Technical Memorandum No.23

A REGIONAL EMPLOYMENT, POPULATION, and HOUSEHOLD FORECAST

for the

PORTLAND SMSA — 1975–2000

April, 1978

Metropolitan Service District

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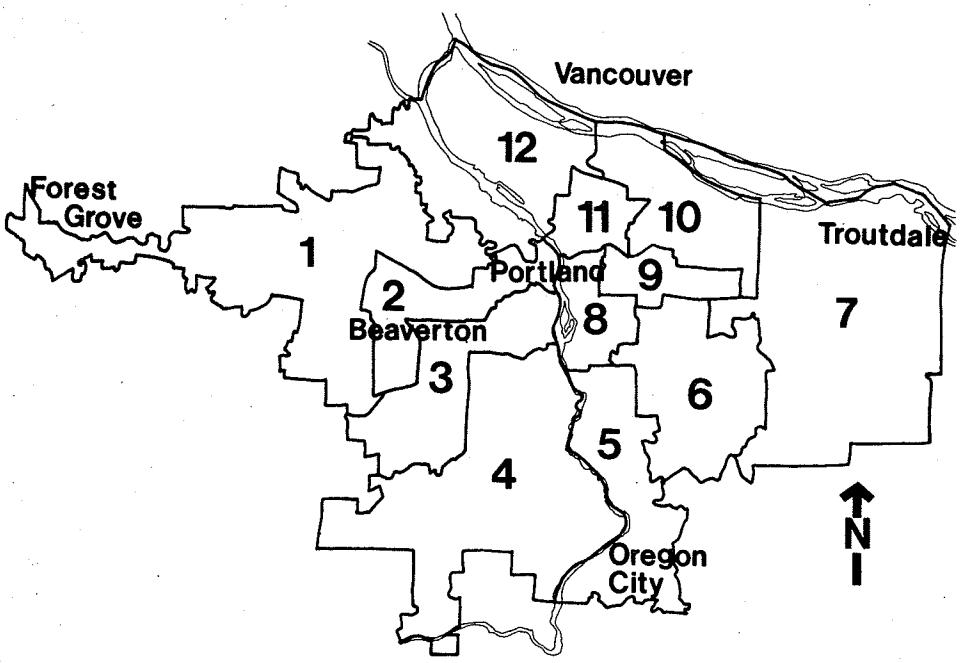

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A REGIONAL EMPLOYMENT, POPULATION, AND HOUSEHOLD FORECAST FOR THE PORTLAND SMSA - 1975-2000

APRIL, 1978

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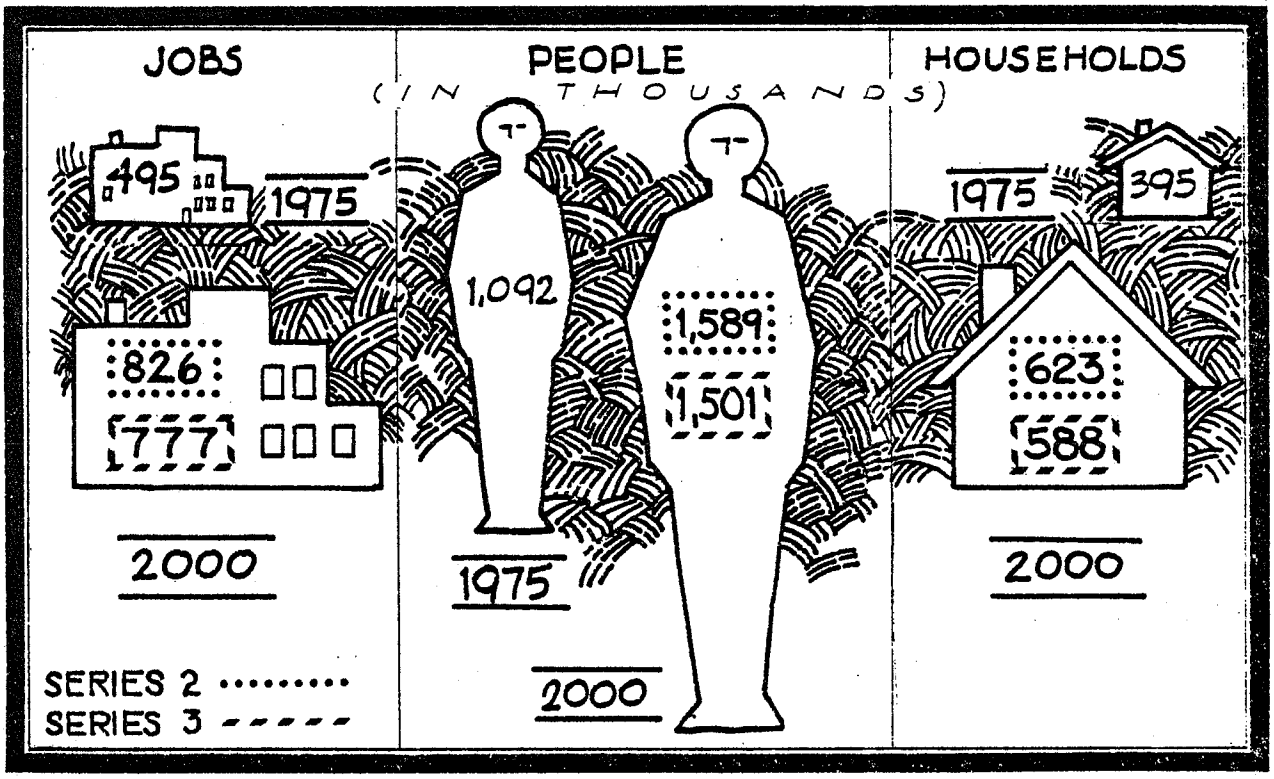
SUMMARY

Employment, resident labor force, population and households were forecast for the Portland SMSA by five-year increments to the year 2000. A summary of the results for Series 2 and 3 projections is depicted diagramatically below and in Table 1. The employment forecast projects the increase of between 282 and 331 thousand jobs between the years 1975 and 2000, increasing the number of jobs from 56.9 percent to 66.7 percent with a compound annual growth rate of between 1.8 and 2.1 percent. Population projections indicate that between 409 and 497 thousand persons will be added to the Portland SMSA between the years 1975 and 2000, increasing population from 37.5 to 45.6 percent (a compound annual growth rate of between 1.3 and 1.5 percent). Stating this in another way, the next 25 years could well witness a growth in population in excess of the population of the present city of Portland. Due to a decreasing household size, the total number of households will likely increase to between 193 and 228 thousand over the 1975 level, resulting in an increase of households by the year 2000 of from 48.7 to 57.5 percent over the 1975 level, with a compound annual growth rate of between 1.6 and 1.8 percent.



HIGHLIGHTS OF
EMPLOYMENT/POPULATION/HOUSEHOLD
FORECAST FOR PORTLAND SMSA

		1975	1980	1985	1990	1995	2000
RESIDENT LABOR FORCE	Series 2	506,000	582,000	650,000	706,700	756,200	804,000
	Series 3	506,000	568,000	622,200	667,300	710,500	756,800
TOTAL EMPLOYMENT (JOBS)	Series 2	495,400	594,300	668,300	725,900	776,800	825,900
	Series 3	495,400	580,100	639,800	685,900	729,900	777,300
TOTAL POPULATION	Series 2	1,091,700	1,219,100	1,347,600	1,455,600	1,528,600	1,589,200
	Series 3	1,091,700	1,188,000	1,289,800	1,376,600	1,440,900	1,500,900
NET MIGRATION	Series 2	50,000	77,900	70,200	50,500	21,400	12,800
	Series 3	50,000	48,600	48,000	35,500	19,000	18,500
POPULATION NATURAL INCREASE	Series 2	1,041,700	1,141,200	1,277,400	1,405,100	1,507,200	1,576,400
	Series 3	1,041,700	1,139,400	1,241,800	1,341,100	1,421,900	1,482,400
TOTAL HOUSEHOLDS	Series 2	395,500	446,600	502,000	551,400	588,600	623,000
	Series 3	395,500	435,200	480,400	521,500	554,900	588,300

II. ASSUMPTIONS

II.1 EMPLOYMENT ASSUMPTIONS

Four series of employment forecasts have been developed, all of which are a function of national employment projections developed by the Bureau of Labor Statistics (BLS). It is assumed that regional employment for a particular economic sector can be predicted given a rate of future national employment for that sector. The four series vary in relationship to the series deviation from the national rates. Historical data on employment was analyzed for the US and the SMSA covering the period 1960-1975, which became the basis of Series 1 and 2 forecasts, and for 1950-1975, which formed the basis for Series 3 and 4 forecasts. Due to the lack of knowledge on the long-term employment cycles, an evaluation will not be made as to which of the time periods more adequately reflects future employment patterns for the region.

Series 1 and 2 Assumptions: Differences between regional and national employment growth rates for the historical period 1960-1975 were projected into the future for Series 1 and 2. This time period experienced a consistently higher employment growth for the region than that of the nation as a whole. In the future, BLS is projecting a declining rate of growth on the national level. For methodological consistency, the regional growth rate is assumed to converge with the national rate as we approach the year 2000. The two series differ by the degree of convergence in the SMSA and the US rates. Series 1 shows a convergence to within 50 percent by the year 2000, while Series 2 declines to within 25 percent of the difference by the end of the forecast period.

Series 3 and 4 Assumptions: Series 3 and 4 projected the difference in regional and national employment growth rates based on the historical period 1950-1975. The period between 1950 and 1960 revealed lower growth rates for the region than the nation. When combining these patterns with those of the period 1960-1975, Series 3 and 4 result in a slower growth than Series 1 and 2. As with the former, the difference between Series 3 and 4 is the degree to which the SMSA growth rates converge on the US rates. In Series 3 the convergence is assumed to be within 50 percent of the difference; while with Series 4, the SMSA rates will completely converge with those of the US by the year 2000.

Employment Definition Assumptions: Historically employment has been defined as the jobs held at their place of employment. Beginning in 1970, total employment has been recorded by place of residence. Observations of the period 1970-1976 for the Portland SMSA reveal the "jobs by place of work" to average seven percentage points higher than "resident employment." This difference primarily results from double job holders and employees working in the SMSA but residing in the adjacent counties. The Employment Forecasting Model develops employment defined as "jobs by place of work." In

projecting resident labor force, it is assumed that resident employment will continue to be seven percent uner jobs held through the forecast period.

Unemployment Rates: The Bureau of Labor Statistics projects the national unemployment rate to decline to 4.7 percent by 1980 and experience a continual decline to 1985 when it levels out at 4.0 percent. Inconsistencies in measurements of regional unemployment rates and the convergence of the differences in employment growth between the SMSA and the US have allowed us to assume the same future unemployment rates for the SMSA as those projected for the nation as a whole.

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II.2 POPULATION ASSUMPTIONS

Four series of population forecasts have been developed, all of which rely on the same types of procedures to project population. The differences between the series are a function of net migration into the region.

Natural Population Growth: A computerized Cohort Survival Model was utilized by the Center for Population Research and Census at Portland State University to forecast the natural increase in population to the year 2000. It was assumed that the Portland region is of sufficient size to utilize this technique. Assumptions need to be made concerning future mortality and fertility rates. Mortality rates in the United States have basically stabilized and exhibit a very consistent trend. Specific life table survival rates were generated for the Portland region based upon historical experience of the region. Fertility rates for the region experienced a continual decline between 1960 and 1970. Survey data collected by the US Census Bureau between 1971 and 1974 indicates this trend is still continuing. At the present time the State of Oregon and the Portland SMSA appear to be below replacement level. These projections assume that replacement level fertility rates will be reached in the SMSA by 1985 and will be maintained until the year 2000. Series E fertility rates as developed by the US Census Bureau have therefore been utilized. The mortality and fertility rates were not allowed to vary between the four series.

Migration Component: Migration into the area is determined by the excess demand for labor force (derived from the regional employment forecast), beyond that required by the natural increase in population. Therefore, a different migration component was forecast for each series. While it is recognized that people migrate to the region for different reasons, it is assumed that, given an appropriate time lag, members of the immigrants' households will join the labor force. Historical data on the age-sex distribution of persons migrating into the Portland region was used to project future age-sex distribution for immigrants. The mortality, fertility and labor participation rates for the immigrants are assumed to be the same as those of the indigenous population of the region.

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II.3 HOUSEHOLD ASSUMPTIONS

Population Living in Households: An examination of the 1960 and 1970 census reveals 98.1 percent and 98.0 percent, respectively, of the population are living in housing units, with the balance residing in group quarters. The household forecasts assumes that 98.0 percent of the total population will be living in households through the year 2000.

Persons per Occupied Unit: To estimate the number of persons per occupied unit, historical data from 1930 through 1975 was used as a basis for linear projections of household sizes to the year 2000. These trends exhibit a continuing decline in the number of persons per occupied unit. This appears to be due to a decrease in birth rates and new marriages, an increase in divorce rates, and the formation of new households by single individuals. The continuation of the historical trends could raise serious concerns about the stability of family life which could lead to public policy resulting in a slowing of the decline. To avoid reflecting extreme instability of family life, it has been assumed that, while household size will decline on a linear basis, it will not drop below 2.50 by the year 2000.

Number of Households by Size of Household: The 1970 and 1975 US Census figures provide a comparison of the percentage of households by household sizes. The assumption was made that the percentage of households by 1, 2, 3-4 and 5 or more person households can be projected based upon a continuation of the 1970-1975 trends to the year 2000.

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III. THE RESULTS

III.1 INTRODUCTION

The Portland SMSA, consisting of the four counties of Clackamas, Multnomah and Washington in Oregon, and Clark County, Washington, has an estimated 1977 total population of 1,132,200 persons and a resident labor force of 539,400. To plan for the region, an understanding of anticipated growth by five-year intervals through the year 2000 is needed. The updated regional employment, population and household forecasts documented in this report, when augmented with subregional employment and population procedures being developed by the allocation process, is intended to be used throughout the CRAG planning program and will become an integral part of the Transportation Systems Planning and Housing Programs.

To gain an understanding of the potential for future development in the CRAG region it is necessary to ask the question, "What kind of employment opportunities will be available in the future?" Of equal importance is, "How many people will be living in this region in the future and what will be the composition of the households in the area?" To answer these questions two separately developed long-range forecasts have been prepared and integrated. The reliability of a long-range forecast reflecting demographic and economic characteristics can best be evaluated by examining for reasonableness the implicit and explicit assumptions built into the forecasting model. To adequately reflect these various assumptions a range of forecasts has been prepared and is represented by four series of projections. This report attempts to detail the assumptions underlying the forecasts and discuss the results of the projections.

The integrating factor between the employment and population forecasts is migration. Many factors contribute to migration into an area. In the forecasting models documented in this report, employment opportunities are assumed to be the attracting influences for migration. Jobs are first created, and then population changes occur in response to the economic opportunities. Recognition is made that other attractors contribute to in-migration; however, the assumption is implicitly made that with a movement to the area, economic necessities dictate the inclusion of some members of the immigrants' households in the labor force.

An Employment Forecasting Model has been developed which projects employment by five-year intervals to the year 2000 for major SIC (Standard Industrial Classification) economic activities, as well as select manufacturing industries. Growth indicators were used in making the employment forecasts which relate the growth of an industry in the Portland region to that industry's growth in the nation. And in addition, other indigenous factors of this region are accounted for. The composite of employment in all activities, plus assumed unemployment, describes the resident labor force.

The second model employed is that developed for Population Forecasting. The population forecasts utilize a computerized Cohort Survival Model at the Portland State University Center for Population Research and Census. The demographic projections produce the natural increase in the indigenous population of the region. Net migration, as contributed by the additional labor force and their dependents attracted to the region, is then combined with the indigenous population to determine a new population for each five-year interval to the year 2000. To obtain the household forecasts, occupancy rates were developed by five-year increments to the year 2000, which when applied to the forecast population provide the total number of households for each five-year increment. Total households were then distributed by 1, 2, 3-4 and 5 or more person households, based on patterns exhibited in the 1970-75 base period.

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III.2 EMPLOYMENT

Employment forecasts have been prepared for the Portland SMSA by five-year increments to the year 2000. These forecasts fulfill a two-fold purpose:

a. To provide a foundation for projecting resident labor force required by the Population Forecasting Model; and

b. To provide an analysis of anticipated growth in employment in the major industries of the region.

The Employment Forecasting Model involves forecasting employment by Standard Industrial Classifications (SIC). Recognizing the limitations on the reliability of future projections, a range of employment forecasts were developed for each of the economic activities analyzed. A comparison of historical employment growth rates for the SMSA with those of the US exhibited a consistency which confirmed the hypothesis that employment growth in the SMSA is a function of growth in the United States. Accounting for this relationship, future employment growth rates for the SMSA were developed as a function of projected future growth rates in US employment.

As an aid in interpreting future employment growth for the region, Table 2 has been prepared showing historical and projected compound annual growth rates of Series 2 and 3 for each industry type. A range of employment forecasts has been developed with the historical period of 1960 through 1975 providing the foundation for Series 1 and 2, and the period 1950 through 1975 as the basis for Series 3 and 4. The period 1960 through 1975 exhibited patterns in which the SMSA had a higher growth rate in employment than that of the US. In contrast, the 1950's growth rate for the region was more like that of the nation. The two higher series of forecasts assume that the region's growth will continue to be higher than that of the nation, while the two lower series take into consideration the effects of the 1950's on the whole time frame. A detailed description of the methodology used in the Employment Forecasting Model is found in Section V, Employment Forecasting Methodology.

Employment forecasts for Series 1, 2, 3 and 4 by major SIC divisions are found in Charts A through G, with a composite summary of Series 2 and 3 on Table 3. The total employment in the region will increase from 495,400 in 1975 to 777,300 in the year 2000, based on Series 3, or to 825,900, based on Series 2 forecasts. This represents between a 1.8 and a 2.1 percent compound annual growth rate over the next 25 years, compared to a 2.2 percent compound annual rate over the period 1950 to 1975 and a 2.8 percent compound annual rate over the period 1960 to 1975.

Non-agricultural wage and salary employment was at 437,300 in 1975, representing 88.2 percent of total employment in the region. By the year 2000 this number should increase to between 706,000

TABLE 2

EMPLOYMENT COMPOUND ANNUAL GROWTH RATES
PORTLAND, ORE-WASH SMSA
(Series 2 & 3)

		1950-1975	1960-1975	1975-1990	1975-2000
		Percent	Percent	Percent	Percent
TOTAL EMPLOYMENT	Series 2	2.23	2.79	2.58	2.07
	Series 3			2.19	1.82
SELF-EMPLOYED	Series 2	0.89	0.65	2.01	1.73
	Series 3			1.08	1.19
AGRICULTURE	Series 2	-2.61	-3.87	-3.63	-2.34
	Series 3			-2.84	-1.85
WAGE & SALARY	Series 2	2.63	3.37	2.73	2.16
	Series 3			2.38	1.93
DURABLE GOODS	Series 2	2.83	3.59	3.76	2.86
	Series 3			3.22	2.61
Lumber & Wood	Series 2	-1.08	0.08	1.07	0.72
	Series 3			0.78	0.49
Furniture & Fixtures	Series 2	-0.69	0.67	1.05	0.62
	Series 3			0.65	0.35
Primary Metals	Series 2	-0.61	1.70	1.86	1.34
	Series 3			1.69	1.19
Fabricated Metals	Series 2	(1) 2.52	3.65	3.08	2.17
	Series 3			2.50	1.76
Machinery	Series 2	4.13	4.89	3.24	2.39
	Series 3			2.92	2.18
Electrical Equipment	Series 2	(1) 10.53	6.72	6.12	4.65
	Series 3			5.55	4.53
Transportation Equipment	Series 2	8.01	8.06	5.43	4.19
	Series 3			4.64	3.90
Other Durables	Series 2	2.20	3.69	3.31	2.36
	Series 3			2.44	1.76
NON-DURABLE GOODS	Series 2	0.46	0.31	0.85	0.64
	Series 3			0.98	0.72
Food & Kindred	Series 2	-0.45	-0.62	-0.77	-0.51
	Series 3			-0.72	-0.49
Textiles	Series 2	-3.06	-0.81	0.44	0.33
	Series 3			1.20	0.78
Apparel	Series 2	(2) 0.48	0.42	1.59	1.02
	Series 3			1.61	1.06
Paper & Allied	Series 2	0.70	0.09	0.95	0.58
	Series 3			0.98	0.61
Printing & Publishing	Series 2	0.79	1.89	1.17	1.00
	Series 3			1.51	1.11
Other Non-Durables	Series 2	2.81	2.74	3.08	2.33
	Series 3			3.10	2.41
CONSTRUCTION	Series 2	1.64	2.31	2.74	2.03
	Series 3			2.34	1.70
TCPU	Series 2	-0.05	0.58	0.99	0.84
	Series 3			0.78	0.66
FIRE	Series 2	4.01	4.89	3.53	2.76
	Series 3			2.95	2.37
WHOLESALE	Series 2	2.69	2.90	1.84	1.59
	Series 3			1.78	1.59
RETAIL	Series 2	2.61	3.65	2.01	1.63
	Series 3			1.55	1.28

TABLE 2

EMPLOYMENT COMPOUND ANNUAL GROWTH RATES
PORTLAND, ORE-WASH SMSA
(Series 2 & 3)

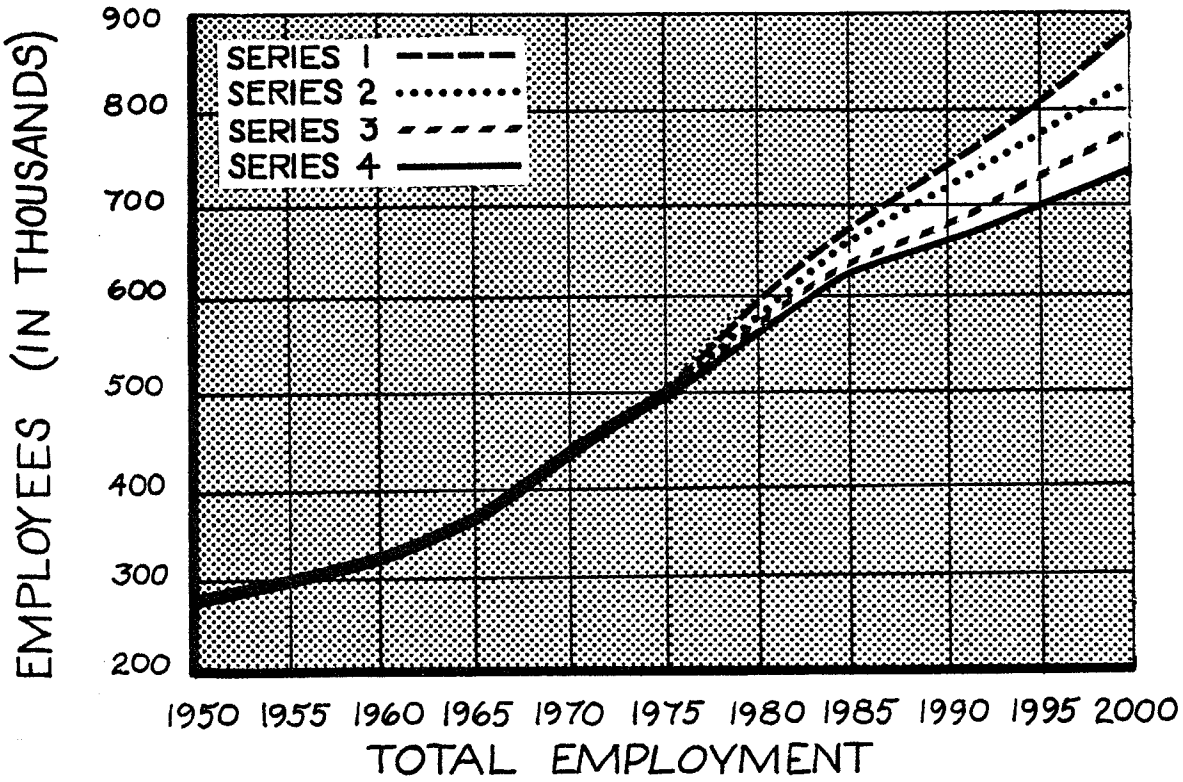
PAGE 2

SERVICES	Series 2	4.27	5.53	3.73	2.91
	Series 3			3.16	2.52
GOVERNMENT	Series 2	3.90	4.17	2.65	2.10
	Series 3			2.67	2.13
Federal Government	Series 2	0.96	1.43	0.73	0.59
	Series 3			0.73	0.56
State & Local Governm't	Series 2	5.22	5.11	3.08	2.42
	Series 3			3.09	2.46

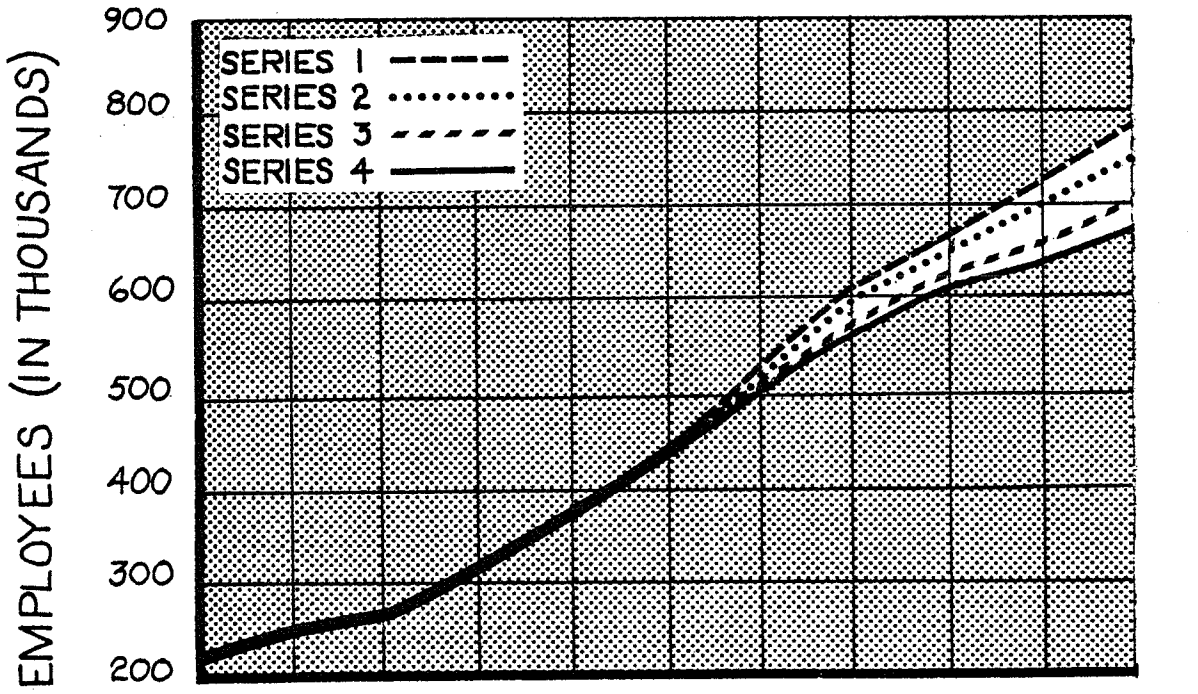
(1) Compound Annual Growth Rate for 1956-1975

(2) Compound Annual Growth Rate for 1955-1975

Chart-A
EMPLOYMENT FORECAST
PORTLAND, ORE-WASH SMSA



TOTAL EMPLOYMENT



WAGE & SALARY

Chart-B
EMPLOYMENT FORECAST
PORTLAND, ORE-WASH SMSA

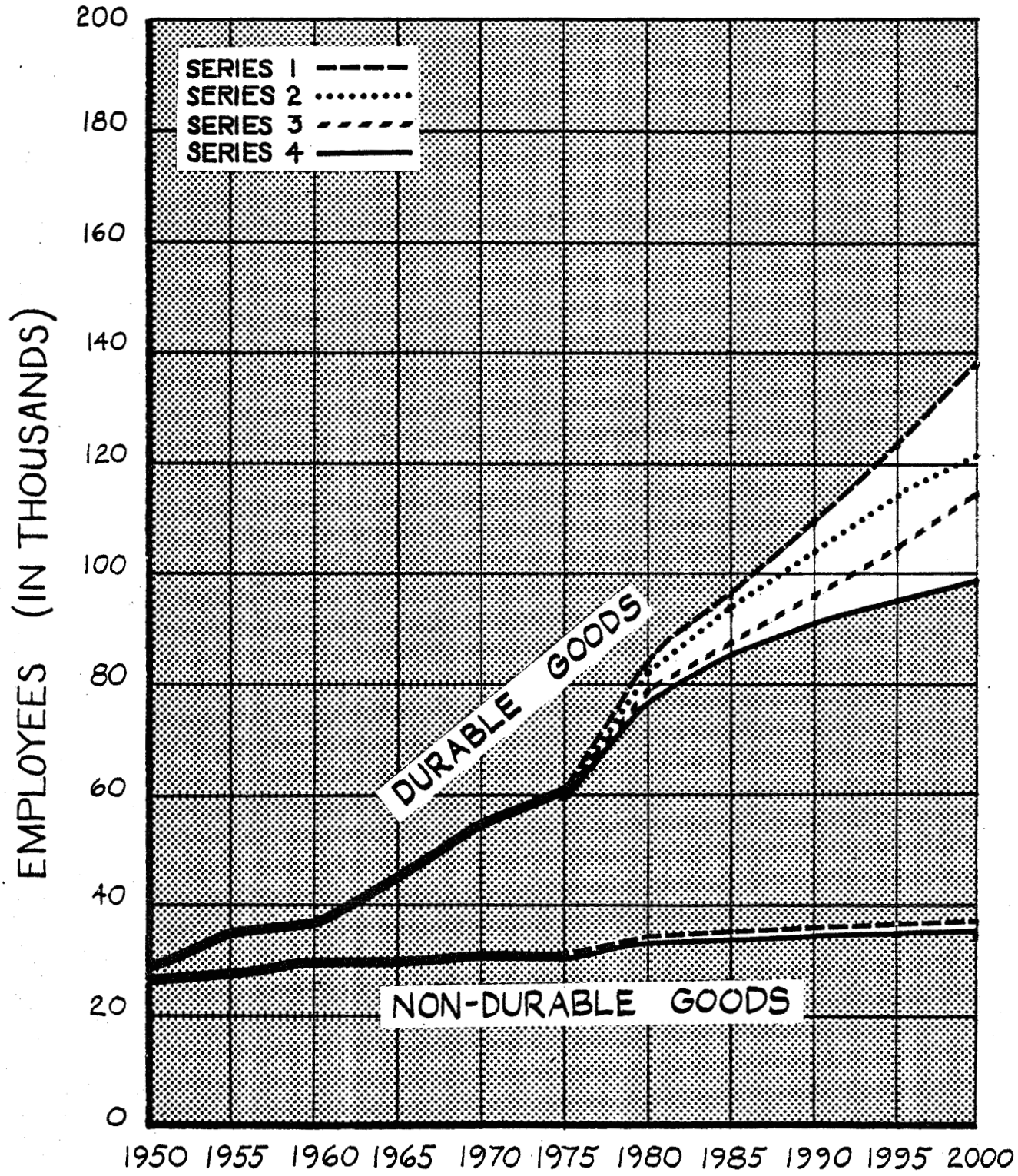


CHART C
EMPLOYMENT FORECAST
PORTLAND, ORE-WASH SMSA

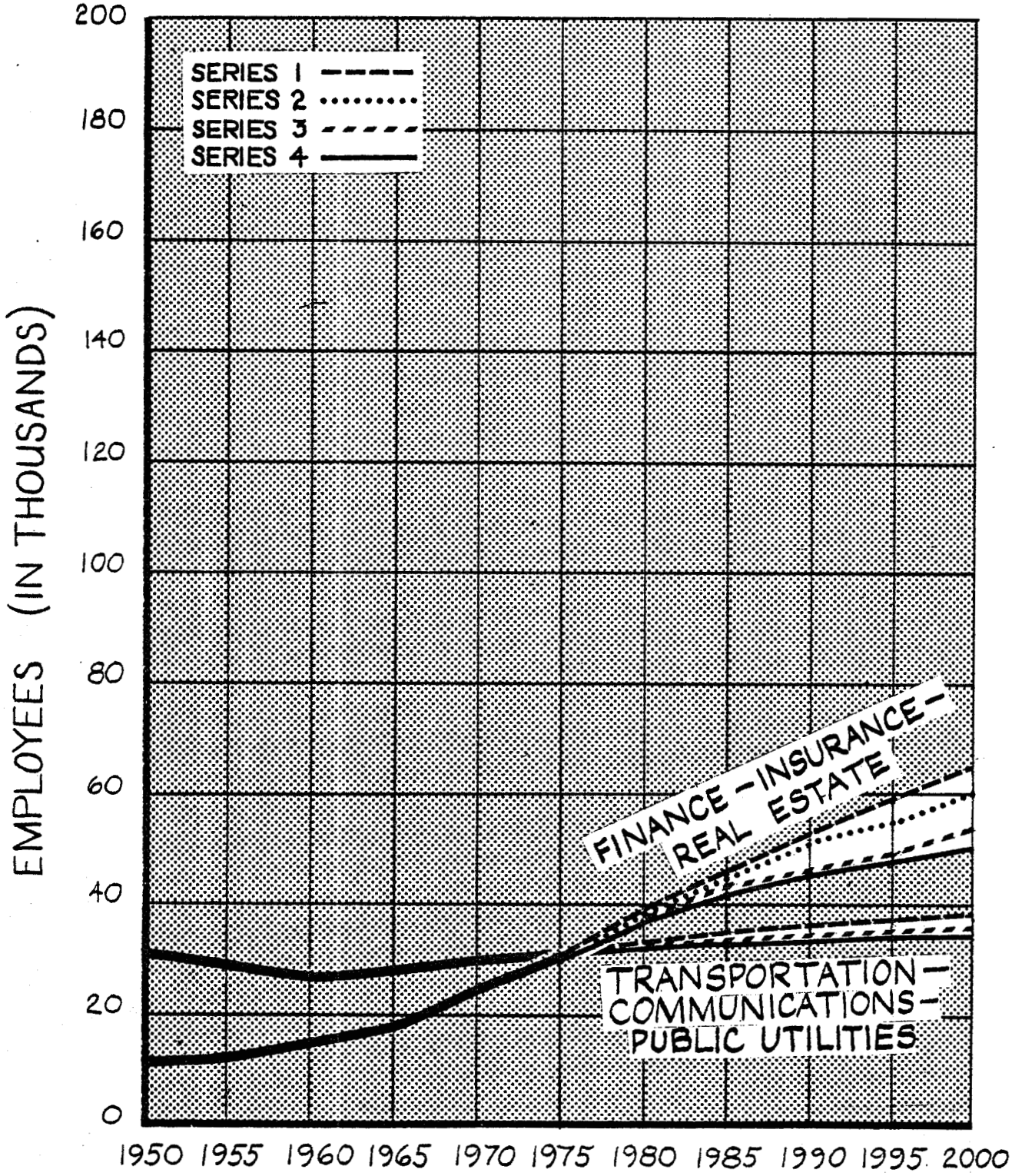


Chart - D
EMPLOYMENT FORECAST
PORTLAND, ORE.-WASH SMSA

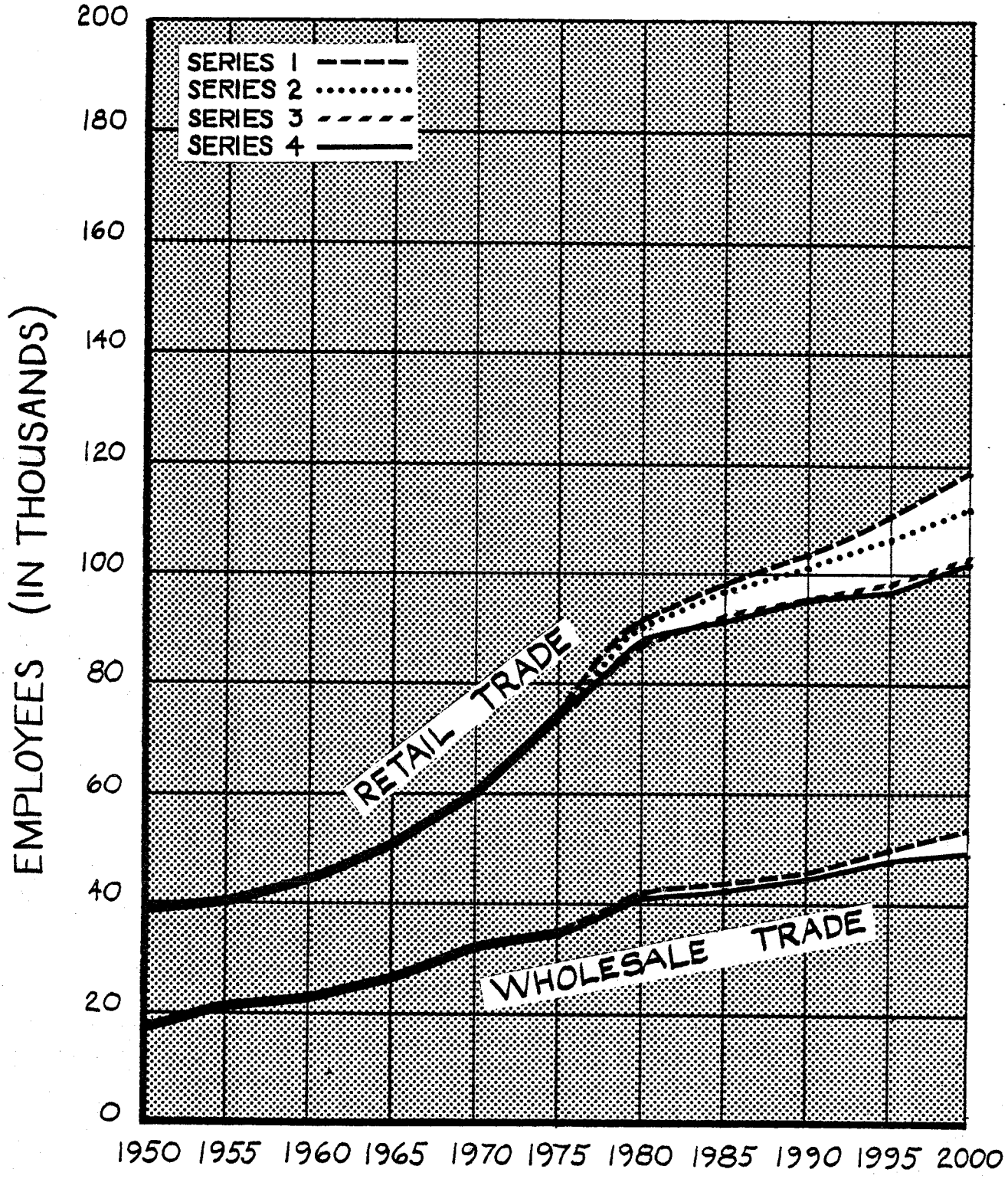


Chart-E
EMPLOYMENT FORECAST
PORTLAND, ORE-WASH SMSA

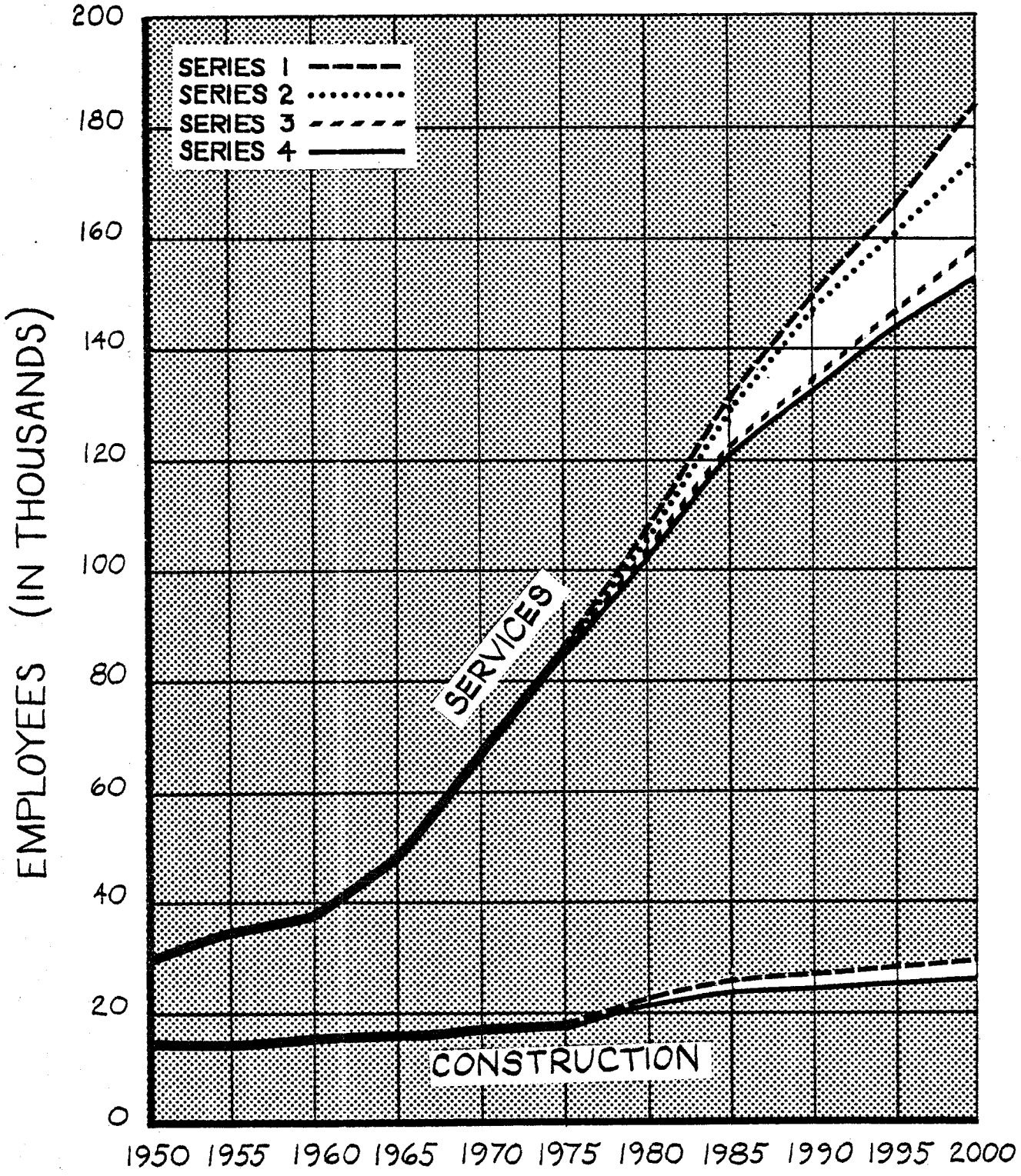


Chart- F

EMPLOYMENT FORECAST
PORTLAND, ORE-WASH SMSA

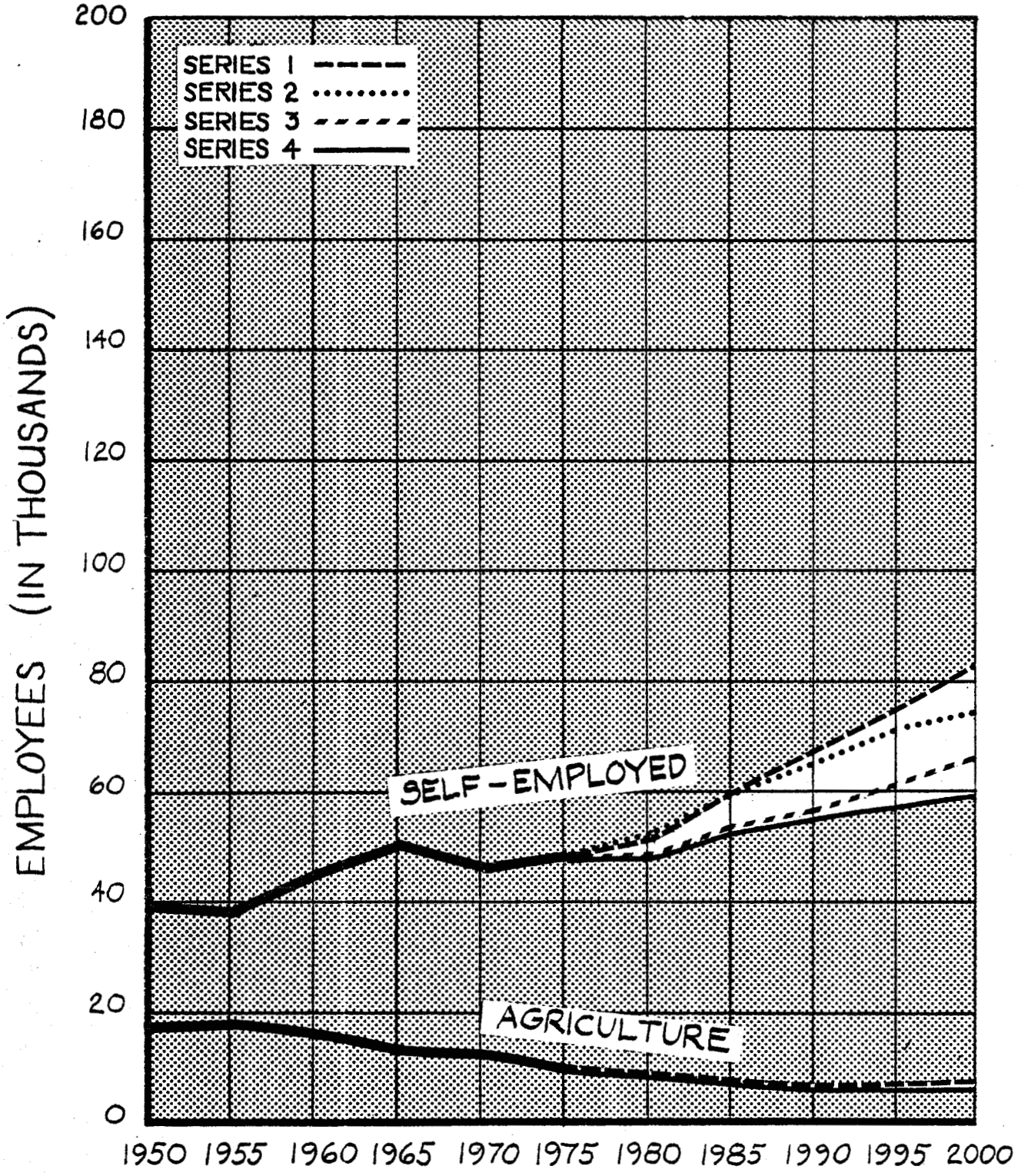


Chart-G
EMPLOYMENT FORECAST
PORTLAND, ORE-WASH SMSA

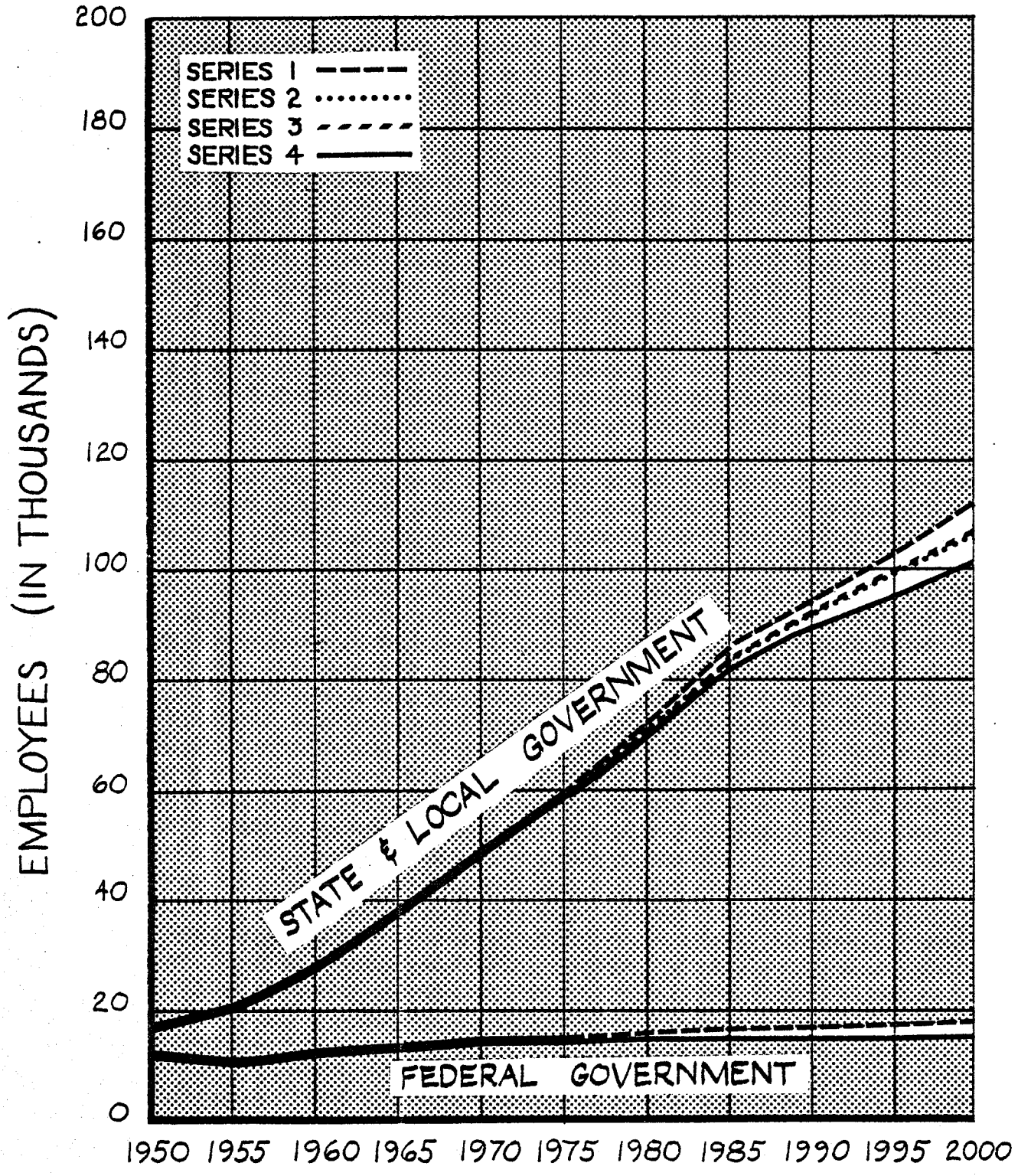


TABLE 3

EMPLOYMENT FORECASTS BY INDUSTRY TYPE
PORTLAND, ORE-WASH SMSA
Series 2 and 3

INDUSTRY		1975	1980	1985	1990	1995	2000
Total Employment	Series 2	495,400	594,300	668,300	725,900	776,800	825,900
	Series 3	495,400	580,100	639,800	685,900	729,900	777,300
Self-Employed	Series 2	48,700	51,900	59,000	65,600	71,200	74,700
	Series 3	48,700	48,600	52,800	57,200	61,400	65,400
Agriculture	Series 2	9,400	7,500	6,100	5,400	5,200	5,200
	Series 3	9,400	7,800	6,600	6,100	5,900	5,900
Wage & Salary	Series 2	437,300	534,900	603,200	654,900	700,400	746,000
	Series 3	437,300	523,700	580,400	622,600	662,600	706,000
Durable Goods	Series 2	60,100	82,400	94,600	104,500	113,400	121,600
	Series 3	60,100	79,300	88,600	96,700	105,400	114,400
Non-Durable Goods	Series 2	30,400	34,000	34,300	34,500	34,800	35,700
	Series 3	30,400	34,300	34,800	35,200	35,700	36,400
Construction	Series 2	17,600	22,400	25,300	26,400	27,700	29,100
	Series 3	17,600	21,900	24,300	24,900	25,700	26,800
Transp-Comm-Pub. Utilities	Series 2	30,000	32,900	34,000	34,800	35,700	37,000
	Series 3	30,000	32,600	33,200	33,700	34,300	35,400
Fin-Ins.-Real Estate	Series 2	30,500	39,300	46,000	51,300	55,900	60,300
	Series 3	30,500	37,900	43,100	47,200	50,900	54,800
Wholesale Trade	Series 2	35,300	41,400	43,300	46,400	49,200	52,400
	Series 3	35,300	41,200	43,000	46,000	49,000	52,400
Retail Trade	Series 2	75,000	90,000	96,000	101,100	106,300	112,300
	Series 3	75,000	87,600	91,300	94,500	98,200	103,000
Services	Series 2	84,800	106,300	129,700	146,900	161,000	173,800
	Series 3	84,800	102,700	122,100	135,200	146,500	158,000
Federal Government	Series 2	15,100	16,059	16,618	16,852	17,160	17,492
	Series 3	15,100	16,059	16,618	16,852	17,065	17,371
State & Local Government	Series 2	58,500	70,141	83,382	92,148	99,240	106,308
	Series 3	58,500	70,141	83,382	92,348	99,835	107,429

and 746,000 persons, and will represent 90 percent of total employment.

Another technique to compare growth in employment is to examine the ratio of growth in a particular industry to the growth in total employment. Pie diagrams are shown on Chart H which reflect the relative growth in total employment in the region between 1960 and 1975, and the projected growth by the year 2000 (Series 2 and 3). Additionally, the relative share of employment for each of the major SIC divisions is diagramed for the three points in time.

In addition to the major industrial sectors already discussed, employment has been forecast by two-digit SIC categories in the manufacture of Durable and Non-durable Goods (refer to Table A-1 in the Appendix). Charts I and J diagram the relative shift in employment categories within Durable and Non-durable manufacturing for 1960 and 1975 and the relative shift projected for the year 2000.

Electrical equipment, including firms which manufacture control instruments, is forecast to experience the largest relative increase in employment for any economic activity in the region. Employment in electrical equipment represented 1.3 percent of total employment in 1960. By 1975 this industry was represented by 2.3 percent of the total employment with a projected 4.3 percent by the year 2000. The high historical growth rate in electrical equipment - 10.5 percent compound annual increase between 1956 and 1975, and 6.7 percent between 1960 and 1975 - reflected a fast growth rate on a relatively small employment base represented by very few firms. Future employment in the industry is forecast at a relatively slower rate than past--between 5.5 and 6.1 percent for the period 1975 through 1990, and between 4.5 and 4.7 percent for 1975 through 2000. A continued high growth rate is expected to be experienced due to the emergence of new firms and their high increase in employment.

A further investigation of the relative shift in growth in Durable Goods reveals Transportation Equipment to be a close second to Electrical Equipment, with an increase from nine-tenths of one percent in 1960 to 2.8 percent of total employment forecast for the year 2000. It should be noted that by the year 2000 total durable goods employment will constitute about 15 percent of total employment, with each of the eight two-digit SIC's representing under 5 percent of total employment in the region.

The industries constituting Non-durable Goods and Government Employment can be evaluated in a similar manner by reviewing Charts J and K. Appendix Table A-3 (Series 2 and 3) provides a tabulation of these ratios for past periods as well as by five-year increments to the year 2000.

The final output of the Employment Forecasting Model is the projection of resident labor force for the Portland SMSA, as

found in Table 4. The migration component of the Population Forecasting Model requires the independent determination of resident labor force requirements by five-year increments. Total persons employed, with the addition of the unemployed (based on assumed unemployment rates) equals the total resident labor force.

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Chart - H
EMPLOYMENT BY MAJOR SECTOR AS A PERCENT OF TOTAL EMPLOYMENT PORTLAND, ORE - WASH SMSA

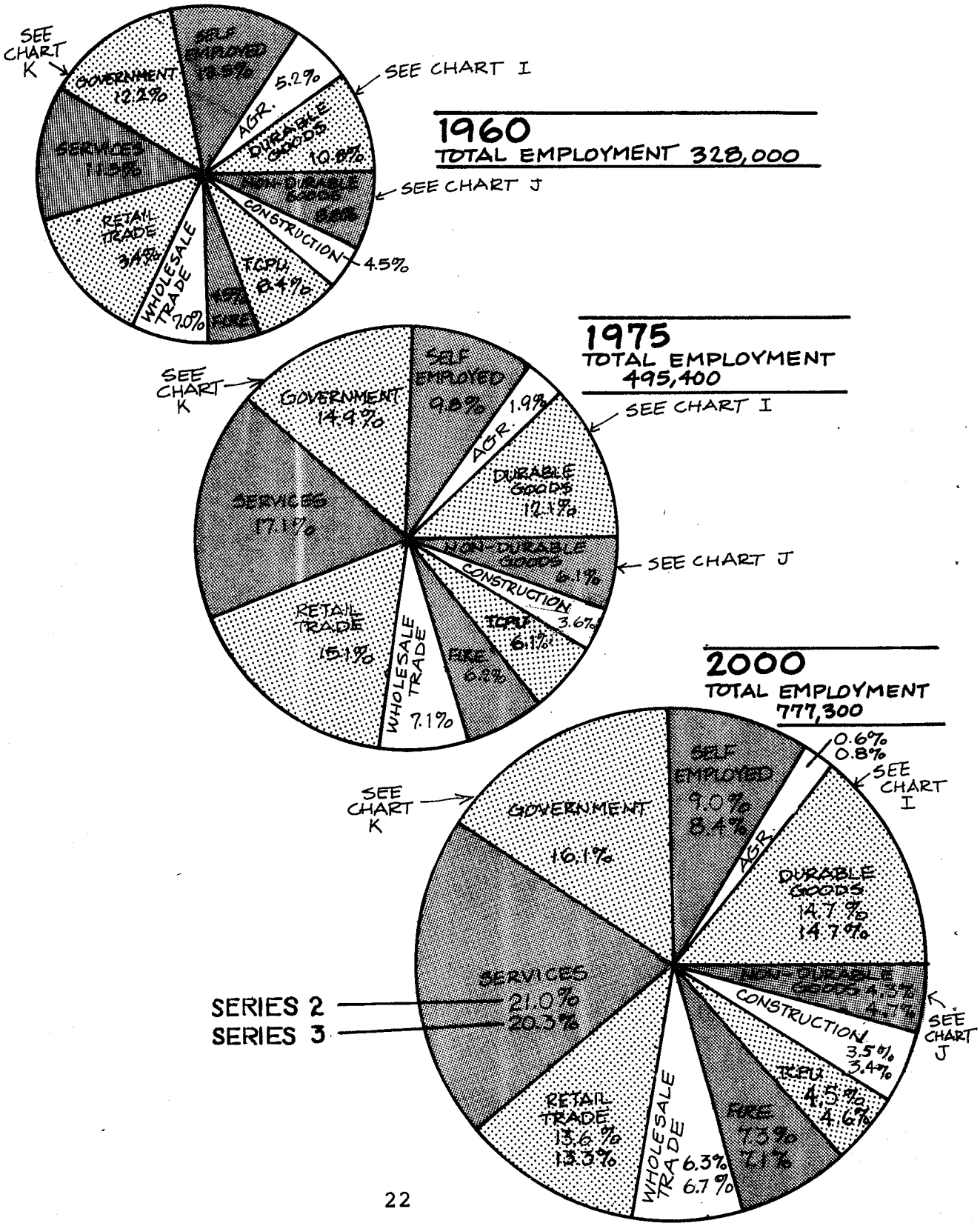


Chart-I
EMPLOYMENT BY SIC
AS A PERCENT OF DURABLE GOODS
PORTLAND, ORE-WASH. SMSA

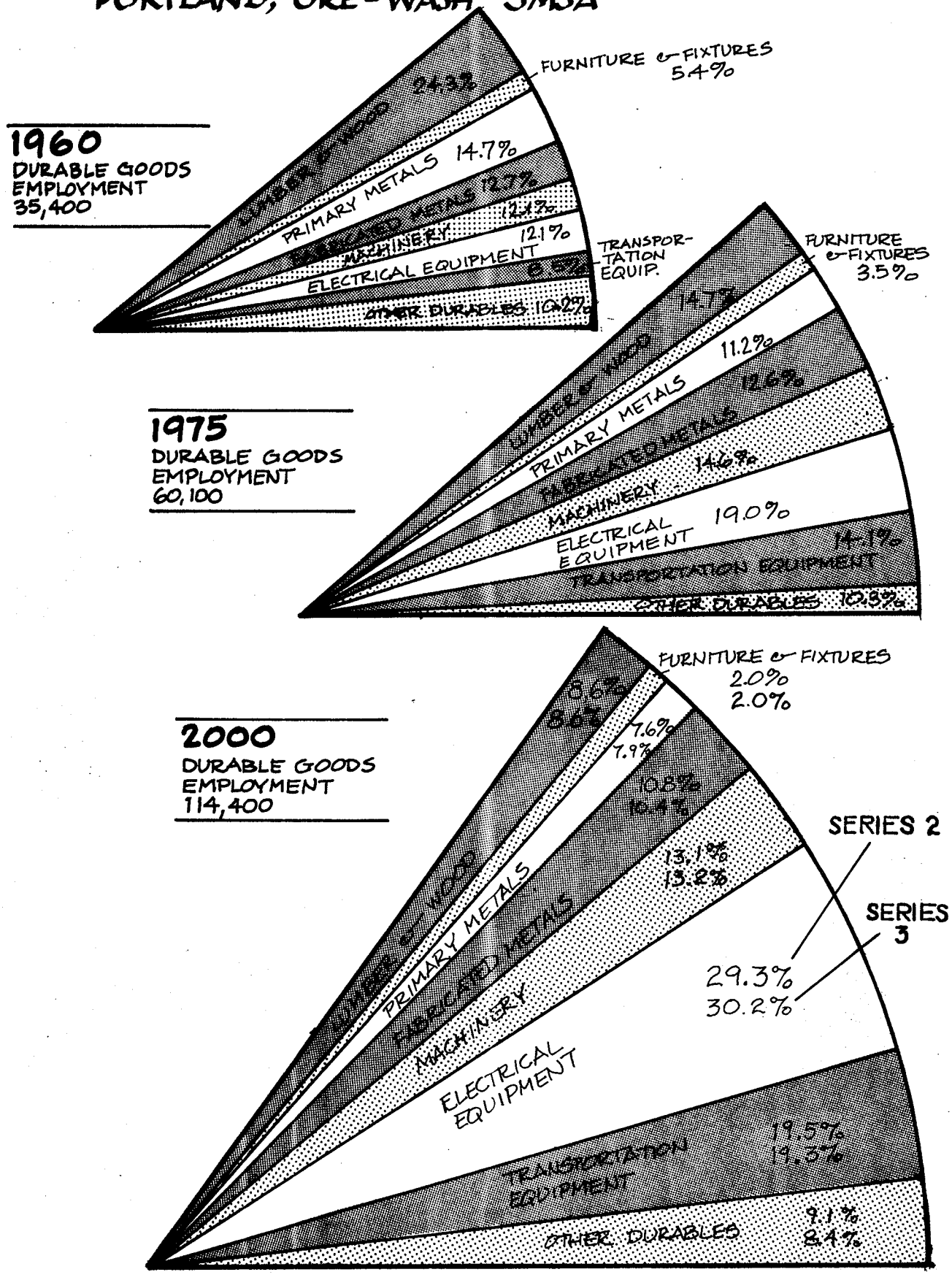
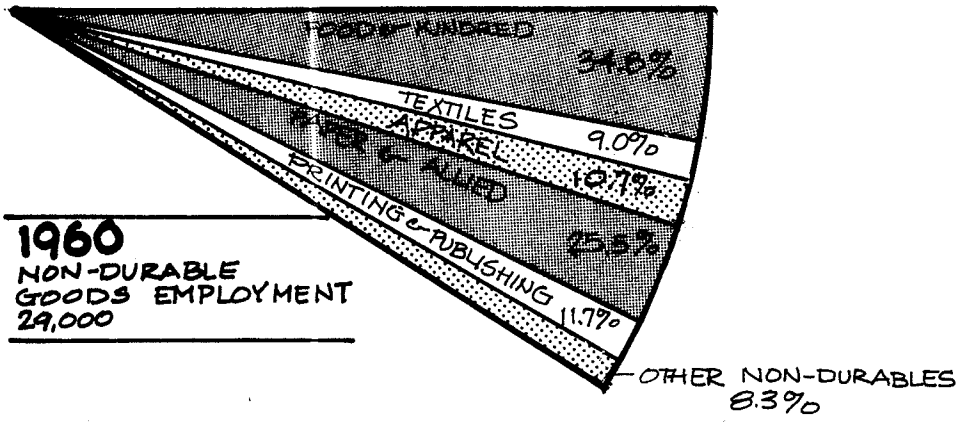
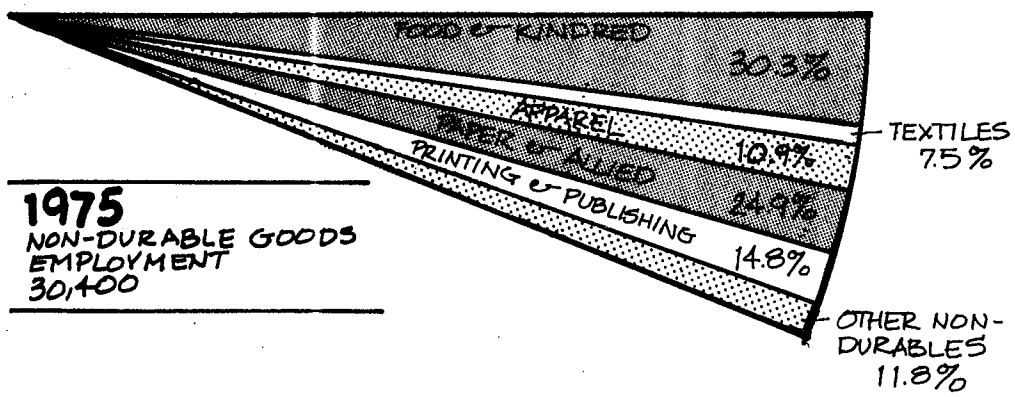


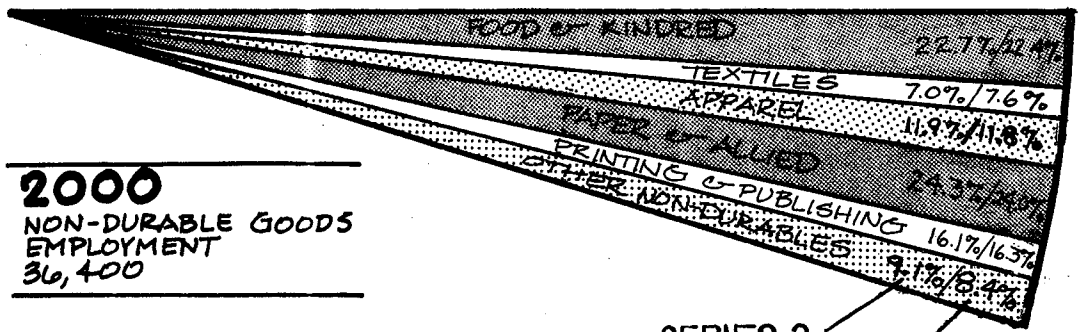
Chart-J
EMPLOYMENT BY SIC
AS A PERCENT OF NON-DURABLE GOODS
PORTLAND, ORE-WASH SMSA



1960
NON-DURABLE GOODS EMPLOYMENT
29,000



1975
NON-DURABLE GOODS EMPLOYMENT
30,100



2000
NON-DURABLE GOODS EMPLOYMENT
36,400

Chart - K

EMPLOYMENT OF STATE & LOCAL GOVERNMENT AS A PERCENT OF TOTAL GOVERNMENT PORTLAND, ORE.-WASH SMSA

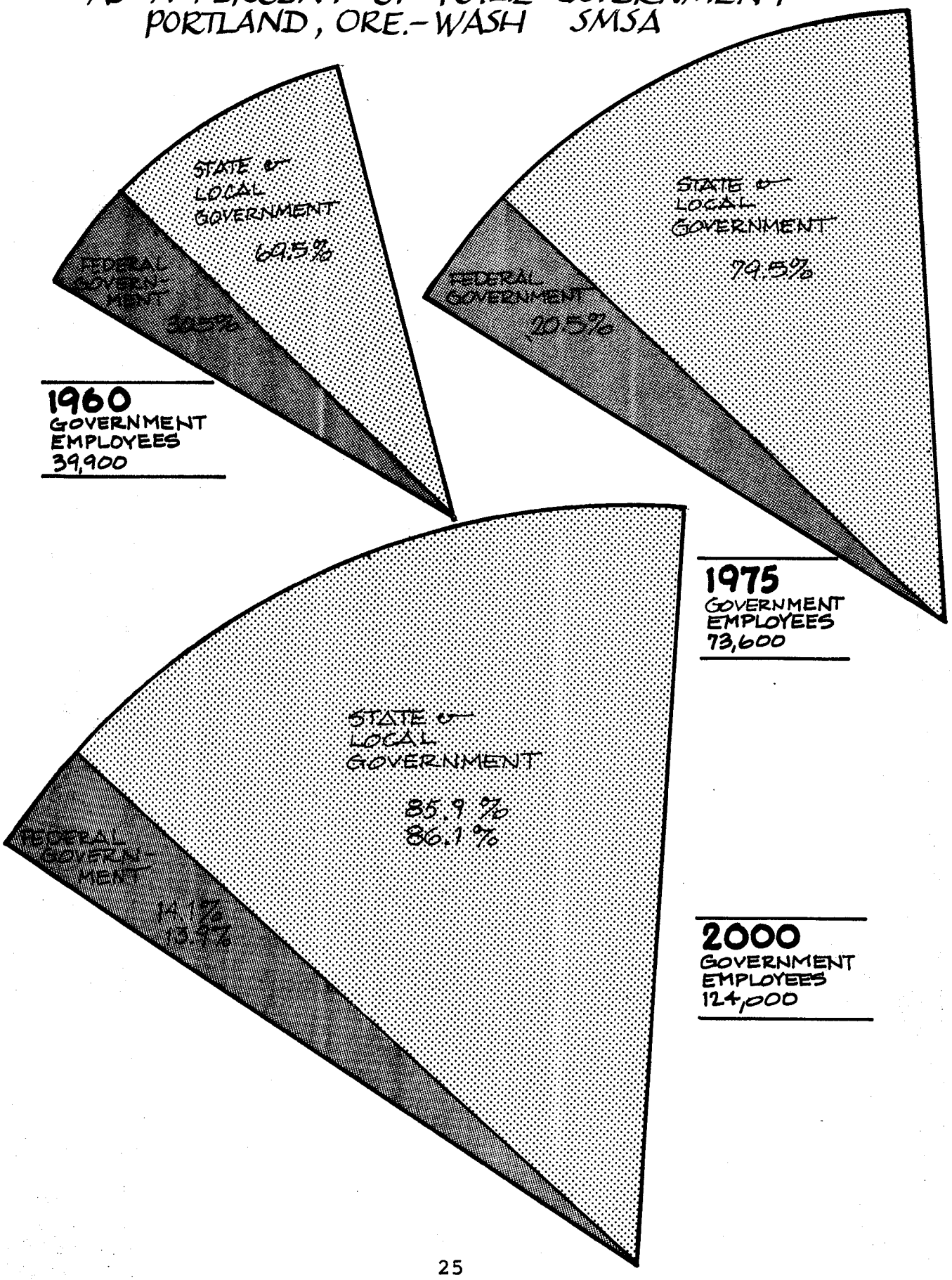


TABLE 4

RESIDENT LABOR FORCE FORECAST

PORTLAND, ORE-WASH SMSA

	Series 1	Series 2	Series 3	Series 4
1975	506000	506000	506000	506000
1980	583700	582000	568000	566100
1985	656100	650000	622200	615600
1990	720700	706700	667300	652800
1995	784800	756200	710500	684500
2000	853600	804000	756800	715100

III.3 POPULATION

Population forecasts for the Portland SMSA have been prepared using the Cohort Survival Technique which ages the region's population over the lifetimes of the people. The natural increase in the population is projected for the indigenous population of the region. Given the base year population, new births are added and deaths subtracted, resulting in the natural increase component. Labor force requirements are then calculated for the indigenous population.

Total labor force requirements for the region have been developed by the Employment Forecasting Model. The total resident labor force projected is then compared to the requirements for the indigenous population of the region and the additional amounts of labor force determined.

The migration component of the population forecast has been calculated by taking the additional requirements for labor force, in excess of that supplied by the indigenous population, plus the associated family members.

Total population in the Portland SMSA will likely increase from the 1975 estimated level of 1.1 million persons to between 1.419 and 1.688 million by the year 2000 (see Chart L). Table 5 describes the results of the forecast natural increase, net migration and projected population for Series 1, 2, 3 and 4.

Chart M portrays the historical and projected change in the age composition of the population through the year 2000. Age distributions have been grouped into five categories as follows: (0-19) young persons living for the most part with parents, (20-34) years in which persons are preparing for and establishing their careers, (35-54) middle working years until early retirement, (55-69) later working years with late retirement, and (70 and greater) elderly persons. For a more complete breakdown of population by sex and five-year cohorts, see Tables A-11 through A-34 in the Appendix.

A detailed description of the Population Forecasting Model will be found in Section VI, Population Forecasting Methodology.

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S/107/9

CHART-L
POPULATION FORECAST
PORTLAND, ORE-WASH SMSA

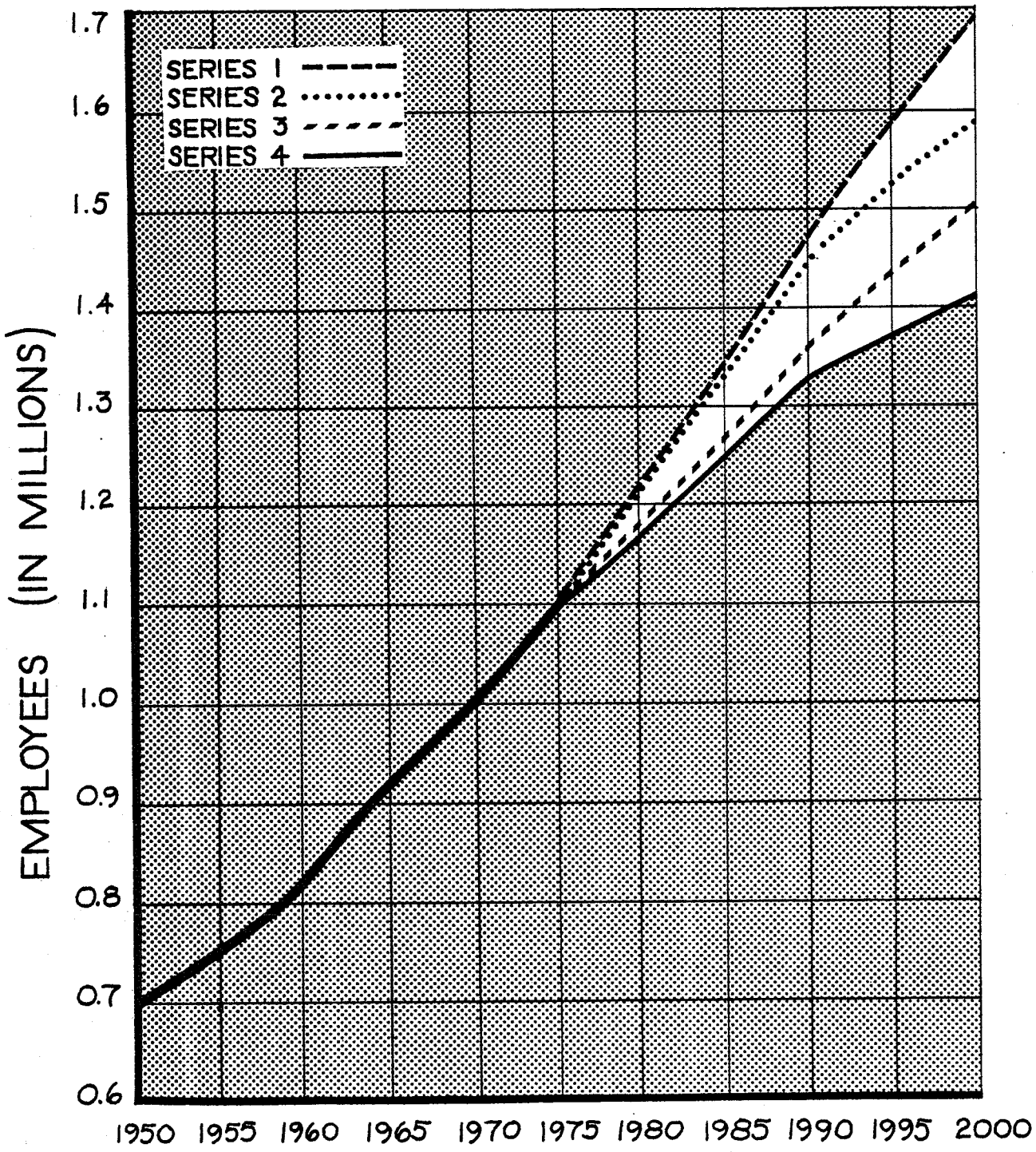


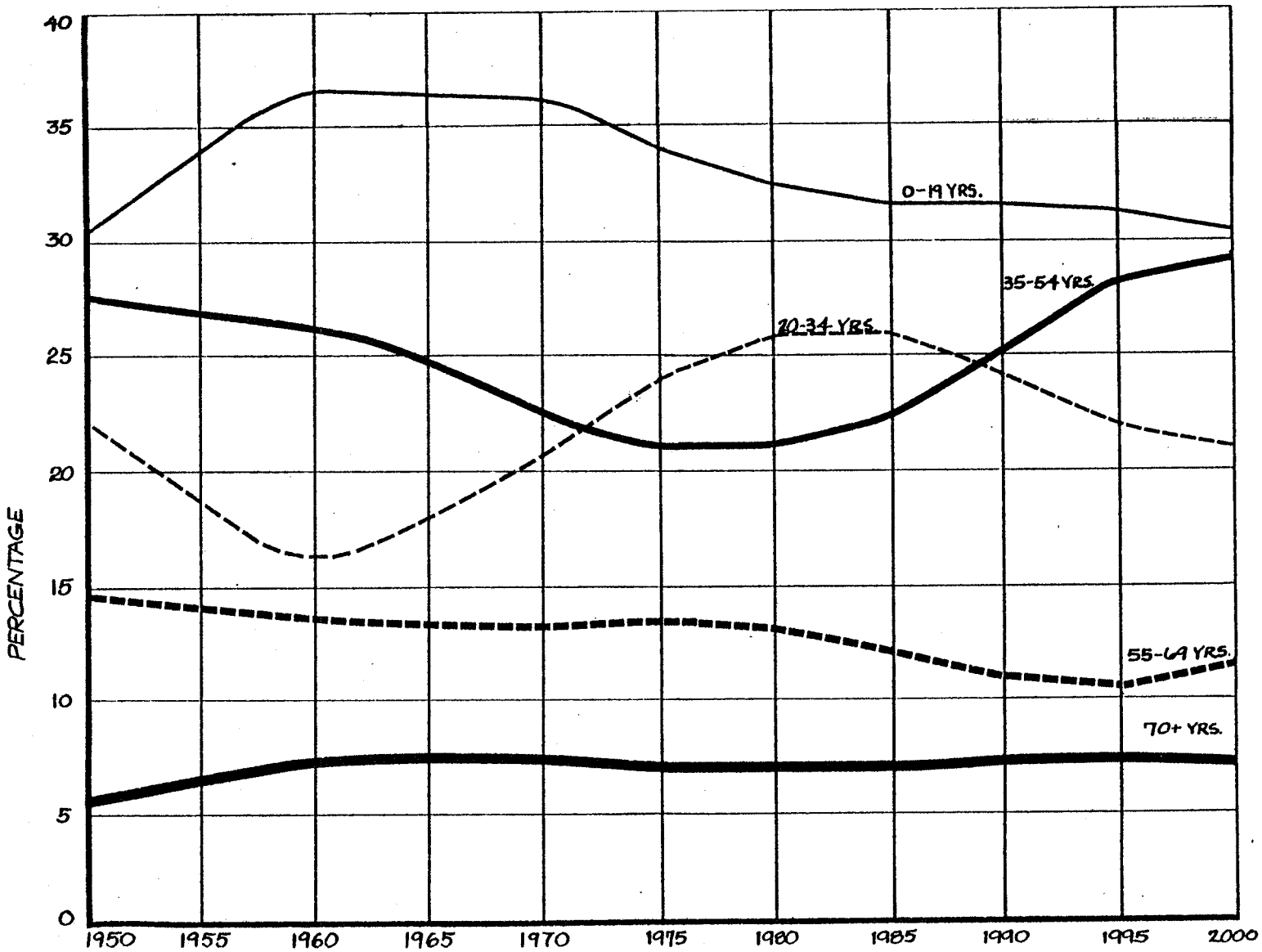
Table 5

POPULATION FORECAST TO YEAR 2000

PORTLAND, OREGON - WASHINGTON SMSA

		Natural Increase	Net Migration	Projected Population
1975	Series 1	1,041,763	49,985	1,091,748
	Series 2	1,041,763	49,985	1,091,748
	Series 3	1,041,763	49,985	1,091,748
	Series 4	1,041,763	49,985	1,091,748
1980	Series 1	1,141,404	81,443	1,222,847
	Series 2	1,141,183	77,890	1,219,073
	Series 3	1,139,397	48,630	1,188,027
	Series 4	1,139,159	44,659	1,183,818
1985	Series 1	1,282,111	78,582	1,360,693
	Series 2	1,277,342	70,164	1,347,596
	Series 3	1,241,836	47,944	1,289,780
	Series 4	1,236,631	39,046	1,275,677
1990	Series 1	1,420,273	64,517	1,484,790
	Series 2	1,405,069	50,511	1,455,580
	Series 3	1,341,153	35,488	1,376,641
	Series 4	1,325,385	24,959	1,350,344
1995	Series 1	1,540,624	46,317	1,586,941
	Series 2	1,507,238	21,372	1,528,610
	Series 3	1,421,936	18,982	1,440,918
	Series 4	1,391,955	- 3,869	1,388,086
2000	Series 1	1,641,299	46,500	1,687,799
	Series 2	1,576,344	12,843	1,589,187
	Series 3	1,482,368	18,517	1,500,885
	Series 4	1,424,174	- 5,066	1,419,108

CHART-M
AGE GROUP AS A PERCENT OF TOTAL POPULATION
PORTLAND, ORE-WASH SMSA



III.4 HOUSEHOLDS

To forecast the number of future households, (i.e., persons who occupy a housing unit, whether a family, unrelated individuals, or single persons) it is necessary to estimate the number of persons per occupied unit. A comparison of the average number of persons per occupied unit in the Portland SMSA reveals a decline from 2.99 in 1960 to 2.89 in 1970. If this trend is to continue into the future, the average persons per occupied unit would decline to 2.41 by the year 2000. It is felt that 2.41 would be an unreasonably low rate. Therefore, a decline to the 2.50 level was assumed by the year 2000. Table 6 supplies the projected persons per occupied unit and the total number of households resulting from applying these rates to the projected population (by five-year increments) up to the year 2000.

The number of households by size was also forecast to the year 2000. Recent historical patterns were used to determine the future percentages of the total households which consist of 1, 2, 3-4, and 5 or more persons. These percentages applied to the total households for each five-year increment resulted in the projections of Table 7.

A more detailed description of the methodology employed is found in Section VII, Household Forecasting Methodology.

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Table 6

AVERAGE PERSONS PER OCCUPIED UNIT
AND HOUSEHOLD FORECAST
Series 2 & 3

PORTLAND, OREGON - WASHINGTON SMSA

	PERSONS PER OCCUPIED UNIT	NUMBER OF HOUSEHOLDS	
		Series 2	Series 3
1975	2.7054	395,500	395,500
1980	2.6752	446,600	435,200
1985	2.6310	502,000	480,400
1990	2.5870	551,400	521,500
1995	2.5450	588,600	554,900
2000	2.5000	623,000	588,300

Table 7

HOUSEHOLD COMPOSITION PROJECTIONS
Series 2 & 3

PORTLAND, OREGON - WASHINGTON SMSA

Series 2

SIZE	1975	1980	1985	1990	1995	2000
1	90,253	109,372	130,620	151,194	168,987	186,277
2	133,085	159,168	187,648	214,384	236,558	257,424
3-4	119,916	133,087	145,580	154,447	158,157	159,800
5+	52,246	44,973	38,152	31,375	24,898	19,499
TOTAL	395,500	446,600	502,000	551,400	588,600	623,000

Series 3

SIZE	1975	1980	1985	1990	1995	2000
1	90,253	106,580	125,000	142,995	159,312	175,902
2	133,086	155,105	179,574	202,759	223,014	243,086
3-4	119,916	129,690	139,316	146,072	149,102	150,899
5+	52,245	43,825	36,510	29,674	23,472	18,413
TOTAL	395,500	435,200	480,400	521,500	554,900	588,300

IV. COMPARATIVE FORECASTS

Several forecasts have recently been prepared for the counties included in the Portland SMSA. These were prepared by Pacific Northwest Bell (released in April, 1976); by the Bonneville Power Administration (released in December, 1976); and by the Bureau of Economic Analysis' 1974 update of the 1972 OBERS projection for the Portland SMSA. In addition, population projections were made in 1977 for the "208" Areawide Waste Treatment Study by CRAG and the Clark County Regional Planning Commission.

A comparison of the findings of this study with those of the other leading studies is found on the following tables. Table 8 compares this study's population forecasts with those of Pacific Northwest Bell, the Bonneville Power Administration, the "208" Studies, and the Bureau of Economic Analysis. Table 9 provides a comparison of household forecasts with those of Pacific Northwest Bell and the Bonneville Power Administration. A comparison of forecasts for employment by industry with those of the Bonneville Power Administration is found in Table 10.

The population projections documented in this report compare very closely with those of the other leading forecasts for the region. With the exception of the Pacific Northwest Bell projections, which are lower, the present range of forecasts encompasses those of the Bonneville Power Administration, the Bureau of Economic Analysis and the "208" Studies.

A comparison of household forecasts exhibits the same characteristics as those of population. However, the variation is greater due to differing assumptions on household sizes.

Comparison of the employment forecasts reveals a variation from the BPA projections by only four tenths of one percent to five percent (in Wage and Salary Employment) by the year 1995. Somewhat larger variations in SIC projections result from the different methodologies employed by BPA and this study.

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Table 8

COMPARISONS OF POPULATION FORECASTS
PORTLAND, OREGON - WASHINGTON SMSA

YEAR	CRAG				PNB	BPA	208	BEA
	Series 1	Series 2	Series 3	Series 4				
1975	1,091,748	1,091,748	1,091,748	1,091,748	1,091,000	1,110,850		
1980	1,222,847	1,219,073	1,188,027	1,183,818	1,167,800	1,191,300		1,146,600
1985	1,360,693	1,347,596	1,289,780	1,275,677	1,248,700	1,282,000	1,305,600	1,215,000
1990	1,484,790	1,455,580	1,376,641	1,350,344	1,320,900	1,380,900	1,415,625	1,287,500
1995	1,586,941	1,528,610	1,440,918	1,388,086		1,473,200		
2000	1,687,799	1,589,187	1,500,885	1,419,108			1,612,050	1,391,300

Sources:

PNB: Pacific Northwest Bell. Population and Household Trends, 1975-1990, April, 1976.
BPA: Bonneville Power Administration. Population, Employment & Housing Units Projected to 1995, Oregon and Washington, December, 1976.
208: Oregon Counties: CRAG. General Planning Data & Projections, January, 1977.
BEA: Bureau of Economic Analysis. Area Economic Projections 1990, 1974.
208: Clark County, Washington: Employment, Population and Land Use Forecasts; 1977.

Table 9

COMPARISONS OF HOUSEHOLD FORECASTS
PORTLAND, OREGON - WASHINGTON SMSA

YEAR	CRAG		PNB	BPA
	Series 2	Series 3		
1975	395,500	395,500	395,300	393,600
1980	446,600	435,200	436,800	446,750
1985	502,000	480,400	477,900	502,450
1990	551,400	521,500	513,700	559,300
1995	588,600	554,900		611,250
2000	623,000	588,300		

Sources:

PNB: Pacific Northwest Bell. Population and Household Trends, 1975-1990, April, 1976.

BPA: Bonneville Power Administration. Population, Employment & Housing Units Projected to 1995, Oregon and Washington, December 1976.

TABLE 10
COMPARISONS OF EMPLOYMENT FORECASTS
(Series 2, Series 3 & BPA)
PORTLAND, ORE-WASH SMSA

	1975			1980			1985			1990			1995			2000		
	CRAG			CRAG			CRAG			CRAG			CRAG			CRAG		
	Ser. 2	Ser. 3	BPA	Ser. 2	Ser. 3	BPA	Ser. 2	Ser. 3	BPA	Ser. 2	Ser. 3	BPA	Ser. 2	Ser. 3	BPA	Ser. 2	Ser. 3	BPA
TOTAL EMPLOYMENT	495400	495400	(1)	594300	580100	(1)	668300	639800	(1)	725900	685900	(1)	776800	729900	(1)	825900	777300	(1)
SELF EMPLOYED	48700	48700	---	51900	48600	---	59000	52800	---	65600	57200	---	71200	61400	---	74700	65400	---
AGRICULTURE	9400	9400	---	7500	7800	---	6100	6600	---	5400	6100	---	5200	5900	---	5200	5900	---
WAGE & SALARY	437300	437300	444300	534900	523700	512500	603200	580400	574200	654900	622600	634700	700400	662600	697500	746000	706000	---
MANUFACTURING	90500	90500	94450	116400	113600	104700	128900	123400	113900	139000	131900	120950	131500	141100	128825	157300	150800	---
DURABLE GOODS	60100	60100	---	82400	79300	---	94600	88600	---	104500	96700	---	113400	105400	---	121600	114400	---
Lumber & Wood	8700	8700	8750	10078	9890	10075	10190	9874	8725	10200	9771	8025	10260	9767	7475	10413	9842	---
Furniture & Fixtures	2100	2100	---	2439	2345	---	2467	2334	---	2457	2313	---	2438	2293	---	2453	2288	---
Primary Metals	6700	6700	7500	8127	8066	10100	8590	8427	8900	8836	8612	9475	9117	8832	10000	9348	9014	---
Fabricated Metals	7700	7700	---	10564	10051	---	11557	10726	---	12143	11155	---	12663	11553	---	13181	11900	---
Machinery	8800	8800	---	11934	11580	---	13305	12718	---	14207	13548	---	15036	14354	---	15884	15090	---
Electrical Equipment	11400	11400	---	17917	17251	---	23112	21527	---	27773	25619	---	31963	30023	---	35508	34536	---
Transportation Equipment	8500	8500	9250	12961	12254	10900	15895	14470	12250	18782	16779	13225	21346	19340	14125	23694	22140	---
Other Durables	6200	6200	---	8380	7863	---	9484	8524	---	10102	8903	---	10577	9238	---	11119	9590	---
NON-DURABLE GOODS	30400	30400	---	34000	34300	---	34300	34800	---	34500	35200	---	34800	35700	---	35700	36400	---
Food & Kindred	9200	9200	8950	8878	8950	8750	8498	8548	8700	8192	8251	8725	7990	8180	8750	8100	8139	---
Textiles	2800	2300	---	2514	2654	---	2481	2693	---	2455	2750	---	2449	2760	---	2500	2775	---
Apparel	3300	3300	--	4084	4084	---	4135	4141	---	4184	4191	---	4235	4244	---	4253	4295	---
Paper & Allied	7500	7500	7350	8655	8660	7225	8631	8692	7875	8638	8683	8000	8640	8700	8150	8667	8740	---
Printing & Publishing	4500	4500	---	5251	5320	---	5460	5509	---	5358	5635	---	5501	5716	---	5776	5925	---
Other Non-Durables	3600	3600	---	4618	4632	---	5095	5217	---	5673	5690	---	5985	6100	---	6404	6525	---
CONSTRUCTION	17600	17600	18100	22400	21900	20050	25300	24300	22350	26400	24900	24550	27700	25700	26050	29100	26800	---
TRANSP.-COMM.-PUB. UTILITIES	30000	30000	30875	32900	32600	32525	34000	33200	33650	34800	33700	34625	35700	34300	35800	37000	35400	---
FIN.-INS.-REAL ESTATE	30500	30500	30075	39300	37900	36350	46000	43100	42025	51300	47200	47775	55900	50900	53925	60300	54800	---
TRADE	110300	110300	111725	131400	131800	131650	139300	134300	148900	147500	140500	165600	155500	147200	183200	164700	155400	---
Wholesale Trade	35300	35300	---	41400	41200	---	43300	43000	---	46400	46000	---	49200	49000	---	52400	52400	---
Retail Trade	75000	75000	---	90000	86600	---	96000	91300	---	101100	94500	---	106300	98200	---	112300	103000	---
SERVICES	84800	84800	87925	106300	102700	104950	129700	122100	118000	146900	135200	133600	161000	146500	150300	173800	158000	---
GOVERNMENT	73600	73600	73925	86200	86200	84250	100000	100000	95400	109000	109200	106850	116400	116900	118475	123800	124800	---
Federal	15100	15100	15500	16059	16059	16025	16618	16618	16675	16852	16852	17350	17160	17065	17925	17492	17371	---
State & Local	58500	58500	---	70141	70141	---	83382	83382	---	92148	92348	---	99240	99835	---	106308	107429	---

NOTES & SOURCES

(1) Total Employment between the two forecasts are uncomparable. CRAG forecasts are for the number of jobs held by place of employment. BPA forecasts are number of persons employed by place of residence. BPA: Bonneville Power Administration; Population, Employment & Housing Units Projected to 1995, Oregon and Washington; December, 1976.

V. EMPLOYMENT FORECASTING METHODOLOGY

The CRAG Employment Forecast of the Portland SMSA serves a dual purpose:

A. The Cohort Survival Model used for Population Forecasting has a migration factor which is a function of available employment opportunities.

B. Employment by major economic activities contributes direct input into the Transportation Systems Planning and the Economic Monitoring programs.

Considerable evaluation of various available methodologies was undertaken before selection of the chosen technique. A forecast of resident labor force by five-year increments was required to feed the migration component of the population forecast. To determine the resident labor force, it was decided to use a bottom-up approach; i.e., first forecasting individual employment categories and then aggregating all major activities. To accomplish this task, each of the major SIC divisions, selected two-digit SIC categories in manufacturing, as well as a disaggregation of government were forecast by five-year intervals to the year 2000.

Growth or decline in employment in economic activities for the Portland SMSA is influenced by the United States' growth in employment for the same activities. Additionally, there is a regional shift in the share of US growth for each activity dependent upon exhibited characteristics of the region. Examining regional and national historical data on employment growth rates by economic activity between the years 1950 and 1975 reveals a close relationship between the two over the 25-year time period. Between 1950 and 1960, employment growth in the region was generally consistent with that of the nation. Since 1960, the region's growth has been consistently higher than that of the nation as a whole for all wage and salary employment. While some activities in the SMSA, primarily non-durable goods manufacturing, exhibit a lower growth rate than the same activities nationally, several show considerably higher rates. For example, electrical equipment employment in the SMSA exceeded the United States' compound annual growth rate by 6.6 percent, and transportation equipment exceeded the US growth rate by 7.5 percentage points over the same 15-year period. The procedure to forecast future employment growth is diagramed in Chart N, "Employment Forecasting Model." Simple employment growth rates were calculated for the SMSA (1) and United States employment (2) between the years 1950 and 1975. A comparison revealed the difference (3) in the growth rates. To smooth the effect of the cyclical fluctuations, a three-year moving average was used in calculating the growth rates for both the SMSA and the nation on a yearly interval. Included in these calculations were ten major SIC divisions, self-employed, and fourteen two-digit SIC categories, plus federal, state and local government employees. Charts O through U reproduce computer plots for the historical period 1950-1975 reflecting the smoothed

CHART-N
EMPLOYMENT FORECASTING MODEL

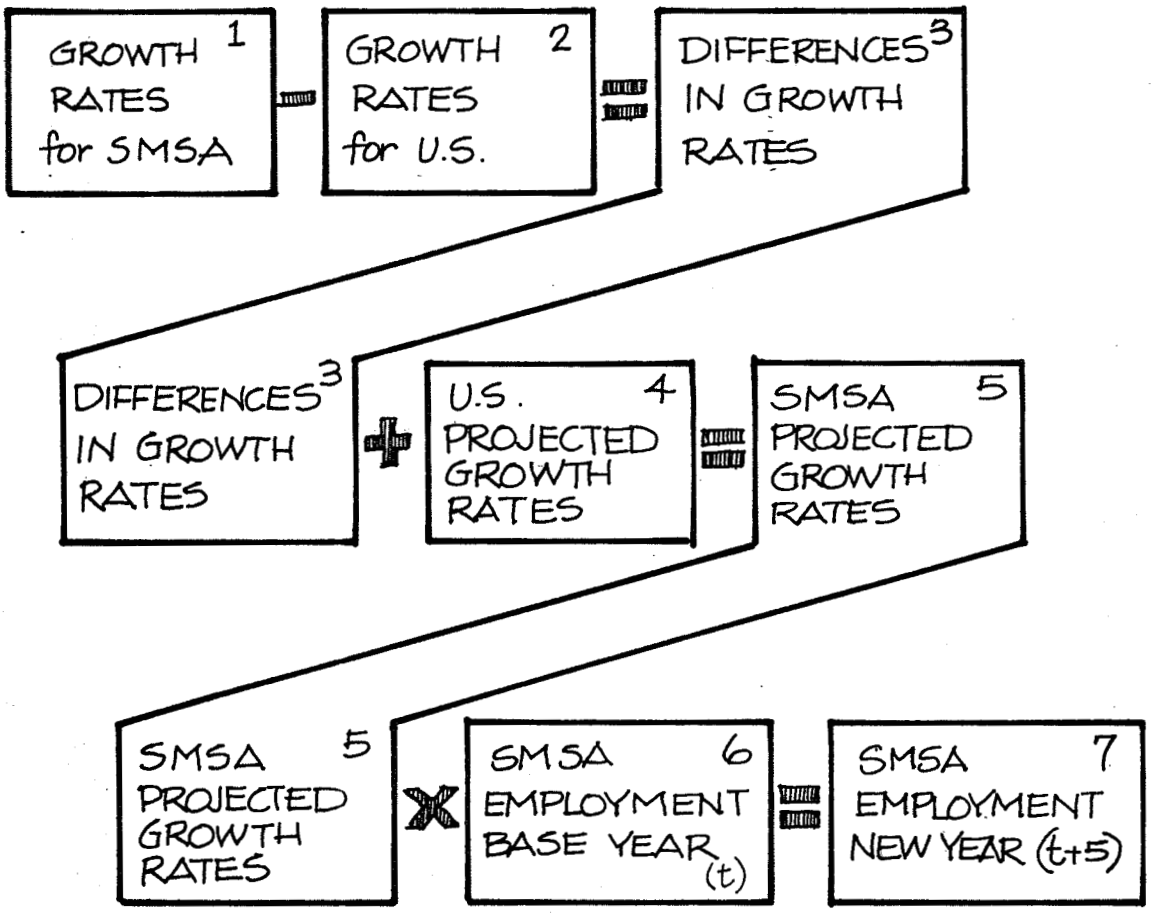
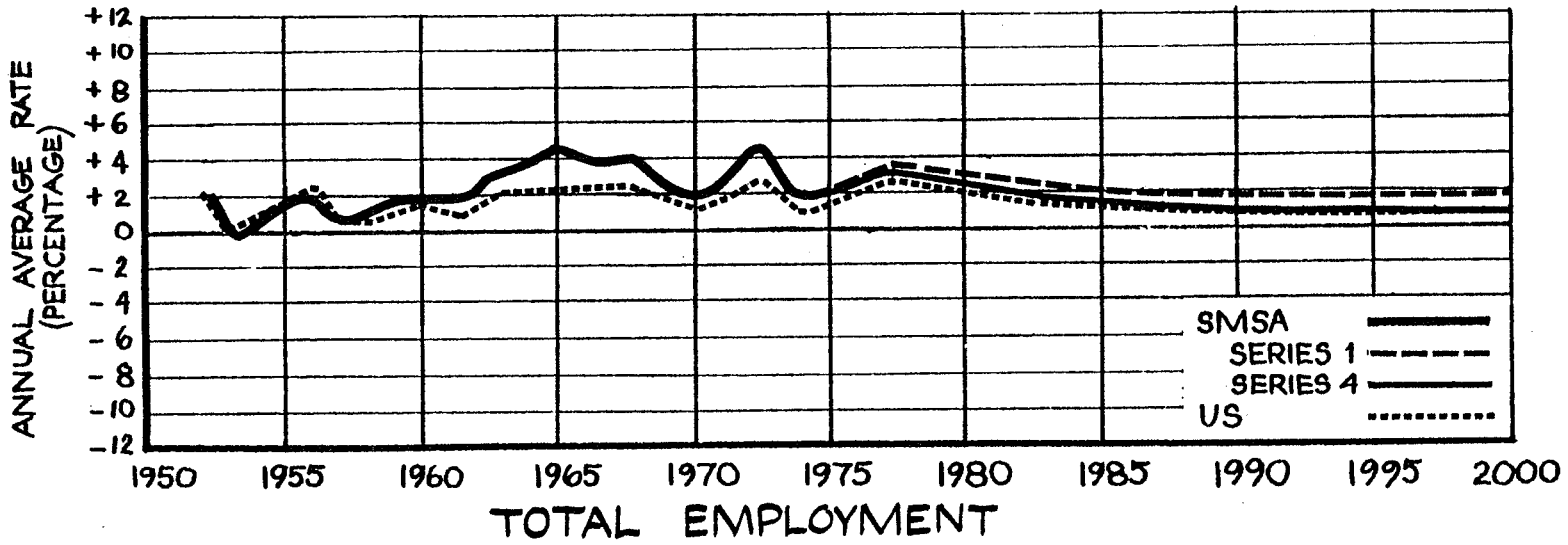
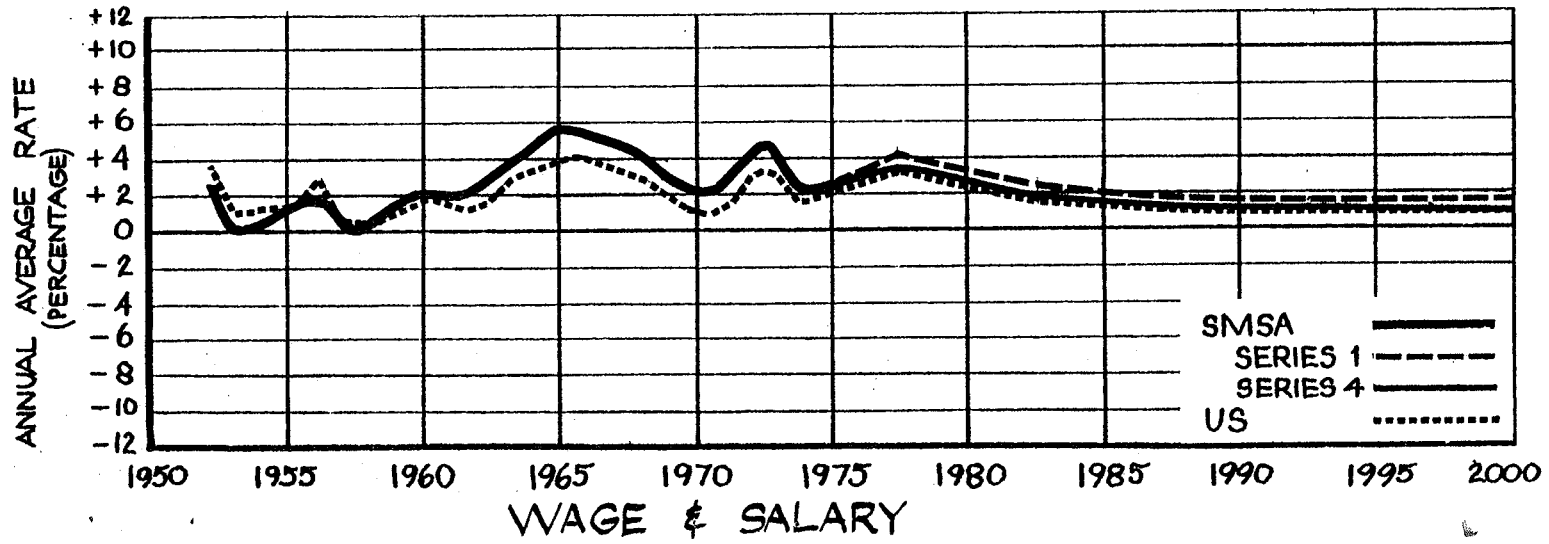


Chart O
US and SMSA EMPLOYMENT GROWTH RATES

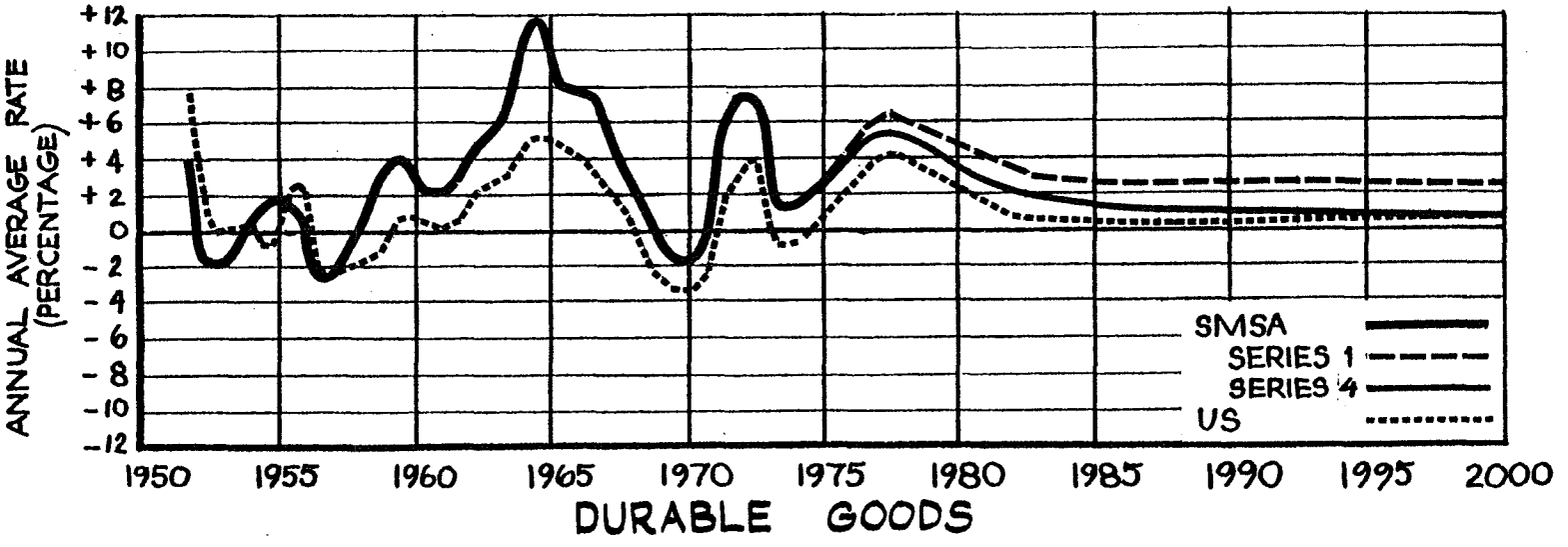


TOTAL EMPLOYMENT

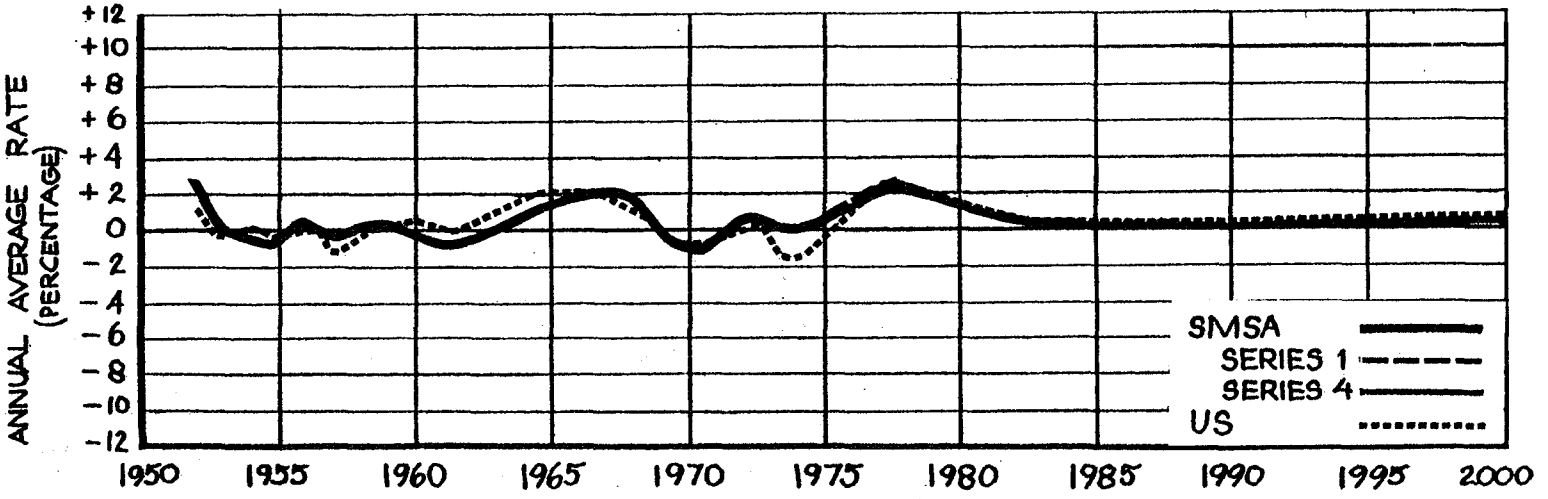


WAGE & SALARY

Chart P
US and SMSA EMPLOYMENT GROWTH RATES

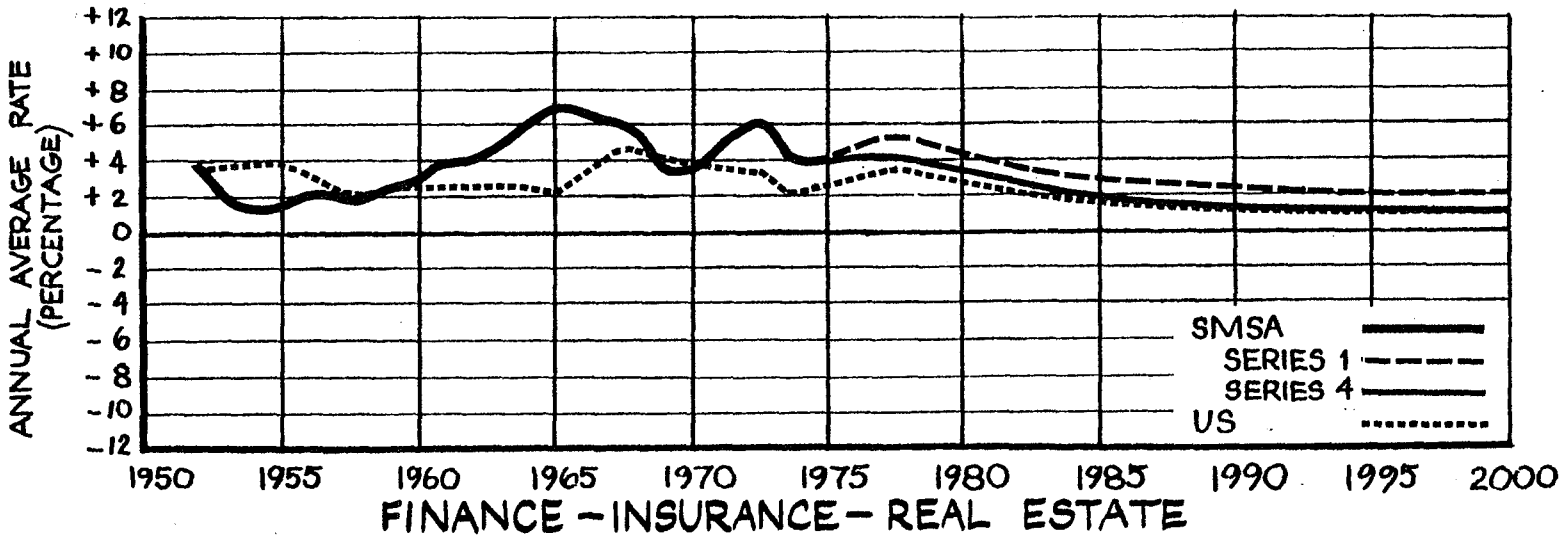


DURABLE GOODS

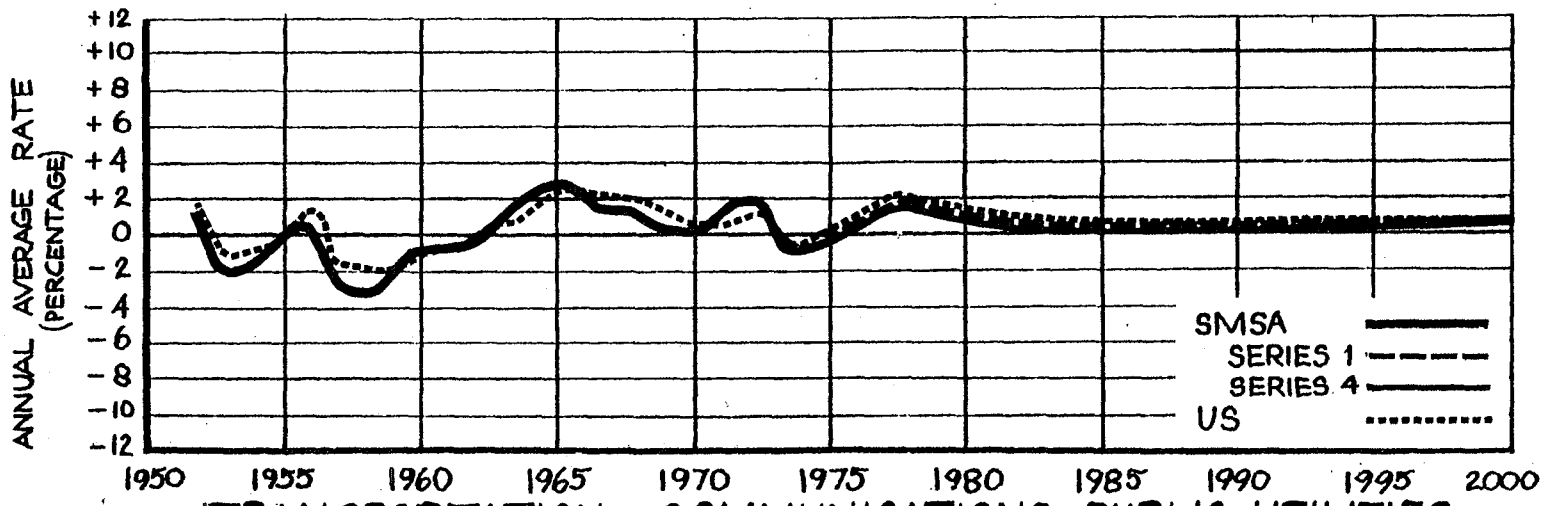


NON-DURABLE GOODS

Chart Q
US and SMSA EMPLOYMENT GROWTH RATES

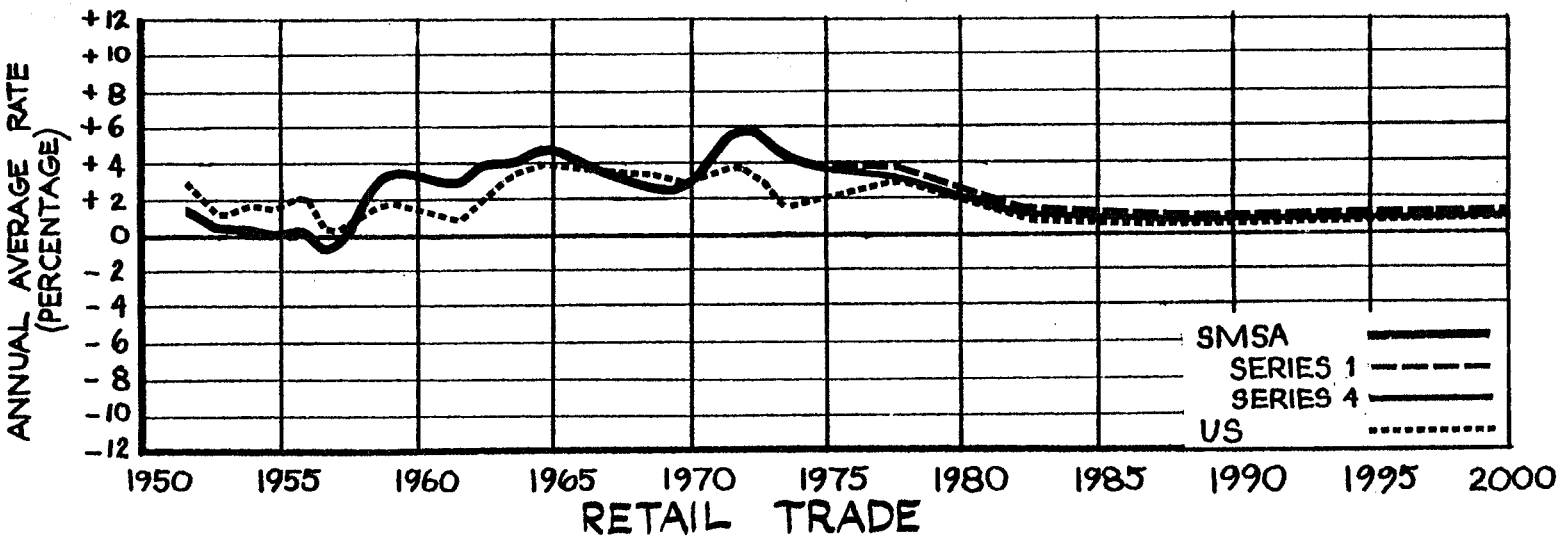


FINANCE – INSURANCE – REAL ESTATE

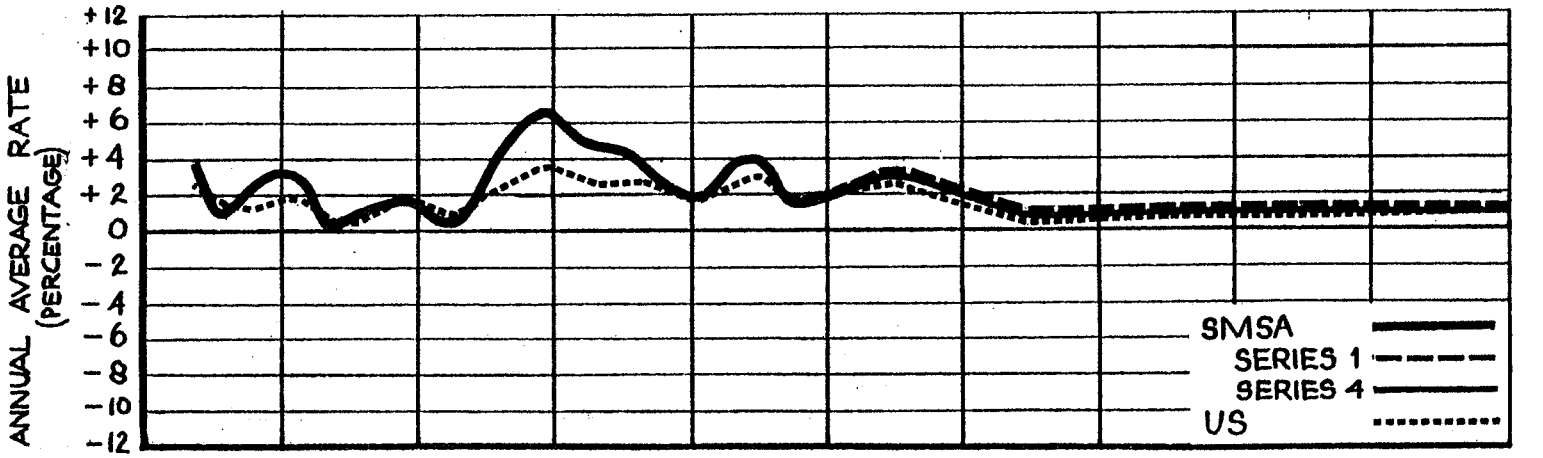


TRANSPORTATION – COMMUNICATIONS – PUBLIC UTILITIES

Chart R
US and SMSA EMPLOYMENT GROWTH RATES

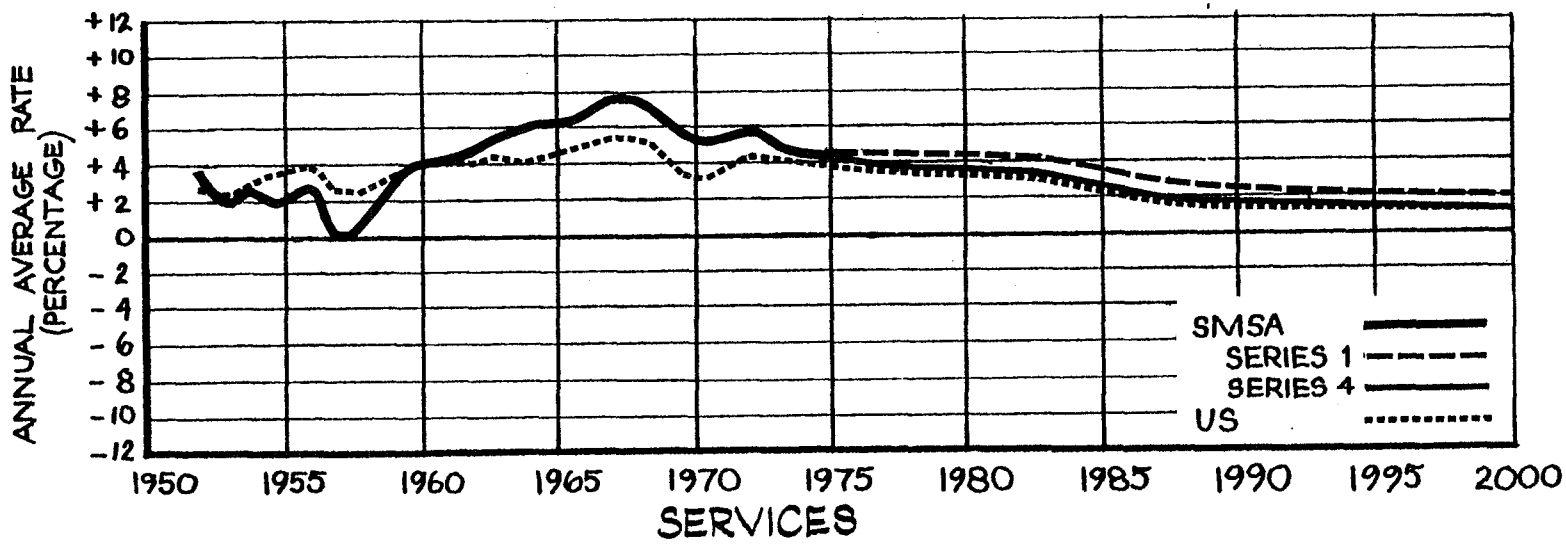


RETAIL TRADE

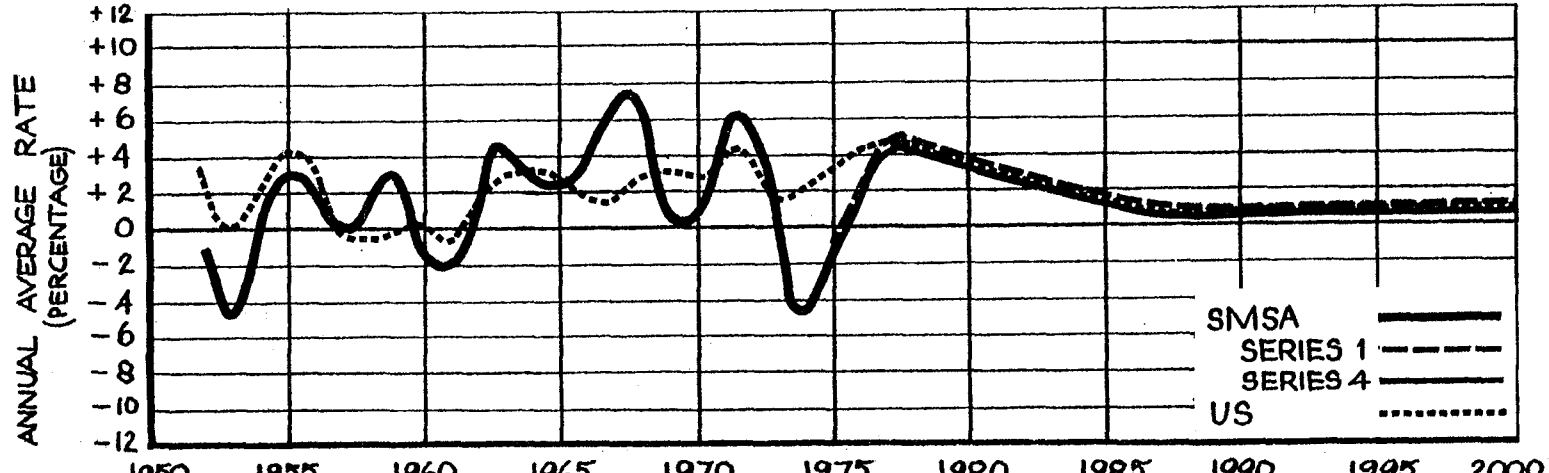


WHOLESALE TRADE

Chart 5
US and SMSA EMPLOYMENT GROWTH RATES

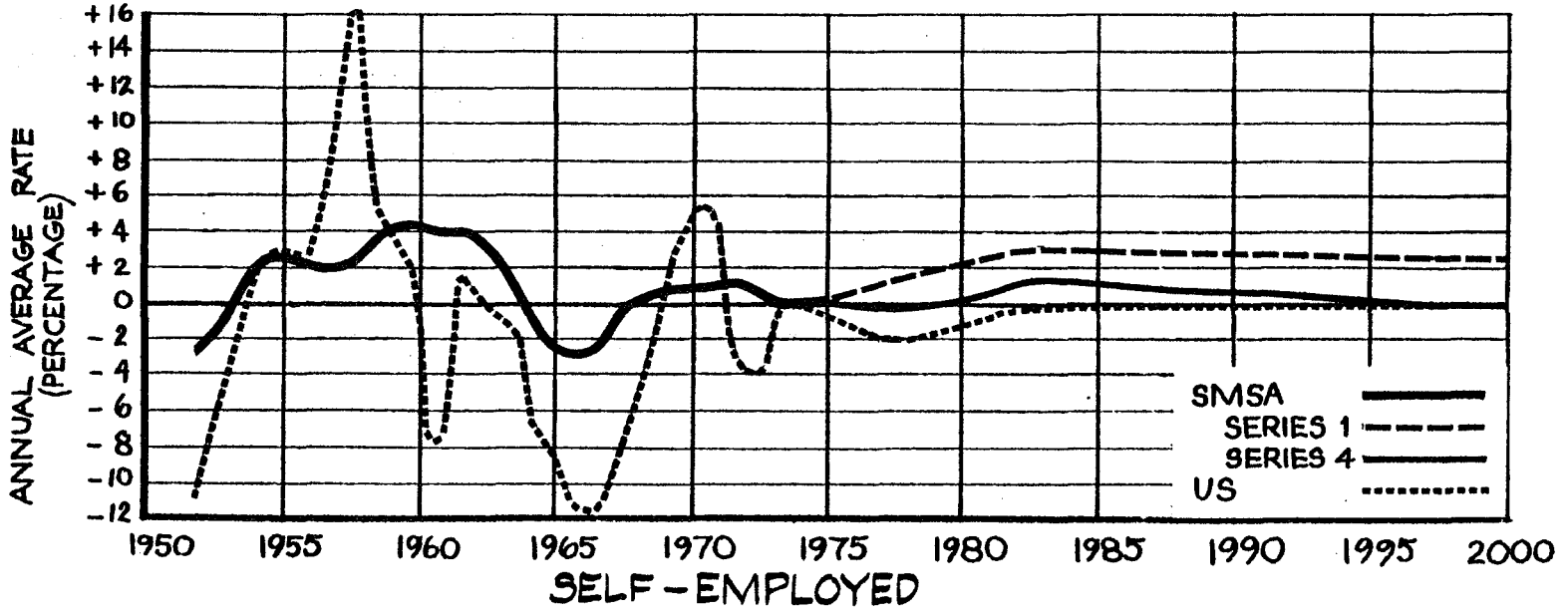


SERVICES

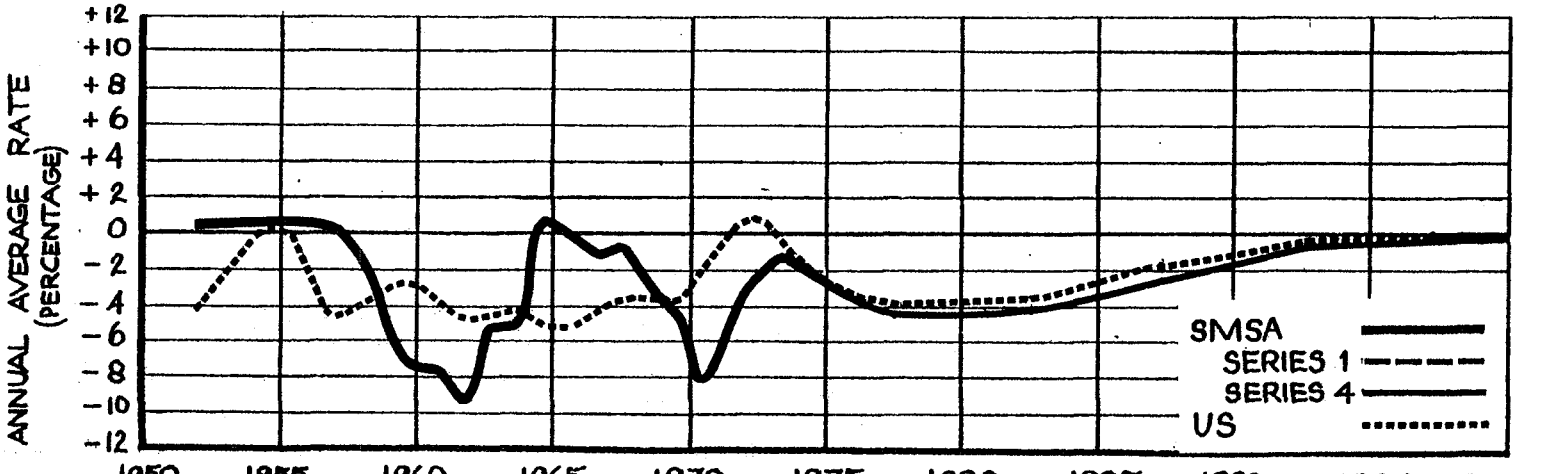


CONSTRUCTION

Chart T
US and SMSA EMPLOYMENT GROWTH RATES

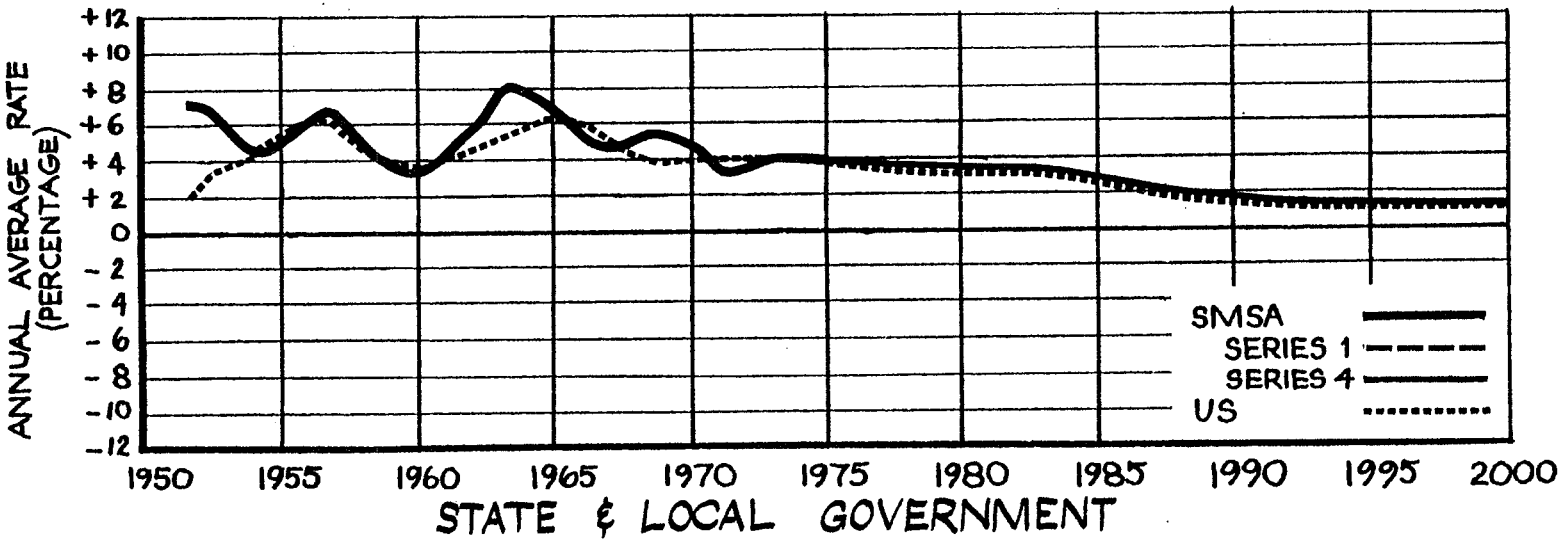


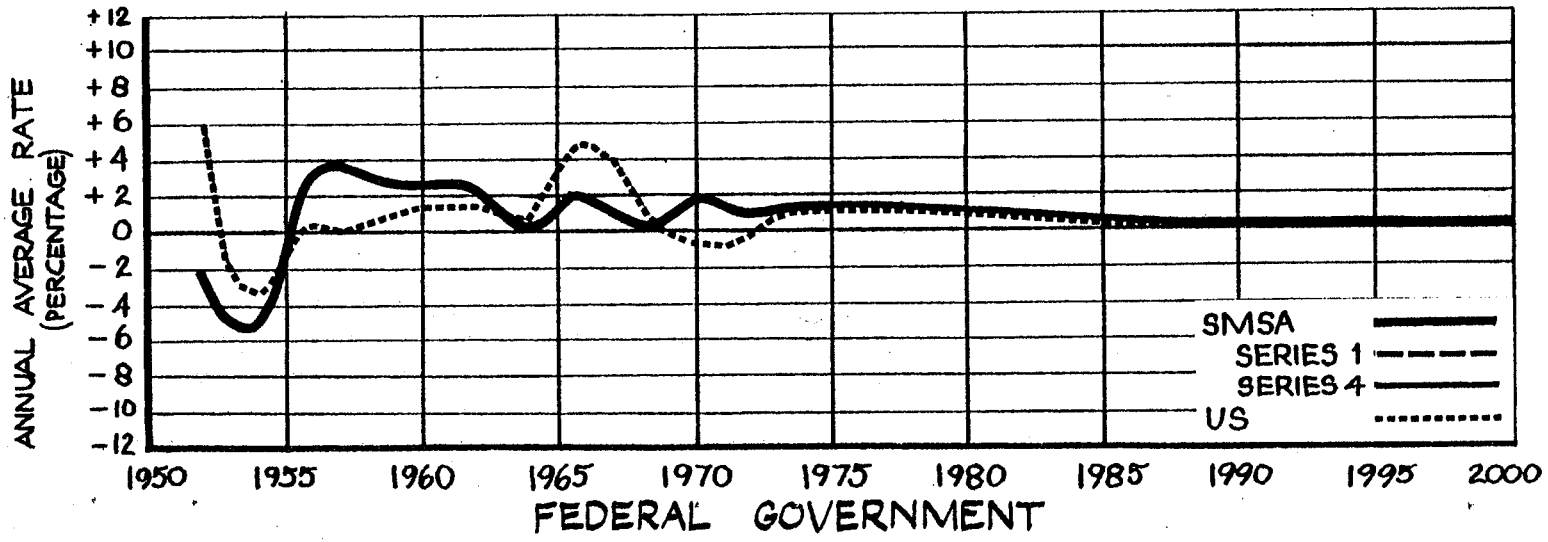
SELF-EMPLOYED



AGRICULTURE

Chart U
US and SMSA EMPLOYMENT GROWTH RATES





employment growth rates for the US and SMSA. Forecast rates for the US and the projected range for the SMSA are shown for the period 1975-2000.

The next step in this methodology is to determine a projection for employment growth in each economic activity for the United States at large. The Bureau of Labor Statistics has made such projections for the years 1959-73, 1973-80 and 1980-85. Using the assumption that the trend exhibited over this period of time will be consistent for the last 15 years of the century, a trend of BLS projections for United States employment has been made for the periods 1985-90, 1990-95 and 1990-2000 (Chart N, number 4).

The methodology would now dictate adding the BLS projected growth rates for US employment to the difference in the growth rates experienced in the Portland SMSA. This difference in rates is reflective of the shift in employment particular to the region. To determine differences in employment growth rates, an annual average difference was calculated for each of the economic activity areas based on the years 1950-75 and on the years 1960-75. The average annual differences become important factors in establishing the high to low range of projections for future growth in employment in the SMSA. A conceptual problem to be dealt with is that the US projections show a declining employment growth rate for most industries on the national level. The utilization of an average annual difference in employment growth rates would assume no convergence between the SMSA and the US employment patterns. To adequately reflect the growth rate for the SMSA, the CRAG model has been adjusted for an incremental decline in the difference of growth rates to maintain methodological consistency with the decrease in the United States employment rates being projected by BLS.

With the establishment of projected growth rates for the SMSA (5), four series of projected employments by major SIC divisions and select two-digit SIC industries were forecast. Applying the particular growth rate to the base year, SMSA employment (6) in each economic activity will yield the next five-year interval employment (7). This process is repeated for each five-year interval to the year 2000.

Series 1 through Series 4 employment projections have been developed on a five-year interval to the year 2000. Series 1 and 2 are based upon the period covering the years 1960-1975 which reflects a fairly constant increase in employment growth in most sectors for both the United States and the region, with the exception of two recessionary periods around 1970-71 and again in 1975. Series 1 experiences a convergence to within 50 percent of the SMSA and US growth rates by the year 2000. Series 2 converges to within 25 percent. The years between 1950 and 1960 exhibited quite another characteristic for most activities. In several industries, the growth rates for both the United States and the SMSA were negative and, in most activities, the SMSA growth rate in employment was below that of the US.

Series 3 and 4 are based upon the time period of 1950 through 1975, which provides a longer timeframe as a base for projections. The combination of the lower growth rates of the 1950-1960 time period with higher patterns reflective of the 1960-1975 period results in generally lower forecasts than Series 1 and 2. Series 3 demonstrates a convergence to within 50 percent of the SMSA and the US growth rates by the end of the forecast period; Series 2 exhibits a complete convergence.

The projection of resident labor force, a functional requirement of migration in the Population Forecasting Model, begins with the five-year forecasts for total employment. An observation of historical data for the region reveals that total employment (i.e., the total jobs held by place of work) is on the average seven percent greater than total resident employment (i.e., employment by place of residence). To project the resident labor force, total employment was adjusted to reflect the resident employment concept as well as an assumed unemployment rate of 4.7 percent in 1980 and 4.0 percent in 1985 and later; these projections are consistent with the Bureau of Labor Statistics assumptions for the U.S. economy.

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VI. POPULATION FORECASTING METHODOLOGY

The population forecasts were developed using Cohort Survival analysis. The projections were prepared under contract with the Center for Population Research and Census (CPRC) at Portland State University, which developed a computerized Cohort Survival Model for the State of Oregon. Historical data was developed specific to Clackamas, Multnomah, Washington and Clark Counties and the SMSA for the period 1950 through 1976. These data sets are both "yearly interval" and "age-specific" by five-year cohorts, and include information on population, births and deaths, as well as employment data for the U.S. and SMSA by SIC categories. (These data sets are available from CRAG; see inside back cover.)

Relative historical data on the SMSA was then supplied to CPRC to modify their cohort model to fit the requirements of the Portland SMSA.

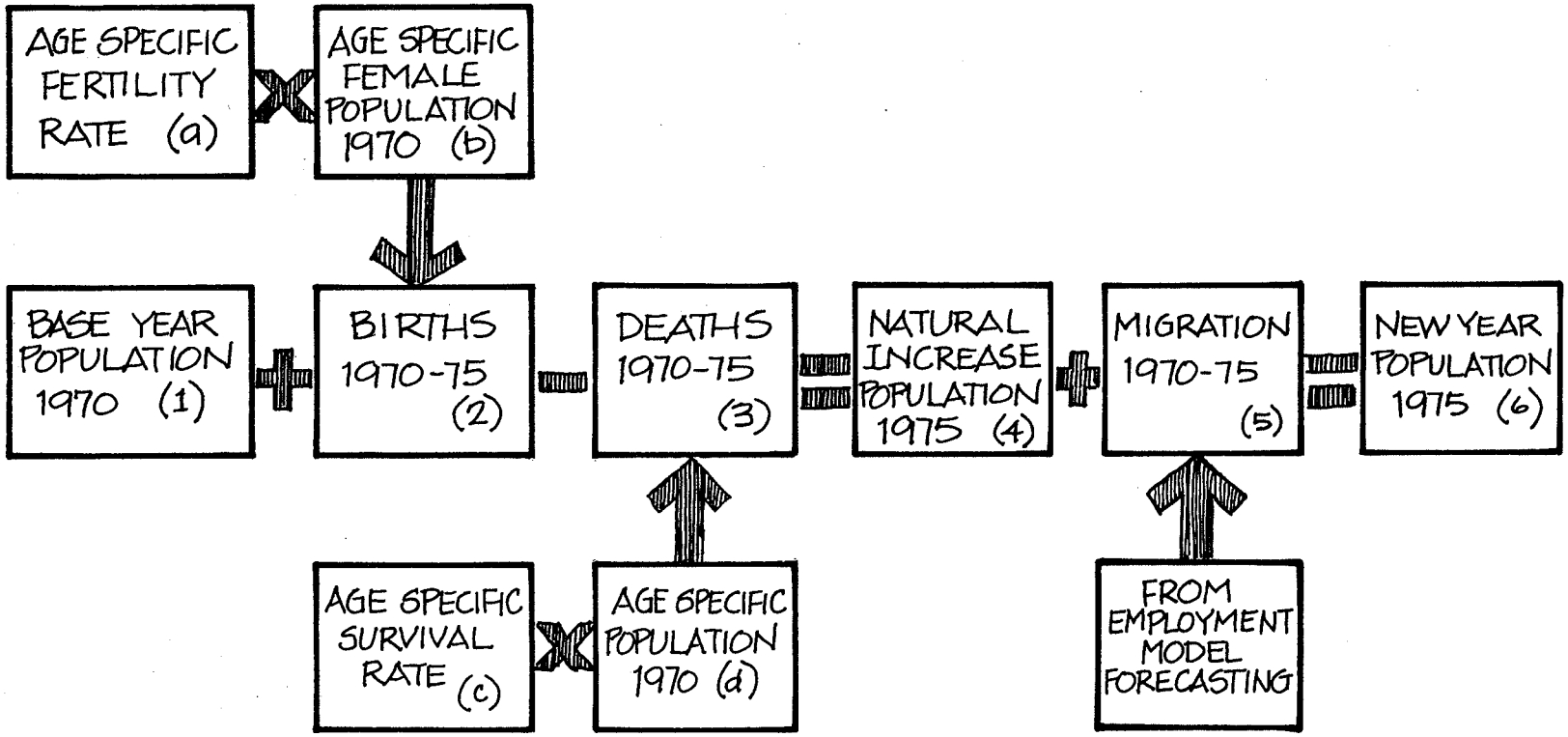
The Cohort Survival Model uses an aging technique for age-specific groups, ("cohorts" of the population), and advances them through their lifetimes as shown in Chart V, "Population Forecasting Model." The model begins with a base (1) of five-year sex and age-specific groups of the population. This base should be as accurate as possible and therefore the 1970 US Census information for the Portland SMSA was used.

To the base population, births (2) are added for each five-year interval (e.g., 1970-75, 1975-80, etc.), using assumed birth rates for each group of women in five-year age categories. To calculate the birth factor presents the first difficult evaluation in the model--namely, determining the fertility rate for the SMSA. The fertility rate refers to the number of live births to women in the childbearing ages of 15 to 45 years. To forecast fertility rates addresses the question of anticipated future childbearing patterns. Past data shows that, although fertility rates were still on the increase between 1950 and 1960, there was a substantial decrease between 1960 and 1970.

The total fertility rate of the Portland SMSA dropped from 3.56 births per woman in 1960 to 2.22 in 1970. Furthermore, the downward trend appears to be continuing. CPRC believes the current birth rate of the SMSA to be below replacement level. The assumption that this decline will not continue is substantiated in survey data collected by the US Census Bureau annually from 1971 to 1974. Questions on total births expected by young wives suggests their completed fertility rate will be around the replacement level. Due to these considerations, the fertility rate projections used in this forecast are those of Series E, developed by the US Census Bureau (Table A-6 in Appendix). These fertility rates assume a replacement level which is reached about 1985; the rate then levels off in the future.

When the age-specific fertility rate (a) has been established, it is applied to the age-specific female population (b) to determine the number of live births for the time interval.

CHART-V
POPULATION FORECASTING MODEL



It is now necessary to adjust the base population for the deaths (3) occurring in the time interval. The death factors are calculated in a manner similar to that use for birth factors; however, the difficulties in evaluation are of a lower order of magnitude. Mortality in the United States has basically stabilized and exhibits a very consistent trend. The death factor enters into the Cohort Model through the use of age-specific survival rates (c). Survival rates for the Portland SMSA have been determined through the construction of life tables based on the male and female mortality experience of the region. Once the age-specific survival rate is established for the five-year interval being projected, it is applied to the sex- and age-specific population (d) of the base period.

The Cohort Survival Model now has all the factors established to move the survivors of each age-specific cohort forward five years in time (e.g., male population aged 20-24 in 1975 was "survived" to age 25-29 in 1980). What the model has now produced is the indigenous population or natural increase (4) at the beginning of the new time interval, five years later than the base population.

The model developed at this point is concerned only with the indigenous or native population. The model has aged the base population by five years; however, net migration in and out of the area has not been addressed. Net migration (5) to the area then becomes the final factor of consideration in the Cohort Survival Model, a prerequisite to generating a new total population (6) at the beginning of the new five-year period. The migration element of the model is the integrating factor between the population and employment forecasts and synthesizes the economic and demographic interdependence of the CRAG forecast for the SMSA.

The employment forecasting model provides resident labor force projections for the SMSA by five-year increments. These projections, when compared to the indigenous labor force requirements of the population model, generate the migration component.

Labor force participation rates have been developed for the Portland SMSA as found in Table A-8 in the Appendix. As the "natural increase" population is forecast for each five-year interval by the Cohort Survival Model, the population forecasting model accesses the sex- and age-specific labor force participation rate for that five-year interval and compares the labor force requirements for the indigenous population.

The resident labor force, as projected by the Employment Forecasting Model, is compared with the indigenous labor force requirements computed by the Population Forecasting Model. The differences in the two calculations become the additional labor force required for the five-year interval.

Sex- and age-specific labor participation rates of the immigrants are assumed to be consistent with those of the indigenous population, which allows the calculation of total net migration into the region. Net migration is then added to the "natural increase" population to determine the "new year" total population.

VII. HOUSEHOLD FORECASTING METHODOLOGY

As a part of the population forecasting process, the number of households in the region was projected by five-year increments to the year 2000. The definition of a household is one person or two or more persons who live together and occupy a housing unit. These may consist of single individuals, persons sharing a housing unit, or families. Group living quarters in which individuals share facilities are not included in this definition.

The first task in forecasting households is to determine the percentage of the population who occupy a housing unit. An investigation of the US Census for the Portland SMSA reveals that historically, persons living in group quarters average 2 percent of the total population, with the remainder living in households. The forecast of future numbers of households assumed the 98 percent household-2 percent group quarters mix to remain constant into the future.

To arrive at the number of total households from this assumed 98 percent of the population, it was necessary to determine the average number of persons per occupied unit for the Portland SMSA. Household sizes were observed for the period between 1930 and 1975. A linear projection of those trends was developed and is found in Table A-9 in the Appendix. The assumption was made that the average persons per occupied unit was too low to be consistent with the basic family structure of the region and would decline to a level of 2.50 persons per occupied unit by the year 2000. This revised series of persons per occupied unit was then divided into 98 percent of the total population to determine the total number of households to the year 2000.

The next task was to determine the size composition of the total households. The size components to be investigated were 1, 2, 3-4 and 5 or more member households. A distribution of the number of households by size of household is available for 1970 from the US Census and for 1975 from the "US Census of Housing for the Portland SMSA." For a lack of any more comprehensive information, it is assumed that the trend of the size groupings of households as a percent of total households exhibited between 1970 and 1975, will continue in the future. The percentage of each household size to the total households was projected by five-year increments to the year 2000 and can be found in Table A-10 in the Appendix. These percentages were then applied to the total households to determine the most likely distribution of households by 1, 2, 3-4 and 5 or more persons.

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APPENDIX

TABLE A-1

EMPLOYMENT FORECASTS BY STANDARD INDUSTRIAL CLASSIFICATION

PORTLAND-OREGON-WASHINGTON SMSA

SIC #	STANDARD INDUSTRIAL CLASSIFICATION		1975	1980	1985	1990	1995	2000
	TOTAL EMPLOYMENT	Series 1	495,400	597,300	676,900	744,000	810,800	882,500
		Series 2	495,400	594,300	668,300	725,900	776,800	825,900
		Series 3	495,400	580,100	639,800	685,900	729,900	777,300
		Series 4	495,400	577,600	632,300	670,100	702,600	733,800
	SELF-EMPLOYED	Series 1	48,700	51,500	59,000	66,800	74,700	82,800
		Series 2	48,700	51,900	59,000	65,600	71,200	74,700
		Series 3	48,700	48,600	52,800	57,200	61,400	65,400
		Series 4	48,700	48,500	52,100	55,200	57,500	58,600
	AGRICULTURE	Series 1	9,400	7,800	6,600	6,100	6,000	6,000
		Series 2	9,400	7,500	6,100	5,400	5,200	5,200
		Series 3	9,400	7,800	6,600	6,100	5,900	5,900
		Series 4	9,400	7,500	6,000	5,300	5,100	5,000
	WAGE & SALARY	Series 1	437,300	537,100	609,400	667,800	725,100	786,700
		Series 2	437,300	534,900	603,200	654,900	700,400	746,000
		Series 3	437,300	523,700	580,400	622,600	662,600	706,000
		Series 4	437,300	522,100	575,300	611,500	642,900	674,200
	DURABLE GOODS	Series 1	60,100	83,000	96,700	109,600	123,700	138,800
		Series 2	60,100	82,400	94,600	104,500	113,400	121,600
		Series 3	60,100	79,300	88,600	96,700	105,400	114,400
		Series 4	60,100	78,600	86,200	91,500	95,900	99,000
24	Lumber & Wood	Series 1	8,700	10,251	10,502	10,590	10,757	10,983
		Series 2	8,700	10,078	10,190	10,200	10,260	10,413
		Series 3	8,700	9,890	9,874	9,771	9,767	9,842
		Series 4	8,700	9,890	9,842	9,677	9,604	9,660
25	Furniture & Fixtures	Series 1	2,100	2,472	2,557	2,608	2,640	2,675
		Series 2	2,100	2,439	2,467	2,457	2,438	2,453
		Series 3	2,100	2,345	2,334	2,313	2,293	2,288
		Series 4	2,100	2,334	2,300	2,240	2,160	2,080

TABLE A-1

EMPLOYMENT FORECASTS BY STANDARD INDUSTRIAL CLASSIFICATION

PORTLAND-OREGON-WASHINGTON SMSA

PAGE 2

SIC #	STANDARD INDUSTRIAL CLASSIFICATION		1975	1980	1985	1990	1995	2000
33	Primary Metals	Series 1	6,700	8,234	8,752	9,060	9,401	9,682
		Series 2	6,700	8,127	8,590	8,836	9,117	9,348
		Series 3	6,700	8,066	8,427	8,612	8,832	9,014
		Series 4	6,700	8,048	8,363	8,475	8,628	8,740
34	Fabricated Metals	Series 1	7,700	10,603	11,827	12,753	13,621	14,387
		Series 2	7,700	10,564	11,557	12,143	12,663	13,181
		Series 3	7,700	10,051	10,726	11,155	11,553	11,900
		Series 4	7,700	10,046	10,687	11,075	11,457	11,842
35	Machinery	Series 1	8,800	12,005	13,621	14,916	16,182	17,362
		Series 2	8,800	11,934	13,305	14,207	15,036	15,884
		Series 3	8,800	11,580	12,718	13,548	14,354	15,090
		Series 4	8,800	11,526	12,540	13,202	13,828	14,410
36	Electrical Equipment	Series 1	11,400	17,942	23,361	28,923	35,101	41,737
		Series 2	11,400	17,917	23,112	27,773	31,963	35,508
		Series 3	11,400	17,251	21,527	25,619	30,023	34,536
		Series 4	11,400	16,923	20,410	23,149	25,334	26,570
37	Transportation Equipment	Series 1	8,500	13,049	16,357	20,075	24,428	29,500
		Series 2	8,500	12,961	15,895	18,782	21,346	23,694
		Series 3	8,500	12,254	14,470	16,779	19,340	22,140
		Series 4	8,500	12,000	13,631	14,978	15,981	16,535
	Other Durables	Series 1	6,200	8,444	9,723	10,675	11,570	12,474
		Series 2	6,200	8,380	9,484	10,102	10,577	11,119
		Series 3	6,200	7,863	8,524	8,903	9,238	9,590
		Series 4	6,200	7,833	8,427	8,704	8,908	9,163
	NON-DURABLE GOODS	Series 1	30,400	34,300	34,800	35,300	35,800	36,500
		Series 2	30,400	34,000	34,300	34,500	34,800	35,700
		Series 3	30,400	34,300	34,800	35,200	35,700	36,400
		Series 4	30,400	34,000	34,300	34,500	34,800	35,300
20	Food & Kindred	Series 1	9,200	8,950	8,548	8,276	8,210	8,160
		Series 2	9,200	8,878	8,498	8,192	7,990	8,100
		Series 3	9,200	8,950	8,548	8,251	8,180	8,139
		Series 4	9,200	8,878	8,498	8,192	7,990	8,083

TABLE A-1

EMPLOYMENT FORECASTS BY STANDARD INDUSTRIAL CLASSIFICATION

PORTLAND-OREGON-WASHINGTON SMSA

PAGE 3

SIC #	STANDARD INDUSTRIAL CLASSIFICATION		1975	1980	1985	1990	1995	2000
22	Textiles	Series 1	2,300	2,654	2,693	2,758	2,766	2,781
		Series 2	2,300	2,514	2,481	2,455	2,449	2,500
		Series 3	2,300	2,654	2,693	2,750	2,760	2,775
		Series 4	2,300	2,514	2,481	2,455	2,449	2,500
23	Apparel	Series 1	3,300	4,084	4,141	4,200	4,254	4,300
		Series 2	3,300	4,084	4,135	4,184	4,235	4,253
		Series 3	3,300	4,084	4,141	4,191	4,244	4,295
		Series 4	3,300	4,084	4,135	4,184	4,235	4,286
26	Paper & Allied	Series 1	7,500	8,660	8,692	8,708	8,716	8,752
		Series 2	7,500	8,655	8,631	8,638	8,640	8,667
		Series 3	7,500	8,660	8,692	8,683	8,700	8,740
		Series 4	7,500	8,655	8,631	8,638	8,640	8,658
27	Printing & Publishing	Series 1	4,500	5,320	5,509	5,651	5,742	5,972
		Series 2	4,500	5,251	5,460	5,358	5,501	5,776
		Series 3	4,500	5,320	5,509	5,635	5,716	5,926
		Series 4	4,500	5,251	5,460	5,358	5,501	5,626
	Other Non-Durables	Series 1	3,600	4,632	5,217	5,707	6,112	6,535
		Series 2	3,600	4,618	5,095	5,673	5,985	6,404
		Series 3	3,600	4,632	5,217	5,690	6,100	6,525
		Series 4	3,600	4,618	5,095	5,673	5,985	6,147
	CONSTRUCTION	Series 1	17,600	22,400	25,400	26,500	27,900	29,500
		Series 2	17,600	22,400	25,300	26,400	27,700	29,100
		Series 3	17,600	21,900	24,300	24,900	25,700	26,800
		Series 4	17,600	21,900	24,200	24,700	25,400	26,300
	TRANSPORTATION-COMMUNICATIONS-PUBLIC UTILITIES	Series 1	30,000	33,000	34,000	34,800	35,700	37,000
		Series 2	30,000	32,900	34,000	34,800	35,700	37,000
		Series 3	30,000	32,600	33,200	33,700	34,300	35,400
		Series 4	30,000	32,500	33,000	33,200	33,600	34,200
	FINANCE - INSURANCE - REAL ESTATE	Series 1	30,500	39,500	46,600	52,700	58,600	64,800
		Series 2	30,500	39,300	46,000	51,300	55,900	60,300
		Series 3	30,500	37,900	43,100	47,200	50,900	54,800
		Series 4	30,500	37,300	42,600	46,100	48,900	51,600

TABLE A-1

EMPLOYMENT FORECASTS BY STANDARD INDUSTRIAL CLASSIFICATION

PORTLAND-OREGON-WASHINGTON SMSA

PAGE 4

SIC #	STANDARD INDUSTRIAL CLASSIFICATION		1975	1980	1985	1990	1995	2000
	WHOLESALE TRADE	Series 1	35,300	41,500	43,700	46,900	50,300	53,900
		Series 2	35,300	41,400	43,300	46,400	49,200	52,400
		Series 3	35,300	41,200	43,000	46,000	49,000	52,400
		Series 4	35,300	41,100	42,600	45,000	47,300	49,700
	RETAIL TRADE	Series 1	75,000	90,700	97,500	103,900	110,800	119,000
		Series 2	75,000	90,000	96,000	101,100	106,300	112,300
		Series 3	75,000	86,600	91,300	94,500	98,200	103,000
		Series 4	75,000	87,500	91,100	94,400	97,500	101,900
	SERVICES	Series 1	84,800	106,600	131,000	149,500	166,400	183,700
		Series 2	84,800	106,300	129,700	146,900	161,000	173,800
		Series 3	84,800	102,700	122,100	135,200	146,500	158,000
		Series 4	84,800	102,500	121,300	133,400	143,200	152,700
	GOVERNMENT	Series 1	73,600	87,000	101,600	111,900	120,900	130,500
		Series 2	73,600	86,200	100,000	109,000	116,400	123,800
		Series 3	73,600	86,200	100,000	109,200	116,900	124,800
		Series 4	73,600	85,700	98,900	107,100	113,400	119,500
	Federal Government	Series 1	15,100	16,209	16,898	17,226	17,575	18,092
		Series 2	15,100	16,059	16,618	16,852	17,160	17,492
		Series 3	15,100	16,059	16,618	16,852	17,065	17,371
		Series 4	15,100	15,959	16,418	16,552	16,660	16,735
	State & Local Government	Series 1	58,500	70,791	84,702	94,674	103,325	112,408
		Series 2	58,500	70,141	83,382	92,148	99,240	106,308
		Series 3	58,500	70,141	83,382	92,348	99,835	107,429
		Series 4	58,500	69,741	82,482	90,548	96,740	102,765

TABLE A-2

EMPLOYMENT BY STANDARD INDUSTRIAL CLASSIFICATION
PORTLAND, ORE-WASH SMSA

SIC #	STAND. INDUST. CLASS.	1950	1955	1960	1965	1970	1975
	TOTAL EMPLOYMENT	285,700	303,000	328,000	375,300	438,900	495,400
	SELF-EMPLOYED	39,000	38,000	44,200	49,600	46,700	48,700
	AGRICULTURE	18,200	18,600	17,000	12,400	11,800	9,400
	WAGE & SALARY	228,300	246,200	266,100	313,100	380,600	437,300
	DURABLE GOODS	29,900	33,900	35,400	44,600	54,800	60,000
24	Lumber & Wood	11,400	10,600	8,600	9,300	8,700	8,700
25	Furniture & Fixtures	2,500	1,800	1,900	2,300	2,700	2,100
33	Primary Metals	7,800	9,900	5,200	5,900	6,500	6,700
34	Fabricated Metals	(N/A)	(N/A)	4,500	5,600	6,800	7,700
35	Machinery	3,200	4,100	4,300	5,600	7,900	8,800
36	Electrical Equipment	(N/A)	(N/A)	4,300	6,000	10,000	11,400
37	Transportation Equipment	1,400	2,700	3,000	5,600	6,900	8,500
	Other Durables	3,600	4,800	3,600	4,300	5,300	6,200
	NON-DURABLE GOODS	27,100	28,400	29,000	29,000	30,900	30,400
20	Food & Kindred	10,300	10,300	10,100	9,200	10,300	9,200
22	Textiles	5,000	5,800	2,600	2,500	2,300	2,300
23	Apparel	(N/A)	(N/A)	3,100	3,500	3,300	3,300
26	Paper & Allied	6,300	7,200	7,400	7,700	7,600	7,500
27	Printing & Publishing	3,700	3,300	3,400	3,300	4,000	4,500
	Other Non-Durables	1,800	1,800	2,400	2,800	3,200	3,600
	CONSTRUCTION	13,800	13,300	14,800	15,300	17,300	17,600
	TRANSP-COMM-PUB. UTILITIES	30,400	29,800	27,500	28,400	30,200	30,000
	FINANCE-INS.-REAL ESTATE	11,400	13,100	14,900	18,900	24,700	30,500
	WHOLESALE TRADE	18,200	21,200	23,000	26,900	32,200	35,300
	RETAIL TRADE	39,400	40,400	43,800	51,400	60,400	75,000
	SERVICES	29,800	34,400	37,800	48,100	67,700	84,800
	GOVERNMENT	28,300	31,700	39,900	50,500	62,400	73,600
	Federal Government	11,900	10,200	12,200	13,100	14,000	15,100
	State & Local Governments	16,400	21,500	27,700	37,400	48,400	58,500

Notes: N/A: Not available for years indicated.

Source:
"Annual Planning Report for the Portland Area"; State of Oregon Employment Division, Department of Human Resources.

TABLE A-3

EMPLOYMENT BY SIC AS A PERCENT OF TOTAL EMPLOYMENT
ACTUAL, SERIES 2 AND SERIES 3
PORTLAND, ORE-WASH

SIC #	ACTIVITY		1950	1960	1970	1975	1980	1985	1990	1995	2000
	TOTAL EMPLOYMENT		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	SELF-EMPLOYED	Series 2	13.7	13.5	10.6	9.8	8.7	8.8	9.0	9.2	9.0
		Series 3					8.4	8.3	8.3	8.4	8.4
	AGRICULTURE	Series 2	6.4	5.2	2.7	1.9	1.3	0.9	0.7	0.7	0.6
		Series 3					1.3	1.0	0.9	0.8	0.8
	WAGE & SALARY	Series 2	79.9	81.1	86.7	88.2	90.0	90.3	90.2	90.2	90.3
		Series 3					90.3	90.7	90.8	90.8	90.8
	DURABLE GOODS	Series 2	10.5	10.8	12.5	12.1	13.9	14.2	14.4	14.6	14.7
		Series 3					13.7	13.8	14.1	14.4	14.7
24	Lumber & Wood	Series 2	4.0	2.6	2.0	1.8	1.7	1.5	1.4	1.3	1.3
		Series 3					1.7	1.5	1.4	1.3	1.3
25	Furniture & Fixtures	Series 2	0.9	0.6	0.6	0.4	0.4	0.4	0.3	0.3	0.3
		Series 3					0.4	0.4	0.3	0.3	0.3
33	Primary Metals	Series 2		1.6	1.5	1.4	1.4	1.3	1.2	1.2	1.1
		Series 3					1.4	1.3	1.3	1.2	1.2
34	Fabricated Metals	Series 2		1.4	1.5	1.6	1.8	1.7	1.7	1.6	1.6
		Series 3					1.7	1.7	1.6	1.6	1.5
35	Machinery	Series 2		1.3	1.8	1.8	2.0	2.0	2.0	1.9	1.9
		Series 3					2.0	2.0	2.0	2.0	1.9
36	Electrical Equipment	Series 2		1.3	2.3	2.3	3.0	3.5	3.8	4.1	4.3
		Series 3					3.0	3.4	3.7	4.1	4.4
37	Transp. Equipment	Series 2	0.5	0.9	1.6	1.7	2.2	2.4	2.6	2.7	2.9
		Series 3					2.1	2.3	2.4	2.6	2.8
	Other Durables	Series 2		1.1	1.2	1.3	1.4	1.4	1.4	1.4	1.3
		Series 3					1.4	1.3	1.3	1.3	1.2
	NON-DURABLE GOODS	Series 2	9.5	8.8	7.0	6.1	5.7	5.1	4.8	4.5	4.3
		Series 3					5.9	5.4	5.1	4.9	4.7
20	Food & Kindred	Series 2	3.6	3.1	2.3	1.9	1.5	1.3	1.1	1.0	1.0
		Series 3					1.5	1.3	1.2	1.1	1.0
22	Textiles	Series 2		0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.3
		Series 3					0.5	0.4	0.4	0.4	0.4
23	Apparel	Series 2		0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.5
		Series 3					0.7	0.6	0.6	0.6	0.6
26	Paper & Allied	Series 2	2.2	2.3	1.7	1.5	1.5	1.3	1.2	1.1	1.0
		Series 3					1.5	1.4	1.3	1.2	1.1
27	Printing & Publishing	Series 2	1.3	1.0	0.9	0.9	0.9	0.8	0.7	0.7	0.7
		Series 3					0.9	0.9	0.8	0.8	0.8
	Other Durables	Series 2	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
		Series 3					0.8	0.8	0.8	0.8	0.8
	CONSTRUCTION	Series 2	4.8	4.5	3.9	3.6	3.8	3.8	3.6	3.6	3.5
		Series 3					3.8	3.8	3.6	3.5	3.4
	TRANSP-COMM-PUB. UTIL.	Series 2	10.6	8.4	6.9	6.1	5.5	5.1	4.8	4.6	4.5
		Series 3					5.6	5.2	4.9	4.7	4.6
	FINANCE-INS.-REAL EST.	Series 2	4.0	4.5	5.6	6.2	6.6	6.9	7.1	7.2	7.3
		Series 3					6.5	6.7	6.9	7.0	7.1
	WHOLESALE TRADE	Series 2	6.4	7.0	7.3	7.1	7.0	6.5	6.4	6.3	6.3
		Series 3					7.1	6.7	6.7	6.7	6.7
	RETAIL TRADE	Series 2	13.8	13.4	13.8	15.1	15.1	14.4	13.9	13.7	13.6
		Series 3					15.1	14.3	13.8	13.5	13.3
	SERVICES	Series 2	10.4	11.5	15.4	17.1	17.9	19.4	20.2	20.7	21.0
		Series 3					17.7	19.1	19.7	20.1	20.3
	GOVERNMENT	Series 2	9.9	12.2	14.2	14.9	14.5	15.0	15.0	15.0	15.0
		Series 3					14.9	15.6	15.9	16.0	16.1
	Federal Government	Series 2	4.2	3.7	3.2	3.0	2.7	2.5	2.3	2.2	2.1
		Series 3					2.8	2.6	2.5	2.3	2.2
	State & Local Government	Series 2	5.7	8.4	11.0	11.8	11.8	12.5	12.7	12.8	12.9
		Series 3					12.1	13.0	13.5	13.7	13.8

TABLE A-4

EMPLOYMENT GROWTH RATES FOR PORTLAND SMSA ECONOMY
ACTUAL AND PROJECTED COMPOUND ANNUAL RATES
BY STANDARD INDUSTRIAL CLASSIFICATIONS

SIC #	ACTIVITY		1950-1960	1960-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000
	TOTAL EMPLOYMENT	Series 1				3.81	2.53	1.91	1.73	1.71
		Series 2	2.40	2.96	2.45	3.71	2.37	1.67	1.36	1.23
		Series 3	2.40	2.96	2.45	3.21	1.98	1.40	1.25	1.27
		Series 4				3.12	1.83	1.17	0.95	0.87
	SELF EMPLOYED	Series 1				1.12	2.76	2.51	2.26	2.08
		Series 2	1.26	0.97	0.84	1.28	2.60	2.14	1.65	0.96
		Series 3	1.26	0.97	0.84	-0.04	1.67	1.61	1.43	1.27
		Series 4				0.63	1.44	1.16	0.82	0.32
	AGRICULTURE	Series 1				-3.66	-3.29	-1.56	-0.33	0.00
		Series 2	-0.68	-3.59	-4.45	-4.42	-4.05	-2.41	-0.75	0.00
		Series 3	-0.68	-3.59	-4.45	-3.66	-3.29	-1.56	-0.66	0.00
		Series 4				-4.42	-4.36	-2.45	-0.77	-0.40
	WAGE & SALARY	Series 1				4.20	2.56	1.85	1.66	1.64
		Series 2	1.54	3.64	2.82	4.11	2.43	1.66	1.35	1.27
		Series 3	1.54	3.64	2.82	3.67	2.08	1.41	1.25	1.28
		Series 4				3.61	1.96	1.23	1.01	0.96
	DURABLE GOODS	Series 1				6.67	3.10	2.54	2.45	2.33
		Series 2	1.70	4.47	1.86	6.51	2.80	2.01	1.65	1.41
		Series 3	1.70	4.47	1.86	5.70	2.24	1.77	1.74	1.65
		Series 4				5.51	1.86	1.20	0.94	0.64
24	Lumber & Wood	Series 1				3.34	0.48	0.17	0.31	0.42
		Series 2	-2.78	0.12	0.00	2.98	0.22	0.02	0.12	0.30
		Series 3	-2.78	0.12	0.00	2.60	-0.03	-0.21	-0.01	0.15
		Series 4				2.60	-0.10	-0.34	-0.15	0.12
25	Furniture & Fixtures	Series 1				3.32	0.68	0.40	0.24	0.26
		Series 2	-2.71	3.58	-4.90	3.04	0.23	-0.08	-0.16	0.12
		Series 3	-2.71	3.58	-4.90	2.23	-0.09	-0.18	-0.17	-0.04
		Series 4				2.14	-0.29	-0.53	-0.72	-0.75

TABLE A-4

EMPLOYMENT GROWTH RATES FOR PORTLAND SMSA ECONOMY
ACTUAL AND PROJECTED COMPOUND ANNUAL RATES
BY STANDARD INDUSTRIAL CLASSIFICATIONS
PAGE 2

SIC #	ACTIVITY		1950-1960	1960-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000
33	Primary Metals	Series 1				4.21	1.23	0.69	0.74	0.59
		Series 2	-3.97	2.26	0.61	3.94	1.11	0.57	0.63	0.50
		Series 3	-3.97	2.26	0.61	3.78	0.88	0.44	0.51	0.41
		Series 4				3.73	0.77	0.27	0.36	0.26
34	Fabricated Metals	Series 1				6.61	2.21	1.52	1.33	1.10
		Series 2	-1.60	4.21	2.52	6.53	1.81	0.99	0.84	0.81
		Series 3	-1.60	4.21	2.52	5.47	1.31	0.79	0.70	0.59
		Series 4				5.46	1.24	0.72	0.68	0.66
35	Machinery	Series 1				6.41	2.53	1.83	1.64	1.42
		Series 2	3.00	6.27	2.18	6.28	2.20	1.32	1.14	1.10
		Series 3	3.00	6.27	2.18	5.64	1.89	1.27	1.16	1.01
		Series 4				5.55	1.70	1.03	0.93	0.83
36	Electrical Equipment	Series 1				9.49	5.42	4.36	3.95	3.52
		Series 2	26.11	8.81	2.66	9.46	5.22	3.74	2.85	2.13
		Series 3	26.11	8.81	2.66	8.64	4.53	3.54	3.22	2.84
		Series 4				8.22	3.82	2.55	1.82	0.96
37	Transportation Equipment	Series 1				8.95	4.62	4.18	4.00	3.85
		Series 2	7.92	8.69	2.48	8.80	4.17	3.39	2.59	2.11
		Series 3	7.92	8.69	2.48	7.59	3.38	3.01	2.88	2.74
		Series 4				7.14	2.58	1.90	1.30	0.68
	Other Durables	Series 1				6.37	2.86	1.89	1.62	1.52
		Series 2	0.00	3.94	3.19	6.21	2.51	1.27	0.92	1.00
		Series 3	0.00	3.94	3.19	4.87	1.63	0.87	0.74	0.75
		Series 4				4.79	1.47	0.65	0.46	0.57
	NON-DURABLE GOODS	Series 1				2.44	0.29	0.29	0.28	0.39
		Series 2	0.68	0.64	-0.33	2.26	0.18	0.12	0.17	0.51
		Series 3	0.68	0.64	-0.33	2.44	0.29	0.23	0.28	0.39
		Series 4				2.26	0.18	0.12	0.17	0.29

TABLE A-4

EMPLOYMENT GROWTH RATES FOR PORTLAND SMSA ECONOMY
ACTUAL AND PROJECTED COMPOUND ANNUAL RATES
BY STANDARD INDUSTRIAL CLASSIFICATIONS
PAGE 3

SIC #	ACTIVITY		1950-1960	1960-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000
20	Food & Kindred	Series 1				-0.55	-0.91	-0.64	-0.16	-0.12
		Series 2	-0.20	0.20	-2.23	-0.71	-0.87	-0.73	-0.50	0.27
		Series 3	-0.20	0.20	-2.23	-0.55	-0.91	-0.70	-0.17	-0.10
		Series 4				-0.71	-0.87	-0.73	-0.50	0.23
22	Textiles	Series 1				2.90	0.29	0.48	0.06	0.11
		Series 2	-6.33	-0.39	-1.65	1.80	-0.26	-0.21	-0.05	0.41
		Series 3	-6.33	-0.39	-1.65	2.90	0.29	0.42	0.07	0.11
		Series 4				1.80	2.76	-3.15	-0.05	0.41
23	Apparel	Series 1				4.36	0.28	0.28	0.26	0.22
		Series 2	0.82	0.63	0.00	4.36	0.25	0.24	0.24	0.08
		Series 3	0.82	0.63	0.00	4.36	0.28	0.24	0.25	0.24
		Series 4				4.36	0.25	0.24	0.24	0.24
26	Paper & Allied	Series 1				2.92	0.07	0.04	0.02	0.08
		Series 2	1.62	0.27	-0.26	2.91	-0.06	0.02	0.00	0.06
		Series 3	1.62	0.27	-0.26	2.92	0.07	-0.02	0.04	0.09
		Series 4				2.91	-0.06	0.02	0.00	0.04
27	Printing & Publishing	Series 1				3.40	0.70	0.51	0.32	0.79
		Series 2	-0.84	1.64	2.38	3.13	0.78	-0.38	0.53	0.98
		Series 3	-0.84	1.64	2.38	3.40	0.70	0.45	0.29	0.72
		Series 4				3.13	0.78	-0.38	0.53	0.45
	Other Non-Durables	Series 1				5.17	2.41	1.81	1.38	1.35
		Series 2	2.92	2.92	2.38	5.11	1.99	2.17	1.08	1.36
		Series 3	2.92	2.92	2.38	5.17	2.41	1.75	1.40	1.36
		Series 4				5.11	1.99	2.17	1.08	0.54
	CONSTRUCTION	Series 1				4.94	2.55	0.85	1.03	1.12
		Series 2	0.70	1.57	0.34	4.94	2.46	0.85	0.97	0.99
		Series 3	0.70	1.57	0.34	4.47	2.10	0.49	0.63	0.84
		Series 4				4.47	2.02	0.41	0.56	0.70

TABLE A-4

EMPLOYMENT GROWTH RATES FOR PORTLAND SMSA ECONOMY
ACTUAL AND PROJECTED COMPOUND ANNUAL RATES
BY STANDARD INDUSTRIAL CLASSIFICATIONS
PAGE 4

SIC #	ACTIVITY		1950-1960	1960-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000
	TRANSPORTATION-COMMUNICATIONS-PUBLIC UTILITIES	Series 1				1.92	0.60	0.47	0.51	0.72
		Series 2	-1.00	0.94	-0.13	1.86	0.66	0.47	0.51	0.72
		Series 3	-1.00	0.94	-0.13	1.68	0.37	0.30	0.35	0.63
		Series 4				1.61	0.31	0.12	0.24	0.35
	FIRE-INSURANCE-REAL ESTATE	Series 1				5.31	3.36	2.49	2.15	2.03
		Series 2	2.71	5.18	4.31	5.20	3.20	2.20	1.73	1.53
		Series 3	2.71	5.18	4.31	4.44	2.60	1.83	1.52	1.49
		Series 4				4.11	2.69	1.59	1.19	1.08
	WHOLESALE TRADE	Series 1				3.29	1.04	1.42	1.41	1.39
		Series 2	2.37	3.42	1.86	3.24	0.90	1.39	1.18	1.27
		Series 3	2.37	3.42	1.86	3.14	0.86	1.36	1.27	1.35
		Series 4				3.09	0.72	1.10	1.00	0.99
	RETAIL TRADE	Series 1				3.88	1.46	1.28	1.29	1.44
		Series 2	1.06	3.27	4.43	3.71	1.30	1.04	1.01	1.10
		Series 3	1.06	3.27	4.43	3.15	0.83	0.69	0.77	0.96
		Series 4				3.13	0.81	0.71	0.65	0.89
	SERVICES	Series 1				4.68	4.21	2.68	2.17	2.00
		Series 2	2.41	6.00	4.61	4.62	4.06	2.52	1.85	1.54
		Series 3	2.41	6.00	4.61	3.90	3.52	2.06	1.62	1.52
		Series 4				3.86	3.43	1.92	1.43	1.29
	GOVERNMENT	Series 1				3.40	3.15	1.95	1.56	1.54
		Series 2	3.49	4.57	3.36	3.21	3.01	1.74	1.32	1.24
		Series 3	3.49	4.57	3.36	3.21	3.01	1.78	1.37	1.32
		Series 4				3.09	2.91	1.61	1.15	1.05
	Federal Government	Series 1				1.43	0.84	0.39	0.40	0.58
		Series 2	0.25	1.39	1.52	1.24	0.69	0.28	0.36	0.38
		Series 3	0.25	1.39	1.52	1.24	0.69	0.24	0.29	0.36
		Series 4				1.11	0.57	0.16	0.13	0.09

TABLE A-4

EMPLOYMENT GROWTH RATES FOR PORTLAND SMSA ECONOMY
ACTUAL AND PROJECTED COMPOUND ANNUAL RATES
BY STANDARD INDUSTRIAL CLASSIFICATIONS
PAGE 5

SIC #	ACTIVITY		1950-1960	1960-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000
		Series 1				3.89	3.65	2.25	1.76	1.70
	State & Local	Series 2	5.38	5.74	3.86	3.70	3.52	2.02	1.49	1.39
	Government	Series 3	5.38	5.74	3.86	3.70	3.52	2.06	1.57	1.48
		Series 4				3.58	3.41	1.88	1.33	1.22

TABLE A-5

EMPLOYMENT GROWTH RATES FOR UNITED STATES ECONOMY
ACTUAL AND PROJECTED COMPOUND ANNUAL RATES
BY STANDARD INDUSTRIAL CLASSIFICATION

SIC #	ACTIVITY	1950-1960	1960-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	1995-2000
	Total Employment	1.11	1.80	1.52	2.70	1.48	0.95	0.85	0.93
	Self-Employed	-0.71	-3.54	0.80	-2.07	-0.15	-0.03	0.05	-0.02
	Agriculture	-2.68	-4.45	-0.48	-3.81	-3.46	-1.70	-0.63	0.25
	Wage & Salary	1.84	2.67	1.75	3.20	1.69	1.04	0.91	0.97
	Durable Goods	1.57	1.70	-0.94	4.04	0.76	0.42	0.48	0.68
24	Lumber & Wood	-2.51	-0.90	-0.56	2.59	-0.38	-0.65	-0.27	0.13
25	Furniture & Fixtures	0.51	1.84	-0.40	3.81	0.99	0.66	0.47	0.56
33	Primary Metals	-0.13	0.67	-2.16	3.32	0.36	-0.07	0.21	0.27
34	Fabricated Metals	1.46	1.97	-0.65	5.35	1.05	0.58	0.61	0.69
35	Machinery	2.03	2.97	2.27	4.64	1.05	0.61	0.69	0.85
36	Electrical Equipment	4.00	2.71	-1.69	4.56	1.42	0.98	0.85	0.93
37	Transportation Equipment	2.18	1.38	-1.73	3.17	-0.27	0.10	0.27	0.68
	Other Durables	2.48	1.21	-1.05	4.04	0.93	0.22	0.22	0.59
	Non-Durable Goods	0.26	1.06	-1.22	2.44	0.33	0.18	0.29	0.54
20	Food & Kindred	0.00	-0.04	-1.22	-0.44	-0.82	-0.56	-0.09	0.17
22	Textiles	-3.02	0.54	-1.57	1.92	0.09	-0.04	-0.04	0.46
23	Apparel	0.26	1.02	-1.97	3.97	0.27	0.12	0.12	0.48
26	Paper & Allied	2.17	1.61	-1.85	3.59	0.89	0.73	0.57	0.65
27	Printing & Publishing	1.99	1.91	-0.41	2.86	0.50	0.22	0.49	0.76
	Other Non-Durables	1.19	1.71	-0.83	3.27	0.94	0.36	0.51	0.68
	Construction	2.15	2.06	-0.45	4.68	2.27	0.67	0.84	0.92
	Transp-Comm.-Pub. Utilities	-0.07	1.18	-0.03	2.03	0.73	0.54	0.64	0.84
	Fin.-Ins.-Real Estate	3.35	3.28	2.75	3.69	2.00	1.25	1.03	1.07
	Wholesale Trade	1.78	2.42	1.82	2.52	0.31	0.91	0.84	0.85
	Retail Trade	2.02	2.96	2.61	3.02	0.72	0.58	0.68	0.90
	Services	3.27	4.58	3.79	3.50	3.15	1.79	1.33	1.21
	Government	3.32	4.16	3.30	3.01	2.50	1.96	1.25	1.17
	Federal Government	1.65	1.87	0.12	1.26	0.67	0.22	0.26	0.33
	State & Local Government	4.03	4.92	4.11	3.39	3.23	1.90	1.39	1.30

TABLE A-6

CENSUS BUREAU SERIES E BIRTH RATES

	1975	1980	1985	1990	1995	2000
15-19	.0528	.0544	.0544	.0544	.0544	.0544
20-24	.1352	.1481	.1531	.1531	.1531	.1531
25-29	.1133	.1184	.1236	.1253	.1253	.1253
30-34	.0567	.0581	.0594	.0607	.0610	.0610
35-39	.0242	.0236	.0230	.0224	.0218	.0216
40-44	.0064	.0060	.0057	.0055	.0051	.0049
T.F.R.	1.9426	2.0426	2.0958	2.1066	2.1032	2.1005

SOURCE: U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 493, Washington, D.C., 1972.

Table A-7

US LABOR FORCE PARTICIPATION RATES
CIVILIAN, BY SEX & AGE

MALE	1970	1971	1972	1973	1974	1975	1976
16-17	47.0	46.9	47.9	50.0	50.6	48.6	48.5
18-19	66.7	66.6	69.6	70.8	72.1	70.7	71.0
20-24	83.3	83.0	83.9	85.3	86.0	84.6	85.2
25-34	96.4	96.0	95.7	95.7	95.9	95.3	95.3
35-44	96.9	96.5	96.4	96.2	96.0	95.7	95.4
45-54	94.2	93.9	93.2	93.0	92.2	92.1	91.6
55-64	83.0	82.2	80.5	78.3	77.4	75.8	74.5
65+	26.8	25.5	24.4	22.8	22.4	21.7	20.3
FEMALE							
16-17	34.9	34.3	36.6	39.1	40.4	40.2	40.7
18-19	53.6	53.1	55.5	56.9	58.1	58.1	59.0
20-24	57.7	57.7	59.0	61.1	63.0	64.1	65.0
25-34	45.0	45.5	47.6	50.1	52.4	54.6	57.1
35-44	51.1	51.6	52.0	53.3	54.7	55.8	57.8
45-54	54.4	54.3	53.9	53.7	54.6	54.6	55.0
55-64	43.0	42.9	42.1	41.1	40.7	41.0	41.1
65+	9.7	9.5	9.3	8.9	8.2	8.3	8.2

Source: Bureau of Labor Statistics, Handbook of Labor Statistics 1977, Bulletin 1976.

TABLE A-8

PROJECTED LABOR FORCE PARTICIPATION RATES

PORTLAND, OREGON-WASHINGTON SMSA

MALE	1975	1980	1985	1990	1995	2000
16-19	66.0%	67.5%	66.7%	66.5%	65.9%	65.4%
20-24	89.4	88.8	87.0	85.7	84.6	83.6
25-29	94.4	94.5	94.1	93.9	93.7	93.5
30-34	97.4	97.4	97.0	96.8	96.6	96.5
35-39	97.3	96.9	96.5	96.0	95.6	95.2
40-44	96.5	96.2	95.7	95.3	94.9	94.5
45-49	93.6	92.7	92.0	91.4	90.9	90.6
50-54	92.2	91.3	90.5	90.0	89.5	89.2
55-59	86.3	85.5	84.1	83.0	81.0	80.8
60-64	67.9	65.1	61.6	59.1	56.9	54.9
65-69	31.8	31.1	29.7	28.9	28.5	28.3
70+	14.7	13.0	11.5	10.5	9.6	8.9

FEMALE						
16-19	56.7	59.1	60.4	61.4	61.6	61.8
20-24	71.8	75.5	78.9	80.9	82.5	83.2
25-29	57.9	60.7	64.4	66.6	68.1	69.5
30-34	56.0	58.8	62.5	64.6	66.2	67.5
35-39	55.5	57.8	60.5	62.2	63.5	64.6
40-44	60.0	62.3	64.6	66.8	68.0	69.1
45-49	57.4	59.8	61.7	62.7	63.5	64.2
50-54	55.7	58.1	59.9	61.0	61.7	62.4
55-59	50.7	51.8	52.8	53.1	53.4	53.5
60-64	36.6	36.7	36.4	36.1	35.8	35.2
65-69	14.8	14.9	14.6	14.5	14.3	14.2
70+	5.1	4.9	4.7	4.5	4.4	4.3

Table A-9

AVERAGE PERSONS PER OCCUPIED UNIT
AND HOUSEHOLD FORECAST ASSUMING LINEAR
PROJECTIONS OF PAST TRENDS

PORTLAND, OREGON - WASHINGTON SMSA

	PERSONS PER OCCUPIED UNIT	NUMBER OF HOUSEHOLDS, SMSA			
		Series 1	Series 2	Series 3	Series 4
1975	2.7054	395,500	395,500	395,500	395,500
1980	2.6752	448,000	446,600	435,200	433,700
1985	2.6085	511,200	506,300	484,600	479,300
1990	2.5417	572,500	561,200	530,800	520,700
1995	2.4750	628,400	605,300	570,500	549,600
2000	2.4082	686,800	646,700	610,800	577,500

TABLE A-10

HOUSEHOLD COMPOSITION PROJECTIONS
AS A PERCENTAGE OF TOTAL HOUSEHOLDS
PORTLAND, OREGON - WASHINGTON SMSA

SIZE	1975	1980	1985	1990	1995	2000
1	22.82%	24.49%	26.02%	27.42%	28.71%	29.90%
2	33.65	35.64	37.38	38.88	40.19	41.32
3-4	30.32	29.80	29.00	28.01	26.87	25.65
5+	13.21	10.07	7.60	5.69	4.23	3.13
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

TABLE A-11

PROJECTED POPULATION, PORTLAND SMSA, 1975

SERIES 1

AGE	TOTAL	MALE	FEMALE
	1091748.	526330.	565418.
0-4	84685.	43439.	41246.
5-9	87143.	44467.	42676.
10-14	97390.	49379.	48011.
15-19	102759.	52242.	50517.
20-24	99791.	48735.	51056.
25-29	87293.	38946.	48347.
30-34	76750.	38241.	38509.
35-39	58686.	29450.	29236.
40-44	53820.	26433.	27386.
45-49	58130.	27951.	30179.
50-54	61323.	29305.	32018.
55-59	56108.	26567.	29541.
60-64	50245.	23535.	26710.
65-69	40066.	18024.	22043.
70-74	30126.	12537.	17589.
75-79	22811.	8677.	14133.
80-84	15275.	5296.	9979.
85+	9347.	3106.	6241.

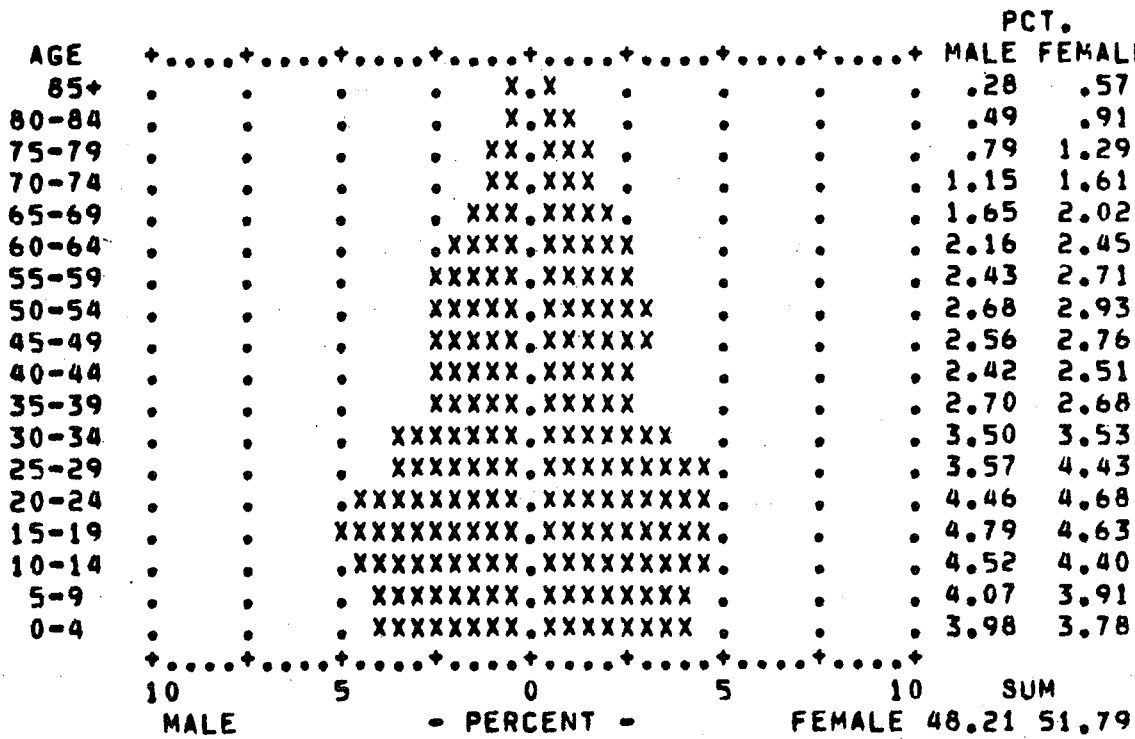


TABLE A-12

PROJECTED POPULATION, PORTLAND SMSA, 1980

SERIES 1

AGE	TOTAL	MALE	FEMALE
	1222847.	591033.	631814.
0-4	106416.	54556.	51860.
5-9	94596.	48248.	46348.
10-14	94155.	47920.	46235.
15-19	103770.	52374.	51396.
20-24	113692.	57700.	55991.
25-29	113170.	55436.	57734.
30-34	95318.	43436.	51882.
35-39	80613.	40360.	40253.
40-44	62340.	31160.	31180.
45-49	55858.	27190.	28668.
50-54	59069.	28209.	30860.
55-59	59919.	27911.	32008.
60-64	53325.	24359.	28966.
65-69	45576.	20309.	25267.
70-74	34607.	14460.	20147.
75-79	24107.	8979.	15128.
80-84	16235.	5378.	10856.
85+	10084.	3049.	7034.

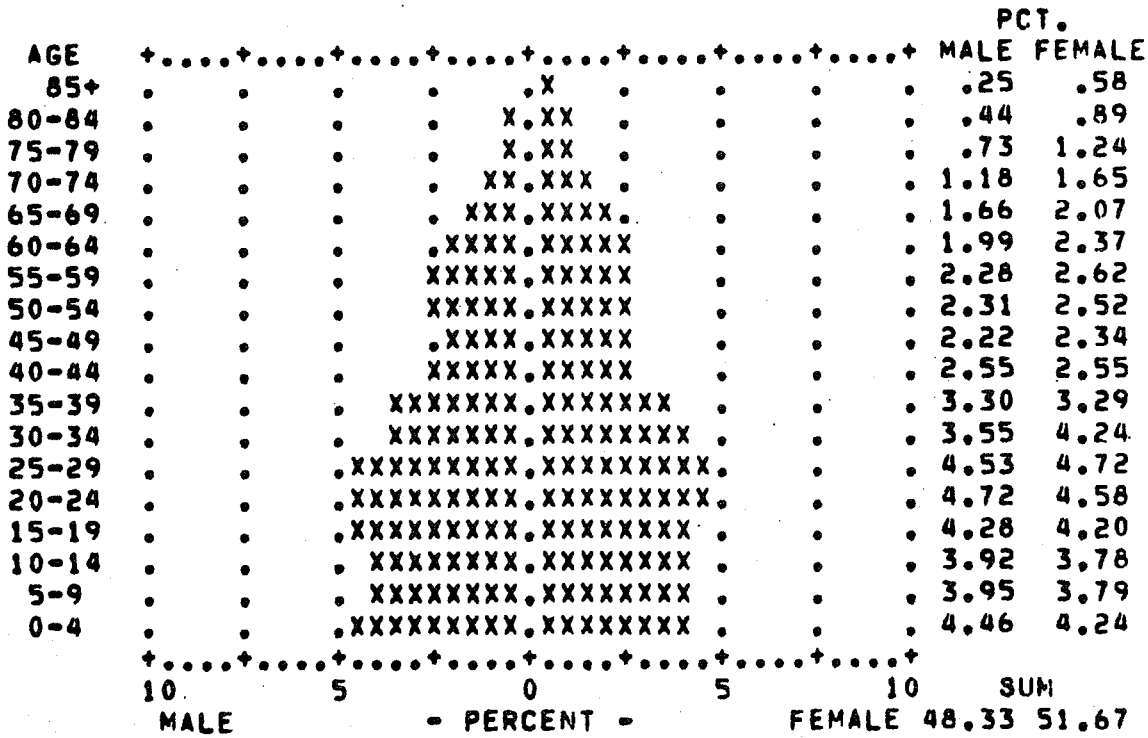


TABLE A-13

PROJECTED POPULATION, PORTLAND SMSA, 1985

SERIES 1

AGE	TOTAL	MALE	FEMALE
	1360693.	659622.	701071.
0-4	120178.	61633.	58545.
5-9	115913.	59157.	56756.
10-14	101345.	51569.	49776.
15-19	100309.	50808.	49501.
20-24	114293.	57622.	56671.
25-29	126475.	64063.	62413.
30-34	120757.	59646.	61111.
35-39	98910.	45423.	53486.
40-44	83845.	41816.	42030.
45-49	64146.	31741.	32405.
50-54	56764.	27431.	29333.
55-59	57718.	26866.	30851.
60-64	56865.	25566.	31299.
65-69	48361.	21009.	27352.
70-74	39306.	16275.	23030.
75-79	27618.	10340.	17277.
80-84	17161.	5561.	11600.
85+	10730.	3095.	7635.

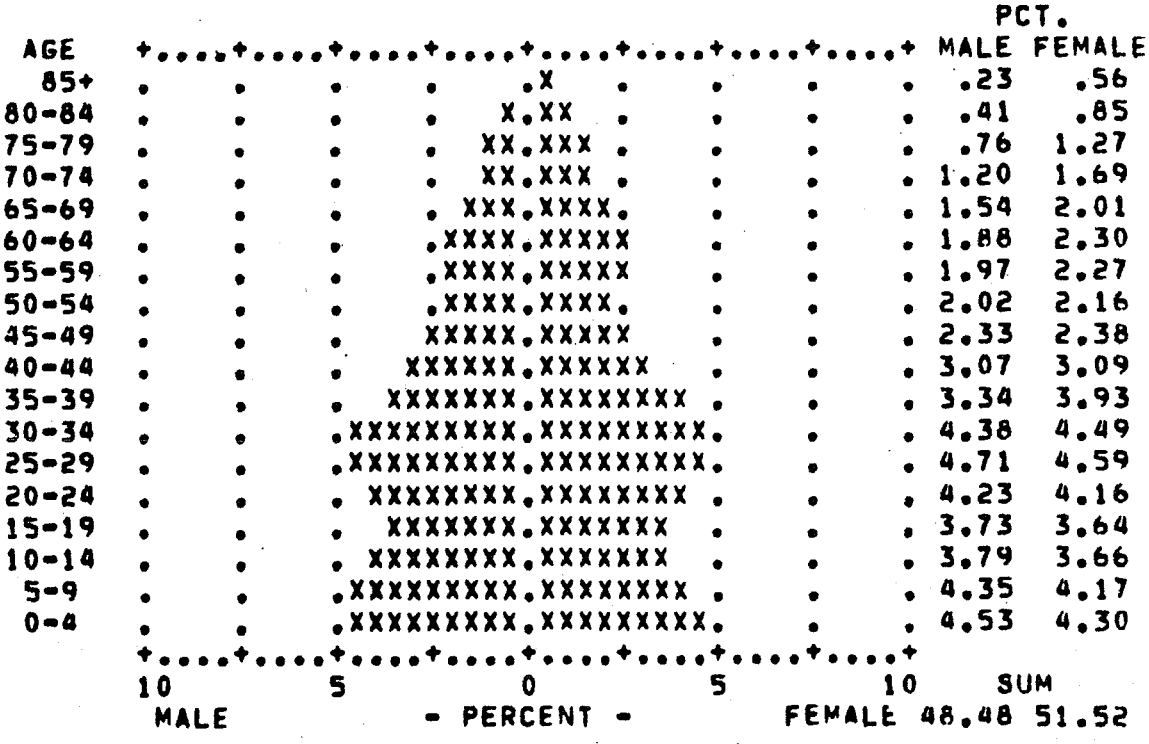


TABLE A-14

PROJECTED POPULATION, PORTLAND SMSA, 1990

SERIES 1

AGE	TOTAL	MALE	FEMALE
	1484790.	721537.	763253.
0-4	124114.	63678.	60436.
5-9	127886.	65359.	62527.
10-14	121397.	61847.	59550.
15-19	106315.	53882.	52434.
20-24	108852.	55042.	53810.
25-29	124655.	62746.	61909.
30-34	132529.	67391.	65137.
35-39	123396.	61067.	62329.
40-44	101197.	46418.	54778.
45-49	84865.	41866.	42999.
50-54	64345.	31565.	32781.
55-59	55293.	26074.	29219.
60-64	54638.	24570.	30069.
65-69	51471.	22020.	29451.
70-74	41656.	16814.	24842.
75-79	31278.	11614.	19663.
80-84	19580.	6390.	13190.
85+	11320.	3194.	8127.

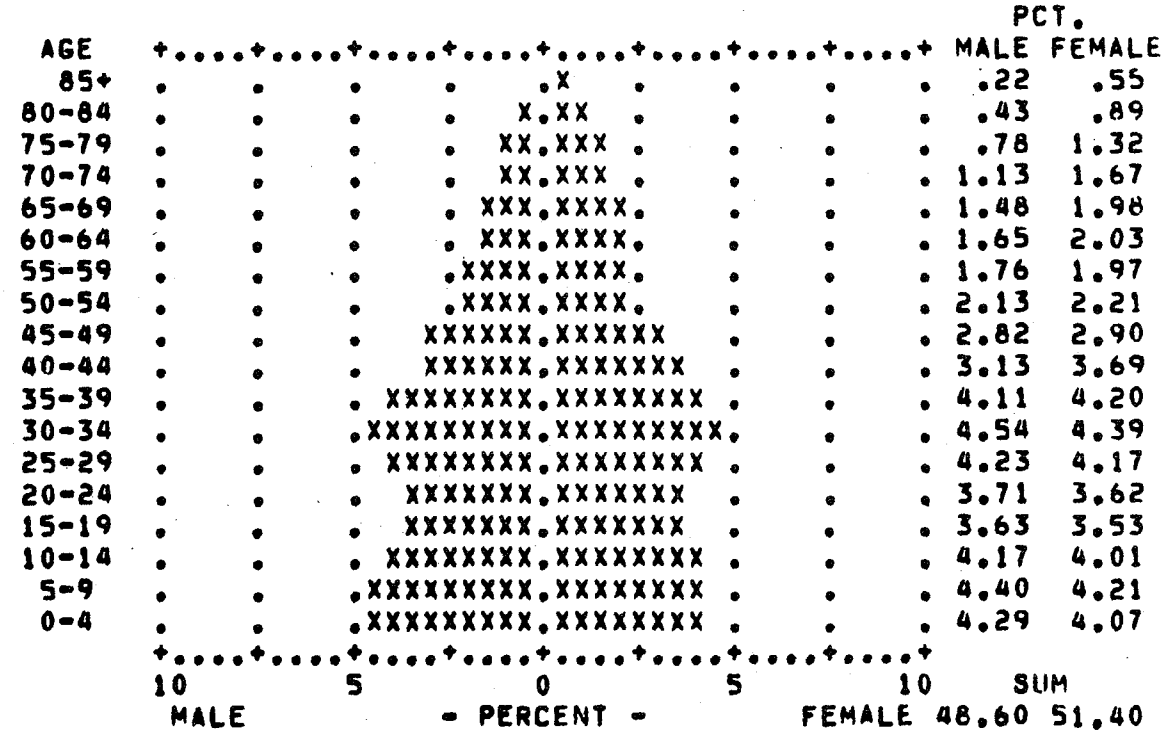


TABLE A-15

PROJECTED POPULATION, PORTLAND SMSA, 1995

SERIES 1

AGE	TOTAL	MALE	FEMALE
	1586941.	772556.	814385.
0-4	123802.	63547.	60255.
5-9	129546.	66295.	63251.
10-14	131756.	67246.	64509.
15-19	124798.	63388.	61410.
20-24	112233.	56756.	55477.
25-29	116117.	58588.	57529.
30-34	128833.	65021.	63812.
35-39	134094.	68194.	65900.
40-44	124381.	61319.	63062.
45-49	101444.	46024.	55420.
50-54	83870.	40979.	42891.
55-59	62268.	29884.	32384.
60-64	52135.	23789.	28346.
65-69	49349.	21134.	28215.
70-74	44243.	17594.	26649.
75-79	33108.	11979.	21130.
80-84	22111.	7161.	14949.
85+	12855.	3659.	9196.

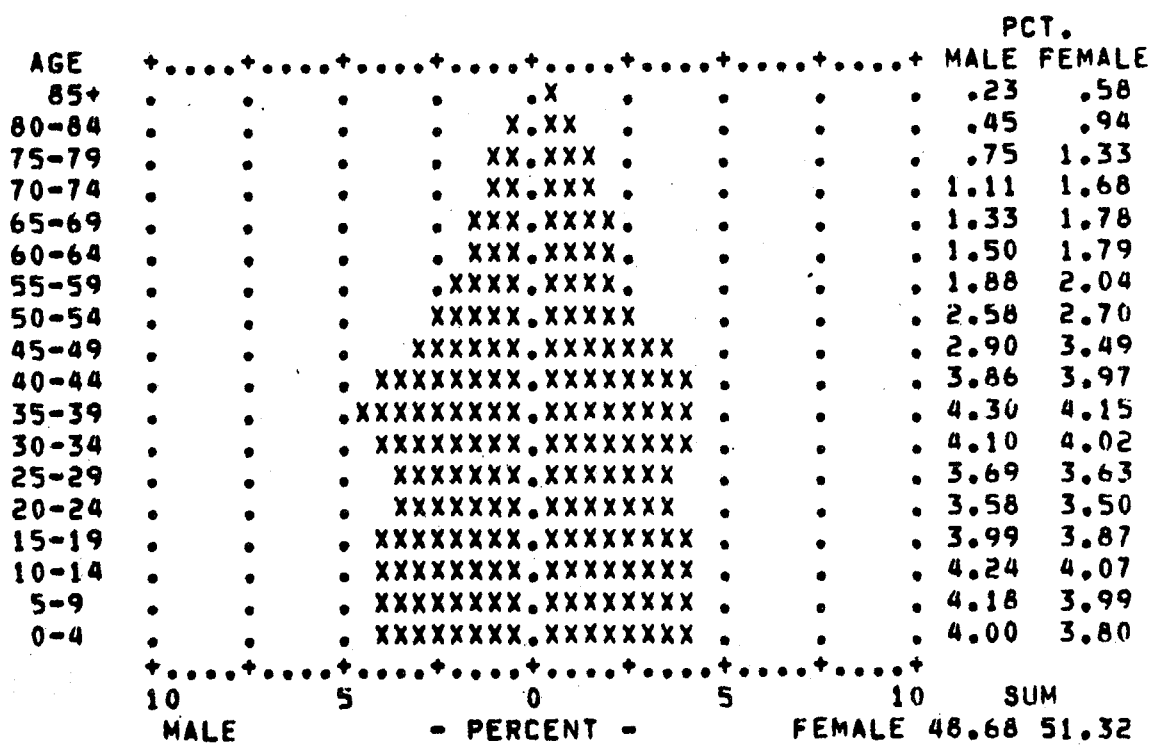


TABLE A-16

PROJECTED POPULATION, PORTLAND SMSA, 2000

SERIES 1

AGE	TOTAL	MALE	FEMALE
	1687799.	823076.	864722.
0-4	128081.	65746.	62335.
5-9	129194.	66144.	63051.
10-14	133385.	68166.	65219.
15-19	135093.	68748.	66345.
20-24	130553.	66148.	64405.
25-29	119422.	60257.	59166.
30-34	120304.	60873.	59431.
35-39	130408.	65835.	64573.
40-44	134917.	68323.	66594.
45-49	124207.	60526.	63680.
50-54	100035.	44967.	55068.
55-59	80955.	38738.	42218.
60-64	58610.	27240.	31370.
65-69	47075.	20464.	26611.
70-74	42426.	16889.	25537.
75-79	35186.	12532.	22654.
80-84	23440.	7385.	16055.
85+	14508.	4097.	10411.

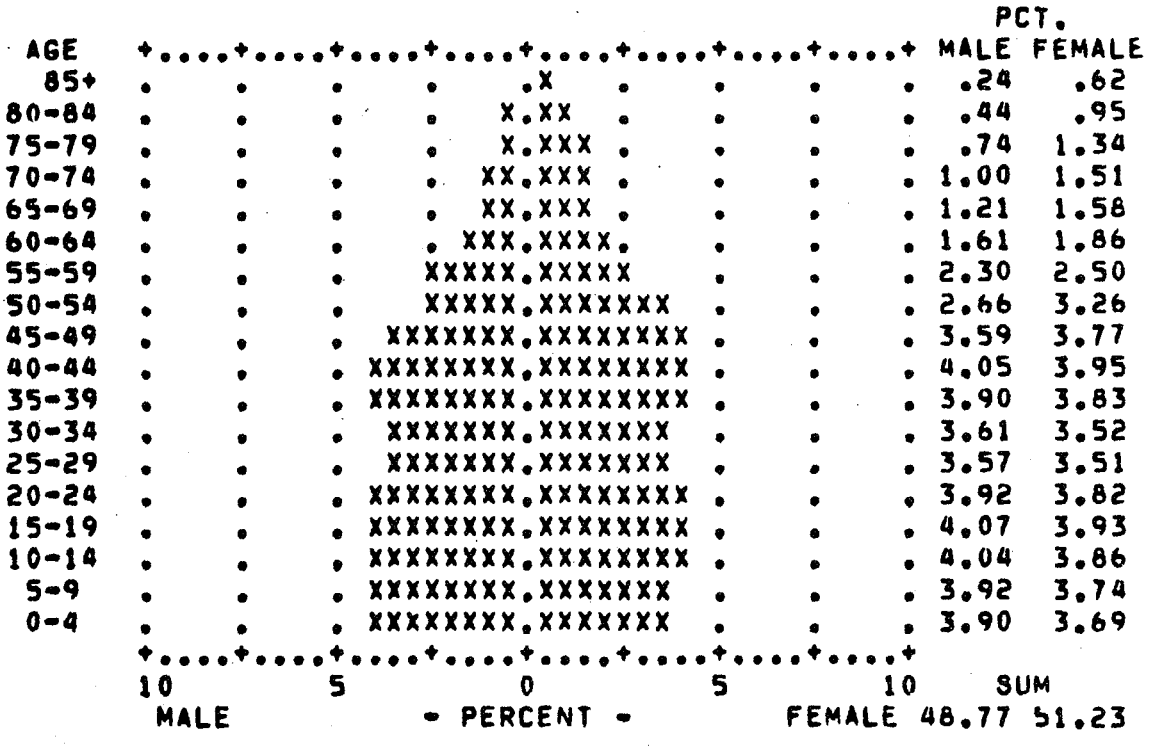
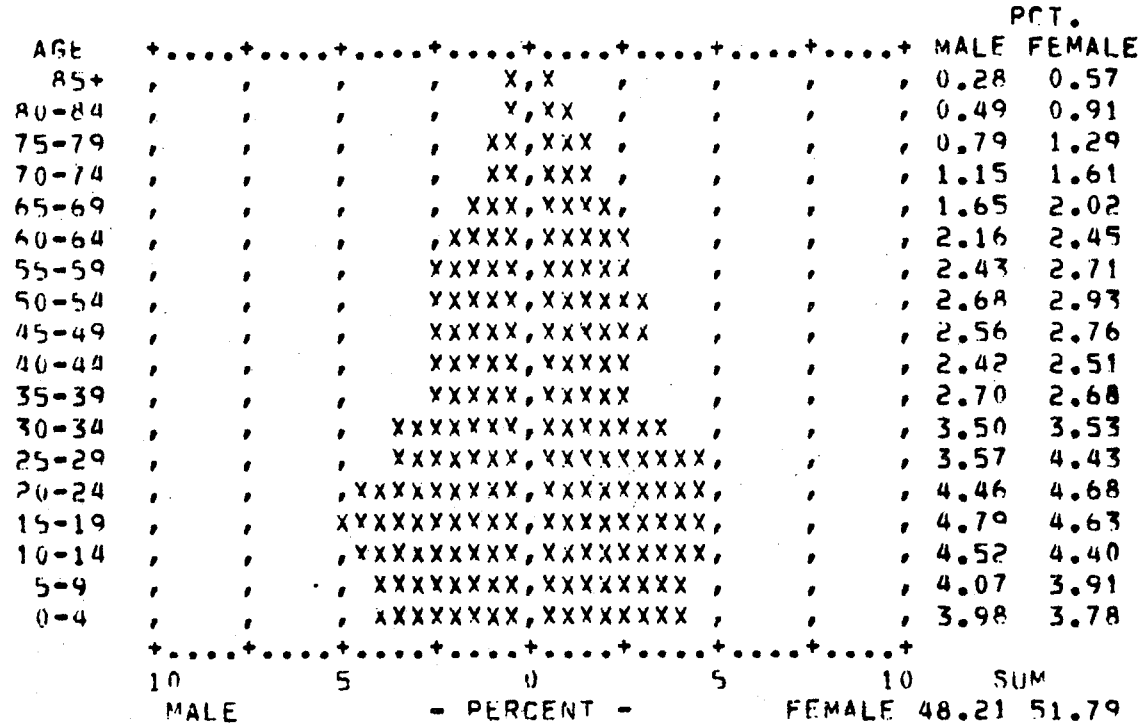


TABLE A-17

PROJECTED POPULATION, PORTLAND SMSA, 1975

SERIES 2

AGE	TOTAL	MALE	FEMALE
	1091748.	526330.	565418.
0-4	84685.	43439.	41246.
5-9	87143.	44467.	42676.
10-14	97390.	49379.	48011.
15-19	102759.	52242.	50517.
20-24	99791.	48735.	51056.
25-29	87293.	38946.	48347.
30-34	76750.	38241.	38509.
35-39	58686.	29450.	29236.
40-44	53820.	26433.	27386.
45-49	58130.	27951.	30179.
50-54	61323.	29305.	32018.
55-59	56108.	26567.	29541.
60-64	50245.	23535.	26710.
65-69	40066.	18024.	22043.
70-74	30126.	12537.	17589.
75-79	22811.	8677.	14133.
80-84	15275.	5296.	9979.
85+	9347.	3106.	6241.



AGE	PCT. MALE	PCT. FEMALE
85+	0.28	0.57
80-84	0.49	0.91
75-79	0.79	1.29
70-74	1.15	1.61
65-69	1.65	2.02
60-64	2.16	2.45
55-59	2.43	2.71
50-54	2.68	2.93
45-49	2.56	2.76
40-44	2.42	2.51
35-39	2.70	2.68
30-34	3.50	3.53
25-29	3.57	4.43
20-24	4.46	4.68
15-19	4.79	4.63
10-14	4.52	4.40
5-9	4.07	3.91
0-4	3.98	3.78
SUM	48.21	51.79

TABLE A-18

PROJECTED POPULATION, PORTLAND SMSA, 1980

SERIES 2

AGE	TOTAL	MALE	FEMALE
	1219075.	589144.	629929.
0-4	105972.	54333.	51639.
5-9	94154.	48032.	46122.
10-14	93843.	47765.	46078.
15-19	103477.	52233.	51244.
20-24	113187.	57440.	55746.
25-29	112558.	55123.	57435.
30-34	94950.	43228.	51722.
35-39	80421.	40253.	40168.
40-44	62149.	31064.	31085.
45-49	55735.	27126.	28609.
50-54	58955.	28150.	30805.
55-59	59866.	27895.	31971.
60-64	53280.	24346.	28934.
65-69	45552.	20303.	25249.
70-74	34586.	14455.	20131.
75-79	24092.	8976.	15116.
80-84	16224.	5376.	10847.
85+	10075.	3047.	7027.

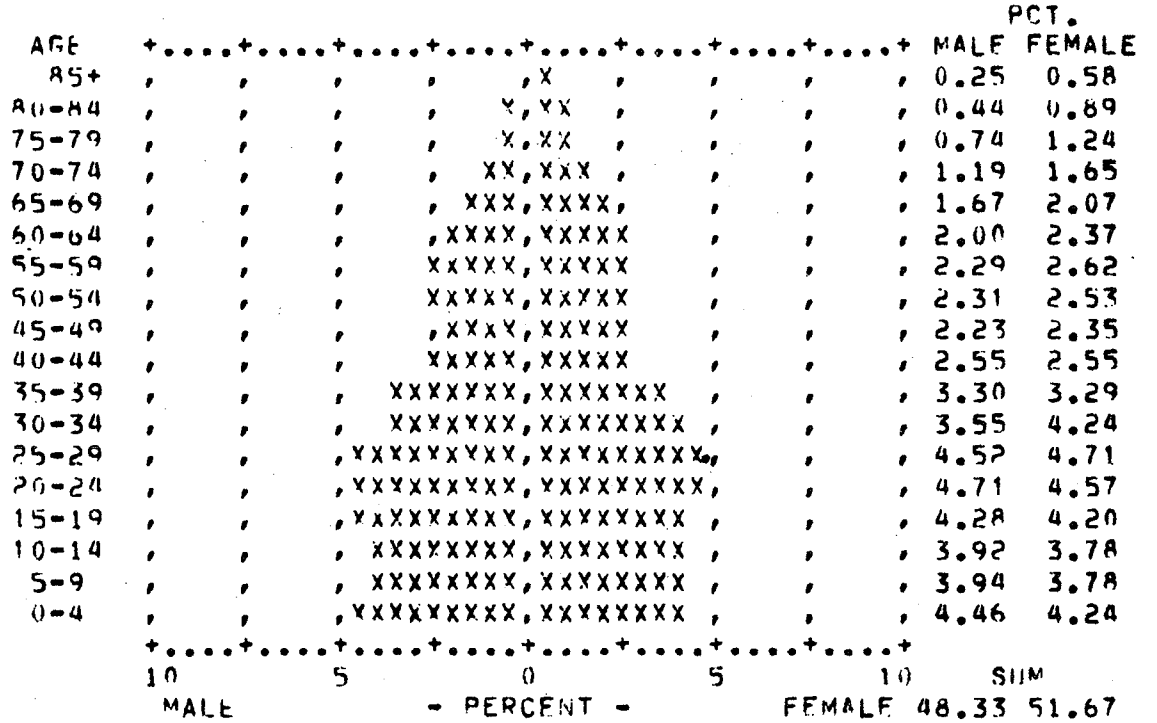
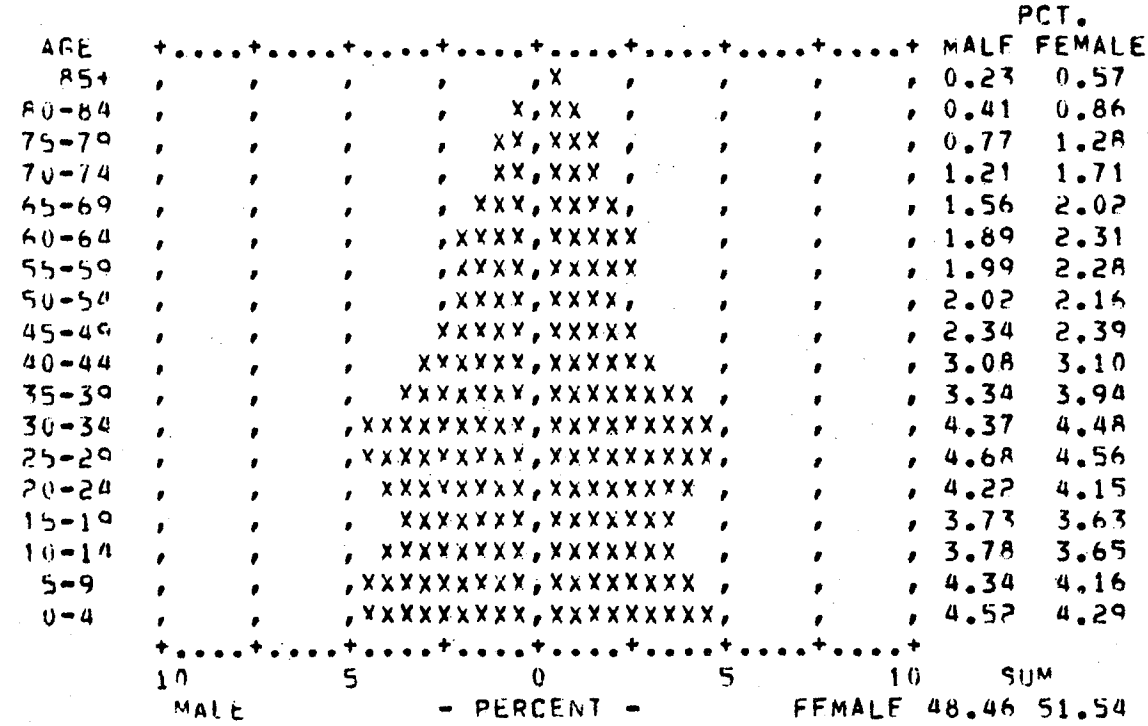


TABLE A-19

PROJECTED POPULATION, PORTLAND SMSA, 1985

SERIES 2

	TOTAL	MALE	FEMALE
AGE	1347596.	653064.	694532.
0-4	118670.	60871.	57799.
5-9	114421.	58425.	55997.
10-14	100166.	50988.	49178.
15-19	99304.	50320.	48984.
20-24	112805.	56866.	55938.
25-29	124526.	63064.	61462.
30-34	119275.	58844.	60432.
35-39	98088.	44963.	53125.
40-44	83205.	41484.	41720.
45-49	63670.	31498.	32172.
50-54	56373.	27228.	29145.
55-59	57485.	26775.	30710.
60-64	56711.	25521.	31189.
65-69	48264.	20984.	27280.
70-74	39238.	16260.	22978.
75-79	27564.	10329.	17235.
80-84	17127.	5555.	11572.
85+	10706.	3090.	7615.



AGE	PCT. MALE	PCT. FEMALE
85+	0.23	0.57
80-84	0.41	0.86
75-79	0.77	1.28
70-74	1.21	1.71
65-69	1.56	2.02
60-64	1.89	2.31
55-59	1.99	2.28
50-54	2.02	2.16
45-49	2.34	2.39
40-44	3.08	3.10
35-39	3.34	3.94
30-34	4.37	4.48
25-29	4.68	4.56
20-24	4.22	4.15
15-19	3.73	3.63
10-14	3.78	3.65
5-9	4.34	4.16
0-4	4.52	4.29
SUM	48.46	51.54

TABLE A-20

PROJECTED POPULATION, PORTLAND SMSA, 1990

SERIES 2

AGE	TOTAL	MALE	FEMALE
	1455580.	706895.	748685.
0-4	120889.	62043.	58846.
5-9	124641.	63750.	60890.
10-14	118680.	60507.	58173.
15-19	103987.	52747.	51240.
20-24	105864.	53535.	52330.
25-29	120772.	60765.	60007.
30-34	129139.	65582.	63557.
35-39	121168.	59848.	61320.
40-44	99636.	45590.	54046.
45-49	83754.	41293.	42461.
50-54	63431.	31095.	32336.
55-59	54714.	25824.	28890.
60-64	54248.	24439.	29810.
65-69	51236.	21957.	29280.
70-74	41493.	16775.	24718.
75-79	31160.	11589.	19571.
80-84	19499.	6374.	13125.
85+	11268.	3184.	8084.

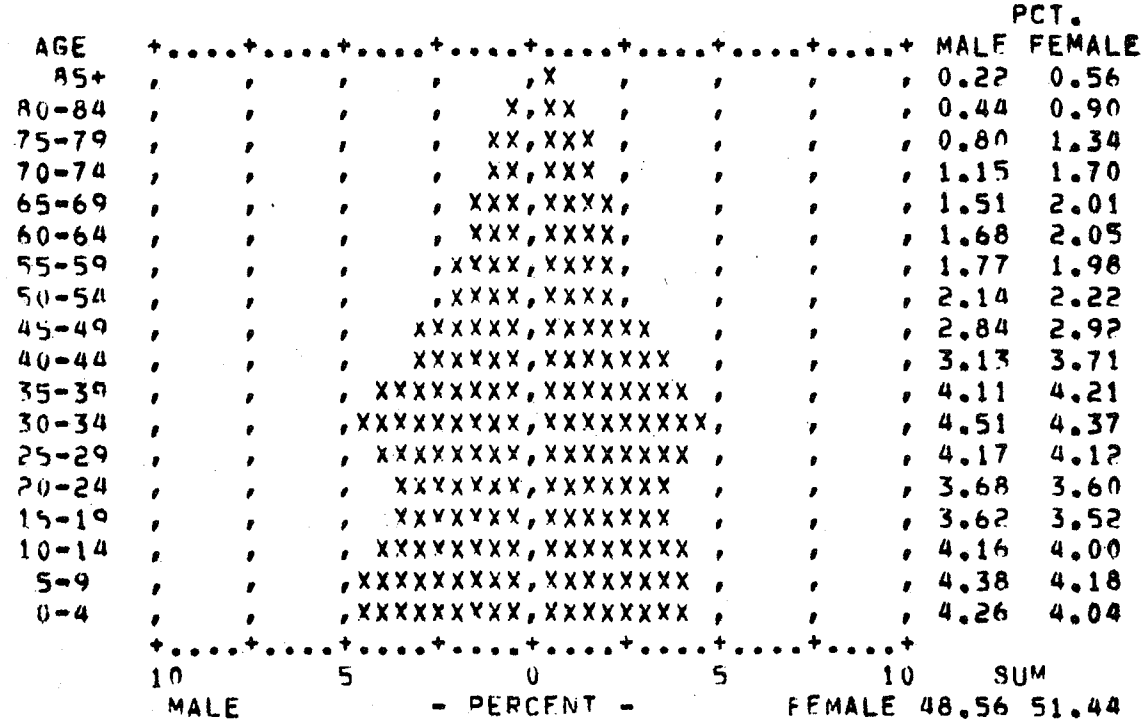


TABLE A-21

PROJECTED POPULATION, PORTLAND SMSA, 1995

SERIES 2

	TOTAL	MALE	FEMALE
AGE	1528610.	743325.	785286.
0-4	117555.	60377.	57178.
5-9	123224.	63151.	60072.
10-14	126327.	64557.	61770.
15-19	120032.	61063.	58969.
20-24	106372.	53807.	52565.
25-29	108858.	54898.	53960.
30-34	122383.	61596.	60786.
35-39	129379.	65649.	63731.
40-44	120843.	59450.	61393.
45-49	99050.	44772.	54278.
50-54	81987.	40011.	41976.
55-59	61026.	29336.	31690.
60-64	51286.	23475.	27811.
65-69	48826.	20978.	27848.
70-74	43898.	17511.	26388.
75-79	32865.	11926.	20938.
80-84	21953.	7131.	14822.
85+	12748.	3639.	9109.

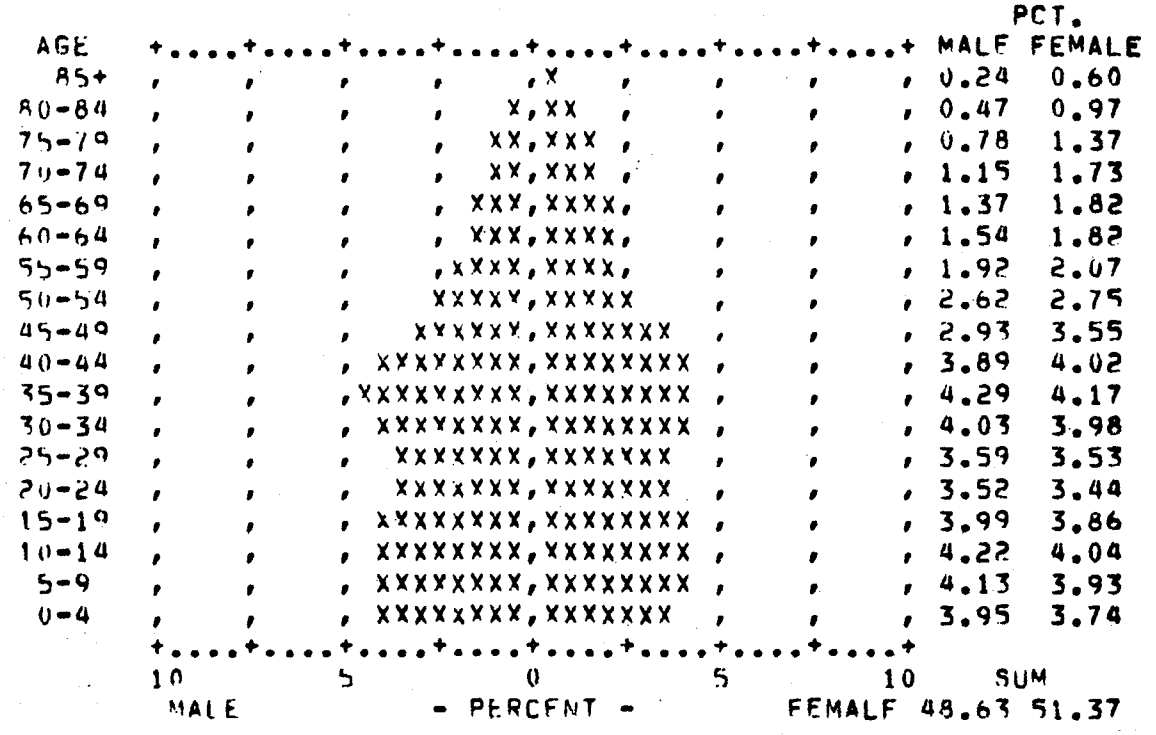


TABLE A-22

PROJECTED POPULATION, PORTLAND SMSA, 2000

SERIES 2

AGE	TOTAL	MALE	FEMALE
	1589187.	773661.	815526.
0-4	117849.	60542.	57307.
5-9	118836.	60972.	57864.
10-14	124164.	63588.	60575.
15-19	126949.	64755.	62194.
20-24	121103.	61420.	59682.
25-29	107894.	54416.	53478.
30-34	109643.	55271.	54372.
35-39	122210.	61440.	60770.
40-44	128483.	64927.	63555.
45-49	119584.	58115.	61469.
50-54	96642.	43207.	53435.
55-59	78665.	37684.	40981.
60-64	57040.	26627.	30413.
65-69	46082.	20137.	25945.
70-74	41784.	16719.	25064.
75-79	34758.	12440.	22318.
80-84	23168.	7333.	15835.
85+	14334.	4067.	10266.

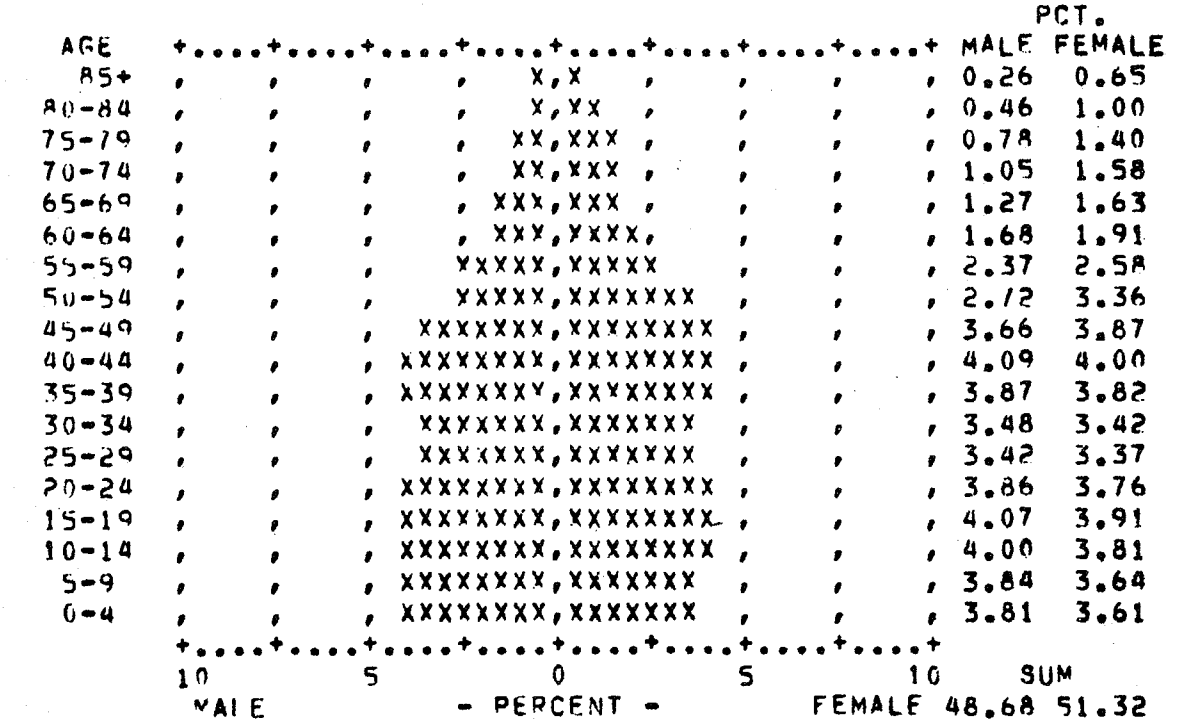


TABLE A-23

PROJECTED POPULATION, PORTLAND SMSA, 1975

SERIES 3

AGE	TOTAL	MALE	FEMALE
	1091748.	526330.	565418.
0-4	84685.	43439.	41246.
5-9	87143.	44467.	42676.
10-14	97390.	49379.	48011.
15-19	102759.	52242.	50517.
20-24	99791.	48735.	51056.
25-29	87293.	38946.	48347.
30-34	76750.	38241.	38509.
35-39	58686.	29450.	29236.
40-44	53820.	26433.	27386.
45-49	58130.	27951.	30179.
50-54	61323.	29305.	32018.
55-59	56108.	26567.	29541.
60-64	50245.	23535.	26710.
65-69	40066.	18024.	22043.
70-74	30126.	12537.	17589.
75-79	22811.	8677.	14133.
80-84	15275.	5296.	9979.
85+	9347.	3106.	6241.

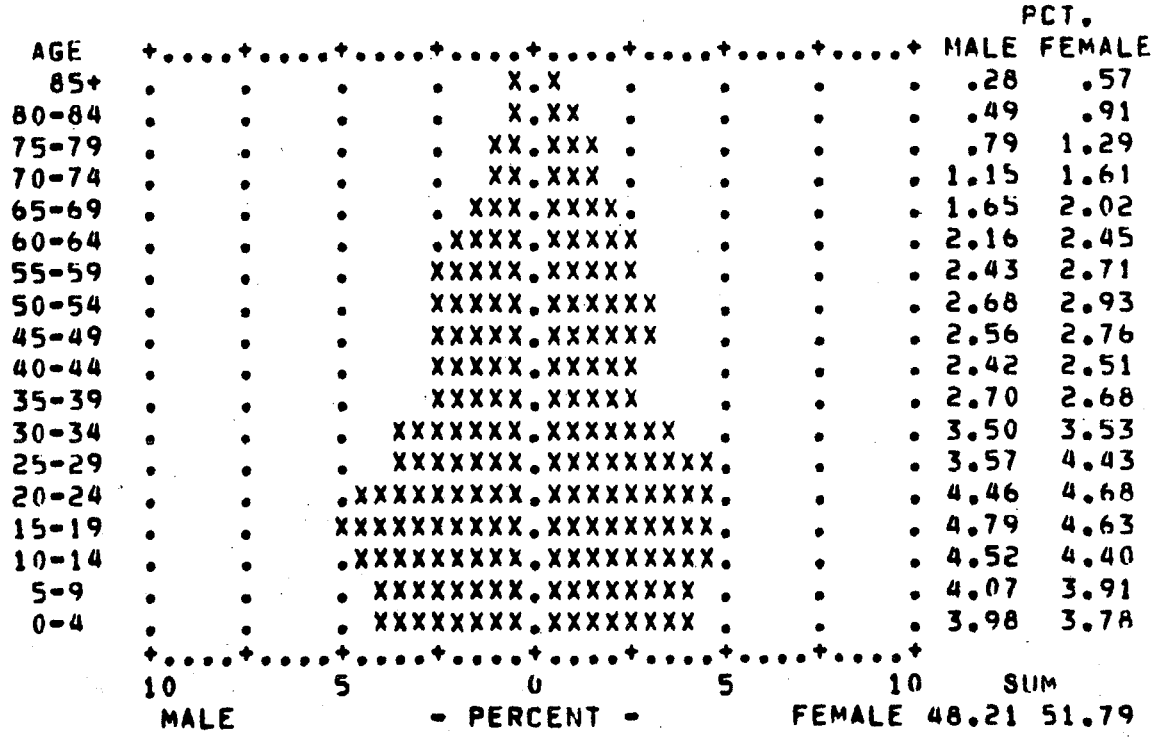


TABLE A-24

PROJECTED POPULATION, PORTLAND SMSA, 1980

SERIES 3

AGE	TOTAL	MALE	FEMALE
	1188027.	573618.	614409.
0-4	102311.	52499.	49812.
5-9	90510.	46257.	44253.
10-14	91276.	46494.	44782.
15-19	101063.	51071.	49992.
20-24	109027.	55300.	53726.
25-29	107524.	52546.	54978.
30-34	91916.	41519.	50397.
35-39	78839.	39371.	39468.
40-44	60579.	30278.	30301.
45-49	54732.	26605.	28127.
50-54	58009.	27657.	30352.
55-59	59435.	27770.	31665.
60-64	52919.	24244.	28675.
65-69	45353.	20252.	25101.
70-74	34421.	14416.	20005.
75-79	23962.	8947.	15015.
80-84	16139.	5358.	10780.
85+	10015.	3035.	6979.

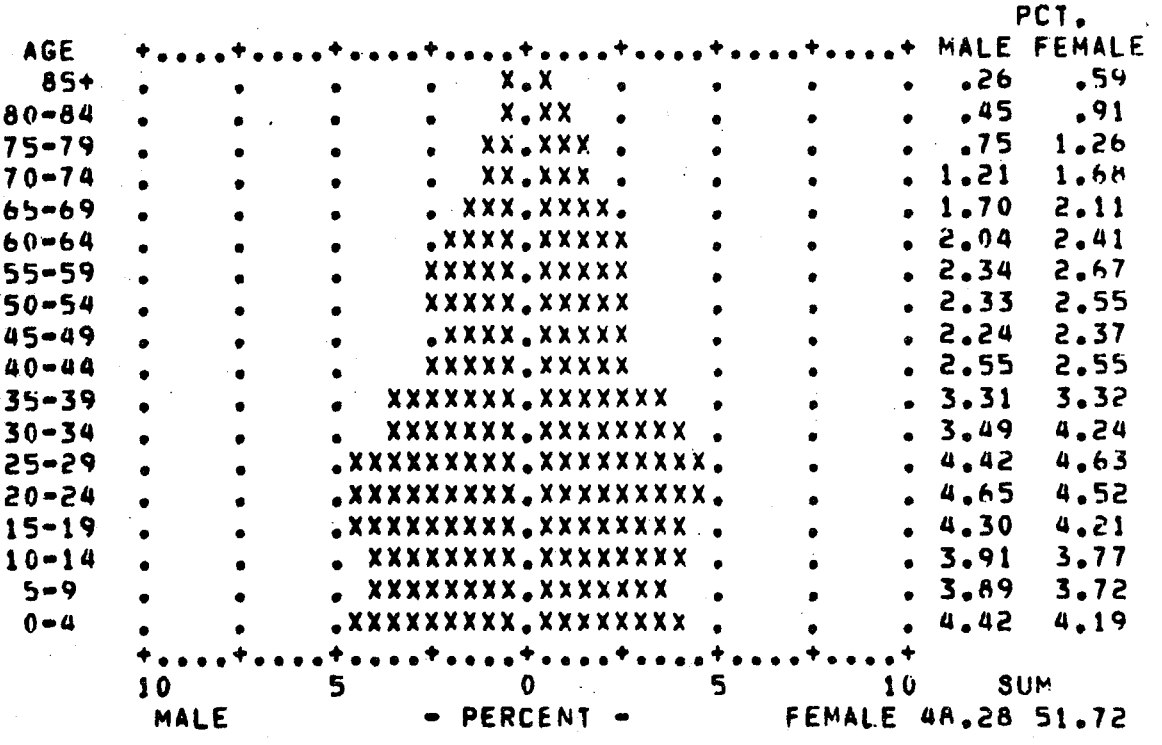


TABLE A-25

PROJECTED POPULATION, PORTLAND SMSA, 1985

SERIES 3

AGE	TOTAL	MALE	FEMALE
AGE	1289780.	624111.	665669.
0-4	112230.	57598.	54633.
5-9	108004.	55248.	52756.
10-14	94579.	48251.	46327.
15-19	94913.	48173.	46741.
20-24	107246.	54091.	53155.
25-29	116571.	58988.	57583.
30-34	111962.	54986.	56976.
35-39	93874.	42599.	51275.
40-44	80450.	40020.	40430.
45-49	61360.	30336.	31024.
50-54	54682.	26354.	28329.
55-59	56253.	26216.	30037.
60-64	56031.	25331.	30700.
65-69	47784.	20858.	26926.
70-74	38938.	16189.	22749.
75-79	27332.	10279.	17053.
80-84	16968.	5524.	11444.
85+	10603.	3071.	7532.

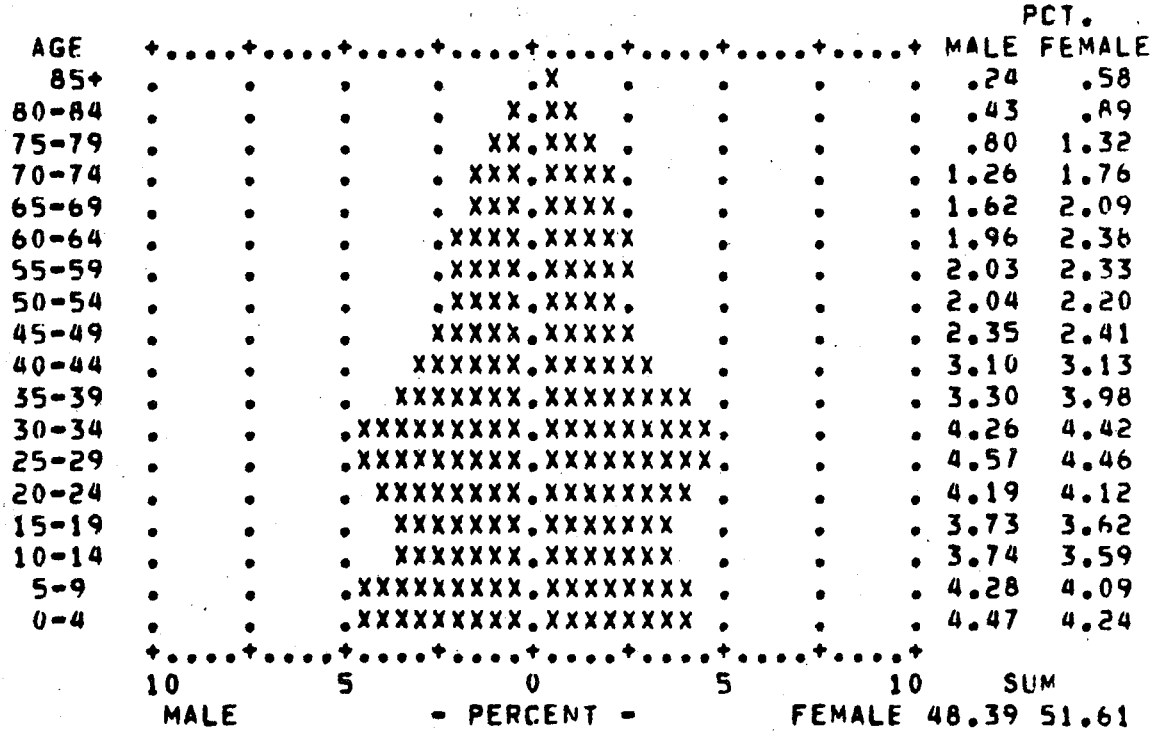


TABLE A-26

PROJECTED POPULATION, PORTLAND SMSA, 1990

SERIES 3

AGE	TOTAL	MALE	FEMALE
AGE	1376641.	667334.	709307.
0-4	112922.	57973.	54949.
5-9	116346.	59576.	56771.
10-14	110954.	56684.	54270.
15-19	97178.	49427.	47750.
20-24	99362.	50309.	49053.
25-29	112660.	56693.	55968.
30-34	119667.	60656.	59012.
35-39	113093.	55571.	57522.
40-44	94669.	42860.	51808.
45-49	80526.	39600.	40925.
50-54	60704.	29727.	30977.
55-59	52874.	24937.	27937.
60-64	52913.	23879.	29033.
65-69	50515.	21768.	28747.
70-74	40989.	16655.	24335.
75-79	30850.	11524.	19326.
80-84	19288.	6334.	12954.
85+	11131.	3160.	7971.

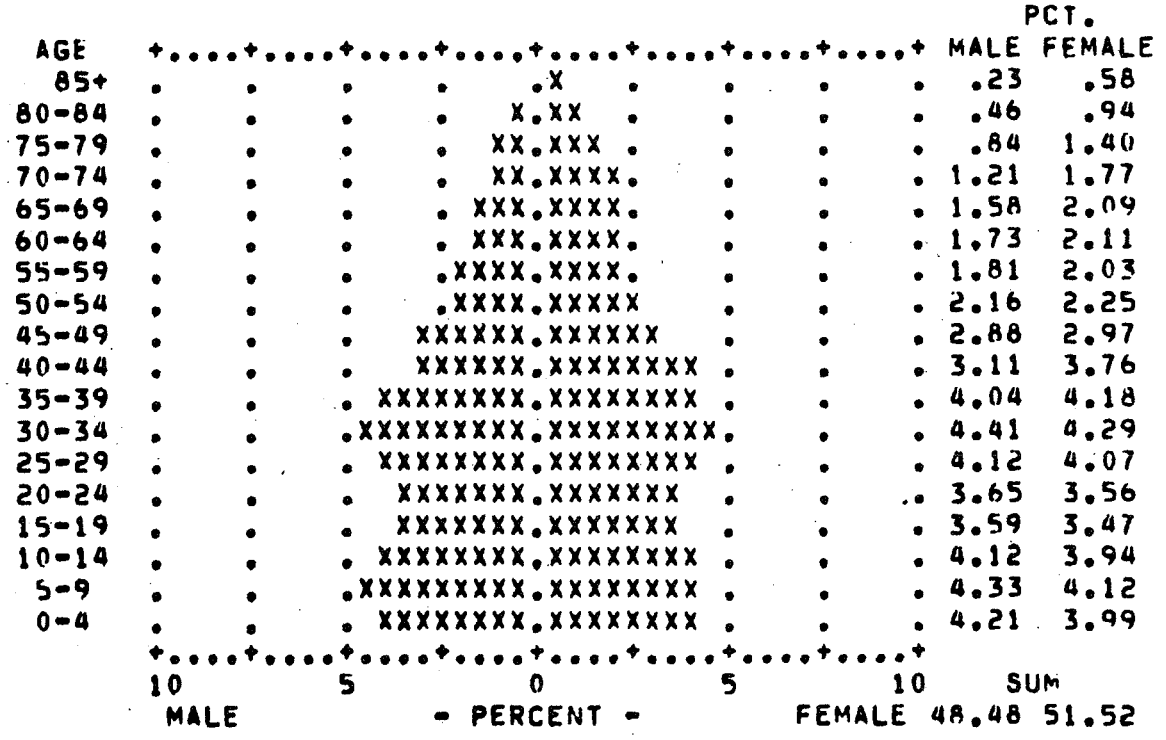


TABLE A-27

PROJECTED POPULATION, PORTLAND SMSA, 1995

SERIES 3

AGE	TOTAL	MALE	FEMALE
	1440918.	699355.	741563.
0-4	109655.	56321.	53334.
5-9	114981.	58949.	56032.
10-14	117836.	60287.	57549.
15-19	112136.	57164.	54972.
20-24	99265.	50345.	48921.
25-29	101986.	51494.	50492.
30-34	114064.	57412.	56651.
35-39	119844.	60693.	59152.
40-44	112740.	55179.	57561.
45-49	94078.	42071.	52007.
50-54	78777.	38344.	40434.
55-59	58382.	28039.	30343.
60-64	49541.	22662.	26879.
65-69	47608.	20495.	27113.
70-74	43256.	17357.	25899.
75-79	32446.	11839.	20607.
80-84	21720.	7089.	14632.
85+	12602.	3616.	8986.

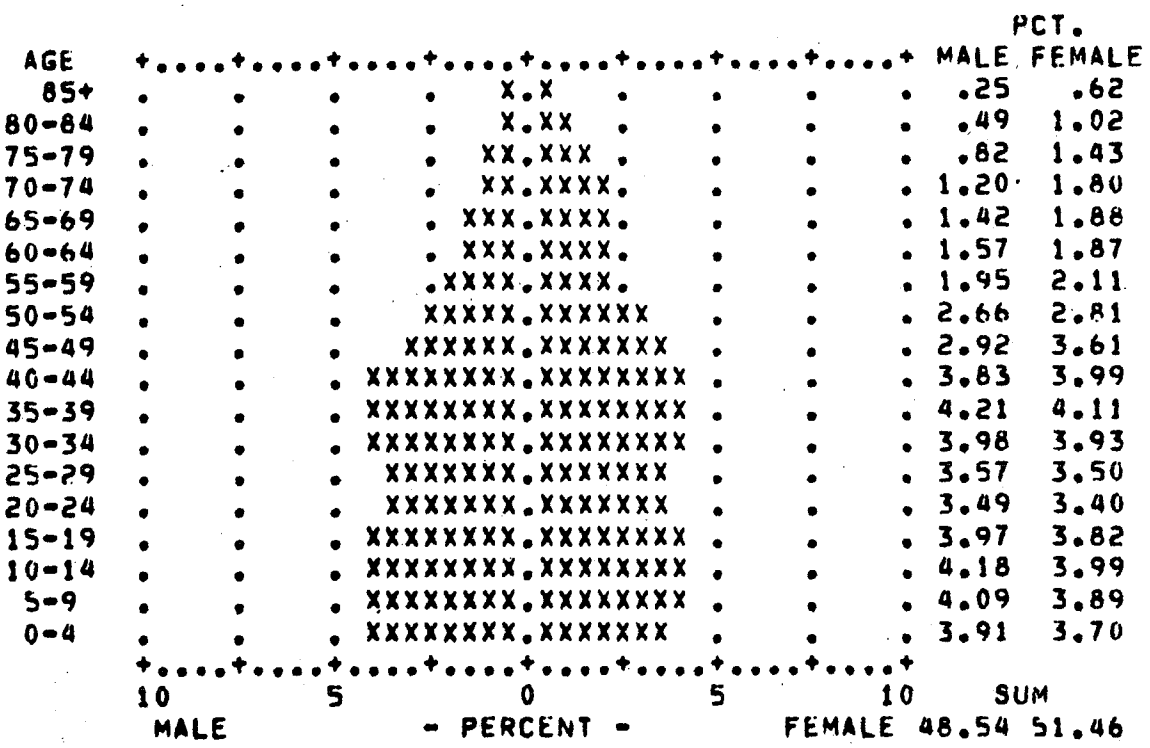


TABLE A-28

PROJECTED POPULATION, PORTLAND SMSA, 2000

SERIES 3

AGE	TOTAL	MALE	FEMALE
	1500885.	729419.	771467.
0-4	110638.	56828.	53810.
5-9	111600.	57241.	54358.
10-14	116387.	59618.	56768.
15-19	118912.	60710.	58202.
20-24	113989.	57936.	56053.
25-29	101720.	51442.	50277.
30-34	103340.	52191.	51149.
35-39	114230.	57449.	56781.
40-44	119342.	60191.	59151.
45-49	111779.	54049.	57730.
50-54	91987.	40700.	51287.
55-59	75672.	36138.	39534.
60-64	54640.	25470.	29170.
65-69	44553.	19450.	25103.
70-74	40768.	16342.	24426.
75-79	34260.	12336.	21924.
80-84	22878.	7282.	15596.
85+	14190.	4045.	10145.

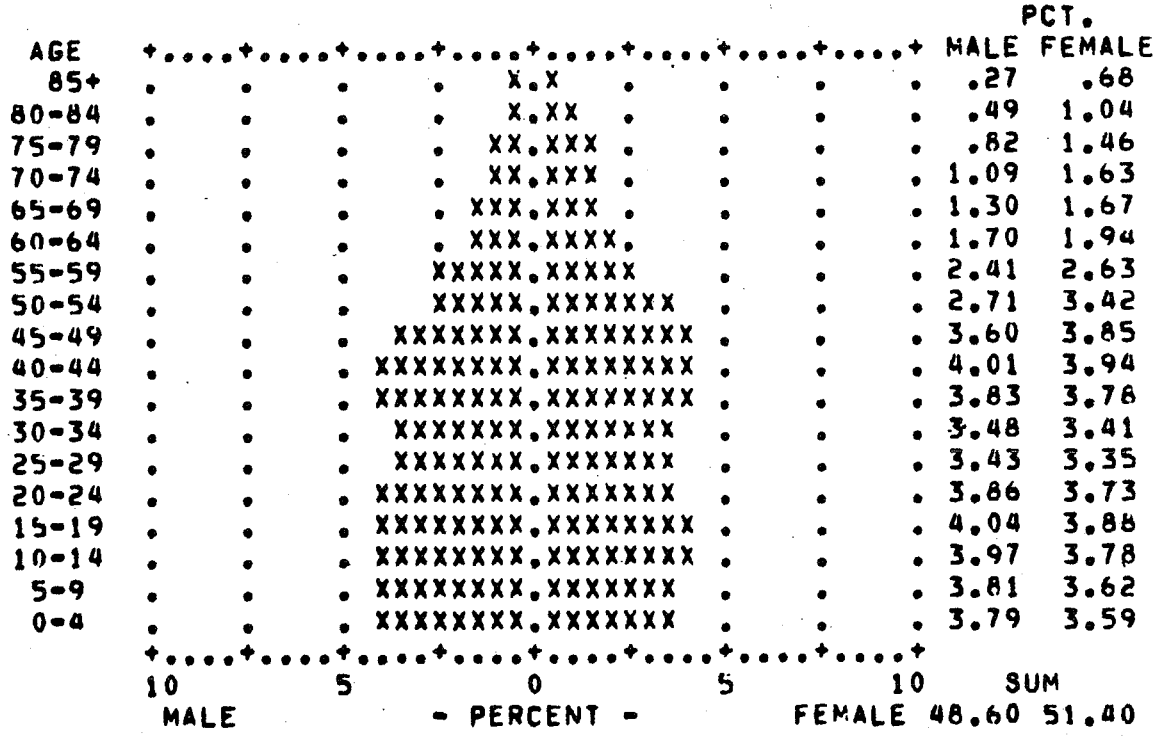


TABLE A-29

PROJECTED POPULATION, PORTLAND SMSA, 1975

SERIES 4

AGE	TOTAL	MALE	FEMALE
	1091748.	526330.	565418.
0-4	84685.	43439.	41246.
5-9	87143.	44467.	42676.
10-14	97390.	49379.	48011.
15-19	102759.	52242.	50517.
20-24	99791.	48735.	51056.
25-29	87293.	38946.	48347.
30-34	76750.	38241.	38509.
35-39	58686.	29450.	29236.
40-44	53820.	26433.	27386.
45-49	58130.	27951.	30179.
50-54	61323.	29305.	32018.
55-59	56108.	26567.	29541.
60-64	50245.	23535.	26710.
65-69	40066.	18024.	22043.
70-74	30126.	12537.	17589.
75-79	22811.	8677.	14133.
80-84	15275.	5296.	9979.
85+	9347.	3106.	6241.

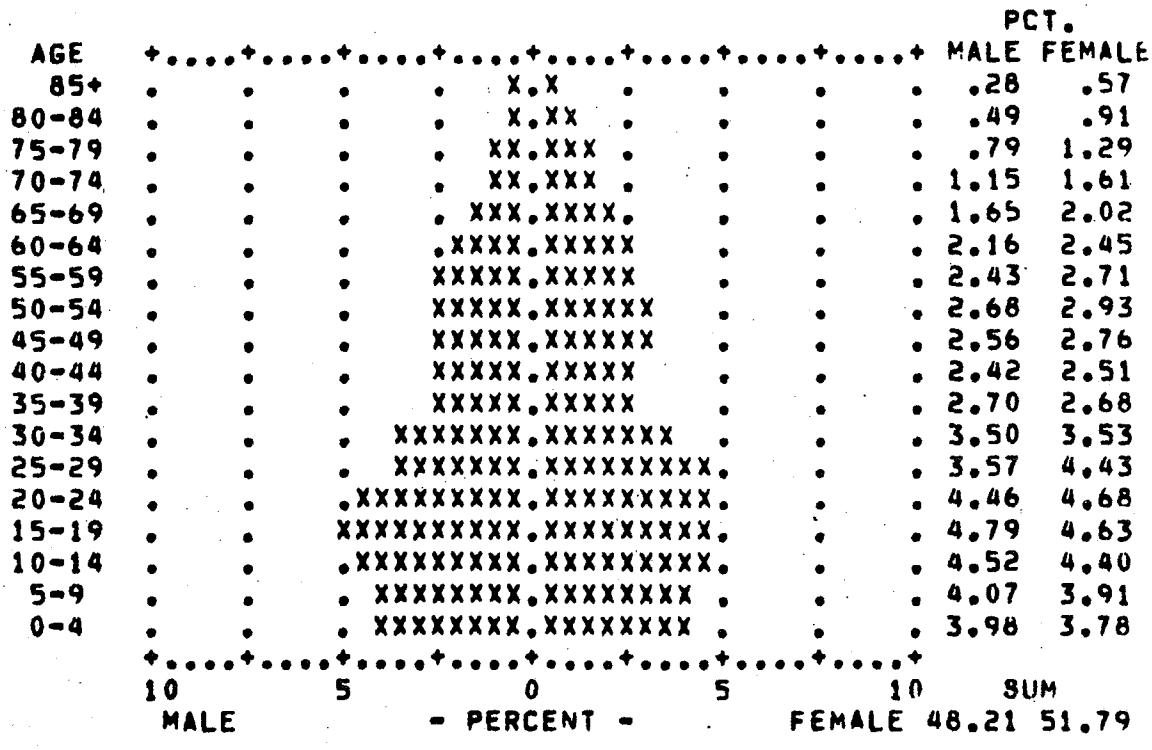


TABLE A-30

PROJECTED POPULATION, PORTLAND SMSA, 1980

SERIES 4

AGE	TOTAL	MALE	FEMALE
	1183818.	571512.	612306.
0-4	101814.	52250.	49564.
5-9	90016.	46016.	44000.
10-14	90929.	46322.	44607.
15-19	100737.	50914.	49823.
20-24	108463.	55010.	53452.
25-29	106841.	52196.	54645.
30-34	91504.	41287.	50217.
35-39	78624.	39251.	39373.
40-44	60366.	30172.	30194.
45-49	54596.	26534.	28062.
50-54	57881.	27590.	30291.
55-59	59376.	27753.	31623.
60-64	52870.	24230.	28640.
65-69	45326.	20245.	25081.
70-74	34398.	14410.	19988.
75-79	23944.	8943.	15001.
80-84	16128.	5356.	10771.
85+	10008.	3034.	6973.

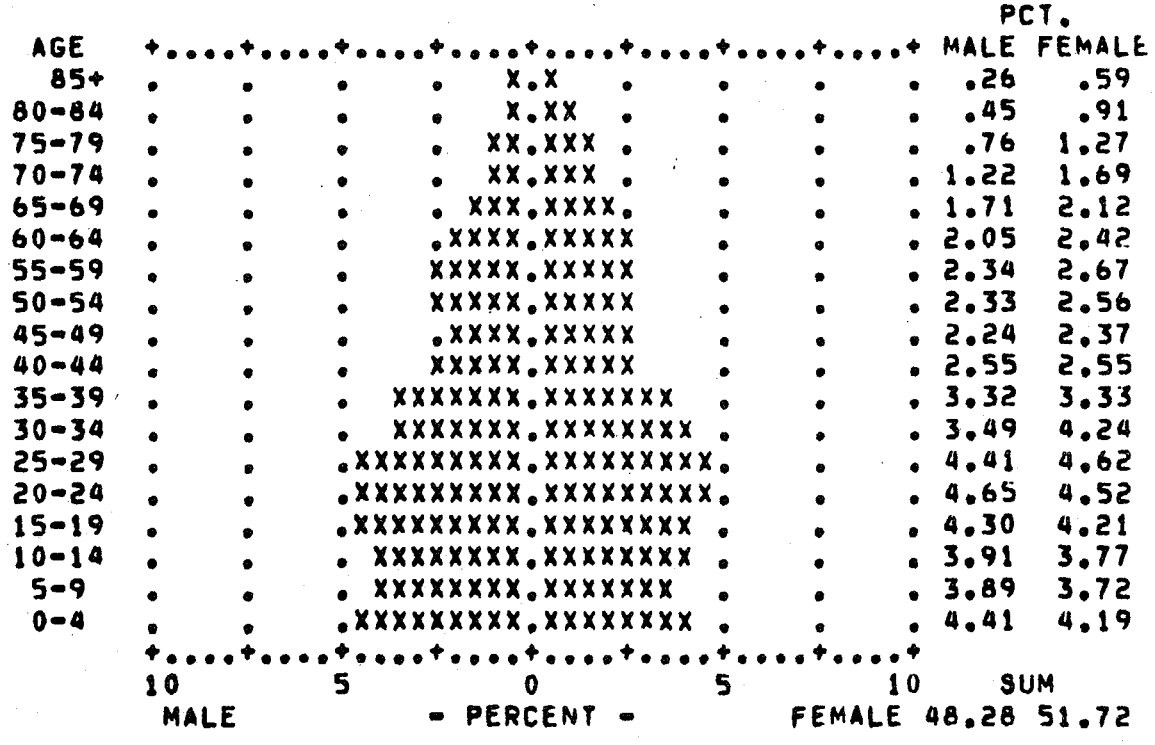


TABLE A-31

PROJECTED POPULATION, PORTLAND SMSA, 1985

SERIES 4

AGE	TOTAL	MALE	FEMALE
	1275677.	617053.	658624.
0-4	110612.	56780.	53832.
5-9	106401.	54460.	51941.
10-14	93304.	47624.	45681.
15-19	93835.	47649.	46186.
20-24	105657.	53284.	52373.
25-29	114479.	57917.	56563.
30-34	110360.	54119.	56241.
35-39	92984.	42101.	50883.
40-44	79760.	39663.	40098.
45-49	60835.	30074.	30761.
50-54	54262.	26136.	28127.
55-59	56000.	26115.	29885.
60-64	55864.	25284.	30581.
65-69	47678.	20830.	26848.
70-74	38865.	16171.	22693.
75-79	27273.	10266.	17007.
80-84	16929.	5515.	11413.
85+	10579.	3067.	7512.

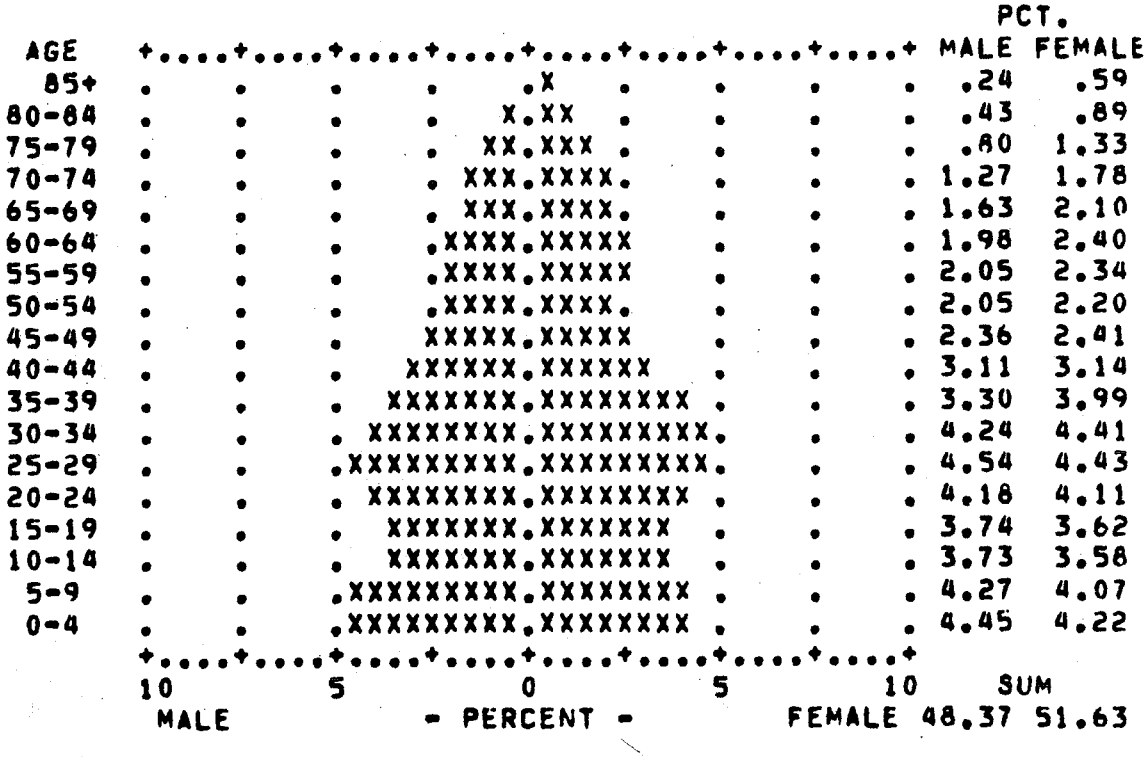


TABLE A-32

PROJECTED POPULATION, PORTLAND SMSA, 1990

SERIES 4

AGE	TOTAL	MALE	FEMALE
	1350344.	654015.	696329.
0-4	110087.	56523.	53563.
5-9	113459.	58121.	55338.
10-14	108456.	55440.	53016.
15-19	95066.	48385.	46681.
20-24	96835.	49020.	47815.
25-29	109319.	54966.	54354.
30-34	116520.	58977.	57543.
35-39	110948.	54395.	56554.
40-44	93241.	42087.	51153.
45-49	79494.	39065.	40430.
50-54	59863.	29298.	30566.
55-59	52324.	24687.	27637.
60-64	52550.	23751.	28800.
65-69	50295.	21709.	28586.
70-74	40840.	16619.	24222.
75-79	30745.	11502.	19244.
80-84	19216.	6320.	12896.
85+	11084.	3152.	7932.

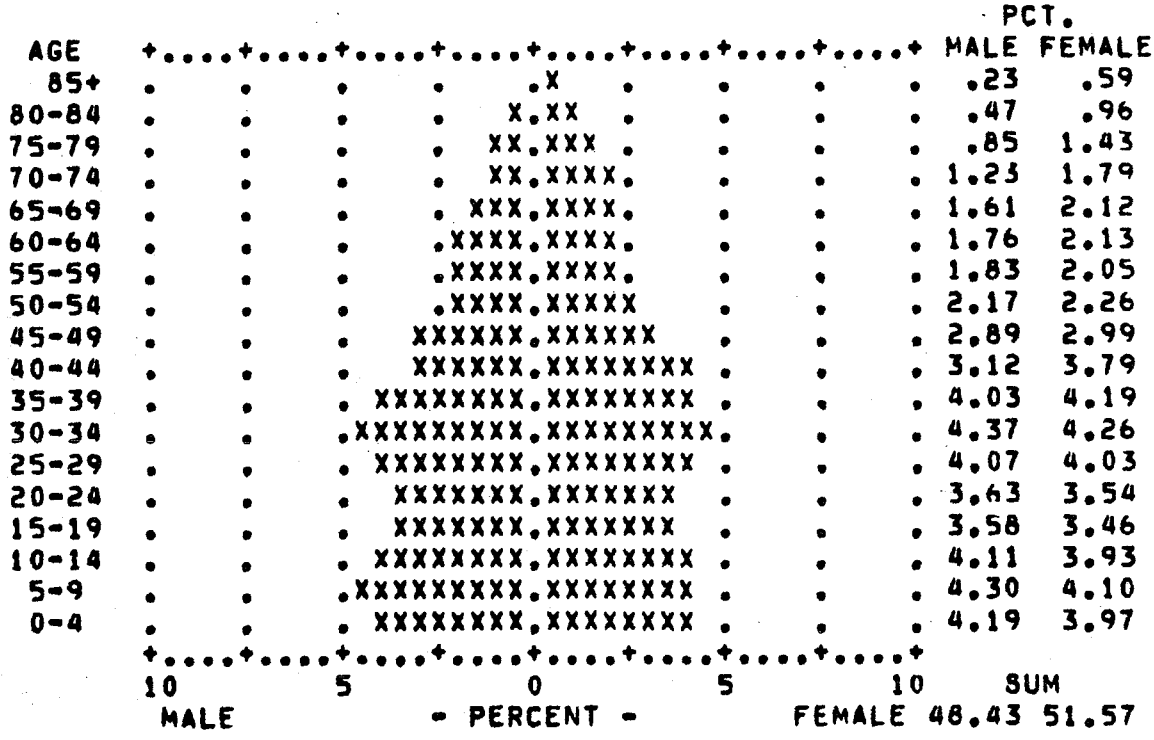


TABLE A-33

PROJECTED POPULATION, PORTLAND SMSA, 1995

SERIES 4

	TOTAL	MALE	FEMALE
AGE	1388086.	672746.	715340.
0-4	104078.	53492.	50586.
5-9	109307.	56117.	53191.
10-14	112949.	57842.	55107.
15-19	107762.	55018.	52743.
20-24	93917.	47640.	46276.
25-29	95543.	48204.	47339.
30-34	108371.	54362.	54008.
35-39	115483.	58340.	57143.
40-44	109396.	53407.	55989.
45-49	91888.	40912.	50976.
50-54	77039.	37445.	39594.
55-59	57240.	27537.	29703.
60-64	48745.	22355.	26390.
65-69	47125.	20345.	26780.
70-74	42935.	17279.	25656.
75-79	32223.	11790.	20433.
80-84	21579.	7062.	14517.
85+	12508.	3598.	8910.

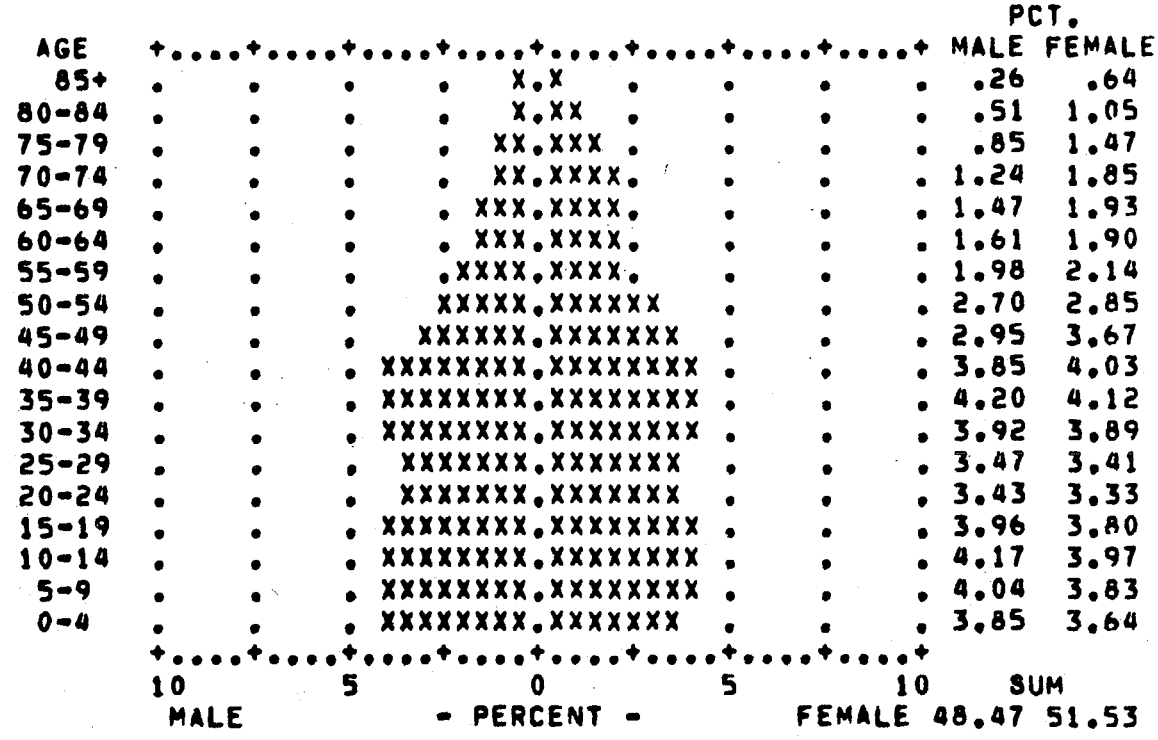
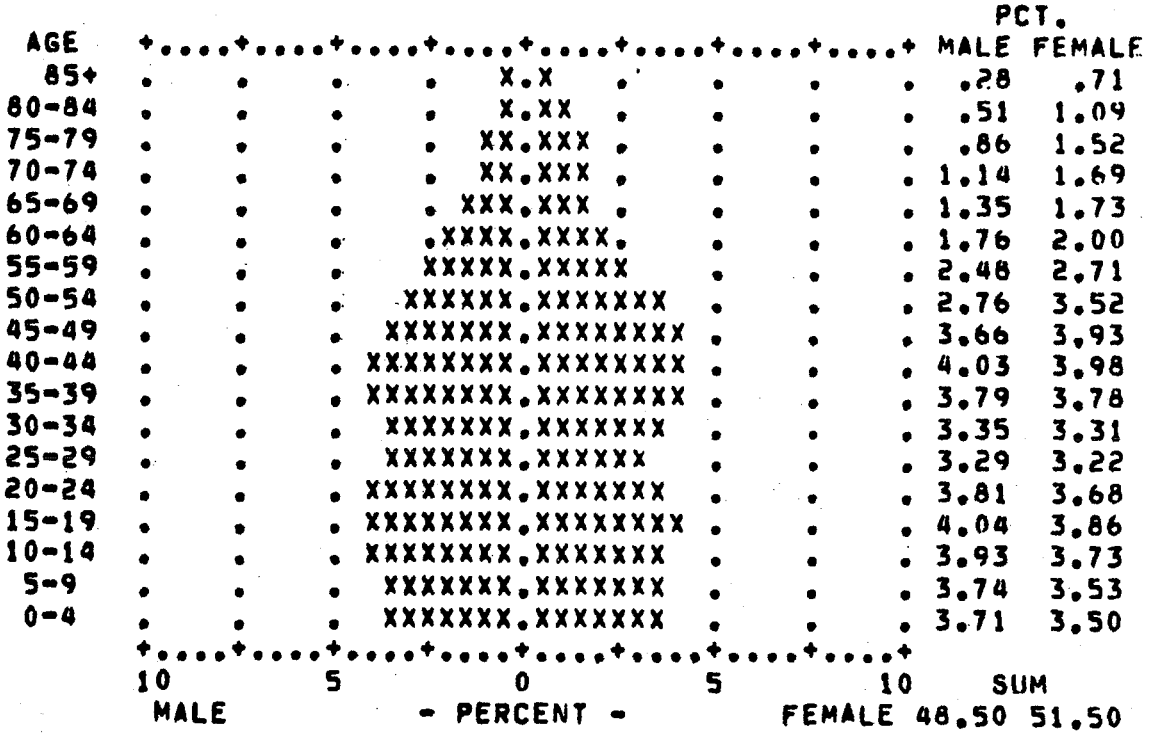


TABLE A-34

PROJECTED POPULATION, PORTLAND SMSA, 2000

SERIES 4

AGE	TOTAL	MALE	FEMALE
	1419108.	688304.	730803.
0-4	102312.	52586.	49726.
5-9	103174.	53026.	50148.
10-14	108705.	55792.	52912.
15-19	112145.	57364.	54781.
20-24	106370.	54128.	52243.
25-29	92449.	46739.	45710.
30-34	94546.	47581.	46965.
35-39	107333.	53732.	53601.
40-44	113802.	57258.	56544.
45-49	107696.	51914.	55783.
50-54	89120.	39200.	49920.
55-59	73671.	35195.	38476.
60-64	53290.	24935.	28355.
65-69	43679.	19147.	24532.
70-74	40220.	16191.	24028.
75-79	33897.	12258.	21639.
80-84	22649.	7238.	15411.
85+	14048.	4020.	10028.



The Population/Employment Historical Data Files have been reproduced in tabular form for the use of researchers. The following appendicies have been prepared containing this data:

Appendix A: Employment Historical Data
Appendix B: Population Historical Data
Appendix C: Vital Statistics

These appendicies are available upon request through the:

Information Office
Columbia Region Association of Governments
527 SW Hall
Portland, Oregon
503/221-1646