

A DATA DRIVEN REPORT GENERATOR

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Abstract

STF3PRO is a SAS AF application which generates data products based on the 1990 census Summary Tape File 3. It currently supports four basic kinds of reports which it can generate for a broad range of geographic universes and levels of geographic summarization. The key to making this application work was to be able to present the user with custom selection menus which could be dynamically built in response to the user's replies to earlier questions. A SAS data set was created containing the basic information required to build these custom selection lists, based upon our current file holdings. Because this data set contained over 1500 observations we were concerned that it would be very slow if we had to dynamically query it in order to build the selection lists, but our experience has shown that this is not a problem. Issuing a SQL call to do SELECT UNIQUE/ WHERE queries and display a selection list based on the result takes less than a few seconds on our MVS system. The application builds complete job streams which are then submitted for batch processing. Planned enhancements will allow us to create data extracts as well as report products from the files we access.

Introduction

As a data center charged with the mission of disseminating data gathered in the 1990 Census of Population and Housing, the Urban Information Center, acting in its role as the data development unit within the Missouri State Census Data Center, developed or imported a number of software products related to this mission. By far the most widely used data product from the

decennial census is the summary file reporting characteristics of the population taken from the "long form" questionnaires, known as "Summary Tape File 3", or "STF3". The software we chose to use were four report generators, all written in SAS, which displayed selected data from each record on an input STF3 file (SAS data set.) We wanted to be able to generate custom reports - for specified geographic universes and for specific levels of geography (and for one of the modules which supported it, specified data tables) - using each of the four. We spent several months doing such reports on an ad hoc basis before deciding that we needed a more systematic way to generate the reports. The STF3PRO application was originally developed as a tool for our staff to use in generating these reports for our clients (the old fashioned client-server model). It was later modified to make it more user friendly so that some of our users with little or no knowledge of SAS or MVS job control language could use the system to generate the reports themselves.

Our computing environment was MVS/TSO using SAS6.06 (now 6.07), running mostly MVS batch applications. Our application was written in Screen Control Language for use in a TSO/SAS DM environment, but the results of running the application were to be submitted as MVS batch job streams which would actually generate the reports (which were often of substantial length and not appropriate for an interactive mode.) Our software development was simplified by the fact that all of the data we needed to access for the reports were stored in catalogued SAS data sets with careful naming conventions for both the data libraries/data sets and the variables on those data sets.

The DATAPROS Data Set

One of the key features of the STF3PRO application is the use of a SAS data set to drive the application. We wanted a lot of flexibility in terms of what kind of reports could be generated without having to write a great deal of specific code to deal with every special case. We designed the application so that each "product" that would be generated would correspond to an observation in a special DATAPROS data set. Each observation in this data set (which was generated by a batch SAS job that examined the potential input STF3 data sets and counted observations in various geographic universe/geographic summary level categories) would specify a series of report parameters and would provide information on the size and cost of the reports. Figure 1 shows a sample of observations from this data set. The variables correspond to the "parameters" defining each report:

- the file to be accessed (corresponds to a state or the STF3C national file)
- the type and identifier of the geographic universe (e.g. state/Indiana or MSA/Indianapolis)
- the level of geography (geographic unit) for the report (counties or cities or census tracts, etc.).

For each of these combinations the DATAPROS observation was programmed to contain the number of geographic units that would be reported as well as the size (number of pages) and cost (if we were generating the job for an outside user) of the product to be generated. So, for example, the 2nd observation in Fig. 1 tells

us that if we want to do a report for all the counties in the state of Missouri we'll be selecting 115 pieces of geography, resulting in a "California Profiles" report of 3450 pages, costing a user \$243, while an "XTABS3" report would be only 29 pages and cost \$37. One of the more useful features of the application was that it allowed us to quickly and easily access this report-size information as part of the job-generation process, allowing us to see it before we generated the report.

Application Strategy: Overview

The STF3PRO application posed a number of strategy problems for us because it was a job-generator, not a direct data query application. Many of the tools provided in the AF/SCL package are geared toward having the data that you want to report on being available to the application; this was not true in the case of STF3PRO. The only "data" we assumed was available online initially was the DATAPROS dataset. Many (most) of the datasets that would be used as input for the reports were in fact stored on tape cartridges and were not directly accessible to the application (our shop does not allow tape mounts from TSO). We broke down the logic of the application to the following steps:

1. Generate the general job control language (JCL) statements: MVS JOB statement through the "standard" statements to invoke batch SAS and reference the standard software libraries.

FIGURE 1: SAMPLE OBSERVATIONS FROM DATAPROS DATASETS

UNIVTYPE	UNIVERSE	GEOUNIT	NAREAS	SIZE1	PRICE1	SIZE2	PRICE2	SIZE3	PRICE3	SIZE4	PRICE4	POPLIM
STATE	29 MISSOURI	040 STATE	1	1	\$15	30	\$15	5	\$10	15	\$15	.
STATE	29 MISSOURI	050 COUNTY	115	29	\$37	3,450	\$243	575	\$124	1,725	\$129	.
STATE	29 MISSOURI	060 MCD/TWN	1368	342	\$162	41040	\$2,749	6,840	\$1,377	20520	\$1,382	.
STATE	29 MISSOURI	140 TRACT/BNA	1248	312	\$150	37440	\$2,509	6,240	\$1,257	18720	\$1,262	.
STATE	29 MISSOURI	150 BLOCK GRP	5165	1,292	\$942	155E3	\$10,343	25825	\$5,174	77475	\$5,179	.
STATE	29 MISSOURI	160 PLACE	961	241	\$121	28830	\$1,935	4,805	\$970	14415	\$975	.
STATE	29 MISSOURI	160 PLACE	200	50	\$45	6,000	\$413	1,000	\$209	3,000	\$214	2500
STATE	29 MISSOURI	160 PLACE	64	16	\$25	1,920	\$141	320	\$73	960	\$78	10000
STATE	29 MISSOURI	319 MSA/CMSA	6	2	\$15	180	\$25	30	\$15	90	\$20	.
RPC	01 BOONSLICK REG	050 COUNTY	3	1	\$15	90	\$19	15	\$12	45	\$17	.
RPC	01 BOONSLICK REG	060 MCD/TWN	25	7	\$15	750	\$63	125	\$34	375	\$39	.
RPC	01 BOONSLICK REG	140 TRACT/BNA	10	3	\$15	300	\$33	50	\$19	150	\$24	.
RPC	01 BOONSLICK REG	150 BLOCK GRP	58	15	\$25	1,740	\$129	290	\$67	870	\$72	.
RPC	01 BOONSLICK REG	160 PLACE	24	6	\$15	720	\$61	120	\$33	360	\$38	.
RPC	02 BOOTHEEL REG	050 COUNTY	6	2	\$15	180	\$25	30	\$15	90	\$20	.
RPC	02 BOOTHEEL REG	060 MCD/TWN	53	14	\$25	1,590	\$119	265	\$62	795	\$67	.
RPC	02 BOOTHEEL REG	140 TRACT/BNA	45	12	\$20	1,350	\$103	225	\$54	675	\$59	.
RPC	02 BOOTHEEL REG	150 BLOCK GRP	183	46	\$43	5,490	\$379	915	\$192	2,745	\$197	.
RPC	02 BOOTHEEL REG	160 PLACE	65	17	\$25	1,950	\$143	325	\$74	975	\$79	.

2. Generate the reference to the required input data (MVS DD statement.)

3. Generate the code to reference and filter the input data, selecting only the observations for the user-specified summary levels and geographic universe (for example, all counties in a state or all census tracts in a metro area.)

4. Invoke the appropriate SAS program to generate the report, pointing to the filtered input data set.

5. Save the job to a data set (job library) and submit it for MVS batch processing.

6. Retrieve the results of the job and print or capture output in a file.

Step 1 was initially a large part of the effort in developing and using the application, since there were quite a few items that had to be entered to build the appropriate control cards. It was also a part of the application where users unfamiliar with JCL concepts could easily get lost or confused. When we decided to upgrade the application to make it more appropriate for end users, we changed our approach and added a second "driver" data set that has greatly simplified this step as seen by the user. This "authorized user" data set has a series of variables specifying the user's name, account number, default printing options, etc. STF3PRO is able to determine the identity of current user (using the &SYSJOBID automatic macro variable) and fills out a default JOB card and other control statements with little need of input from the user.

Step 2 is simple. The user is presented with a choice of whether they want to use STF3C (a national file with higher level geographies like states and metro areas) or an STF3A file (one file per state with all levels of geography for that state down to small areas.) If they select STF3A they then get a list of available state files and choose the one they want.

Step 3 is the heart of the application and is where the DATAPROS data set is heavily used. The user

is led through a series of menu selections beginning with what "Universe Type" they want. The menu for this question is dynamically created as a selection list using the SCL LISTC function. This function uses the values of character variables in a SAS data set as the menu entries. The application creates the necessary data set by generating a SUBMIT SQL block containing the statement:

```
CREATE TABLE UTPYES AS
SELECT UNIQUE UNIVTYPE
FROM SHOWME.DATAPROS
WHERE STATE="&STATE" ;
```

The result of this query (which takes at most only a few seconds in real time on most days) is a list of the unique values of the variable UNIVTYPE as stored on the DATAPROS data set for observations pertaining to the STATE which the user has already selected. The value "RPC" for UNIVTYPE is only present for observations with STATE=29, Missouri. This is because we used custom code when creating our Missouri STF3 data sets to add the Regional Planning Commission codes to all observations for which a county code was defined. If the user selects Illinois as the state of interest, RPC does not appear on the "Select Universe Type" menu - not because of any program logic but because of the contents of the DATAPROS data set.

Once the user selects the Universe type (by moving the cursor to the desired value and hitting the enter key) the application can repeat the strategy of building a custom menu for the next level of the selection process by displaying a list of the unique values of UNIVERSE resulting from applying a UNIVTYPE filter to the table just built in the previous SUBMIT SQL block. The code here looks something like

```
CREATE TABLE UNIVS AS
SELECT UNIQUE UNIVERSE
FROM SHOWME.DATAPROS
WHERE STATE="&STATE"
AND UNIVTYPE="&UTYPE";
```

(&STATE and &UTYPE are screen variables returned from previously generated selection menus).

Again, the menu the user is presented with is determined by how they responded to the previous menu selection. If they choose COUNTY as their geographic universe type, then they get to choose from a list of 115

Missouri counties; if they choose RPC then the next thing they see is a list of 20 Missouri RPC's. Completing the step, they will then be presented with a list of geographic summary units available for their selected universe. Critical to remember here is that all menus are built "on the fly" based on the user's previous menu selections and on information stored in the DATAPROS data set.

Step 4 allows the user to select the report type they want. (Not shown in the logic summary but a useful feature of the application is that at the end of step 3 the user is allowed to view the information regarding the number of geographic areas they have selected and the cost/size of each). Nothing too complicated here, except that if the user chooses the TABRGEN report type they will then be presented with the opportunity to specify individual tables that they would like to display (instead of the "default" action of printing all the tables.)

Step 5 requires using the Preview window to allow the user to view, optionally edit (naive users are discouraged to do this but staff members use this feature all the time to add customization), save (to a member of a job library, usually) and then submit the job for processing. All of this takes place under control of the application as the user responds to prompts. Figure 2 shows an example of a generated job stream.

Figure 2: Sample of Generated Job Stream

```
//XTABS JOB (1921000,SL),BEE500,
// NOTIFY=$1921E,MSGCLASS=S,REGION=1900K
//*****
//* FROM: $1921E.BEE500.CNTL(XTABS)
//* DATE: 07/01/93 PGM: BEE-YAUW S00
//* XTABS REPORT: STATE ..... US
//*          UNIVERSE TYPE ..... STATE
//*          UNIVERSE ..... 18 INDIANA
//*          SUMMARY LEVEL ..... 161
//*          NUMBER OF AREAS ... 64
//*          PRICE..... $25.00
//*****
/*SETUP C=1,T=0
/*JOBPARM L=30,T=2
/*ROUTE PRINT IOF
```

```
/*
/*
//OUT. OUTPUT FORMS=35W,FORMDEF=35W2,PRMODE=PAGE,
//          PAGEDEF=N5C,CHARS=GFC,BURST=Y,COPIES=1
// EXEC TSAS607,
// OPTIONS='S=72 MAUTOSOURCE SASAUTOS=MACLIB MOOVP'
//SASLIST DD SYSOUT=*,OUTPUT=*.OUT
//MACLIB DD DSN=$6386.PUBLIC.SASMACRO,DISP=SHR
//SASLIB DD DSN=$6386.PUBLIC.SASFMATS.LOAD,DISP=SHR
//          DD DSN=$1700.PUBLIC.SASFMATS.LOAD,DISP=SHR
//SASCODE DD DSN=$6386.PUBLIC.SASCODE,DISP=SHR
//PRETEXT DD DSN=$6386.PUBLIC.PRETEXT,DISP=OLD
//DD1 DD DSN=$6386.PUBLIC.STF903CX.US.SDL,DISP=SHR
OPTIONS PAGENO=1 PS=120 LS=113 NODATE;
%PRETEXT(XTABS3);
PROC PRINTTO PRINT=SASLIST;
TITLE1 'MISSOURI STATE CENSUS DATA CENTER STANDARD PRODUCT';
TITLE3 '1990 SUMMARY TAPE FILE 3 EXTRACT REPORT'
          ': PLACES WITH POPULATION ABOVE 10,000 FOR INDIANA  ';
FOOTNOTE 'REPORT PRODUCED BY '
'URBAN INFORMATION CENTER, UNIVERSITY OF MISSOURI, ST. LOUIS';
DATA STRDPT;
SET DD1.US;
LENGTH FILETYPE $15; FILETYPE="STF903C";
WHERE SLVL='161'
AND STATE='18'
AND totpop gt 50000; /*= This line was added to only select-;
RUN;          /*= PLACES w/Population above 50,000---;
%LET STF903X=STRDPT;
%LET COUNTY=FILETYPE;
%INCLUDE SASCODE(XTABS3)/S2=72;
RUN;
//
```

Step 6 is still our biggest problem when trying to make the application useful to casual users. We use a package called IOF (Input Output Facility) which allows us to easily browse-print-file the results of jobs (SAS jobs in particular are suitable for IOF processing because of the ease of being able to go back and forth between the various output components). We have created on-line help modules to assist users in losing their fear of IOF but it is still something of a barrier. Another problem is that the report output is designed to print on high speed laser printers (IBM3800 and 3812) which are not readily available to many would-be users of the system. We have not found any good solution to the problem of users who want to download these report files and easily print them from their PC

environments. This does not mean that they cannot do it, just that there does not seem to be a simple, universal solution for the problem.

Summary

This system was developed as the result of several meetings at which the people at the Missouri State Census Data Center were trying to agree upon what our "standard data products" from the 1990 census should be. The traditional view of such products was that they were physical entities (printed reports) that had to be generated in sufficient quantity and distributed to our affiliates or sold to other clients of the Data Center. While there were a few paths through the STF3PRO logic that were taken so often that we deemed it worthwhile to create physical products in quantity that were distributed, this application made it apparent that our actual product library was many times larger than any tiny subset that we might actually decide to produce in volume. We sometimes like to refer to these (using the IBM vernacular) as "Virtual data products". The use of this system was very heavy in the second half of 1992 and early in 1993 as the great demand for the newly-released STF3 data was at its height. Demand has slackened somewhat now but it still significant. Our goal to create a tool to make it easy for our staff to produce reports quickly and reliably was certainly achieved. Our efforts to enhance the tool so that end users might be able to use it may be of value primarily as a prototype. Barriers to access to the MVS system where it resides (we are planning a migration to a UNIX workstation environment in the near future), and awkwardness with getting the final results to a printer have greatly limited access by this group. Many users were exposed to an earlier version of the application which was not nearly as user friendly as the current version and we may not get another chance to convince them that this is a tool that they can be productive and is worth the effort. One of the most valuable aspects of STF3PRO is that it allowed us to develop our skills in creating such interactive applications. We are

particularly excited about the ability to write applications that can be driven by data sets which create tremendous flexibility and expandability. As we move to a computing environment where economic considerations will permit us to keep a much larger share of our data base on-line we anticipate the development of a wide variety of more conventional client-server applications that we hope will be of use not only to our professional staff but to the broader data user community.

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Appendix A: Screen snapshots from a sample STF3PRO session.

Appendix B: Sample Final Output: An "XTABS3" Report

Appendix A: Screen snapshots from a sample STF3PRO session.

```

STF3PRO Menu-----
STF3PRO is a menu-driven job generator for 1990 Summary Tape
File 3 reports. It will assist you to create a job stream
file to be submitted for batch processing to produce reports.
It generates all of the necessary Job Control Language (JCL)
and SAS code, allows final edits, saves the codes, and
submits the job.
NOTE: To get more information/explanation on each of the following
options, simply move cursor to the option and hit F1.

Select one option.

Create a new job
Edit an existing job

View results (IOF)
Submit a job

<GOBACK>                <HELP>
  
```

```

Geographical Selection Menu-----
1990 Summary Tape File
*** STF903C ***

Next, STF3PRO will guide you
through the geographical
selection process.

Select one of the following
option.

< Proceed >
< Reselect Filetype >
< Goto Mainmenu >
< Help >

Select Data-----
GEOGRAPHIC UNIT = UNIVERSE ?

NO
YES

(Find) (OK) (Cancel) (Help)
  
```

* Note: This screen allows the previously selected Universe Type, to be the summary level for the report. If 'NO' is selected, a list of summary levels will be presented as shown in the next screen.

```

STF3PRO Menu-----
STF3PRO is a menu-driven job generator for 1990 Summary Tape
File 3 reports. It will assist you to create a job stream
file to be submitted for batch processing to produce reports.
It generates all of the necessary Job Control Language (JCL)
and SAS code, a *File Selection Menu----- codes, and
submits the job.
NOTE: To get more information, simply move cursor to the option and hit F1.

Select one.

STF903A
STF903C

< GoBack >
< Help >

View results (IOF)
Submit a job

<GOBACK>                <HELP>
  
```

* Note: Choose STF903A for data for states in Missouri, Illinois and Kansas.

```

Geographical Selection Menu-----
1990 Summary Tape File
*** STF903C ***

Next, STF3PRO will guide you
through the geographical
selection process.

Select one of the following
option.

< Proceed >
< Reselect Filetype >
< Goto Mainmenu >
< Help >

Select Data-----
GEOGRAPHICAL UNIT

050 COUNTY
161 PLACE 10,000+
310 NSA/CHSA WITHIN STATE
311 CHSA/PHSA WITHIN STATE

(Find) (OK) (Cancel) (Help)
  
```

```

Geographical Selection Menu-----
1990 Summary Tape File
*** STF903C ***

Next, STF3PRO will guide you
through the geographical
selection process.

Select one of the following
option.

< Proceed >
< Reselect Filetype >
< Goto Mainmenu >
< Help >

Select Data-----
UNIVERSE TYPE

DIVISION
NSACHSA
STATE
US

(Find) (OK) (Cancel) (Help)
  
```

```

Geographical Selection Menu-----
1990 Summary Tape File
*** STF903C ***

Next, STF3PRO will guide you
through the geographical
selection process.

Select one of the following
option.

< Proceed >
< Reselect Filetype >
< Goto Mainmenu >
< Help >

Report Selection Menu-----
SELECTION COMPLETED !

State : US
Univ Type: STATE
Universe : IS INDIANA
Geo Unit : 161
# Areas : 64

Select a report.

< Extract Tables 16 >
< Calif. Profile 1920 >
< New York Profile 320 >
< TABGEN 960 >

< GoBack > < HELP >
  
```

```

Geographical Selection Menu-----
1990 Summary Tape File
*** STF903C ***

Next, STF3PRO will guide you
through the geographical
selection process.

Select one of the following
option.

< Proceed >
< Reselect Filetype >
< Goto Mainmenu >
< Help >

Select Data-----
UNIVERSE

01 ALABAMA
02 ALASKA
04 ARIZONA
05 ARKANSAS
06 CALIFORNIA
08 COLORADO
09 CONNECTICUT
10 DELAWARE
11 DISTRICT OF C
12 FLORIDA
13 GEORGIA
15 HAWAII
16 IDAHO
17 ILLINOIS
18 INDIANA
19 IOWA

(Find) (OK) (Cancel) (Help)
  
```

* Note: This select list and all those that follow during the geographical selection process, is dependent upon previous choices. If STATE had not been chosen for 'UNIVERSE', a different selection list would appear on this screen.

```

19216.368500.CH1LX(TAB3) WAS SUCCESSFULLY SAVED !

You have successfully created a job stream file to
be submitted for batch processing to produce your
report. The following are the options to choose.
To get more information/explanation, simply move
cursor to the 'option' and hit F1.

Select One.

SUBMIT JOB FOR BATCH PROCESSING
VIEW RESULTS (IOF)

RE-EDIT JOB IN PREVIEW WINDOW
QUIT STF3PRO
GOBACK
  
```

Appendix B: Sample Final Output: An "XTABS3" Report

MISSOURI STATE CENSUS DATA CENTER STANDARD PRODUCT								
1990 SUMMARY TAPE FILE 3 EXTRACT REPORT: PLACES WITH POPULATION ABOVE 50,000 FOR INDIANA								
FILETYPE GEOCODE AREANAME	STF903C 18-0905 Gary city	STF903C 18-1040 Hammond city	STF903C 18-1135 Indianapolis city	STF903C 18-1735 Muncie city				
XP1. GENERAL POPULATION								
TOTAL PERSONS/PERCENT SAMPLED...	116,646	12.2%	84,236	13.1%	731,321	13.4%	71,035	13.8%
PER SQUARE MILE / LAND AREA...	2322.18	50.5%	3671.12	51.6%	7022.41	51.4%	3119.59	22.7%
MALES	63,249	54.2%	43,467	51.6%	384,128	52.5%	37,866	53.3%
LIVING IN RURAL AREAS ON FARMS	0	0	0	0	0	0	0	0
LIVING IN FAMILIES/ALONE	102,802	10.40%	72,667	8.61%	593,673	8.1%	48,021	6.8%
LIVING IN GROUP QUARTERS	881	0.8%	438	0.5%	13,535	1.9%	7,332	10.3%
XP2. PERSONS BY RACE/HISPANIC								
WHITE	18,995	16.3%	71,553	84.9%	555,216	75.9%	63,321	89.1%
BLACK	94,013	80.6%	7,611	9.0%	164,861	22.5%	6,535	9.2%
ASIAN & PAC ISLANDER	1,633	1.4%	288	0.3%	6,656	0.9%	544	0.8%
AMERICAN INDIAN, ESK., ALEUT	207	0.2%	350	0.4%	1,758	0.2%	288	0.4%
HISPANIC (ANY RACE)	6,282	5.4%	9,851	11.7%	7,463	1.0%	726	1.0%
XP3. PERSONS BY AGE								
0-4 / PCT / CUM PCT.	9,297	8.0	6,220	7.4	58,197	8.0	4,315	6.1
5-9	9,825	8.4	6,403	7.6	55,553	7.6	4,616	6.5
10-14	9,937	8.5	6,506	7.7	53,853	7.4	4,897	6.9
15-19	10,791	9.2	7,206	8.6	50,573	6.9	4,717	6.7
20-24	10,870	9.3	7,220	8.6	48,853	6.7	4,477	6.3
25-29	10,705	9.1	7,220	8.6	48,853	6.7	4,477	6.3
30-34	11,899	10.2	7,220	8.6	48,853	6.7	4,477	6.3
35-39	13,391	11.5	7,220	8.6	48,853	6.7	4,477	6.3
40-44	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
45-49	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
50-54	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
55-59	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
60-64	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
65-69	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
70-74	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
75-79	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
80-84	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
85 AND OVER	15,524	13.3	7,220	8.6	48,853	6.7	4,477	6.3
UNDER 20	40,685	34.9	24,556	29.1	207,267	28.5	20,109	28.5
20-29	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
30-39	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
40-49	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
50-59	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
60-69	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
70-79	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
80-84	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
85 AND OVER	14,271	12.2	9,698	11.5	104,610	14.3	8,801	12.4
MEDIAN AGE	31.3		32.7		31.8		28.0	
XP4. HOUSEHOLDS BY SIZE								
TOTAL HOUSEHOLDS/AVERAGE SIZE...	40,752	2.84	32,177	2.60	292,276	2.46	27,167	2.34
PERSONS / 1 PERSON OVER 65...	10,401	3.96%	8,819	4.03%	84,939	29.2%	8,387	3.07%
PCT HHS: 2 PERSONS / 3-4 / 5+...	25.8%	32.8%	15.9%	29.0%	31.9%	29.9%	33.3%	28.9%
XP5. HOUSEHOLDS BY TYPE								
FAMILIES/PCT OF ALL HOUSEHOLDS	29,229	71.7%	22,308	69.3%	189,751	64.9%	16,072	59.2%
MARRIED COUPLES/PCT OF FAMILIES	15,864	54.3%	16,482	73.9%	140,839	74.3%	12,280	76.4%
WITH OWN CHILDREN < 18	11,593	39.7%	7,708	34.5%	64,416	33.9%	5,924	36.9%
FEMALE HOUSEHOLDER (NO HUSB)	11,593	39.7%	7,708	34.5%	64,416	33.9%	5,924	36.9%
WITH OWN CHILDREN	11,593	39.7%	7,708	34.5%	64,416	33.9%	5,924	36.9%
NON-FAMILY HOUSEHOLDS	11,523	28.3%	9,869	30.7%	102,525	35.1%	11,095	40.8%
XP6. HOUSEHOLD INCOME 1989								
LESS THAN \$10,000/PCT/CUM PCT...	12,371	30.4	5,903	18.3	42,364	14.5	7,594	27.9
\$10,000 - \$14,999	7,368	18.1	3,824	11.9	23,364	8.0	4,364	16.1
\$15,000 - \$24,999	7,368	18.1	3,824	11.9	23,364	8.0	4,364	16.1
\$25,000 - \$34,999	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
\$35,000 - \$44,999	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
\$45,000 - \$54,999	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
\$55,000 - \$64,999	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
\$65,000 - \$74,999	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
\$75,000 - \$84,999	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
\$85,000 - \$99,999	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
\$100,000 AND OVER	5,344	13.1	2,930	9.1	17,607	6.0	3,200	11.8
MEDIAN/AVERAGE	\$19,390	\$25,447	\$26,883	\$30,194	\$29,006	\$35,946	\$19,353	\$27,086
XP7. FAMILIES BY # WORKERS								
COUNTY AVG FAMILY INCOME 1989	6,880	\$9,457	3,652	\$15,763	21,495	\$19,972	2,661	\$17,952
0 WORKERS	7,121	\$22,471	7,047	\$28,564	53,850	\$32,868	4,987	\$31,868
1 WORKER	7,121	\$22,471	7,047	\$28,564	53,850	\$32,868	4,987	\$31,868
2 WORKERS	7,121	\$22,471	7,047	\$28,564	53,850	\$32,868	4,987	\$31,868
3+ WORKERS	7,121	\$22,471	7,047	\$28,564	53,850	\$32,868	4,987	\$31,868
XP8. OTHER INCOME MEASURES								
MEDIAN/AVG FAMILY INCOME	\$23,173	\$28,753	\$32,045	\$35,119	\$34,917	\$41,818	\$26,832	\$34,516
PER CAPITA INCOME / NON-REP. QTRS.	\$9,244	\$9,028	\$11,576	\$11,607	\$14,478	\$14,658	\$10,486	\$11,557
PERSONS BELOW POVERTY LEVEL	16,293	16.7%	11,284	13.5%	89,831	15.5%	15,173	23.8%
PERSONS BELOW 50% OF POVERTY	16,293	16.7%	11,284	13.5%	89,831	15.5%	15,173	23.8%
XP9. LEVEL OF EDUCATION								
TOTAL PERSONS AGE 25+	68,729	100%	53,736	100%	447,558	100%	38,722	100%
LESS THAN 9TH GRADE	8,026	11.7%	5,854	10.9%	32,654	7.3%	4,152	10.7%
9TH TO 12TH GRADE, NO DIPLOMA	1,937	2.8%	1,750	3.3%	7,660	1.7%	743	1.9%
HIGH SCHOOL GRAD. (OR EQUIV)	38,162	55.5%	30,750	57.2%	177,660	39.7%	17,434	44.9%
SOME COLLEGE, NO DEGREE	11,993	17.4%	10,489	19.5%	52,204	11.7%	5,917	15.3%
ASSOCIATE/BACHELOR'S DEGREE	6,543	9.5%	5,822	10.8%	29,809	6.7%	2,470	6.4%
GRADUATE OR PROFESSIONAL DEGREE	2,646	3.8%	1,639	3.0%	12,781	2.8%	1,489	3.8%
XP10. UNEMPLOYMENT: CIV LAB FORCE								
TOTAL CLF: UNEMPLOYED/RATE	7,930	16.7%	3,512	8.9%	22,006	5.5%	3,137	9.1%
FEMALE: UNEMPLOYED/RATE	3,969	16.6%	1,613	8.4%	10,255	5.5%	1,470	8.8%
XP11. OCCUPATION								
TOTAL EMPLOYED PERSONS AGE 16+	39,616	100%	35,762	100%	367,512	100%	31,169	100%
MANAGER, PROF, SPECIALTY OCCS	11,321	28.6%	10,992	30.7%	99,615	27.1%	8,809	28.3%
TECH, SALES, ADMIN, SUPPORT	7,789	19.7%	10,852	30.3%	128,859	35.0%	6,638	21.3%
SERVICE OCCUPATIONS	11,993	30.3%	5,912	16.5%	49,860	13.6%	5,882	18.9%
FARM, FORESTRY, FISHING	1,468	3.7%	1,229	3.4%	8,625	2.3%	1,489	4.8%
ALL OTHERS	12,668	32.0%	13,229	37.0%	86,825	23.6%	8,566	27.5%
XH1. GENERAL HOUSING UNITS								
TOTAL UNITS / OCCUPIED UNITS	47,082	40.96%	33,924	32.14%	319,958	29.19%	22,828	27.18%
% UNITS: OWNER OCCURRED/VACANT	51.0%	51.0%	60.1%	51.0%	51.0%	51.0%	52.4%	51.0%
SINGLE-FAMILY UNITS	32,822	69.8%	24,025	70.8%	204,099	63.8%	12,800	56.1%
IN BUILDINGS WITH 5+ UNITS	6,253	13.3%	5,507	16.2%	38,112	11.9%	4,391	19.2%
CONDOMINIUMS/MOBILE HOMES	184	0.4%	99	0.3%	1,056	0.3%	1,401	6.1%
XH2. YEAR STRUCTURE BUILT								
MEDIAN YR BUILT/DECADE MOST BLT	1954	1950-1959	1949	PRE 1940	1962	PRE 1940	1953	PRE 1940
BUILT IN BUSIEST DECADE	14,020	29.8%	10,459	31.2%	78,782	24.2%	8,501	28.5%
BUILT 1985-MARCH 1990	391	0.8%	121	0.4%	30,063	9.5%	1,533	6.7%
BUILT 1959 OR EARLIER	8,737	18.6%	10,659	31.4%	64,782	20.2%	8,501	28.5%
XH3. HOUSING VALUES AND RENTS								
SPEC. OWNER-OCCL UNITS/AVG VALUE	21,106	35,956	18,614	47,911	151,138	70,935	13,744	41,151
UNITS PAYING CASH RENT/AVG RENT	15,844	14,242	11,108	12,383	124,097	12,735	8,931	14,451
MEDIAN HOME VALUE/MEDIAN RENT	\$31,300	\$335	\$44,600	\$377	\$46,800	\$410	\$33,700	\$325
REPORT PRODUCED BY THE URBAN INFORMATION CENTER, U. OF MISSOURI ST. LOUIS								