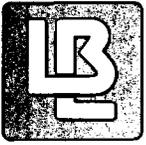


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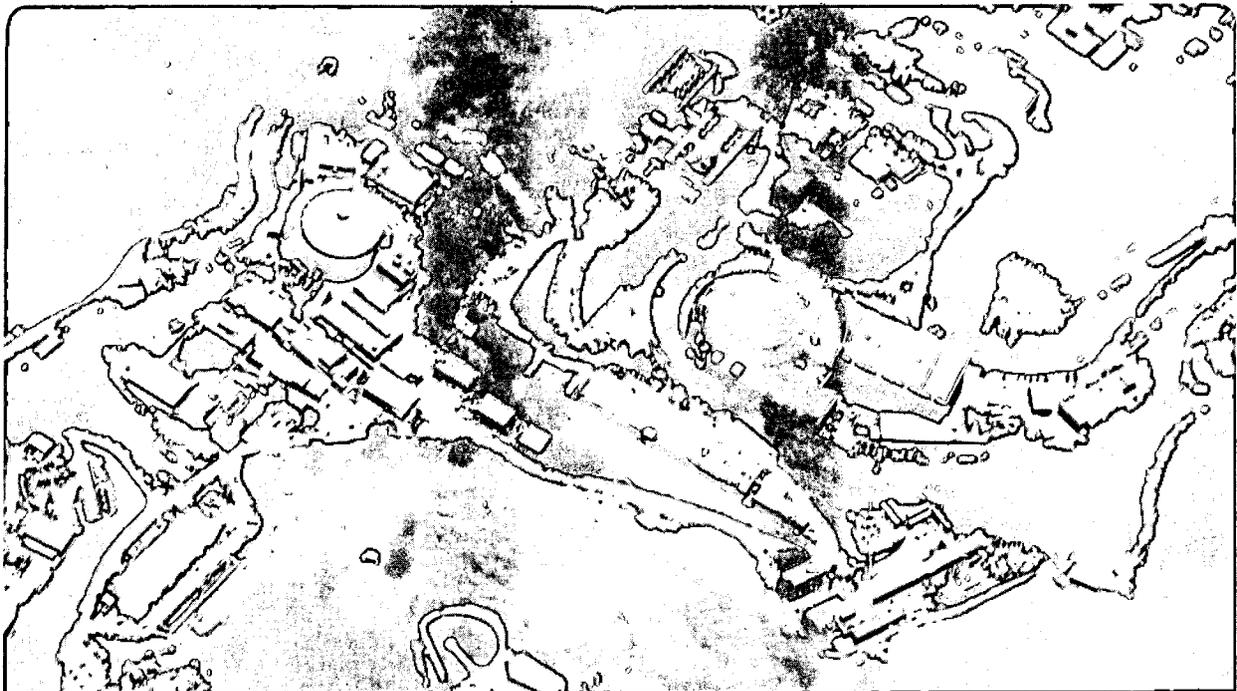
Computing Division

REPORT B: 1986 PROJECTED POPULATION, LABOR
FORCE AND UNEMPLOYMENT - DELAWARE

September 1985

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**REPORT B:
1986 PROJECTED POPULATION,
LABOR FORCE AND UNEMPLOYMENT**

DELAWARE

U.S. Department of Labor
Employment and Training Administration
Washington, DC.

Computing Division
Lawrence Berkeley Laboratory
University of California
Berkeley, California, 94720

Prepared for the U.S. Department of Energy
under Contract DE-AC03-76SF00098

Preface

Since 1975, the US Department of Labor's Employment and Training Administration (ETA) in collaboration with the Lawrence Berkeley Laboratory (LBL) has been developing the Labor Market Projections Model (LMPM).

The goal of the LMPM is to provide local planners not only with estimates of current socio-economic conditions, but also with short term demographic forecasts. These estimates and forecasts of the current local labor markets and population statistics are produced using a uniform methodology for the entire nation. Presently the LMPM consists of two independent models. The first model updates the latest decennial census using the most recent March Current Population Survey (CPS) data. The second model uses a refined cohort component model to project population, labor force, and unemployment by race, sex and age.

The first model produces "Report A: 1984 Estimated Social Indicators for Planning and Evaluation". This model combines the timeliness of Current Population Survey data with the geographic detail of the decennial census. In brief, current socio-economic indicators at the local level are obtained by updating tables in the 1980 Census of Population using the 1980 CPS data tapes and the most recent CPS data tapes.

The second model, on which this report is based, provides short-term forecasts of population, labor force and unemployment. This involves the separate projection of births, deaths and net migration to give population by race, and sex for five year age cohorts. The labor force and unemployment projections are based on the labor force and unemployment rates of the area in the base year, national changes in the labor force and unemployment from the base year to the target year, and the population projections for the target year as just calculated.

In developing these reports, ETA and LBL utilized the latest techniques of information management, data retrieval, and computer graphics display to present estimates in an effective, easy-to-use format. The overall approach is to make planning information accessible.

August 1985

Acknowledgements

The Labor Market Projections Model is a joint undertaking of the Employment and Training Administration (ETA), National Office, Washington, D.C., and the Lawrence Berkeley Laboratory (LBL) of the University of California at Berkeley. In the Employment and Training Administration, the work was carried out under the direction of James W. Higgins of the ETA Labor Market Information Division. Walter Postle and Bruce Bargmeyer of the Management Data Systems and Analysis Division, Region IX, San Francisco served as liason between the ETA National Office and LBL.

Work at LBL was under the direction of Carl Quong, Head, Computer Science Research Department, and Harvard Holmes. Esther Schroeder and Linda Wong coordinated the overall systems design and supervised all other aspects of the project. When this project was started in the mid 1970's, the Projections were based upon the 1970 Census. Programs that had been written by Bob Healey to access and aggregate 1970 Census data were used. Fred Gey, Edna Williams, and Shirley Cassinelli designed the database upon which the model depends, wrote the programs necessary to build the data base, and ran the programs to gather the necessary data at the desired geographical levels.

This past year, the 1980 Census data became available to replace the 1970 Census. The 1980 Census data are more up-to-date and more detailed than were the 1970 Census data. The programs to access and aggregate the 1980 Census data were those developed by the 1980 Census Report Project.

Jim Woods and Dick Hoff of the ETA Labor Market Information Division were instrumental in starting this project in 1975. Dr. Charles Mueller, a Brookings Institute Fellow assigned to the Labor Market Information Department in ETA for fiscal 1980, provided many helpful suggestions.

This work was supported by the Office of Health and Environmental Research and the Office of Basic Energy Sciences of the U.S. Department of Energy under Contract No. DE-AC03-76SF00098; and the U.S. Department of Labor under Interagency Agreement No. 06-2063-36.

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Introduction

Abstract

Report B, the results of the Population, Labor Force and Unemployment Projections Model, contains current socio-economic indicators. For each geographic area, there is one page of summary/background information followed by three tables. These tables contain the population projections, the labor force projections, and the unemployment projections, respectively. These tables are composed of data for the following racial groups: Total Population, Whites, Blacks, and Other races. Those who call themselves Hispanics may be covered in any of the last three racial groups. For those geographic areas which have provided more than one labor force and/or unemployment control total, the last two tables will appear more than once.

Geographic coverage

Areas covered by Report B include:

State or State equivalent

Standard Metropolitan Statistical Area (SMSA)

Job Training Partnership Act (JTPA) Service Delivery Area

State Requested Planning Areas

See "Technical Notes, Geographic Areas Covered by Report B" for details.

Race/Hispanic origin

Census data on race and Hispanic origin were obtained through self-identification. Persons of Hispanic origin may be of any race. See also footnote (a) in the Technical Notes.

To insure that the population estimates for the race/sex/age cohorts of the following will sum to the corresponding race/sex/age cohort for the total, the projections for these subareas are being done simultaneously with that for State of Delaware

3 subareas

The 3 subareas are -

- 1 Kent County
- 2 New Castle County
- 3 Sussex County

State of Delaware is comprised of the following areas from the 1980 Census ("+" is plus, "-" is minus):

+ Delaware

The college population in 1980 is estimated as -

	15-19		20-24		25-29		30-34	
	Male	Female	Male	Female	Male	Female	Male	Female
White	5215	6198	6439	6261	2395	1830	1289	985
Black	998	1160	809	1020	309	345	167	186
Other	123	118	205	185	98	66	51	35

The population in the Military in 1980 was

	16-19	20-24	25-34	35-44	45-64	65+
White Male	416	1452	1361	760	190	0
Black Male	54	243	329	154	47	0
Other Male	25	76	27	23	6	0
White Female	97	162	126	27	10	0
Black Female	12	26	28	7	0	0
Other Female	19	0	0	0	0	0

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Universe: Persons									
Total, all ages	616655	294658	321997	240285	259991	47772	54850	6601	7156
Under 5 years	48195	24670	23525	18502	17499	5478	5349	690	677
5-9 years	41529	21078	20451	16030	14975	4417	4580	631	896
10-14 years	42231	21314	20917	16229	16045	4471	4269	614	602
15-19 years	50186	25036	25151	18992	19218	5296	5352	748	581
20-24 years	58579	28675	29904	22880	23840	4967	5248	828	817
25-29 years	57406	27748	29658	23062	23638	4058	5429	627	591
30-34 years	47756	23341	24415	19540	19240	3295	4455	506	720
35-39 years	44613	21196	23417	17484	18755	3248	3981	465	680
40-44 years	36711	17480	19230	14587	15664	2433	3068	461	499
45-49 years	29894	14278	15616	11851	12990	2004	2329	422	296
50-54 years	30253	14663	15591	12527	13028	1876	2329	259	234
55-59 years	30696	14208	16487	12449	14090	1616	2232	144	166
60-64 years	29962	13740	16221	12192	14362	1476	1752	72	107
65-69 years	24417	10990	13428	9713	11944	1222	1396	55	88
70-74 years	18037	7657	10381	6711	9028	907	1249	39	104
75 years and over	26190	8585	17605	7537	15675	1009	1833	39	97
Median age in years	31.1	29.8	32.3	31.1	33.8	24.3	27.4	23.7	25.0
14-15 years	18483	9270	9213	7044	7053	1953	1924	273	237
16-19 years	40149	20029	20121	15193	15374	4237	4281	599	465
20-21 years	23432	11470	11962	9152	9536	1987	2099	331	327
16-21 years	63581	31498	32082	24345	24910	6223	6380	930	792
22-44 years	221633	106970	114663	88400	91601	16014	20082	2556	2980
45-54 years	60147	28941	31206	24378	26018	3881	4658	682	531
55 years and over	129302	55180	74122	48602	65098	6229	8462	348	562

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Civ. Labor Force For Persons 16+									
Total, Persons 16+	323800	172058	151743	146564	123504	22156	25534	3337	2704
16-19 years	17017	8921	8096	7375	6809	1255	1178	292	109
20-24 years	46405	23621	22784	19750	18785	3364	3542	507	458
25-34 years	92695	48934	43760	41750	35217	6289	7706	895	836
35-44 years	73611	37610	36001	31429	28569	5276	6530	905	902
45-64 years	86077	48217	37860	42040	31393	5461	6090	716	377
65+ years	7995	4754	3241	4220	2731	512	487	23	23
Median age in years	35.8	36.2	35.3	36.4	35.3	35.3	35.5	34.7	34.4
Labor Force Participation									
16-19 years	42.4	44.5	40.2	48.5	44.3	29.6	27.5	48.8	23.4
20-24 years	79.2	82.4	76.2	86.3	78.8	67.7	67.5	61.2	56.1
25-34 years	88.1	95.8	80.9	98.0	82.1	85.5	78.0	79.0	63.8
35-44 years	90.5	97.2	84.4	98.0	83.0	92.9	92.6	97.8	76.5
45-64 years	71.3	84.8	59.2	85.8	57.6	78.3	70.5	79.7	46.9
65+ years	11.6	17.5	7.8	17.6	7.5	16.3	10.9	17.2	7.8
Civ. Labor Force For Persons 16+									
20-21 years	18562	9448	9114	7900	7514	1345	1417	203	183
16-21 years	35580	18370	17210	15275	14322	2600	2595	495	292
22-44 years	194149	100717	93432	85029	75057	13583	16362	2104	2013
45-54 years	43038	24108	18930	21020	15697	2730	3045	489	188
55 years and over	51034	28863	22171	25240	18427	3242	3532	250	211
Labor Force Participation									
20-21 years	79.2	82.4	76.2	86.3	78.8	67.7	67.5	61.2	56.1
16-21 years	56.0	58.3	53.6	62.7	57.5	41.8	40.7	53.2	36.9
22-44 years	87.6	94.2	81.5	96.2	81.9	84.8	81.5	82.3	67.6
45-54 years	71.6	83.3	60.7	86.2	60.3	70.4	65.4	71.7	35.5
55 years and over	39.5	52.3	29.9	51.9	28.3	52.0	41.7	71.7	37.5

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Persons 16+									
Unemployed Persons	20723	10517	10206	7633	7043	2640	2925	244	238
Unemployment Rate	6.4	6.1	6.7	5.2	5.7	11.9	11.5	7.3	8.8

	Total -- All Races			White			Nonwhite		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Unemploy. Persons									
16-19 years	3043	1665	1378	2257	1224	1033	786	441	346
20-24 years	5033	2556	2477	3390	1765	1625	1643	791	852
25-34 years	5396	2628	2768	3617	1895	1722	1778	732	1046
35-44 years	3261	1504	1757	2221	1059	1162	1040	445	594
45-64 years	3511	1916	1594	2803	1476	1327	708	441	267
65+ years	480	248	232	388	214	175	91	34	57
Median age in years	29.2	28.9	29.5	29.7	29.4	30.0	28.3	27.9	28.7
Unemploy. Rates									
16-19 years	17.9	18.7	17.0	15.9	16.6	15.2	27.7	28.5	26.9
20-24 years	10.8	10.8	10.9	8.8	8.9	8.6	20.9	20.4	21.3
25-34 years	5.8	5.4	6.3	4.7	4.5	4.9	11.3	10.2	12.2
35-44 years	4.4	4.0	4.9	3.7	3.4	4.1	7.6	7.2	8.0
45-64 years	4.1	4.0	4.2	3.8	3.5	4.2	5.6	7.1	4.1
65+ years	6.0	5.2	7.1	5.6	5.1	6.4	8.7	6.4	11.2
Unemploy. Persons									
20-21 years	2013	1022	991	1356	706	650	657	316	341
16-21 years	5057	2688	2369	3613	1931	1683	1444	757	687
22-44 years	11676	5665	6011	7872	4013	3859	3804	1652	2152
45-54 years	1755	958	797	1401	738	663	354	220	134
55 years and over	2235	1206	1029	1790	952	838	445	255	191
Unemploy. Rates									
20-21 years	10.8	10.8	10.9	8.8	8.9	8.6	20.9	20.4	21.3
16-21 years	14.2	14.6	13.8	12.2	12.6	11.7	24.1	24.5	23.8
22-44 years	6.0	5.6	6.4	4.9	4.7	5.1	11.2	10.5	11.7
45-54 years	4.1	4.0	4.2	3.8	3.5	4.2	5.6	6.8	4.1
55 years and over	4.4	4.2	4.6	4.1	3.8	4.5	6.0	7.3	5.1

This region is comprised of the following areas from the 1980 Census
 ("+" is plus, "-" is minus):

+ Kent County

The college population in 1980 is estimated as -

	15-19		20-24		25-29		30-34	
	Male	Female	Male	Female	Male	Female	Male	Female
White	608	702	673	499	386	307	208	166
Black	293	356	360	480	81	72	44	39
Other	9	6	25	33	0	3	0	2

The population in the Military in 1980 was

	16-19	20-24	25-34	35-44	45-64	65+
White Male	385	1337	1232	623	142	0
Black Male	54	220	292	154	40	0
Other Male	25	69	27	23	0	0
White Female	68	144	104	18	10	0
Black Female	0	26	17	0	0	0
Other Female	19	0	0	0	0	0

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Universe: Persons									
Total, all ages	97632	45818	51814	36439	40600	8279	9980	1101	1234
Under 5 years	8838	4492	4345	3456	3320	964	955	72	70
5-9 years	7348	3769	3579	2853	2682	782	808	133	89
10-14 years	7738	3932	3806	2913	3006	918	724	101	76
15-19 years	8364	4262	4102	3160	2917	944	1090	158	94
20-24 years	11203	5936	5267	4487	3884	1255	1198	194	185
25-29 years	8284	3409	4875	2814	3684	538	1063	58	127
30-34 years	6981	2861	4100	2350	3134	478	824	33	142
35-39 years	6670	2926	3744	2311	2893	515	701	99	150
40-44 years	5981	2611	3369	2174	2731	372	558	66	80
45-49 years	4489	2081	2408	1726	2001	291	331	64	76
50-54 years	4663	2286	2377	1906	1934	344	397	37	46
55-59 years	4249	1929	2319	1661	1967	231	294	38	58
60-64 years	3588	1555	2033	1372	1731	171	285	12	17
65-69 years	3061	1426	1635	1250	1427	152	199	24	10
70-74 years	2406	1035	1371	923	1169	107	200	5	2
75 years and over	3789	1307	2482	1082	2117	219	352	7	12
Median age in years	28.2	25.8	29.9	27.4	31.3	22.1	26.0	22.2	29.1
14-15 years	3220	1639	1582	1215	1185	372	363	52	34
16-19 years	6691	3410	3281	2528	2334	755	872	126	75
20-21 years	4481	2374	2107	1795	1554	502	479	78	74
16-21 years	11172	5784	5388	4323	3888	1257	1351	204	149
22-44 years	34618	15369	19249	12341	14774	2656	3865	372	610
45-54 years	9153	4367	4786	3632	3935	634	728	101	122
55 years and over	17093	7253	9840	6288	8411	879	1330	85	99

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Civ. Labor Force For Persons 16+									
Total, Persons 16+	53800	27267	26533	22696	20715	3938	5160	634	657
16-19 years	3256	1889	1366	1526	1032	296	321	67	14
20-24 years	9594	5379	4215	4397	3269	802	840	180	106
25-34 years	14003	6130	7873	5061	5983	991	1656	79	234
35-44 years	11922	5430	6493	4396	5063	869	1205	165	225
45-64 years	13675	7589	6086	6532	4973	925	1034	132	78
65+ years	1350	851	500	784	395	55	104	12	0
Median age in years	35.0	35.4	34.8	35.8	35.1	33.8	33.6	33.9	33.9
Labor Force Participation									
16-19 years	48.7	55.4	41.6	60.4	44.2	39.2	36.8	52.9	18.7
20-24 years	85.6	90.6	80.0	98.0	84.2	63.9	70.2	92.6	57.3
25-34 years	91.8	97.8	87.7	98.0	87.7	97.5	87.7	86.6	86.8
35-44 years	94.2	98.1	91.3	98.0	90.0	98.0	95.7	100.0	98.0
45-64 years	80.5	96.7	66.6	98.0	65.2	89.3	79.1	87.5	39.7
65+ years	14.6	22.6	9.1	24.1	8.4	11.4	13.9	32.6	0.0
Civ. Labor Force For Persons 16+									
20-21 years	3838	2152	1686	1759	1308	321	336	72	42
16-21 years	7093	4041	3052	3285	2339	617	657	139	56
22-44 years	31682	14787	16895	12095	13008	2341	3365	351	523
45-54 years	6837	3794	3043	3266	2486	463	517	66	39
55 years and over	8188	4645	3543	4050	2882	517	622	78	39
Labor Force Participation									
20-21 years	85.6	90.6	80.0	98.0	84.2	63.9	70.2	92.6	57.3
16-21 years	63.5	69.9	56.7	76.0	60.2	49.1	48.6	68.0	37.8
22-44 years	91.5	96.2	87.8	98.0	88.0	88.1	87.1	94.4	85.7
45-54 years	74.7	86.9	63.6	89.9	63.2	72.9	71.0	65.4	32.0
55 years and over	47.9	64.0	36.0	64.4	34.3	58.8	46.7	90.9	39.7

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Persons 16+									
Unemployed Persons	3712	1849	1863	1316	1323	482	517	51	22
Unemployment Rate	6.9	6.8	7.0	5.8	6.4	12.2	10.0	8.0	3.4

	Total -- All Races			White			Nonwhite		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Unemploy. Persons									
16-19 years	558	309	249	426	236	190	133	73	59
20-24 years	945	462	482	663	328	335	282	135	147
25-34 years	943	409	535	637	295	342	306	114	192
35-44 years	586	264	322	381	157	224	205	107	98
45-64 years	607	357	250	470	254	216	137	103	34
65+ years	72	47	26	63	47	16	10	0	10
Median age in years	28.7	28.7	28.8	28.6	28.2	29.0	29.0	30.1	28.3
Unemploy. Rates									
16-19 years	17.2	16.4	18.2	16.6	15.4	18.4	19.0	20.2	17.7
20-24 years	9.8	8.6	11.4	8.6	7.4	10.3	14.6	13.7	15.5
25-34 years	6.7	6.7	6.8	5.8	5.8	5.7	10.4	10.7	10.2
35-44 years	4.9	4.9	5.0	4.0	3.6	4.4	8.3	10.4	6.9
45-64 years	4.4	4.7	4.1	4.1	3.9	4.3	6.3	9.8	3.0
65+ years	5.4	5.5	5.1	5.3	6.0	4.0	5.8	0.0	9.4
Unemploy. Persons									
20-21 years	378	185	193	265	131	134	113	54	59
16-21 years	936	494	442	691	367	324	245	127	118
22-44 years	2096	950	1146	1416	648	768	681	303	378
45-54 years	303	179	125	235	127	108	69	52	17
55 years and over	376	226	150	298	174	124	78	52	27
Unemploy. Rates									
20-21 years	9.8	8.6	11.4	8.6	7.4	10.3	14.6	13.7	15.5
16-21 years	13.2	12.2	14.5	12.3	11.2	13.9	16.7	16.8	16.6
22-44 years	6.6	6.4	6.8	5.6	5.4	5.9	10.3	11.2	9.7
45-54 years	4.4	4.7	4.1	4.1	3.9	4.3	6.3	9.8	3.0
55 years and over	4.6	4.9	4.2	4.3	4.3	4.3	6.2	8.7	4.1

This region is comprised of the following areas from the 1980 Census
("+ " is plus, "- " is minus):

+ New Castle County

The college population in 1980 is estimated as -

	15-19		20-24		25-29		30-34	
	Male	Female	Male	Female	Male	Female	Male	Female
White	4102	4965	5468	5376	1798	1325	968	714
Black	575	635	381	427	196	237	105	127
Other	93	106	173	150	92	53	49	28

The population in the Military in 1980 was

	16-19	20-24	25-34	35-44	45-64	65+
White Male	17	87	119	102	29	0
Black Male	0	6	18	0	5	0
Other Male	0	7	0	0	0	0
White Female	29	18	20	9	0	0
Black Female	12	0	9	7	0	0
Other Female	0	0	0	0	0	0

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Universe: Persons									
Total, all ages	415013	198882	216131	163999	176549	30220	34585	4662	4997
Under 5 years	31182	16020	15162	12146	11384	3343	3254	531	524
5-9 years	27067	13845	13222	10500	9674	2884	2847	461	700
10-14 years	27371	13655	13716	10491	10420	2734	2812	430	484
15-19 years	33561	16755	16805	13014	13418	3222	2999	520	388
20-24 years	39450	18619	20830	15405	17159	2702	3120	512	551
25-29 years	40598	19932	20665	16705	16802	2711	3478	517	385
30-34 years	33025	16550	16474	13921	13076	2263	2911	367	488
35-39 years	30700	14755	15944	12197	12822	2226	2660	332	462
40-44 years	24841	12120	12721	10147	10346	1612	2027	361	348
45-49 years	20578	9757	10821	8059	8995	1407	1635	291	192
50-54 years	20706	10033	10673	8624	8921	1223	1591	186	161
55-59 years	21064	9941	11123	8799	9711	1069	1355	74	57
60-64 years	20764	9632	11132	8675	10028	910	1039	47	65
65-69 years	16092	7229	8864	6470	7920	750	879	9	65
70-74 years	11513	4688	6825	4103	5912	577	841	8	71
75 years and over	16502	5349	11152	4744	9960	586	1135	19	58
Median age in years	31.3	30.2	32.3	31.3	33.6	25.4	28.2	23.8	23.7
14-15 years	12186	6082	6104	4701	4768	1191	1162	190	174
16-19 years	26849	13404	13444	10411	10735	2577	2399	416	310
20-21 years	15780	7448	8332	6162	6864	1081	1248	205	220
16-21 years	42628	20852	21776	16573	17598	3658	3648	621	530
22-44 years	152833	74530	78303	62213	63342	10433	12949	1884	2013
45-54 years	41284	19790	21494	16683	17916	2631	3225	476	353
55 years and over	85935	36839	49096	32791	43531	3892	5250	156	316

Report B: Projections Model
Table 2: Labor Force, July 1986
Total Labor Force 216900
Labor Force Participation Rate 67.2

New Castle County
 Delaware

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Civ. Labor Force For Persons 16+									
Total, Persons 16+	216900	116066	100834	100006	83358	13808	15852	2255	1624
16-19 years	10834	5540	5294	4714	4672	629	543	197	78
20-24 years	30083	14550	15533	12511	13224	1767	2030	272	279
25-34 years	63364	34288	29076	29514	23777	4109	4816	665	483
35-44 years	49304	25964	23340	21861	18577	3451	4241	651	522
45-64 years	58417	32912	25506	28895	21353	3552	3904	464	249
65+ years	4897	2812	2085	2510	1755	298	317	5	13
Median age in years	35.8	36.4	35.2	36.5	35.0	36.2	36.3	34.9	34.4
Labor Force Participation									
16-19 years	40.4	41.3	39.4	45.3	43.5	24.4	22.6	47.5	25.3
20-24 years	76.3	78.1	74.6	81.2	77.1	65.4	65.1	53.2	50.6
25-34 years	86.1	94.0	78.3	96.4	79.6	82.6	75.4	75.3	55.3
35-44 years	88.8	96.6	81.4	97.8	80.2	89.9	90.5	94.0	64.4
45-64 years	70.3	83.6	58.3	84.6	56.7	77.1	69.5	77.7	52.4
65+ years	11.1	16.3	7.8	16.4	7.4	15.6	11.1	13.6	6.7
Civ. Labor Force For Persons 16+									
20-21 years	12033	5820	6213	5004	5289	707	812	109	111
16-21 years	22867	11360	11507	9718	9962	1336	1356	306	190
22-44 years	130718	68982	61736	58882	50289	8620	10276	1479	1172
45-54 years	29209	16456	12753	14448	10676	1776	1952	353	125
55 years and over	34106	19268	14838	16958	12431	2074	2269	116	138
Labor Force Participation									
20-21 years	76.3	78.1	74.6	81.2	77.1	65.4	65.1	53.2	50.6
16-21 years	53.6	54.5	52.8	58.6	56.6	36.5	37.2	49.3	35.8
22-44 years	85.5	92.6	78.8	94.6	79.4	82.6	79.4	78.5	58.2
45-54 years	70.8	83.2	59.3	86.6	59.6	67.5	60.5	74.1	35.3
55 years and over	39.7	52.3	30.2	51.7	28.6	53.3	43.2	74.1	43.5

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Persons 16+									
Unemployed Persons	13882	7110	6772	5232	4739	1704	1833	173	200
Unemployment Rate	6.4	6.1	6.7	5.2	5.7	12.3	11.6	7.7	12.3

	Total -- All Races			White			Nonwhite		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Unemploy. Persons									
16-19 years	2031	1134	898	1563	856	707	468	278	190
20-24 years	3398	1721	1676	2368	1233	1135	1030	489	541
25-34 years	3725	1843	1883	2499	1343	1156	1226	499	727
35-44 years	2122	982	1140	1475	701	774	647	282	365
45-64 years	2286	1265	1021	1818	959	859	467	306	162
65+ years	319	164	155	247	140	108	72	25	48
Median age in years	29.1	28.8	29.3	29.2	28.9	29.6	28.7	28.5	28.9
Unemploy. Rates									
16-19 years	18.7	20.5	17.0	16.7	18.2	15.1	32.3	33.6	30.6
20-24 years	11.3	11.8	10.8	9.2	9.9	8.6	23.7	24.0	23.4
25-34 years	5.9	5.4	6.5	4.7	4.6	4.9	12.2	10.5	13.7
35-44 years	4.3	3.8	4.9	3.6	3.2	4.2	7.3	6.9	7.7
45-64 years	3.9	3.8	4.0	3.6	3.3	4.0	5.7	7.6	3.9
65+ years	6.5	5.8	7.4	5.8	5.6	6.1	11.4	8.1	14.4
Unemploy. Persons									
20-21 years	1359	689	670	947	493	454	412	196	216
16-21 years	3390	1822	1568	2510	1349	1161	880	473	407
22-44 years	7886	3858	4028	5395	2784	2611	2491	1074	1417
45-54 years	1143	633	510	909	480	430	234	153	81
55 years and over	1462	797	665	1157	620	537	306	177	128
Unemploy. Rates									
20-21 years	11.3	11.8	10.8	9.2	9.9	8.6	23.7	24.0	23.4
16-21 years	14.8	16.0	13.6	12.8	13.9	11.7	27.6	28.8	26.3
22-44 years	6.0	5.6	6.5	4.9	4.7	5.2	11.6	10.6	12.4
45-54 years	3.9	3.8	4.0	3.6	3.3	4.0	5.7	7.2	3.9
55 years and over	4.3	4.1	4.5	3.9	3.7	4.3	6.5	8.1	5.3

This region is comprised of the following areas from the 1980 Census
("+ " is plus, "-" is minus):

+ Sussex County

The college population in 1980 is estimated as -

	15-19		20-24		25-29		30-34	
	Male	Female	Male	Female	Male	Female	Male	Female
White	505	531	298	386	211	197	113	106
Black	130	169	68	113	33	36	18	20
Other	21	6	7	2	4	10	2	5

The population in the Military in 1980 was

	16-19	20-24	25-34	35-44	45-64	65+
White Male	14	28	10	35	19	0
Black Male	0	17	19	0	2	0
Other Male	0	0	0	0	6	0
White Female	0	0	2	0	0	0
Black Female	0	0	2	0	0	0
Other Female	0	0	0	0	0	0

Report B: Projections Model
 Table 1: Population, July 1986

Sussex County
 Delaware

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Universe: Persons									
Total, all ages	104011	49959	54052	39846	42841	9275	10287	838	924
Under 5 years	8175	4158	4018	2899	2794	1171	1140	87	83
5-9 years	7114	3464	3651	2676	2619	750	925	37	107
10-14 years	7122	3728	3394	2825	2619	819	732	84	42
15-19 years	8262	4018	4244	2817	2881	1131	1263	70	100
20-24 years	7924	4119	3806	2987	2795	1010	930	121	81
25-29 years	8522	4406	4117	3543	3150	810	888	52	78
30-34 years	7769	3929	3840	3269	3029	554	721	106	90
35-39 years	7243	3515	3728	2975	3040	506	620	34	69
40-44 years	5889	2749	3140	2265	2587	449	482	34	71
45-49 years	4827	2441	2386	2067	1994	306	363	67	29
50-54 years	4883	2343	2540	1997	2173	309	341	37	27
55-59 years	5383	2338	3046	1989	2412	317	583	33	51
60-64 years	5610	2553	3057	2146	2604	395	428	13	25
65-69 years	5266	2336	2929	1993	2598	321	318	22	13
70-74 years	4120	1935	2185	1686	1947	223	208	26	31
75 years and over	5901	1929	3972	1712	3599	204	345	14	28
Median age in years	33.1	31.4	34.9	33.3	37.5	23.8	25.9	26.9	28.1
14-15 years	3077	1549	1528	1128	1100	390	399	31	28
16-19 years	6609	3214	3395	2254	2305	905	1010	56	80
20-21 years	3170	1647	1522	1195	1118	404	372	49	33
16-21 years	9779	4862	4917	3448	3423	1308	1382	105	112
22-44 years	34178	17070	17109	13845	13483	2925	3269	300	357
45-54 years	9710	4784	4926	4064	4167	616	704	104	55
55 years and over	26280	11091	15189	9525	13159	1459	1882	107	148

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Civ. Labor Force For Persons 16+									
Total, Persons 16+	53100	28647	24453	23671	19358	4467	4664	508	431
16-19 years	3116	1647	1469	1256	1090	361	366	30	13
20-24 years	6904	3867	3038	2919	2247	826	710	121	80
25-34 years	14875	8038	6837	6676	5423	1211	1274	152	140
35-44 years	12275	6084	6191	5136	4974	881	1080	66	137
45-64 years	14117	7849	6268	6702	5045	1017	1170	129	53
65+ years	1814	1162	652	982	579	170	64	10	9
Median age in years	36.3	36.3	36.4	36.9	36.8	33.6	34.9	31.8	33.8
Labor Force Participation									
16-19 years	47.1	51.2	43.3	55.7	47.3	39.9	36.2	52.6	16.4
20-24 years	87.1	93.9	79.8	97.7	80.4	81.8	76.4	100.0	98.0
25-34 years	91.3	96.4	85.9	98.0	87.7	88.8	79.2	95.3	82.8
35-44 years	93.5	97.1	90.1	98.0	88.4	92.3	98.0	98.0	98.0
45-64 years	68.2	81.1	56.8	81.8	54.9	76.7	68.2	86.1	40.5
65+ years	11.9	18.7	7.2	18.2	7.1	22.8	7.3	16.1	12.5
Civ. Labor Force For Persons 16+									
20-21 years	2762	1547	1215	1168	899	330	284	49	32
16-21 years	5878	3194	2684	2424	1989	692	650	78	45
22-44 years	31292	16442	14850	13563	11745	2588	2781	291	324
45-54 years	7058	3924	3134	3351	2523	509	585	64	27
55 years and over	8872	5087	3786	4333	3101	679	649	74	35
Labor Force Participation									
20-21 years	87.1	93.9	79.8	97.7	80.4	81.8	76.4	100.0	98.0
16-21 years	60.1	65.7	54.6	70.3	58.1	52.9	47.0	74.6	40.1
22-44 years	91.6	96.3	86.8	98.0	87.1	88.5	85.1	97.1	90.8
45-54 years	72.7	82.0	63.6	82.5	60.5	82.6	83.1	61.6	48.1
55 years and over	33.8	45.9	24.9	45.5	23.6	46.6	34.5	69.5	24.1

Report B: Projections Model
Table 3: Unemployment, July 1986
Total Unemployment Rate 5.7
Labor Force Participation Rate 66.4

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Persons 16+									
Unemployed Persons	3027	1513	1513	1058	948	431	549	24	16
Unemployment Rate	5.7	5.3	6.2	4.5	4.9	9.6	11.8	4.8	3.6

	Total -- All Races			White			Nonwhite		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Unemploy. Persons									
16-19 years	464	239	226	280	148	132	185	90	94
20-24 years	677	358	319	365	205	159	313	153	160
25-34 years	675	337	338	433	221	212	242	116	126
35-44 years	509	235	274	344	190	154	165	45	120
45-64 years	613	306	307	507	266	242	105	40	65
65+ years	89	39	50	78	28	50	11	11	0
Median age in years	30.5	29.7	31.3	33.3	33.0	33.7	25.5	24.5	27.3
Unemploy. Rates									
16-19 years	14.9	14.5	15.4	11.9	11.8	12.1	24.0	23.2	24.9
20-24 years	9.8	9.3	10.5	7.1	7.0	7.1	18.0	16.1	20.3
25-34 years	4.5	4.2	4.9	3.6	3.3	3.9	8.7	8.5	8.9
35-44 years	4.1	3.9	4.4	3.4	3.7	3.1	7.6	4.8	9.8
45-64 years	4.3	3.9	4.9	4.3	4.0	4.8	4.4	3.5	5.3
65+ years	4.9	3.3	7.7	5.0	2.8	8.6	4.3	6.0	0.0
Unemploy. Persons									
20-21 years	271	143	128	146	82	64	125	61	64
16-21 years	735	382	354	426	230	195	310	152	158
22-44 years	1590	787	803	996	535	461	594	253	342
45-54 years	306	153	153	254	133	121	53	20	33
55 years and over	395	192	203	332	161	171	63	31	33
Unemploy. Rates									
20-21 years	9.8	9.3	10.5	7.1	7.0	7.1	18.0	16.1	20.3
16-21 years	12.5	12.0	13.2	9.6	9.5	9.8	21.1	19.7	22.8
22-44 years	5.1	4.8	5.4	3.9	3.9	3.9	9.9	8.8	11.0
45-54 years	4.3	3.9	4.9	4.3	4.0	4.8	4.4	3.5	5.3
55 years and over	4.5	3.8	5.4	4.5	3.7	5.5	4.4	4.1	4.8

To insure that the population estimates for the race/sex/age cohorts of the following will sum to the corresponding race/sex/age cohort for the total, the projections for these subareas are being done simultaneously with that for New Castle County. The 2 subareas are -

2 subareas

- 1 Bal of New Castle County
- 2 Wilmington

The projections for New Castle County were calculated earlier and are not printed out at this time

Balance of New Castle County is comprised of the following areas from the 1980 Census ("+" is plus, "-" is minus):

+ New Castle - Wilmington

The college population in 1980 is estimated as -

	15-19		20-24		25-29		30-34	
	Male	Female	Male	Female	Male	Female	Male	Female
White	3995	4823	5249	5164	1556	1141	838	614
Black	204	262	201	165	129	96	70	52
Other	72	80	152	131	92	43	49	23

The population in the Military in 1980 was

	16-19	20-24	25-34	35-44	45-64	65+
White Male	17	87	119	102	29	0
Black Male	0	6	13	0	5	0
Other Male	0	7	0	0	0	0
White Female	29	18	20	9	0	0
Black Female	0	0	9	0	0	0
Other Female	0	0	0	0	0	0

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Universe: Persons									
Total, all ages	345573	168037	177536	151037	159773	13686	14309	3314	3453
Under 5 years	25153	12955	12198	11270	10564	1385	1334	300	301
5-9 years	22097	11422	10675	9796	9036	1313	1212	314	427
10-14 years	22925	11525	11400	10020	9828	1233	1259	271	313
15-19 years	28039	13937	14101	12287	12656	1325	1137	326	309
20-24 years	34161	16142	18020	14658	16359	1041	1251	443	410
25-29 years	34605	17285	17319	15564	15421	1347	1662	375	237
30-34 years	27485	14059	13426	12498	11691	1296	1392	265	343
35-39 years	26078	12623	13455	11141	11712	1208	1357	273	386
40-44 years	21564	10649	10916	9489	9762	881	937	278	217
45-49 years	17580	8418	9162	7460	8406	725	607	232	149
50-54 years	17870	8745	9125	8100	8378	504	608	140	139
55-59 years	17777	8486	9291	8044	8823	386	444	56	24
60-64 years	17325	8197	9128	7853	8735	334	348	9	45
65-69 years	12970	6068	6901	5749	6616	311	230	9	55
70-74 years	8604	3593	5011	3398	4701	192	265	3	44
75 years and over	11340	3934	7406	3710	7085	205	266	19	55
Median age in years	31.1	30.3	31.9	30.8	32.6	27.0	27.9	25.0	24.6
14-15 years	10193	5092	5100	4461	4497	512	479	119	124
16-19 years	22431	11150	11281	9829	10125	1060	909	260	247
20-21 years	13664	6457	7208	5863	6544	416	500	177	164
16-21 years	36095	17606	18489	15693	16668	1476	1410	438	411
22-44 years	130229	64301	65928	57488	58401	5357	6098	1457	1429
45-54 years	35450	17162	18288	15561	16785	1229	1215	373	288
55 years and over	68015	30278	37738	28753	35961	1428	1554	97	223

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Civ. Labor Force For Persons 16+									
Total, Persons 16+	180100	97923	82177	89800	73730	6452	7212	1671	1235
16-19 years	9258	4687	4571	4328	4257	249	218	110	95
20-24 years	25495	12328	13167	11485	12093	646	884	196	190
25-34 years	52146	28801	23345	26249	20638	2096	2390	456	317
35-44 years	41329	22032	19297	19643	16633	1861	2200	528	464
45-64 years	48365	27959	20408	26065	18823	1514	1421	380	162
65+ years	3506	2116	1391	2030	1286	86	98	0	7
Median age in years	35.8	36.4	35.0	36.4	34.9	36.3	35.5	36.4	35.3
Labor Force Participation									
16-19 years	41.3	42.0	40.5	44.0	42.1	23.5	24.0	42.3	38.5
20-24 years	74.6	76.4	73.1	78.4	73.9	62.1	70.7	44.4	46.4
25-34 years	84.0	91.9	75.9	93.5	76.1	79.3	78.3	71.4	54.7
35-44 years	86.7	94.7	79.2	95.2	77.5	89.1	95.9	95.8	77.0
45-64 years	68.6	82.6	55.6	82.9	54.8	77.7	70.8	86.6	45.5
65+ years	10.7	15.6	7.2	15.8	7.0	12.2	12.9	0.0	4.3
Civ. Labor Force For Persons 16+									
20-21 years	10198	4931	5267	4594	4837	259	353	79	76
16-21 years	19456	9618	9838	8922	9095	507	572	189	171
22-44 years	108772	58230	50542	52783	44526	4344	5121	1103	895
45-54 years	24183	13979	10203	13032	9411	757	711	301	81
55 years and over	27689	16095	11594	15062	10697	843	809	78	88
Labor Force Participation									
20-21 years	74.6	76.4	73.1	78.4	73.9	62.1	70.7	44.4	46.4
16-21 years	53.9	54.6	53.2	56.9	54.6	34.4	40.6	43.1	41.6
22-44 years	83.5	90.6	76.7	91.8	76.2	81.1	84.0	75.7	62.6
45-54 years	68.2	81.5	55.8	83.8	56.1	61.6	58.5	80.8	28.2
55 years and over	40.7	53.2	30.7	52.4	29.7	59.1	52.1	80.8	39.3

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Persons 16+									
Unemployed Persons	11346	5679	5667	5079	4707	561	782	40	178
Unemployment Rate	6.3	5.8	6.9	5.7	6.4	8.7	10.8	2.4	14.4

	Total -- All Races			White			Nonwhite		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Unemploy. Persons									
16-19 years	1734	921	813	1535	830	706	198	91	108
20-24 years	2794	1370	1423	2399	1243	1156	395	127	267
25-34 years	2975	1551	1423	2466	1331	1135	509	220	288
35-44 years	1737	751	986	1444	669	774	293	82	211
45-64 years	1915	972	942	1754	898	856	161	74	87
65+ years	193	113	80	188	107	80	5	5	0
Median age in years	28.9	28.5	29.2	28.9	28.5	29.3	28.7	28.7	28.7
Unemploy. Rates									
16-19 years	18.7	19.6	17.8	17.9	19.2	16.6	29.5	25.3	34.3
20-24 years	11.0	11.1	10.8	10.2	10.8	9.6	20.6	15.1	24.9
25-34 years	5.7	5.4	6.1	5.3	5.1	5.5	9.7	8.6	10.6
35-44 years	4.2	3.4	5.1	4.0	3.4	4.7	5.8	3.4	7.9
45-64 years	4.0	3.5	4.6	3.9	3.4	4.5	4.6	3.9	5.5
65+ years	5.5	5.3	5.8	5.7	5.3	6.2	2.9	6.4	0.0
Unemploy. Persons									
20-21 years	1117	548	569	960	497	462	158	51	107
16-21 years	2851	1469	1383	2495	1327	1168	356	142	214
22-44 years	6388	3125	3262	5349	2746	2603	1039	379	659
45-54 years	957	486	471	877	449	428	80	37	43
55 years and over	1150	599	551	1064	557	508	86	42	43
Unemploy. Rates									
20-21 years	11.0	11.1	10.8	10.2	10.8	9.6	20.6	15.1	24.9
16-21 years	14.7	15.3	14.1	13.8	14.9	12.8	24.7	20.4	28.9
22-44 years	5.9	5.4	6.5	5.5	5.2	5.8	9.1	7.0	11.0
45-54 years	4.0	3.5	4.6	3.9	3.4	4.5	4.6	3.5	5.5
55 years and over	4.2	3.7	4.8	4.1	3.7	4.7	4.4	4.6	4.8

This region is comprised of the following areas from the 1980 Census
("+ " is plus, "- " is minus):

+ Wilmington

The college population in 1980 is estimated as -

	15-19		20-24		25-29		30-34	
	Male	Female	Male	Female	Male	Female	Male	Female
White	107	142	219	212	242	185	130	99
Black	371	373	180	262	66	140	36	76
Other	21	26	21	19	0	10	0	5

The population in the Military in 1980 was

	16-19	20-24	25-34	35-44	45-64	65+
White Male	0	0	0	0	0	0
Black Male	0	0	5	0	0	0
Other Male	0	0	0	0	0	0
White Female	0	0	0	0	0	0
Black Female	12	0	0	7	0	0
Other Female	0	0	0	0	0	0

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Universe: Persons									
Total, all ages	69441	30840	38600	12925	16741	16563	20312	1352	1547
Under 5 years	6031	3066	2965	873	818	1962	1924	231	224
5-9 years	4970	2423	2547	701	636	1574	1638	148	274
10-14 years	4446	2130	2316	468	589	1503	1555	159	171
15-19 years	5522	2819	2703	724	758	1901	1866	195	79
20-24 years	5284	2476	2809	742	794	1664	1873	69	141
25-29 years	5991	2646	3345	1137	1378	1367	1819	143	149
30-34 years	5541	2491	3050	1420	1383	968	1522	103	145
35-39 years	4620	2131	2489	1053	1107	1019	1305	59	76
40-44 years	3274	1470	1804	655	581	732	1092	83	131
45-49 years	2998	1339	1659	597	586	683	1030	59	43
50-54 years	2834	1287	1547	521	540	721	985	46	22
55-59 years	3287	1456	1832	754	886	684	913	18	33
60-64 years	3439	1435	2004	820	1292	577	693	38	20
65-69 years	3124	1160	1964	721	1304	440	650	0	10
70-74 years	2911	1096	1815	705	1211	386	577	5	27
75 years and over	5169	1417	3752	1035	2878	382	871	0	3
Median age in years	32.2	29.7	34.3	36.9	47.8	24.0	28.6	18.5	20.9
14-15 years	1994	990	1004	238	270	681	684	71	50
16-19 years	4418	2255	2163	579	607	1521	1493	156	63
20-21 years	2114	990	1123	297	318	666	749	28	56
16-21 years	6531	3245	3286	876	924	2186	2242	184	120
22-44 years	22596	10223	12373	4710	4925	5085	6862	428	586
45-54 years	5832	2626	3206	1118	1126	1404	2015	104	65
55 years and over	17930	6563	11367	4034	7571	2469	3703	60	93

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Civ. Labor Force For Persons 16+									
Total, Persons 16+	36800	17843	18957	8763	8551	8444	9930	637	477
16-19 years	1768	1013	755	460	374	448	377	106	3
20-24 years	4287	2113	2174	727	779	1331	1304	55	92
25-34 years	10688	5022	5666	2506	2705	2288	2778	228	183
35-44 years	7615	3526	4089	1674	1654	1717	2335	136	100
45-64 years	10625	5158	5467	2638	2492	2412	2881	108	94
65+ years	1817	1011	807	758	546	248	254	4	6
Median age in years	37.2	37.2	37.2	39.1	37.5	35.9	37.2	31.9	32.8
Labor Force Participation									
16-19 years	40.0	44.9	34.9	79.4	61.7	29.5	25.3	67.9	4.2
20-24 years	81.1	85.3	77.4	98.0	98.0	80.0	69.6	78.9	64.9
25-34 years	92.7	97.8	88.6	98.0	98.0	98.0	83.2	93.0	62.2
35-44 years	96.5	97.9	95.3	98.0	98.0	98.0	97.4	96.0	48.1
45-64 years	84.6	93.5	77.6	98.0	75.4	90.5	79.6	67.6	79.1
65+ years	16.2	27.5	10.7	30.8	10.1	20.5	12.1	98.2	16.1
Civ. Labor Force For Persons 16+									
20-21 years	1715	845	870	291	311	532	521	22	37
16-21 years	3483	1859	1624	750	686	980	899	128	39
22-44 years	20875	9816	11060	4616	4827	4803	5895	397	337
45-54 years	5312	2579	2734	737	393	1206	1441	54	47
55 years and over	7130	3589	3540	2659	2645	1454	1695	58	53
Labor Force Participation									
20-21 years	81.1	85.3	77.4	98.0	98.0	80.0	69.6	78.9	64.9
16-21 years	53.3	57.3	49.4	85.7	74.2	44.8	40.1	69.5	32.8
22-44 years	92.4	96.0	89.4	98.0	98.0	94.5	85.9	92.6	57.6
45-54 years	91.1	98.2	85.3	65.9	34.9	85.9	71.5	51.8	71.6
55 years and over	39.8	54.7	31.1	65.9	34.9	58.9	45.8	97.3	57.4

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Persons 16+									
Unemployed Persons	2576	1393	1183	383	280	922	869	88	34
Unemployment Rate	7.0	7.8	6.2	4.4	3.3	10.9	8.8	13.9	7.2

	Total -- All Races			White			Nonwhite		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Unemploy. Persons									
16-19 years	370	247	123	141	96	45	228	151	77
20-24 years	615	345	270	88	46	41	528	299	229
25-34 years	722	290	432	135	64	71	587	227	360
35-44 years	365	192	173	88	49	39	277	143	134
45-64 years	386	264	122	145	89	56	241	175	66
65+ years	117	54	63	65	39	27	52	15	37
Median age in years	29.2	28.6	29.6	32.6	32.7	32.5	28.4	27.4	29.0
Unemploy. Rates									
16-19 years	20.9	24.4	16.3	17.0	20.9	12.1	24.5	27.3	20.4
20-24 years	14.4	16.3	12.4	5.8	6.4	5.3	19.0	21.6	16.4
25-34 years	6.8	5.8	7.6	2.6	2.5	2.6	10.7	9.0	12.2
35-44 years	4.8	5.4	4.2	2.6	2.9	2.4	6.5	7.7	5.5
45-64 years	3.6	5.1	2.2	2.8	3.4	2.2	4.4	7.0	2.2
65+ years	6.5	5.3	7.9	5.0	5.1	4.9	10.1	6.0	14.2
Unemploy. Persons									
20-21 years	246	138	108	35	18	17	211	120	92
16-21 years	616	385	231	177	115	62	440	271	169
22-44 years	1456	689	767	276	140	136	1181	549	632
45-54 years	193	132	61	72	44	28	121	88	33
55 years and over	310	186	124	138	83	54	173	103	70
Unemploy. Rates									
20-21 years	14.4	16.3	12.4	5.8	6.4	5.3	19.0	21.6	16.4
16-21 years	17.7	20.7	14.2	12.3	15.3	9.0	21.5	24.4	18.0
22-44 years	7.0	7.0	6.9	2.9	3.0	2.8	10.3	10.6	10.1
45-54 years	3.6	5.1	2.2	6.9	6.0	7.1	4.4	7.0	2.2
55 years and over	4.4	5.2	3.5	2.6	3.1	2.1	5.3	6.8	4.0

This region is comprised of the following areas from the 1980 Census
("+ " is plus, "-" is minus):

+ Wilmington SMSA, DE Port + Wilmington SMSA, NJ Port + Wilmington SMSA, MD Port

The college population in 1980 is estimated as -

	15-19		20-24		25-29		30-34	
	Male	Female	Male	Female	Male	Female	Male	Female
White	4830	5594	5858	5842	2161	1663	1163	895
Black	740	802	433	507	220	304	118	164
Other	107	110	182	169	92	54	49	29

The population in the Military in 1980 was

	16-19	20-24	25-34	35-44	45-64	65+
White Male	17	107	180	144	42	0
Black Male	0	8	18	0	6	0
Other Male	0	7	0	11	0	0
White Female	29	18	20	9	0	0
Black Female	12	0	9	7	0	0
Other Female	0	0	0	0	0	0

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Universe: Persons									
Total, all ages	549313	264990	284323	221829	236122	37382	41870	5779	6331
Under 5 years	41787	21541	20245	16923	15782	3972	3843	646	620
5-9 years	36660	18984	17677	14920	13546	3509	3310	554	821
10-14 years	38113	19340	18773	15335	14734	3384	3394	621	646
15-19 years	44919	22489	22429	17947	17928	3974	3959	567	543
20-24 years	51306	24061	27245	19323	22136	4117	4364	621	744
25-29 years	50227	24487	25740	20701	21368	3200	3949	587	423
30-34 years	42721	21486	21235	18341	17307	2704	3361	441	566
35-39 years	41315	20113	21201	17072	17497	2609	3097	432	607
40-44 years	33558	16563	16995	14246	14192	1876	2332	442	471
45-49 years	27076	13090	13986	11019	11831	1672	1879	398	276
50-54 years	26998	13077	13921	11410	11861	1431	1840	236	220
55-59 years	27740	13147	14593	11723	12917	1304	1592	120	84
60-64 years	27288	12747	14541	11530	13088	1165	1376	53	76
65-69 years	21663	9776	11886	8818	10652	947	1163	11	72
70-74 years	15704	6578	9126	5854	7994	705	1044	19	88
75 years and over	22239	7510	14730	6666	13289	813	1366	31	75
Median age in years	31.4	30.4	32.4	31.6	33.6	24.7	27.6	24.0	23.6
14-15 years	16606	8366	8240	6656	6532	1472	1470	238	238
16-19 years	35935	17991	17944	14358	14342	3179	3167	454	434
20-21 years	20522	9624	10898	7729	8854	1647	1746	248	298
16-21 years	56457	27616	28841	22087	23197	4826	4913	702	732
22-44 years	198605	97087	101518	81954	83646	12859	15358	2274	2514
45-54 years	54074	26167	27907	22429	23692	3104	3719	634	496
55 years and over	114634	49758	64875	44591	57940	4934	6542	234	394

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Civ. Labor Force For Persons 16+									
Total, Persons 16+	282600	153023	129577	133061	108559	17139	18848	2823	2170
16-19 years	14508	7532	6976	6513	6157	791	720	228	99
20-24 years	39326	19258	20068	16171	16849	2741	2812	346	408
25-34 years	79986	43755	36231	38079	30210	4904	5458	772	563
35-44 years	66603	35598	31004	30691	25378	4083	4922	824	704
45-64 years	75630	42999	32631	38083	27730	4272	4527	644	374
65+ years	6547	3880	2667	3523	2236	349	409	9	22
Median age in years	36.1	36.7	35.5	36.9	35.4	35.3	35.9	35.8	35.2
Labor Force Participation									
16-19 years	40.4	41.9	38.9	45.4	42.9	24.9	22.7	50.2	22.8
20-24 years	76.7	80.0	73.7	83.7	76.1	66.6	64.4	55.7	54.8
25-34 years	86.1	95.2	77.1	97.5	78.1	83.1	74.7	75.1	56.9
35-44 years	89.0	97.1	81.2	98.0	80.1	91.1	90.7	94.3	65.3
45-64 years	69.3	82.6	57.2	83.4	55.8	76.7	67.7	79.8	57.0
65+ years	11.0	16.3	7.5	16.5	7.0	14.2	11.4	14.5	9.4
Civ. Labor Force For Persons 16+									
20-21 years	15731	7703	8027	6468	6740	1096	1125	138	163
16-21 years	30238	15235	15003	12982	12896	1887	1845	366	262
22-44 years	170185	90908	79276	78473	65697	10632	12068	1803	1512
45-54 years	37815	21499	16315	19042	13865	2136	2263	477	187
55 years and over	44362	25380	18982	22564	16101	2485	2672	176	209
Labor Force Participation									
20-21 years	76.7	80.0	73.7	83.7	76.1	66.6	64.4	55.7	54.8
16-21 years	53.6	55.2	52.0	58.8	55.6	39.1	37.6	52.2	35.8
22-44 years	85.7	93.6	78.1	95.8	78.5	82.7	78.6	79.3	60.1
45-54 years	69.9	82.2	58.5	84.9	58.5	68.8	60.9	75.2	37.7
55 years and over	38.7	51.0	29.3	50.6	27.8	50.4	40.9	75.2	53.0

	Total -- All Races			White		Black		Remaining Races	
	Total	Male	Female	Male	Female	Male	Female	Male	Female
Persons 16+									
Unemployed Persons	18652	9630	9021	7242	6594	2138	2182	250	246
Unemployment Rate	6.6	6.3	7.0	5.4	6.1	12.5	11.6	8.9	11.3

	Total -- All Races			White			Nonwhite		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Unemploy. Persons									
16-19 years	2793	1578	1215	2245	1271	974	549	307	242
20-24 years	4592	2377	2215	3182	1682	1499	1410	695	715
25-34 years	4850	2450	2400	3406	1824	1582	1444	626	818
35-44 years	3016	1359	1657	2276	1029	1247	739	330	410
45-64 years	2991	1632	1359	2403	1229	1174	588	402	186
65+ years	410	235	175	325	206	119	85	29	56
Median age in years	29.0	28.5	29.5	29.4	28.7	30.2	28.1	28.1	28.1
Unemploy. Rates									
16-19 years	19.3	20.9	17.4	17.7	19.5	15.8	29.9	30.1	29.5
20-24 years	11.7	12.3	11.0	9.6	10.4	8.9	22.4	22.5	22.2
25-34 years	6.1	5.6	6.6	5.0	4.8	5.2	12.3	11.0	13.6
35-44 years	4.5	3.8	5.3	4.1	3.4	4.9	7.0	6.7	7.3
45-64 years	4.0	3.8	4.2	3.7	3.2	4.2	6.0	8.2	3.8
65+ years	6.3	6.1	6.6	5.6	5.9	5.3	10.8	8.0	13.1
Unemploy. Persons									
20-21 years	1837	951	886	1273	673	600	564	278	286
16-21 years	4630	2529	2101	3517	1944	1573	1113	585	528
22-44 years	10621	5235	5386	7591	3863	3728	3029	1372	1657
45-54 years	1495	816	680	1201	615	587	294	201	93
55 years and over	1906	1051	855	1527	821	706	379	230	149
Unemploy. Rates									
20-21 years	11.7	12.3	11.0	9.6	10.4	8.9	22.4	22.5	22.2
16-21 years	15.3	16.6	14.0	13.6	15.0	12.2	25.5	26.0	25.0
22-44 years	6.2	5.8	6.8	5.3	4.9	5.7	11.6	11.0	12.2
45-54 years	4.0	3.8	4.2	3.7	3.2	4.2	6.0	7.7	3.8
55 years and over	4.3	4.1	4.5	3.9	3.6	4.4	6.7	8.6	5.2

Technical Notes
Introduction
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Geographic Areas Covered by Report B

Introduction

These Technical Notes provide various types of information necessary for interpretation of data items in Report B. They cite references to more technical and detailed discussions of the methodology underlying the model and of the data sources used by the model. They also provide footnotes for Report B and describe limitations of the model. The methodology underlying the Projections Model is summarized in these notes. For more details, please refer to "The Labor Market Projections Model - A User's Guide to the Population, Labor Force, and Unemployment Projections Model at Lawrence Berkeley Laboratory" by Esther Schroeder, August 1980, LBL-11349 and to "Improving the Accuracy of Migration Age Detail in Multiple-Area Population Forecasts", by Schroeder and Pittenger, in "Demography", May 1983, Vol. 20, No. 2).

Although the Projections Model depends upon several different data sources, it relies most heavily upon the 1980 Census. Two major reference publications which describe the 1980 Census in detail are PHC80-R1-A, "Users' Guide Part A. Text, Part B. Glossary" (cited below as the 1980 census "Users' Guide"), and the "Census of Population and Housing, 1980: Summary Tape File 4 Technical Documentation" (cited below as "STF4 Technical Documentation"). The "Users' Guide" provides general information about the census, how data were collected, what questions were asked, etc., and provides an excellent overview of available publications, data, and services. The "STF4 Technical Documentation" provides detailed information about the specific computer files that were accessed to provide the data on which this report is based. The Glossaries of these Census Bureau publications provide detailed explanations for most of the terms used in this report.

Footnotes

Footnote (a)

Race/ethnic categories in Report B are taken directly from the Census Bureau, except that the categories "American Indian, Eskimo, and Aleut", "Asian and Pacific" and "Other (Race, n.e.c)" have been combined into "Other Races".

All Census data were derived from population "A" records and population "B" records of STF4. Data for the following race/ethnic groups were obtained from the population "B" records:

Total Population
White
Black

For each data item, the third race/ethnic category "Other Races" is then calculated as "Total Population" less "White" and "Black". The three race/ethnic categories are mutually exclusive and exhaustive subsets which add to the total population. If one of the two race/ethnic groups "White" or "Black" is suppressed, the total number of persons in the suppressed group is obtained from the population "A" records. Please see the Section on Data Item Suppression for details on how the suppressed data items are estimated.

Note that "Hispanic" is not treated as a "race" category for the purposes of this report. Those who identified themselves as Hispanic are counted in one of the racial categories, "White", "Black" or "Other".

Geographic Areas Covered by Report B

The Report B series provides data for government and census geographic areas described below.

One report is produced for each state (and the District of Columbia) and the geographic subareas contained in that state.

States

A total of 51 reports present data for the states and the District of Columbia.

Standard Metropolitan Statistical Areas

Projections are done for the 350 Standard Metropolitan Statistical Areas (SMSA's). All SMSA's are made up of one or more counties except in New England, where towns and cities are the basic units. An SMSA is a large population nucleus and nearby communities which have a high degree of economic and social integration with that nucleus. SMSA boundaries may change from year to year. Data are for SMSA's defined in June 1981 by the Office of Management and Budget.

The projections for a particular SMSA are contained in the report for the state containing that SMSA. For an SMSA that crosses state lines, the projections are contained in the report for the state that contains most of the SMSA.

U.S. by ETA/JTPA Service Delivery Area

Projections are also prepared for the approximately 700 Job Training Partnership Act (JTPA) Service Delivery Areas (SDA's) that are neither states nor SMSA's. Each SDA is a local government with 200,000 or more population, or any consortium of contiguous units of general local government with an aggregate population of 200,000 or more which constitutes a substantial part of a labor market area. In addition, the governor of a state may designate SDA's which constitute a substantial part of a labor market area, without regard to population limits.

Other substate Planning Units

Projections can also be prepared for some substate planning units at the request of that state.

Non-Census Area Aggregation

Data for some of the SDAs and other Planning Units are not immediately available from the Census Bureau. These data were obtained by aggregating from areas that are available on the STF4 data tapes, such as cities and counties. For information on the estimation procedures used for such areas, please see the special section on "Data Aggregation for Composite Areas".

Technical Notes Interpretation of Results Projections Methodology

Interpretation of Results

Within each state, the population projections of the SDAs are force to add up to that of the state. If another geographic area is broken into still smaller areas, the population projections of the smaller areas will also be forced to add up to those of the larger area. Whenever any forcing is done, words to that effect appear on the first page of the results for the large geographic area to which the smaller ones are constrained.

For each area, at least four pages of tables are produced. The first page shows the geographic components that comprise the area and contains background 1980 Census information, in particular, the college and the military population. Since the behavior of both of these groups is different from that of the resident non-civilian population, these two tables show how much of an impact they may have on the particular area. Projections in subsequent tables for small areas that have a large college population or a large military population should be used with caution.

Table 1 contains the projected civilian population by race, sex and age, for 1986. These numbers are controlled to a projected total civilian population for 1986 as provided by the state, or, if no such figure is provided, to a projected total as provided by the Bureau of the Census. Although these numbers are printed for three racial groups, the racial detail should be used with caution in very small areas.

Table 2 contains the projected labor force and labor force participation rates by race, sex and age, for 1986. At the top of the page, the header contains the total labor force and the labor force participation rate to which all the numbers on the page are controlled. This table will appear once for each labor force figure or labor force participation rate received from the state.

Table 3 contains the projected unemployment and unemployment rates by race, sex and age, for 1986. At the top of the page, the header contains the total unemployment and the unemployment rate to which all the numbers on the page are controlled. This table will appear at least once for each unemployment rate received from the state. If more than one labor force figure or labor force participation rate is submitted, Table 3 will be redone for each labor force figure or labor force participation rate.

The first two rows of Table 3 show unemployment by sex and by race - White, Black and Other. The remainder of the table shows unemployment by sex, by age, and by the two racial categories - White and Nonwhite. In most geographic areas, the data on unemployment by sex, age and three racial categories are too sparse to allow meaningful projections.

Model Limitations

The Population Projections Model relies on the assumption that the births, deaths and migration of each geographic area follow known rates. The Labor Force and Unemployment Projections Models rely on the assumption that the local labor force participation and unemployment rates change in the same manner as the national labor force participation and

unemployment rates. These assumptions are clearly more valid in larger geographic areas than in smaller ones. Even in large geographic areas, these assumptions are likely to break down for very small racial categories.

Projections Methodology

The Projections Model uses a refined cohort component model to project population, labor force and unemployment by race, sex and age. This model depends greatly on the 1980 Census as that is the latest data with the necessary detail - in both subject matter and geography. This model is concerned with providing short term forecasts of population, labor force and unemployment by race, sex and age at the local level.

Population Projections

A cohort-component technique is used to project population by race, sex and age. (For more information please refer to Shryock, Siegel and Associates, "The Methods and Materials of Demography", 1973, U.S. Bureau of the Census, U.S. Government Printing Office, or to Pittenger, "Projecting State and Local Populations", 1976, Cambridge, Mass., Ballinger Publishing Co.) This involves projecting the populations of five-year race, sex, and age cohorts by estimating the components of population change -- births, deaths and net migration. For example, when projecting from 1980 to 1985, the following equation is used:

$$P_{85} = P_{80} + B_{80-85} - D_{80-85} + NM_{80-85} \quad (1)$$

where P stands for population, B for births, D for deaths and NM for net migration. Thus the technique is modelling what happens in a particular area over a given time period - some births occur, some people die, and some people move into or out of the area.

The data on which the projections are based are the 1980 Census -- the most current source of uniform, detailed, local data. Births, deaths and net migration are estimated by applying fertility, survival and net migration rates to the base population. Although there is considerable age detail available in the Census, the population of each area is grouped into five-year age cohorts to be consistent with the five-year age cohorts for which the fertility, survival, and migration rates are defined.

Currently, the model is being used to provide projections for 1986. The 1980 base-year data are first projected to 1985. There are two ways in which it is possible to project to 1986.

- a) Add a second interval, 1985 to 1990 and then interpolate between 1985 and 1990 to obtain 1986, or
- b) Assume that the demographic detail does not change significantly between 1985 and 1986 and thus the 1986 control totals can be applied to the distributions for 1985.

Method b) was used since method a) requires that more assumptions be made about migration, fertility and mortality from 1985 to 1990.

The fertility, survival, and migration rates used are defined

Technical Notes Projections Methodology (continued)

by race, sex, and age, as well as by time interval and geographic level. This is necessary to be able to project uniquely, each race, sex and age cohort in a geographic area over several time intervals. The geographical level of definition necessary for each rate, is different. National survival rates are used as survival rates do not vary much across geography.

Estimated state level fertility rates are used for 1980-1985. The national age specific fertility rates are consistent with the rates used in the middle series of the latest set of national population projections as published in Current Population Reports, Series P-25, No. 922. These rates assume a small increase in the total fertility rate from a rate of 1.83 in 1980 to 1.96 in 2000. Within each state, these national rates are multiplied by an adjustment factor that is the ratio of the State total fertility rate in 1980 to the national rate in 1980. (Current Population Reports, Series P-25, No. 937, "Provisional Projections of the Population of States, By Age and Sex: 1980 to 2000", 1983, U.S. Bureau of the Census.)

The survival rates are projected to increase slowly for all race, sex and age groups from 1980 to 1990. Survival rates through the childbearing ages are sufficiently high enough that greater increase would have little impact on the size and age structure of future populations. However, a breakthrough in the control of major chronic diseases (cardiovascular disease and cancer) could lead to substantial increases in survival rates at the older ages.

Net migration rates are defined for each area and for each time period as there is a great deal of variation in migration patterns across the country. In projecting population at the local level, migration is the most important component in the model, as most of the change is apt to occur there. However, this is also the area in which the data are weakest. The most recent available nationwide rates at the county level by race, sex, and age are for the time period 1960-1970 (Bowles, Beale, and Lee, "Net Migration of the Population, 1960-1970 by Age, Sex, and Color, United States, Regions, Divisions, States, and Counties", 1975, Economic Research Service, U.S. Department of Agriculture). However, in many parts of the country, the migration patterns have changed considerably from the sixties to the seventies.

It is possible to determine net migration totals as a residual by using population control totals for the target years provided by the Bureau of the Census and recently from the 1980 Census along with the starting population and estimated births and deaths. For example, from equation (1) the net migration from 1980 to 1985 can be estimated as

$$NM_{80-85} = P_{85} - P_{80} - (B_{80-85} - D_{80-85}). \quad (2)$$

To add flexibility, a migration model was developed to update the historical rates. Rather than just extrapolate, this technique determines the migration character of an area by looking at the historical rates, assigns a pattern to the area externally obtained net migration totals. based on its character and then adjusts the pattern to match

Submodels are used to treat the special populations, such as the military and the college students, separately. Usually, the special populations are comprised of people within a narrow age range whose migration behavior is quite different from that of the remaining population. To deal with these special populations, it is best to subtract them from the resident population, and use special techniques to project them separately.

Labor Force and Unemployment Projections

The labor force and unemployment projections are based on the

- 1) labor force and unemployment rates of the area in the base year,
- 2) national changes in the labor force and unemployment from the base year to the target year, and
- 3) the population projections for the target year as calculated above.

National changes in labor force participation rates and unemployment rates by race, sex and age from 1980 to 1986 can be estimated from the annual averages of the CPS ("Employment and Training Report of the President, 1982", U. S. Department of Labor and U. S. Department of Health, Education, and Welfare).

For each cohort, the annual changes in labor force participation rates from 1970 to 1981 (the latest year available) were plotted as a function of time. In general, the plots showed definite linear trends. The greatest change is in the increased female labor force participation in the cohorts aged 25-34 and 35-44. Labor force participation rates for years after 1981 were estimated by forecasting from the regression line computed for the 1970-1981 period. These estimated rates were then divided by the corresponding rates for 1980 to obtain the change in labor force participation for each cohort.

To eliminate much of the cyclicity of unemployment rates, each cohort's 1980 unemployment rate is divided by the area's total unemployment rate resulting in a "standardized" unemployment rate -- a measure of each cohort's share of unemployment. The procedure used to obtain the change in this share from 1980 to later years in the 1980's is similar to that used with the labor force participation rates. However, it was not possible to forecast unemployment rates beyond 1981 since the plots of each cohort's share of unemployment against time did not show any trends. Instead, the change is estimated as that cohort's share in 1981 divided by its share in 1980.

The national changes in labor force participation rates and unemployment rates are then applied to the base year rates to get a first approximation of the rates for the target year. Applying these rates to the just calculated population gives an estimate of labor force and unemployment respectively. Using labor force and unemployment control totals as provided by the state, the estimates by race, sex and age are scaled to add up to the desired total.

Technical Notes Implementation of the Model 1980 Census Data

Implementation of the Model

The data base upon which the model depends is a collection of data from several different sources and for many geographical areas. In general, data are not directly available for the areas for which they are desired. With some data sources, the desired data can be obtained through the aggregation of existing data. With other data sources, it is necessary to estimate the desired data. Following is a brief list of the data sources needed. Data from the first four sources are defined for each area for which the model runs. The last four data sources are defined at only the state or national level.

- 1) From Summary Tape File 4 (STF4) of the 1980 Census - the baseyear data - population, labor force and unemployment by race, sex and age; the military by race, sex and age; and the student population by race, sex and age.
- 2) 1960-1970 net migration rates by race, sex and age at the county level and up.
- 3) State-provided population, labor force and unemployment control totals for the target year.
- 4) Target year population control totals from the Bureau of the Census. These are used only if none are provided by the state.
- 5) Fertility rates by race by age of the mother at the state level for 1980-1985.
- 6) Survival rates by race, sex and age at the national level, for 1980-1985.
- 7) National changes in labor force participation rates by race, sex and age from the base year to the target year.
- 8) National changes in unemployment rates by race, sex and age from the base year to the target year.

1980 Census Data

It is important to understand the limitations of census data, including both sampling and non-sampling errors. These issues are not covered in these notes but are thoroughly discussed in Chapter 6 of the 1980 census "Users' Guide" and in the "Technical Information" section of the "STF4 Technical Documentation".

Sample Data

Census data items on which this report is based are taken from STF4, which contains statistical estimates based on sample data from the 1980 census. That is, they are estimates of actual figures that would have resulted if a complete count had been done for the sample questions. Estimates can be expected to vary from the complete-count result because of sampling error. Such variability is relatively small for large counts but large for small counts.

Data Item Suppression

In order to maintain the confidentiality promised to respondents and required by law, the Census Bureau must make sure that its public data do not disclose information about any individual. Therefore the Bureau suppresses tabulations of characteristics of very small groups of people or housing units. The "STF4 Technical Documentation" describes rules for suppression of sample data, with examples of different types of suppression, and discusses the consequences of ignoring suppression in calculations.

Counts of persons, households and families are never suppressed. In STF4, other data for total population or a specific race/ethnic group appear only if there are 30 or more persons of that category living in the geographic area. Characteristics of households and families are suppressed if there are fewer than ten occupied housing units in the area.

In some cases, complementary suppression is applied to prevent the derivation of suppressed data by subtraction. For instance, if data were available for all race categories except one, the suppressed data could easily be derived from the total. When complementary suppression is applied to STF4, data are suppressed from the next smallest race/ethnic category as well as from the smallest race/ethnic category.

Data Aggregation for Composite Areas

This section describes procedures used in estimating data for composite geographic areas composed from standard 1980 Census geographic units in which some data may be suppressed.

Since the race/ethnic group "Other" is calculated as Total Population less "White" and "Black", if suppression occurs in one of these two race/ethnic groups, it also occurs in the race/ethnic group "Other".

Conceptually, aggregating data for a composite area is straightforward. Beginning with one of more 1980 Census geographic units, one adds and subtracts data values from the component areas to yield totals for the composite area.

For data involving values which are missing due to suppression, however, simple algebraic addition is not valid. If suppressed data are treated as zeroes, totals will be biased downwards by data suppression in component areas that are formed by addition, and upward by data suppression in component areas that are formed by subtraction.

One way to avoid such bias is to suppress all values which contain any suppressed components, but that wastes information. For example, consider a composite area of three large counties and two smaller places. If data on Blacks were suppressed in one of the places, all aggregated data for Blacks would have to be suppressed for the entire composite area even though the proportion of suppressed data is very small.

Technical Notes 1980 Census Data (continued)

Estimation Procedure

To provide unbiased estimates of aggregated data containing suppressed components, a procedure is used that is similar to the Census Bureau's substitution of data values for persons and housing units missing in the original data. This procedure depends upon the fact that total population counts can be obtained for each of the race/ethnic groups from the "A" records in STF4B and assumes that the distribution of characteristics of the suppressed race/ethnic group is similar to the distribution of that race/ethnic group in the total population.

If data are suppressed for one of the race/ethnic groups "White" or "Black", the data items for this race/ethnic group and the race/ethnic group "Other" are estimated using the following procedure.

- 1) The total number of persons in the suppressed race/ethnic group be determined from Tabulation 13 in the population "A" records. Let this number be S.
- 2) The total number of persons in the race/ethnic group "Other" can also be determined from Tabulation 13 in the population "A" records. Let this number be O.
- 3) Calculate the fraction $F1 = S/(S+O)$ as the percentage in the suppressed race/ethnic group.
- 4) Calculate the fraction $F2 = O/(S+O)$ as the percentage in the race/ethnic group "Other".
- 5) For each data item, subtract the figures for the unsuppressed races from that for the total population. This number, R, is the total in the suppressed race/ethnic group and in the race/ethnic group "Other".
- 6) Multiply R by F1 to estimate the data item for the suppressed race/ethnic group. Multiply R by F2 to estimate the data item for the race/ethnic group "Other".

Suppression Example

The table below gives hypothetical data for a geographical area. The second column contains the total population which is never suppressed. The third column contains the number of males which is sometimes suppressed.

Race/Ethnic Group	Total Population	Number of Males
Total	5,000	2,410
White	4,800	2,300
Black	25	
Other	175	

The population "B" records exist for the race/ethnic groups "Total", and "White". Since there are less than 30 in the race/ethnic group "Black", the population "B" record has been suppressed. The procedure described above estimates the number of males in the race/ethnic group "Black" and in the race/ethnic group "Other" as follows.

- 1) From the population "A" records (shown in the second column), the total number of "Black" is $S=25$.
- 2) Similarly, the total number of "Other" is $O=175$.

- 3) The fraction in the race/ethnic group "Black" is $F1 = 25/(25+175) = 25/200 = 12.5\%$.
- 4) The fraction in the race/ethnic group "Other" is $F2 = 175/(25+175) = 175/200 = 87.5\%$.
- 5) By subtraction, the total number of males in the combined race/ethnic groups "Black" and "Other" is $R = 2410 - 2300 - 46 = 64$.
- 6) The number of "Black" males is thus estimated as $.125 * 64 = 8$. The number of "Other" males is estimated as $.875 * 64 = 40$.

Data Validation, Errors and Questions

The data and calculations used to produce this report have been thoroughly checked. Nevertheless, undetected errors may still be present due to mis-specification or mis-calculation of derived items, incorrect selection of geographic areas, or copying of data from the tapes.

If you have questions about an item, please contact:

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