

B - Programmed for inclusion in EIFS

C - Primary sources only.

The data elements fall into the following categories:

1. Available in tape format

2. Unavailable in tape format

3. Universal constants or default values.

Data elements available in tape format can be updated easily, since they need not be processed to become "machine-readable." This is very advantageous for county- (7600 units) or tract-level data (40,000 units). The drawback of this method is the lack of timeliness (data elements are often limited to those obtained from the Department of Commerce).

Table A1

Current LECS Data Requirements

SECTION 1

Group A

National Output (GNP) in Year t4:	B
National Employment in Year t4:	B
Date of Year t4:	B

Group B

National Output (GNP) in Year t6:	B
National Output (GNP) in Year t6, by Sector:	B
Manufacturing:	B
TCPU:	B
Trade:	B
Fire:	B
Services:	B
National Employment in Year t6:	B
National Employment in Year t6, by Sector:	B
Manufacturing:	B
TCPU:	B
Trade:	B
Fire:	B
Services:	B
Date of Year t6:	B

Group C

National Employment in Year tF:	B (1977)
National Wage and Salary Income in Year tF:	B (1977)
National Other Labor Income in Year tF:	B (1977)
National Proprietors Income in Year tF:	B (1977)
Date of Year tF:	

Group D

% of Construction Sector Expenditures Going to Labor Income:	C
% of Construction Sector Expenditures Going to Property Income:	C
% of Construction Sector Expenditures Going to Purchases from:	
Manufacturing:	C
TCPU:	C
Trade:	C
Fire:	C
Services:	C

Table A1. (Cont'd)

Group E	
State or Regional Construction Sector:	
Receipts:	B (1977)
Employment:	B (1977)
Date:	B (1977)
Group F	
State or Regional Wholesale Sector:	
Output	B (1977)
Employment:	B (1977)
Payroll:	B (1977)
Date:	B (1977)
Group G	
State or Regional Retail Sector:	
Output:	B (1977)
Employment:	B (1977)
Payroll:	B (1977)
Date:	B (1977)
Group H	
State or Regional Service Sector:	
Output:	B (1977)
Employment:	B (1977)
Payroll:	B (1977)
Date:	B (1977)
SECTION 2	
Group A	
ROI Income Multiplier:	A (1972)(soon 1977)
Group B	
Estimate of ROI Labor Force Size in Year t2:	C
ROI Labor Force Size in Year t (LAZ):	A (1978)
Date of t (LAZ):	A (1978)
ROI Labor Force Size in Year t (LBZ):	A (1978)
Date of t (LBZ):	A (1978)

Table A1. (Cont'd)

Group C	
Estimate of ROI Population in Year t2:	A (1975)(soon 1977) (1979-1984 Estimates)
ROI Population in Year t(RPaz):	A (1975)
Date of t(RPaz):	A (1975)
ROI Population in Year t(RPbz):	A (1975)
Date of f(RPbz):	A (1975)
Group D	
Estimate of Unemployment Rate in Year t2:	C
Most Recently Recorded Unemployment Rate:	A (1978)
ROI Unemployment Rate for Latest Complete Calendar Year:	A (1978)
ROI Unemployment Rate 2 Years Before Most Recent:	A (1978)
Most Recent Seasonally Adjusted State Unemployment Rate:	B (1978)
Group E	
Number of Years of Unemployment Rate Data (EE, EN)	A (1975-1978)
(For Each Year of Unemployment Rate Data):	
Year (1):	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (2)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (3)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (4)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (5)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (6)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (7)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (8)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
State or Regional Unemployment Rate:	A (1975-1978)
Year (9)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)

Table A1. (Cont'd)

State or Regional Unemployment Rate:	A (1975-1978)
Year (10)	A (1975-1978)
ROI Annual Average Unemployment Rate:	A (1975-1978)
Group F	
Regional Per Capita Income in Year tH:	A (1975) (Soon 1977) (1979-1984 Estimates)
Date of Year tH:	A (1975) (Soon 1977)
Group G	
Number of Years of Regional Income	
Date (Y, YL)	A (1965-1975)(Soon 1965-1977)
(For Each Year of Regional Income Data:)	
Year (1):	A (1965-1975)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (2):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (3):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (4):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (5):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (6):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (7):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (8):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (9):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)
Year (10):	A (1965-1976)(Soon 1965-1977)
Total Personal Income:	A (1965-1976)(Soon 1965-1977)
Labor Income:	A (1965-1976)(Soon 1965-1977)

Table A1. (Cont'd)

SECTION 3

Group A

Average Wages of AF Personnel Affected by Action:	C (User Input)
Permanent Military:	C (User Input)
Military Trainees:	C (User Input)
Civilians:	C (User Input)

Group B

% of AF Personnel Disposable Income Spent in ROI:	C (User Input)
Permanent Military:	C (User Input)
Military Trainees:	C (User Input)
Civilians:	C (User Input)

Group C

Average Number of Working Dependents Per AF Employee:	C (User Input)
Civilian:	C (User Input)
Military:	C (User Input)
Working Dependent Full-Time Equivalency Factor:	C (User Input)

Group D

% of AF Personnel Who Hold a Second Job:	C (User Input)
Civilian:	C (User Input)
Military:	C (User Input)
Second Job Full-Time Equivalency Factor:	

Group E

% Civilian Retirees Who Leave ROI:	C (User Input)
% Military Retirees Who Leave ROI:	C (User Input)
% Placed Personnel Who Leave ROI:	C (User Input)

Group F

% Civilian Retirees Who Do Not Seek Work:	C (User Input)
% Military Retirees Who Do Not Seek Work:	C (User Input)
% Separated Personnel Who Remain Unemployed:	C (User Input)

Group G

Ratio of Non-Wage Income to Wage Income:	C (User Input)

Table A1. (Cont'd)

Group H	
% of Wages Remaining After Taxes:	C (User Input)
% of After-tax Wages Remaining After Saving:	C (User Input)
Group I	
% of AF Personnel Who Currently Reside in ROI:	C (User Input)
Group J	
% of AF Military Personnel Who Live On-Base:	C (User Input)
Permanent Military:	C (User Input)
Military Trainees:	C (User Input)
Group K	
Number of On-Base Family Housing Units Occupied at t1:	C (User Input)
Group L	
% of AF Personnel Living Off-Base Who Rent Housing:	C (User Input)
Permanent Military:	C (User Input)
Military Trainees:	C (User Input)
Civilians:	C (User Input)
% of AF Personnel Living Off-Base Who Own Housing:	C (User Input)
Permanent Military:	C (User Input)
Military Trainees:	C (User Input)
Civilians:	C (User Input)
Group M	
Mean Household Size of AF Personnel:	C (User Input)
Civilians:	C (User Input)
Permanent Military:	C (User Input)
Military Trainees:	C (User Input)
SECTION 4	
Group A	
Date of Initiation of Action:	C (User Input)
Date of Completion of Action:	C (User Input)

Table A1. (Cont'd)

Group B	
Total Terminated or Relocated Positions:	C (User Input)
Group C	
% Terminated Positions Held By:	C (User Input)
Permanent Military Who Transfer:	C (User Input)
Permanent Military Who Retire:	C (User Input)
Military Trainees Who Transfer:	C (User Input)
Civilians Who Transfer:	C (User Input)
Civilians Who Retire:	C (User Input)
Civilians Who Are Placed by DoD:	C (User Input)
Civilians Who Separate From AF:	C (User Input)
Group D	
Change in Procurement Expenditures Due to Action:	C (User Input)
Change in Construction Expenditures Due to Action:	C (User Input)
Group E	
Current Procurement Expenditures:	C (User Input)
Commissary and BX Purchases by Retirees:	C (User Input)
SECTION 5	
Group A	
Total Personnel Employed by/Assigned to Base:	C (User Input)
Number of Military Personnel Assigned to Installation:	C (User Input)
Military Permanent Parties:	C (User Input)
Military Trainees:	C (User Input)
SECTION 6	
Group A	
Number of Cities To Be Analyzed:	C (User Input)
(Repeat Groups B Through G for Each City To Be Analyzed)	
Group B	
Name of City (1):	C (User Input)

Table A1. (Cont'd)

Group C	
Number of AF Personnel Currently Residing	
in This City:	C (User Input)
Civilian:	C (User Input)
Military:	C (User Input)
Group D	
City Population in Year t(Paz):	C (User Input)
Date of Paz:	C (User Input)
City Population in Year t(Pbz):	C (User Input)
Date of Pbz:	C (User Input)
Group E	
Number of Years of City Population Data:	C (User Input)
(For Each Year of Population Data:)	C (User Input)
City Population (1):	C (User Input)
Date:	C (User Input)
City Population (2):	C (User Input)
Date:	C (User Input)
City Population (3):	C (User Input)
Date:	C (User Input)
City Population (4):	C (User Input)
Date:	C (User Input)
City Population (5):	C (User Input)
Date:	C (User Input)
City Population (6):	C (User Input)
Date:	C (User Input)
City Population (7):	C (User Input)
Date:	C (User Input)
City Population (8):	C (User Input)
Date:	C (User Input)
City Population (9):	C (User Input)
Date:	C (User Input)
City Population (10):	C (User Input)
Date:	C (User Input)
Group F	
City Housing Stock Size in Year t(Haz):	C (User Input)
Date of Haz:	C (User Input)
City Housing Stock Size in Year t(Hbz):	C (User Input)
Date of Hbz:	C (User Input)
Count of Owned Units in 1970:	C (User Input)
Count of Rental Units in 1970:	C (User Input)
Most Recent Count of Owned Units:	C (User Input)
Most Recent Count of Rental Units:	C (User Input)

Table A1. (Cont'd)

Group G	
Latest Total Housing Vacancy Rate:	C (User Input)
Most Recent Owned Vacancy Rate:	C (User Input)
Most Recent Rental Vacancy Rate:	C (User Input)
Group H	
Number of AF Personnel Currently Residing in Rest of ROI:	C (User Input)
Civilian:	C (User Input)
Military:	C (User Input)

APPENDIX B:

OTHER FEATURES OF UNIX

UNIX Commands

The UNIX operating system offers useful capabilities in addition to LECS. As users become more experienced with the computer, they may find it advantageous to employ these features. This section describes the communications facilities provided by UNIX.

To execute UNIX commands, the user must input them to the UNIX "shell" or executive program. UNIX commands may be invoked when the percent sign (%) prompt is given. The user may issue a command by typing it, preceded by an exclamation mark (!), while he/she is still in the Editor. The exclamation mark tells the Editor that the typed command is for UNIX, and the Editor will send it along for execution. When the command is finished, the user will be returned to the Editor, which will repeat the prompt, so that use may be continued as before.

Mail

UNIX provides an electronic mail system that allows users to communicate discontinuously; i.e., the communicating users do not have to be on the system at the same time. A user may send a message to another user who is not logged in; when the second user does login, the system will indicate that he/she has a message; the user can then read it and reply in the same manner. Two UNIX commands are involved in this process.

The "sndmsg" command sends messages. This command will prompt the user for the main addressee(s) ("To:"), additional addressee(s) ("Cc:"), subject ("Subject:"), and the text of the message. Addressees are specified by the login names of those to whom the messages are being sent. A message may be sent to several people simultaneously by giving a list of addressees; simply type all the names, separated by spaces or commas. The "cc" addressee option is useful for keeping a copy of messages sent. Simply include your own login name here; however, this is not required, and you may simply type a RETURN to indicate no extra copies. The subject input should briefly describe the purpose of the message; it too is not absolutely required, but it may be useful to the recipient. When the prompt "Type letter:" is given, type the message as on a typewriter. You may use backspaces and "at" signs to make corrections, and to cancel the message, exit the sndmsg program by typing DEL. When the message is typed, type control-d to send it. The "mail" will be placed in the addressee's "mailbox."

When you login and have unread mail in your mailbox, UNIX will type the message "You have new mail." If you do not read it, and login again later and have no new mail, the message will change to "you have old mail." To read it, invoke the "mail" command at the "%" prompt. This will print the mail on your terminal, and ask if you want to save it. Generally, you should not save it, so simply answer "no."

Write

Another form of communication provided by UNIX is interterminal linking. To talk to another user who is also logged in, you may use the "write" command to initiate a connection between your terminals; to talk to user Smith, type "write smith." Few users will actually attempt to do this, but when using this command, one must be careful not to interrupt the work of others; in addition, a "write" can spoil another user's printout. However, someone may try to connect to you, especially CERL system personnel. UNIX will then type a message like: "Message from <user's name> on tty0." To answer the call, invoke the "write" program as described before, using the caller's name. You will be told when the connection has been made, and the user calling you will initiate the conversation. Henceforth, what the other user types will appear on your terminal, and vice versa. The two parties may take turns typing, much like conversing on a citizen's band radio. There are various conventions to signal the end of a statement; some users type "(o)," for "over." Another custom is to type a blank line (by typing RETURN twice). When the conversation is concluded, exit from the write program by typing a control-d.

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