A POPULATION & EMPLOYMENT FORECAST TO 2005

Portland Metropolitan Area

October 1984

A service of the
Intergovernmental Resource Center
METROPOLITAN SERVICE DISTRICT

METRO

PORTLAND 2005

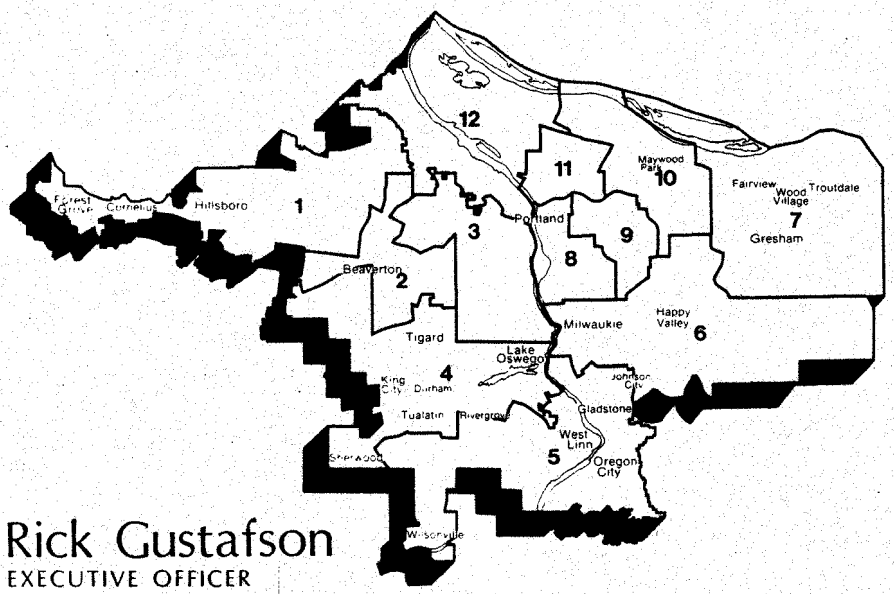
A FORECAST OF GROWTH FOR THE

PORTLAND-VANCOUVER METROPOLITAN AREA

OCTOBER 1984

Regional Growth Forum,
Growth Allocation Workshop
and
Metropolitan Service District

METROPOLITAN SERVICE DISTRICT



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F I R S T P R I N T I N G

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FOREWORD

This long-range forecast was developed for use in the long-range planning and decision making process in the Portland region.

This forecast was initially developed by the Regional Growth Forum, comprising professionals involved in forecasting economic growth, employment, or population and housing. It was marginally modified following discussions with the representatives of the various jurisdictions who attended the growth allocation workshops. These workshops disaggregated the forecasts to subareas or districts within the metropolitan region.

The method employed was to use the output of a long-range forecasting model as a starting point and to develop a consensus or understanding of future employment by sector through discussion and modification of that output. (The model output was from a BPA Northwest Region model developed by Wharton Econometric Forecasting Associates in 1984, disaggregated to the SMSA by Metro.) This forecast thus uses the knowledge, experience and judgments developed over time through the analysis of various components of this region, by the individual members of the group. It is stressed that this is a likely forecast; actions or happenings external to this region and actions taken within the region can change the values presented here. Metro will continue to monitor growth and revise these estimates when evidence requires it.

Metro staff involved in this process believe that the forecast presented represents a reasonable consensus of both forecasting groups.

A list of the participants and their affiliation follows this foreword.

LIST OF PARTICIPANTS

Regional Growth Forum

Mr. Ray Broughton, Vice President and Economist
First Interstate Bank

Dr. John Mitchell, Corporate Economist
U.S. Bank Corp.

Mr. Charles Allcock, Senior Planning Supervisor
Electric Business Planning
Portland General Electric

Ms. Betsy Radigan, Program Development Specialist,
Economic Development
Portland Development Commission

Dr. Fred Weber, Consulting Economist
Home Builders Association of Metropolitan Portland

Dr. James Strathman, Associate Professor
Dept. of Urban Studies and Planning
Portland State University

Mr. Glenn Vanselow, Research Manager
Port of Portland

Mr. Tom Lynch, Director
Labor Market Information Programs
Oregon State Employment Service

Mr. Charles Schneider, Chief Economist
Economic Research Section
Bonneville Power Administration

Mr. Ed Schafer, Director
Center for Population Research and Census

Mr. Scott Hannigan, Manager
Load Forecasting and Analysis Dept.
Pacific Power and Light
(Alternate: Dave Clement)

Mr. Chris Sturm, Research Manager
Portland Chamber of Commerce

LIST OF PARTICIPANTS
(continued)

2005 Growth Allocation Workshop

Mr. Tom VanderZanden	Clackamas County
Mr. Norm Scott	Clackamas County
Mr. Ben Altman	City of Wilsonville
Mr. Mark Hess	City of West Linn
Ms. Lori Mastrantonio	City of Milwaukie
Mr. Gilbert Mallery	Regional Planning Council of Clark County
Mr. Laurel Lyon	Regional Planning Council of Clark County
Ms. Mary Legry	Regional Planning Council of Clark County
Mr. Dean Lookingbill	Regional Planning Council of Clark County
Mr. Azam Babar	City of Vancouver
Ms. Bebe Rucker	Multnomah County
Mr. Steve Dotterrer	City of Portland
Mr. Steve Iwata	City of Portland
Mr. James Throckmorton	City of Portland
Mr. Tim Goon	City of Portland
Mr. Rick Walker	City of Gresham
Mr. Jeff Davis	City of Gresham
Mr. R. Scott Pemble	City of Troutdale
Mr. Brent Curtis	Washington County
Ms. Jane Jensen-Norman	Washington County
Mr. Mark Brown	Washington County
Mr. Frank Angelo	Washington County
Mr. Mark Johnson	City of Forest Grove
Mr. Wink Brooks	City of Hillsboro
Ms. Debbie Noble	City of Hillsboro
Mr. John Gillam	City of Beaverton
Mr. Larry Cole	City of Beaverton
Ms. Elizabeth Newton	City of Tigard
Mr. Dave Prescott	City of Tualatin

EMPLOYMENT FORECAST TO 2005 - METROPOLITAN REGION

This forecast shows the Portland-Vancouver metropolitan area as one which will sustain employment growth at a higher rate than the national average, creating a positive climate for business investment opportunities. The metropolitan area's continued employment growth will be based on the research and development-based electronics industry, the transportation equipment and fabricated metals industries and the continued growth of the service and trade sectors. The rate of growth in employment in this vision of the future is typical of the rate in the 1960 to 1975 period before the 1975-83 boom and recession cycle. There are areas of uncertainty and areas where local actions will increase or reduce this rate.

GROWTH BY MAJOR SECTOR

The major sectors of employment are considered separately. Manufacturing, which makes up 16 to 17 percent of total employment is broken out into major subsectors. This is because there may be locational factors involved and because this is a 'basic' industry which carries on implied employment multiplier for support industries such as services and retail. A general trend is for a faster growth in these 'support' industries than in manufacturing. Table 1 details the manufacturing sector while Table 2 details overall employment growth. The results are shown in graphic form in graphs G2 through G20. Table 3 shows comparisons with previous long-range forecasts.

MANUFACTURING

Transportation Equipment: With the expected growth in Pacific Rim trade and the position of the Portland area as a commodities handling port, this sector is expected to sustain growth through 1990, with a gradual reduction in the rate between 1990 and the year 2005. Increased economic growth in Alaska or changes in the regulations on the sale of Alaskan oil could lead to higher forecasts than shown here.

Lumber and Wood Products: This sector faces increasing competition from other regions and products. However, the decline in the industry as it moves from "old growth" timber harvesting to a steady-state use of replanted areas is near its end, and some equilibrium is expected to be achieved. This forecast shows a slow growth in employment through 1990, with a leveling-off in the 1990 to 2005 period.

Primary Metals: A slow employment growth is seen for this sector through 1990, leveling off from there on. No new plants are expected to be built, but the existing plants are efficient enough to be fully utilized. This sector is extremely dependent on energy prices and the cost of transportation of resource minerals. This sector will lose employment if either of these costs move upwards significantly.

Fabricated Metal: This sector is closely connected with transportation equipment. It is expected to behave in the same way, with moderate growth in employment through 1990 and a slightly reduced rate thereafter.

Machinery: This sector is seen with strong growth through 1990, becoming slower over the long haul to 2005.

Electronics: Forecasting employment in this sector carries the greatest uncertainty. There was a great deal of discussion in the Forum on this sector. Several contradictory forces exist. Production in this sector is forecast to grow rapidly; cost and strong competition will tend to lead towards a move of assembly-line work to foreign countries with low labor rates or to the development of more automation (fewer U.S. workers per unit of production). This region is likely to see a growth in research and development-type jobs and start-up products, typically involving higher educated and paid workers. If significant new products are developed, giving a large technology lead over competitors, this region could see higher growth rates than forecast here. Conversely, if this region loses the technology lead it has in certain areas such as display tube technology and graphics technology, lower growth rates would occur. This sector forecast was increased following discussions with jurisdictional representatives in the allocation process.

Food Processing: Employment in this industry is seen as constantly declining in this metropolitan area; reversal of this trend is unlikely. Any possible new growth areas in this sector are likely to have processing near the farming areas, not in the metropolitan area.

Paper and Allied Products: Rising energy costs, lack of nearby raw materials and airshed/watershed problems in this area make the construction of new plants unlikely. The three existing plants are relatively old and inefficient. A small growth in employment is expected in the immediate future with an expectation of a slight decline in employment in the long-range future.

Printing and Publishing: This sector, which is primarily quality/specialty printing in this metropolitan area, has seen employment and growth even during the recession. This component of printing does not seem vulnerable to competition from the electronic media. Growth is expected to continue.

Chemicals, Textiles, Apparel, Stone/Clay/Glass, Furniture, Other: This group of small employment sectors has been losing employment. A small growth in employment is expected through 1990, leveling off thereafter.

FINANCE, INSURANCE AND REAL ESTATE (FIRE)

This sector weathered the recession reasonably well. This group will be positively impacted by improved Pacific Rim trade. If this

metropolitan area obtains a major international communications facility, this sector could expand beyond its existing local service function to one which includes national or international service functions, increasing its rate of growth.

TRANSPORTATION, COMMUNICATIONS AND PUBLIC UTILITIES (TCPU)

While this sector is expected to grow in terms of value and output, increased productivity will give a slow growth in employment, not reaching 1980 employment levels until near year 2000.

CONSTRUCTION

Employment in this sector is expected to grow slowly from 1983, not reaching 1980 levels until perhaps 1995 or beyond. A large proportion of construction workers (almost half) are self-employed and these are considered separately in this forecast.

SERVICE

Employment in this large sector showed slight growth even through the 1980-83 period. Recent past trends and some national forecasts suggest extremely high continued growth. The bulk of this sector is in health, and in business and legal services (36 percent and 22 percent respectively in the Oregon portion of the region in 1982). These subsectors have also provided the strong growth trend. The discussion in the Growth Forum centered around the reasons for the recent past trends in the health industry. These being an aging population, a very strong influx of Federal Government benefits in the late 1960s and early 1970s, and a general increase in the quantity of health coverage as a fringe benefit. These last two stimuli are not expected to continue that accelerated growth (and may indeed be reduced slightly). This left an outcome of a forecast of strong growth into the future, but not at the rate suggested by recent trends and forecasts.

TRADE

This sector is composed of wholesale (30 percent) and retail (70 percent). Wholesale has had reasonable growth in employment, and will be positively impacted by increased trade with the Pacific Rim. Retail will tend to grow with the rising trend in two wage-earner households (with less time to do things themselves and more money to spend). This is expected to remain a strong growth area.

GOVERNMENT

Employment in this sector is expected to grow at a lower rate than employment in the private sector. The strong sentiment to lower local taxes will impact local government which represents the largest proportion of jobs in the government sector in this metropolitan area.

AGRICULTURAL, MINING, FISHERIES, FORESTRY, ETC.

Employment growth in this sector is not strong nationally or in the region. Within the metropolitan area, employment is continually reduced with increasing urbanization. A continued downward trend is forecast.

SELF-EMPLOYED

This group is made up of two major sectors: construction, which is growing slowly; and services, which is growing strongly. Trends locally suggest a fairly stable 10 percent of the employment will be in this group.

ALL EMPLOYMENT

Employment is expected to be about 836,000 in year 2000 and 910,000 by year 2005. This is very close to the forecast shown by National Planning Associates (NPA) (1983) of 824,000 in 2000. Table 3 gives an overall comparison of recent forecasts. It can be seen that forecasts based on the pre-recession boom high of 1980 (such as the Metro forecast of 969,000 at year 2000) are significantly higher.

A reasonable reality check in a long-range forecast such as this is to put it in a long-term perspective. An inspection of growth in employment from 1950 to 1983 shows that there has been very gradually increasing growth in the region. When the forecast is inspected, it can be seen that this trend is continued. The 1975 to 1980 growth period, and the 1980 to 1983 recession can be seen as unusual in terms of past history. This information is shown in Graph 1.

TABLE 1
EMPLOYMENT IN MANUFACTURING SUB-SECTORS
PAST TRENDS AND FORECAST TO 2005

	ACTUAL: OES														FORECAST												
	1960		1970			1975			1980			1983			1985			1990			1995			2000			2005		
	EMP.	%	EMP.	%	AAGR % 60-70	EMP.	%	AAGR % 70-75	EMP.	%	AAGR % 75-80	EMP.	%	AAGR % 80-83	AAGR % 70-83	EMP.	%	AAGR % 83-85	EMP.	%	AAGR % 85-90	EMP.	%	AAGR % 90-95	EMP.	%	AAGR % 95-2000	EMP.	%	AAGR % 2000-2005	AAGR % 1983-2005
TOTAL MANUFACTURING	64.4	100.0	85.7	100.0	2.90	90.2	100.0	1.03	112.8	100.0	4.58	94.6	100.0	-4.54	0.76	104.0	100.0	4.85	127.0	100.0	4.08	136.2	100.0	1.41	142.9	100.0	0.97	150.0	100.0	0.97	2.12
DURABLE																															
Transportation Equipment	3.0	4.6	6.9	8.0	8.69	7.2	8.0	0.85	8.3	7.4	2.88	5.4	5.7	-19.40	-1.87	6.2	6.0	7.15	8.2	6.5	5.75	9.4	6.9	2.77	10.0	7.0	1.25	10.5	7.0	0.98	3.07
Lumber	8.6	13.3	8.7	10.2	0.12	9.1	10.1	0.90	9.1	8.1	0.00	7.1	7.5	2.90	-1.55	7.6	7.3	3.46	8.8	6.9	2.98	8.8	6.5	0.00	8.8	6.2	0.00	8.9	5.9	0.23	1.03
Primary Metal	5.2	8.1	6.5	7.6	2.26	7.3	8.1	2.35	8.1	7.2	2.10	5.6	5.9	-3.45	-1.14	6.2	6.0	5.22	7.7	6.1	4.43	7.7	5.7	0.00	7.7	5.4	0.00	7.7	5.1	0.00	1.46
Fabricated Metal	4.5	7.0	6.8	7.9	4.21	8.1	9.0	3.56	9.8	8.7	3.88	7.6	8.0	-5.00	0.86	8.2	7.9	3.87	9.8	7.7	3.63	11.1	8.1	2.52	12.1	8.5	1.74	13.3	8.9	1.91	2.58
Machinery	4.3	6.7	7.9	9.2	6.27	8.9	9.8	2.41	11.9	10.5	5.98	10.1	10.7	-12.93	1.91	11.5	11.1	6.71	15.1	11.9	5.60	16.7	12.3	2.03	17.7	12.4	1.17	18.4	12.3	0.78	2.76
Electronics	4.3	6.7	10.0	11.7	8.81	14.2	15.7	7.26	27.0	23.9	13.71	24.1	25.5	-5.12	7.00	28.7	27.6	9.13	39.8	31.3	6.76	44.7	32.8	2.35	48.7	34.1	1.73	53.0	35.3	1.71	3.65
NON-DURABLE																															
Food	10.1	15.7	10.3	12.0	0.20	9.1	10.1	-2.45	9.6	8.5	1.08	8.2	8.7	-2.38	-1.74	8.5	8.2	1.81	9.1	7.2	1.37	9.1	6.7	0.00	9.0	6.3	-0.22	8.9	6.0	-0.22	0.37
Paper	7.4	11.5	7.6	8.9	0.27	7.2	8.0	-1.08	7.5	6.7	0.82	6.7	7.1	-4.29	-0.96	6.9	6.6	1.48	7.4	5.8	1.41	7.4	5.4	0.00	7.3	5.1	-0.27	7.2	4.8	-0.28	0.33
Printing	3.4	5.3	4.0	4.7	1.64	4.5	5.0	2.38	5.8	5.1	5.21	6.2	6.5	3.33	3.43	6.5	6.3	2.39	7.1	5.6	1.78	7.6	5.6	1.37	8.0	5.6	1.03	8.5	5.7	1.22	1.44
ALL OTHER	13.6	21.1	17.0	19.8	2.26	14.6	16.2	-3.00	15.7	13.9	1.46	13.6	14.4	2.26	-1.70	13.7	13.2	0.37	14.0	11.0	0.43	13.7	10.1	-0.43	13.6	9.5	-0.15	13.4	9.0	-0.30	-0.07

AAGR = Average Annual Growth Rate

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TABLE 2
TOTAL EMPLOYMENT BY MAJOR SECTOR
PAST TRENDS AND FORECAST TO 2005

	ACTUAL OES*														FORECAST												
	1960		1970			1975			1980			1983			1985			1990			1995			2000			2005		
	EMP.	%	EMP.	%	AAGR % 60-70	EMP.	%	AAGR % 70-75	EMP.	%	AAGR % 75-80	EMP.	%	AAGR % 80-83	AAGR % 70-83	EMP.	%	AAGR % 83-85	EMP.	%	AAGR % 85-90	EMP.	%	AAGR % 90-95	EMP.	%	AAGR % 95-2000	EMP.	%	AAGR % 2000-2005	AAGR % 1983-2005
TOTAL	314.0	100.0	433.6	100.0	3.28	500.0	100.0	2.89	620.0	100.0	4.40	584.9	100.0	-0.88	2.33	612.8	100.0	2.35	686.9	100.0	2.31	762.8	100.0	2.12	836.1	100.0	1.85	910.0	100.0	1.71	2.03
MANUFACTURING	64.4	20.5	85.7	19.8	2.90	90.2	18.1	0.98	112.8	18.2	4.57	94.6	16.2	-4.54	0.76	104.1	17.0	4.91	127.5	18.6	4.14	136.7	17.9	1.40	143.2	17.1	0.93	150.0	16.5	0.94	2.12
FIRE	14.9	4.8	24.7	5.7	5.18	32.1	6.4	5.38	45.9	7.4	7.41	43.3	7.4	-0.92	4.41	45.5	7.4	2.52	51.2	7.5	2.39	58.5	7.7	2.71	66.1	7.9	2.46	72.0	7.9	1.73	2.34
TCPU	27.5	8.8	30.2	7.0	0.94	30.5	6.1	0.20	36.2	5.8	3.49	34.2	5.9	-3.66	0.96	35.0	5.7	1.10	36.5	5.3	0.85	36.9	4.8	0.21	38.1	4.6	0.68	39.0	4.3	0.46	0.60
CONSTRUCTION & MINING	14.8	4.7	17.3	4.0	1.57	18.3	3.7	1.13	24.8	4.0	6.27	16.4	2.8	-8.67	0.41	17.9	2.9	4.36	21.8	3.2	4.09	24.8	3.3	2.63	27.0	3.2	1.70	28.5	3.1	1.06	2.54
SERVICE	37.8	12.0	67.7	15.6	6.00	86.2	17.2	4.95	111.1	17.9	5.21	112.2	19.2	2.65	3.96	117.8	19.2	2.47	132.7	19.3	2.42	149.6	19.6	2.41	166.8	20.0	2.21	184.5	20.3	2.04	2.29
TRADE	66.8	21.3	92.6	21.3	3.32	111.5	22.3	3.78	141.2	22.8	4.84	137.4	23.5	1.03	3.08	143.3	23.4	2.14	160.6	23.4	2.30	187.1	24.5	3.10	213.3	25.5	2.65	241.5	26.5	2.51	2.60
Retail	43.8	14.0	60.4	13.9	3.27	75.4	15.1	4.54	95.7	15.5	4.88	94.4	16.1	1.72	3.49																
Wholesale	23.0	7.3	32.2	7.4	3.42	36.1	7.2	2.31	45.5	7.3	4.74	43.0	7.4	0.46	2.25																
GOVERNMENT	39.9	12.7	62.4	14.4	4.57	72.7	14.5	3.10	77.9	12.6	1.39	80.4	13.7	-0.86	1.97	80.3	13.1	-0.08	81.2	11.8	0.22	87.2	11.4	1.43	92.6	11.1	1.23	99.0	10.9	1.34	0.95
AGRICULTURE[1]	17.0	5.4	10.4	2.4	-4.80	9.4	1.9	-2.00	9.2	1.5	-0.43	8.9	1.5	-4.30	-1.19	8.6	1.4	-1.70	7.9	1.2	-1.68	6.9	0.9	-2.67	6.7	0.8	-0.59	6.0	0.7	-2.18	-1.78
SELF EMPLOYED	30.9	9.8	42.6	9.8	3.26	49.1	9.8	2.88	60.9	9.8	4.40	57.5	9.8	-0.69	2.33	60.3	9.8	2.41	67.4	9.8	2.24	75.1	9.8	2.20	82.2	9.8	1.82	89.5	9.8	1.72	2.03

*Except for self-employed - Metro estimate.
AAGR = Average Annual Rate of Growth
FIRE = Finance, Insurance and Real Estate
TCPU = Transportation, Communications and Public Utilities
[1]Fishing and Forestry included in Government & Services

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TABLE 3

COMPARISON OF RECENT FORECASTS OF SMSA TOTAL EMPLOYMENT

Forecast by	Forecasted Employment 2000 (in 1,000's)	2005 (in 1,000's)	AAGR[1]	Jobs/Year (in 1,000's)
Pre-Recession[2]				
BEA (1979)	941	-	2.13	16.20
Metro (1978)	801	-	1.31	9.20
Metro (1981)	969	-	2.28	17.60
ERA (1980)	1,052	-	2.70	21.75
BPA (1979)	940	-	2.13	16.15
Post-Recession[3]				
BPA (1983)	875	1,005	2.40/2.49[4]	17.06/19.09
NPA (1983)	824	-	2.04	14.05
Metro (1984)	836	910	2.12/2.03	14.76/14.77

Note: For comparison purposes the 1960-1970 AAGR = 3.28 and J/Y = 11.96; 1970-1980 AAGR = 3.64, J/Y = 18.64; 1980-1983 AAGR = -1.92, J/Y = -11.70; 1970-1983 AAGR = 2.33, J/Y = 11.64.

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[1]Average Annual Compounded Growth Rate.
[2]AAGR and Jobs/Year computed from 1980 base employment of 617.
[3]AAGR and Jobs/Year computed from 1983 base employment of 585.
[4]Year 2000/Year 2005.

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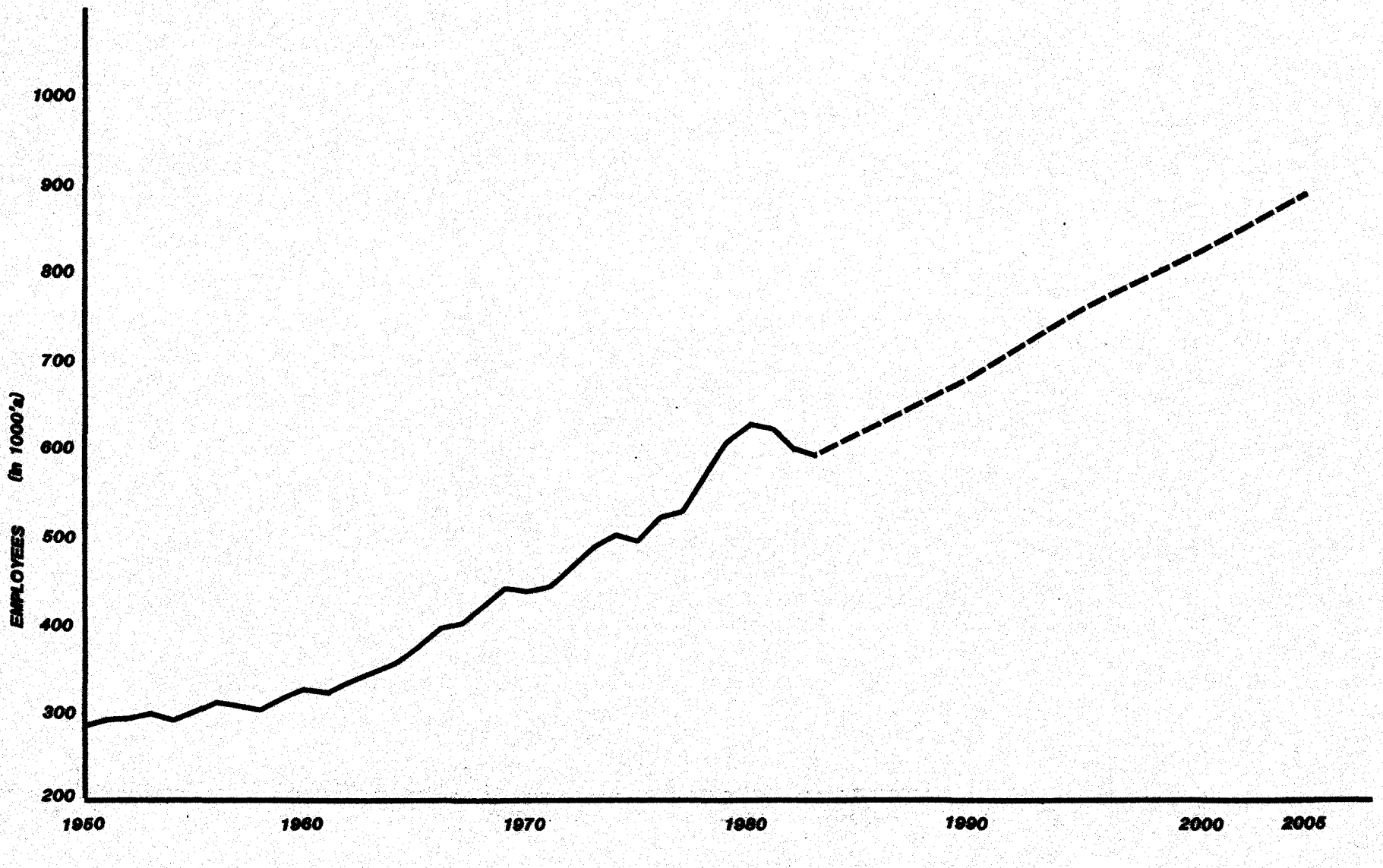
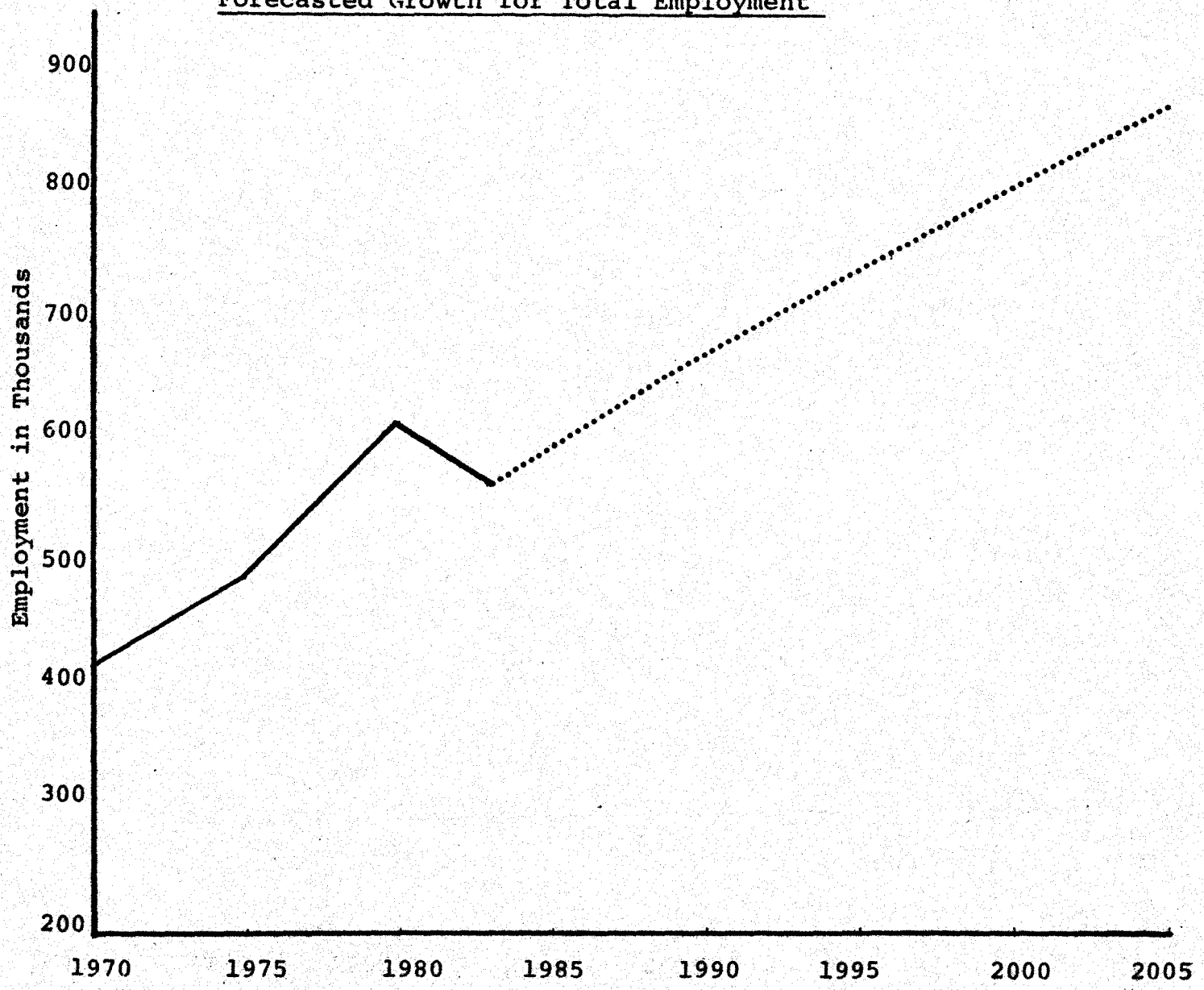
TOTAL EMPLOYMENT

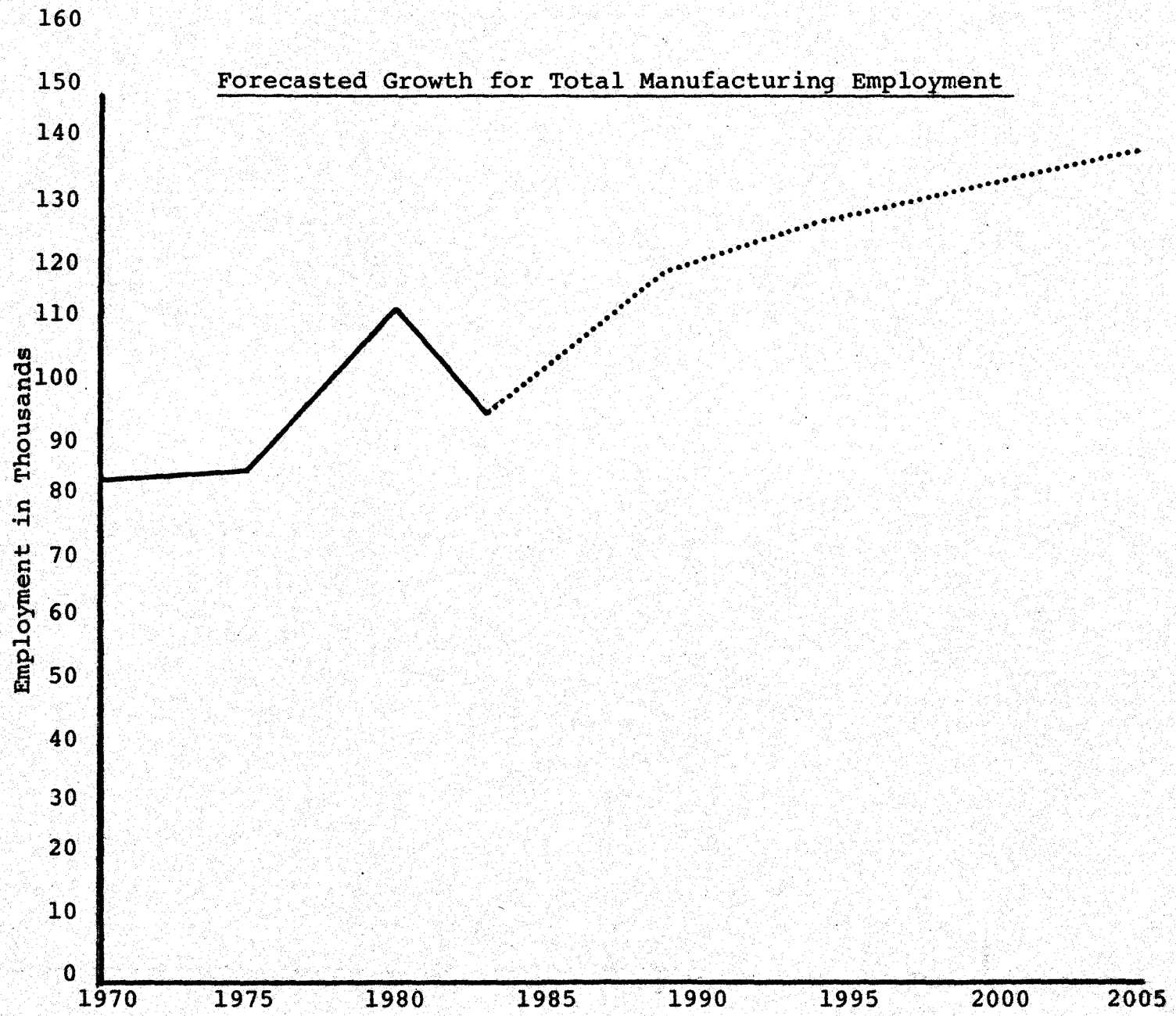
HISTORY & FORECAST



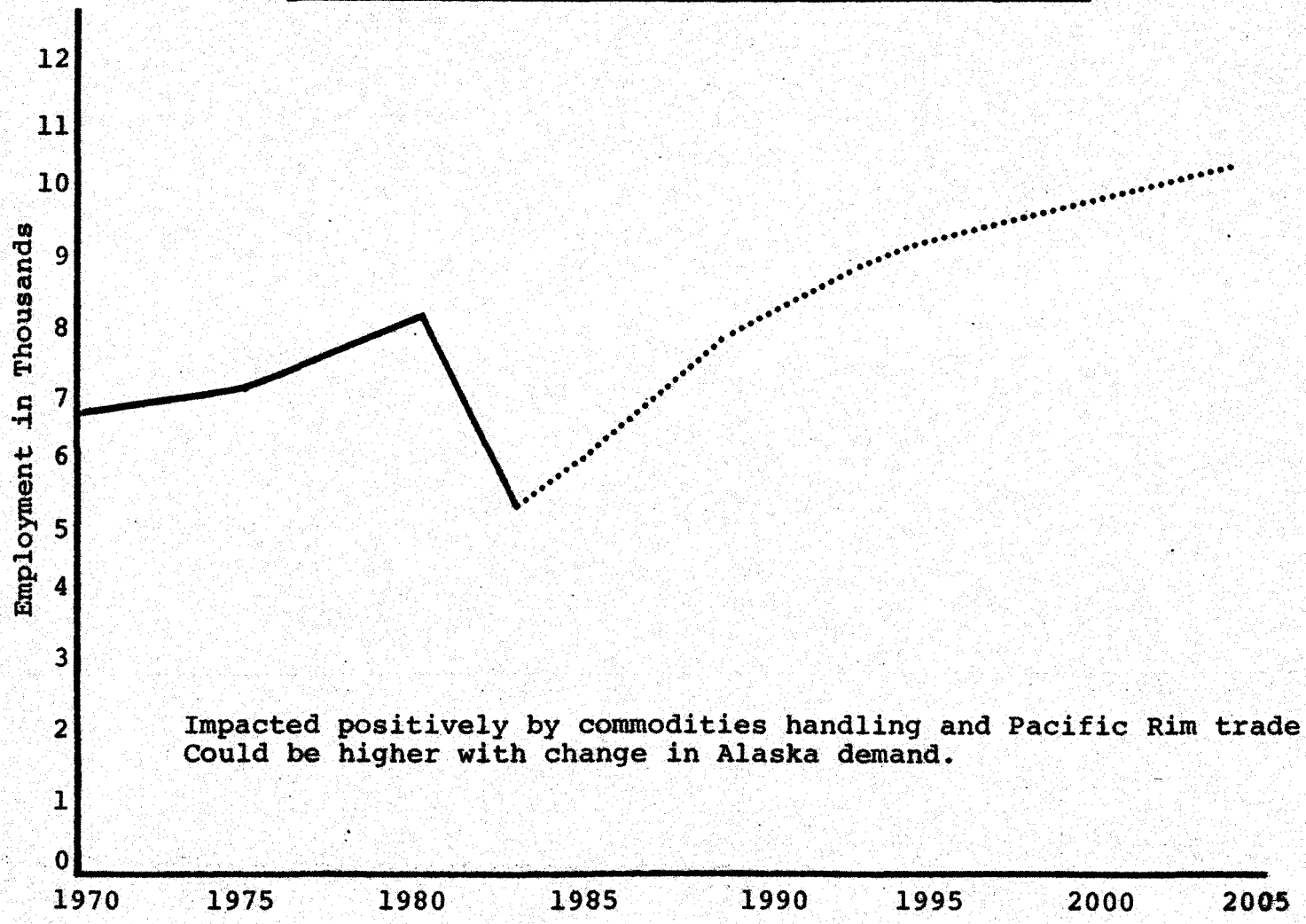
G-1

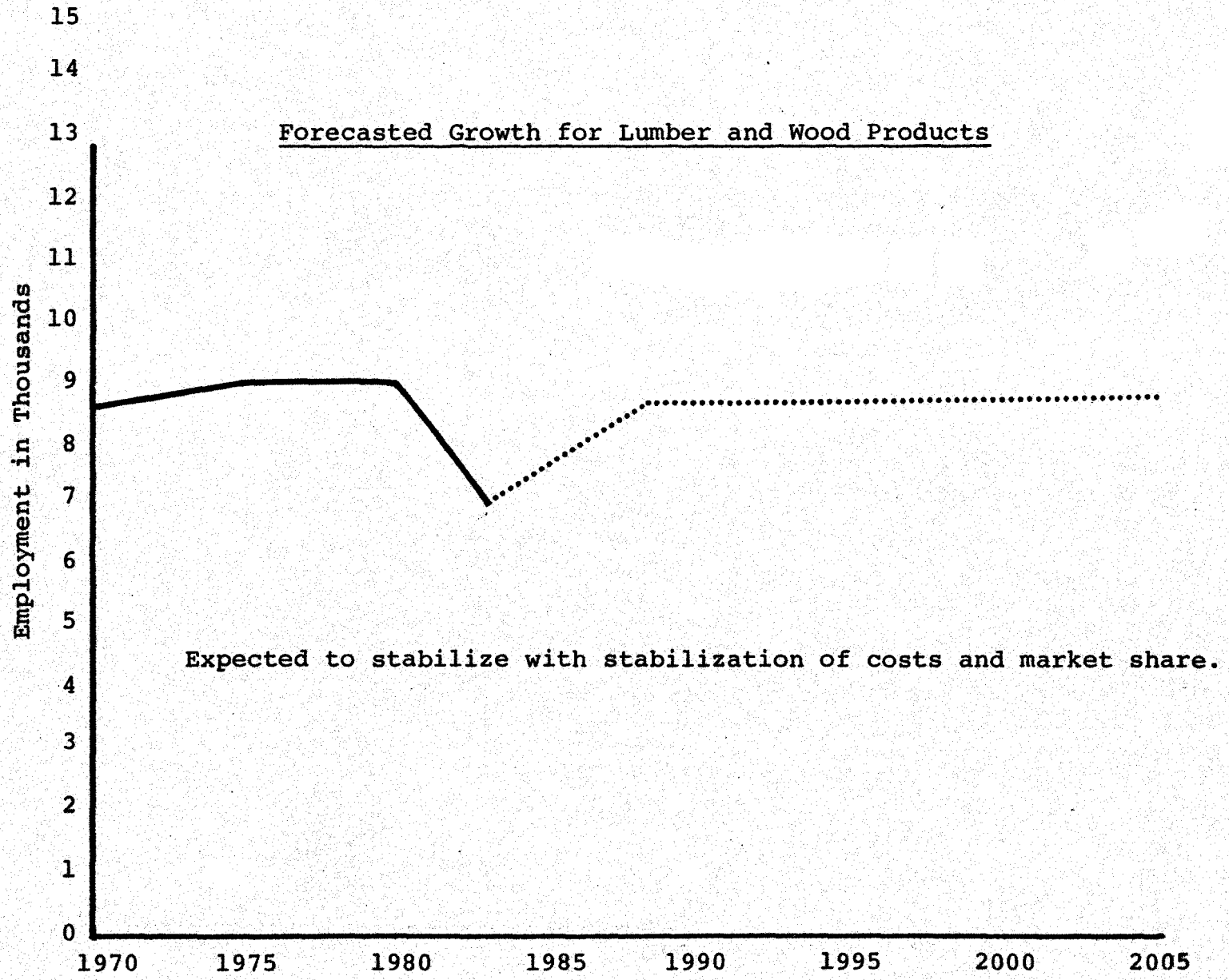
Forecasted Growth for Total Employment



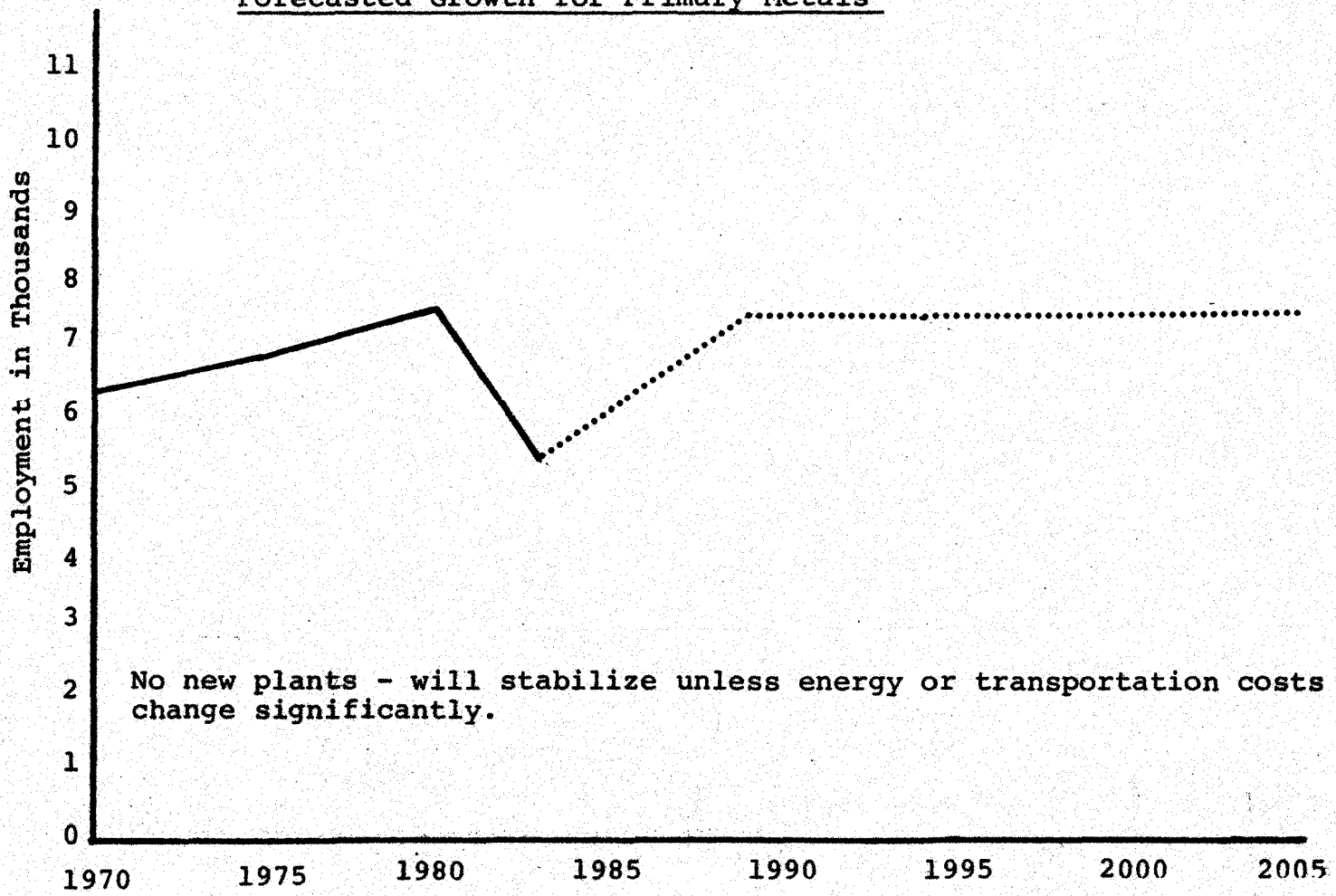

Forecasted Growth for Total Manufacturing Employment
Employment in Thousands
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1970
1975
1980
1985
1990
1995
2000
2005

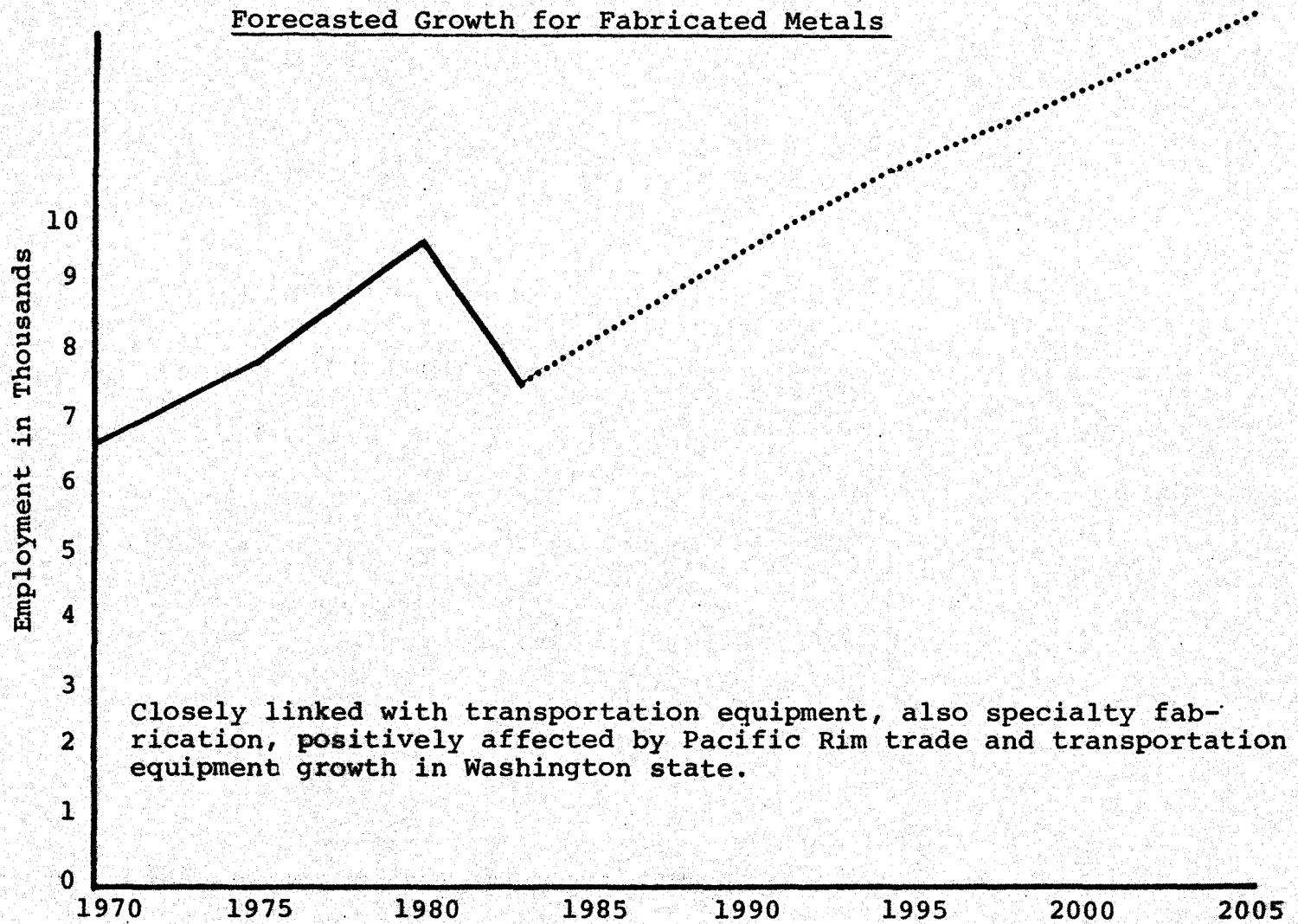
Forecasted Growth for Transportation Equipment



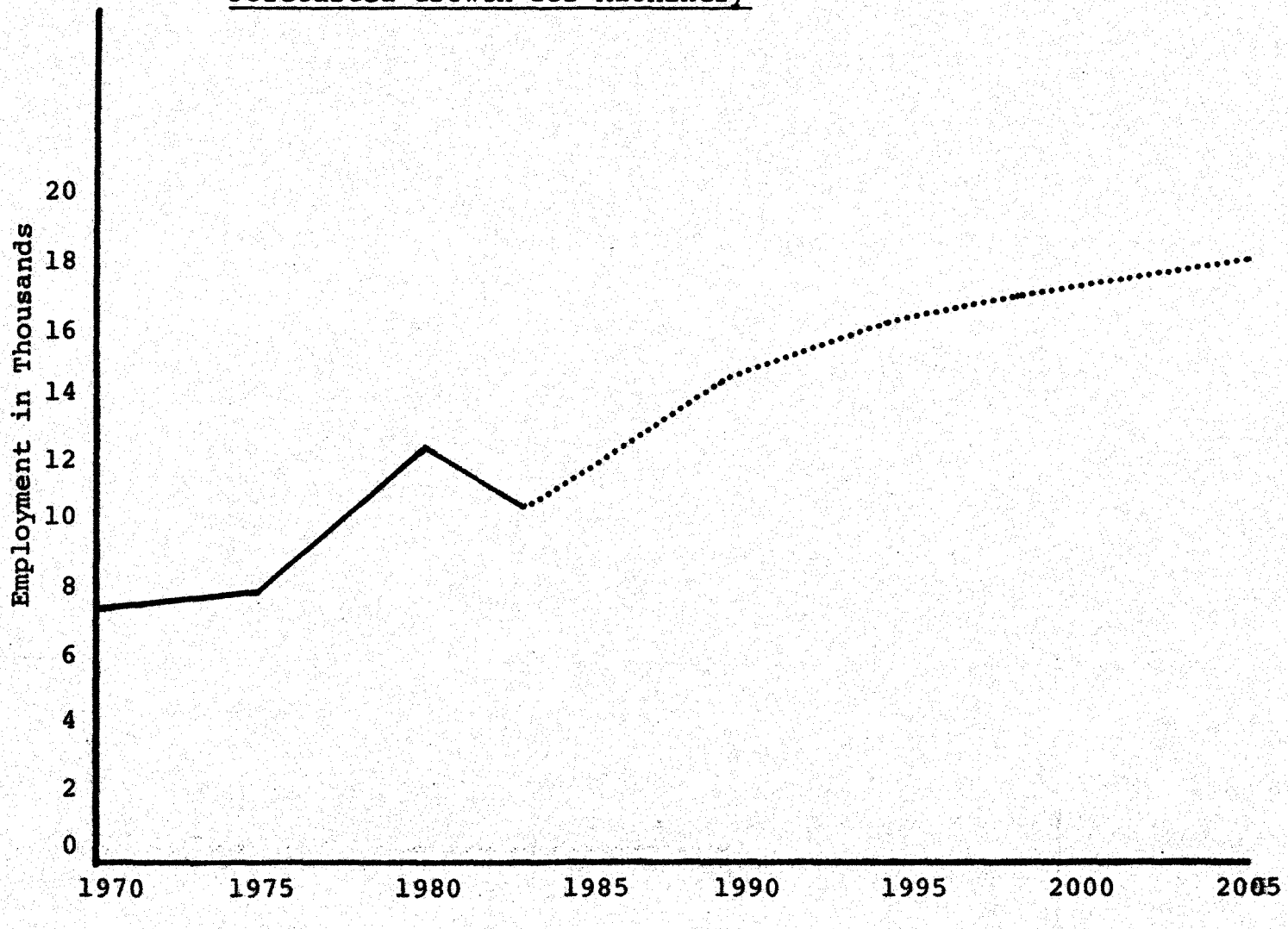

Forecasted Growth for Lumber and Wood Products
Employment in Thousands
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
1970
1975
1980
1985
1990
1995
2000
2005
Expected to stabilize with stabilization of costs and market share.

Forecasted Growth for Primary Metals

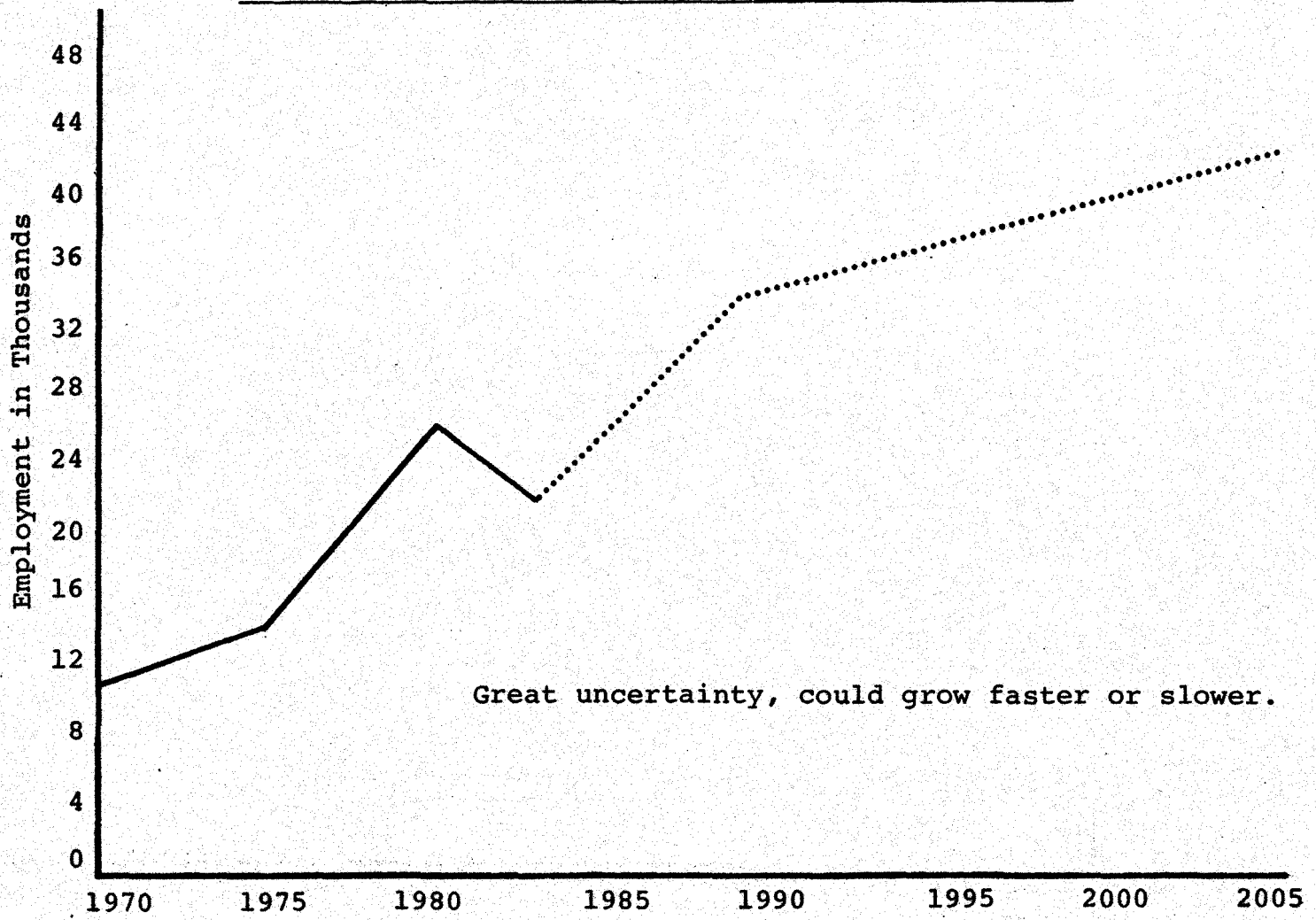



Forecasted Growth for Fabricated Metals
Employment in Thousands
0
1
2
3
4
5
6
7
8
9
10
1970
1975
1980
1985
1990
1995
2000
2005
Closely linked with transportation equipment, also specialty fabrication, positively affected by Pacific Rim trade and transportation equipment growth in Washington state.

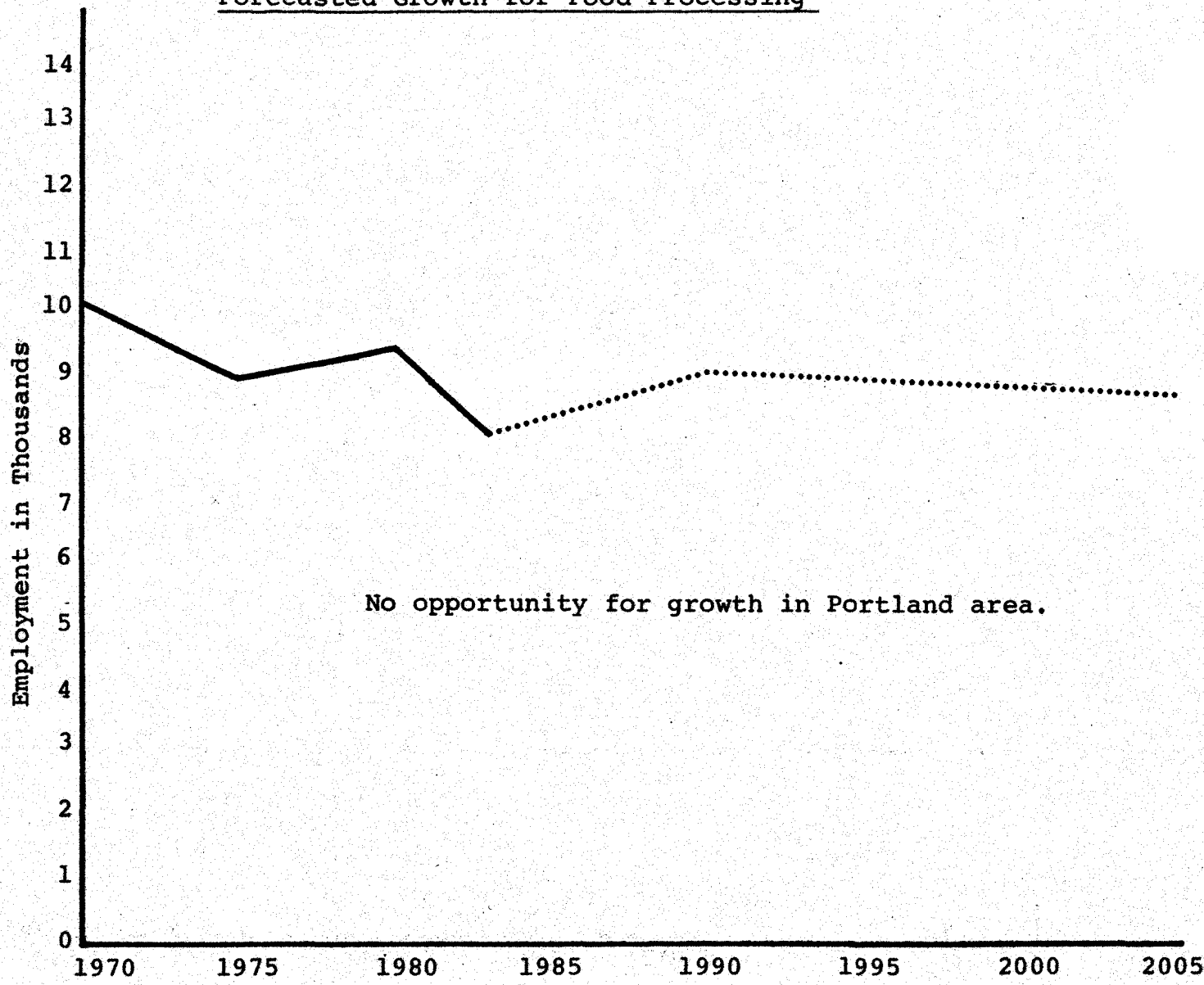
Forecasted Growth for Machinery



Forecasted Growth for Electrical and Instruments

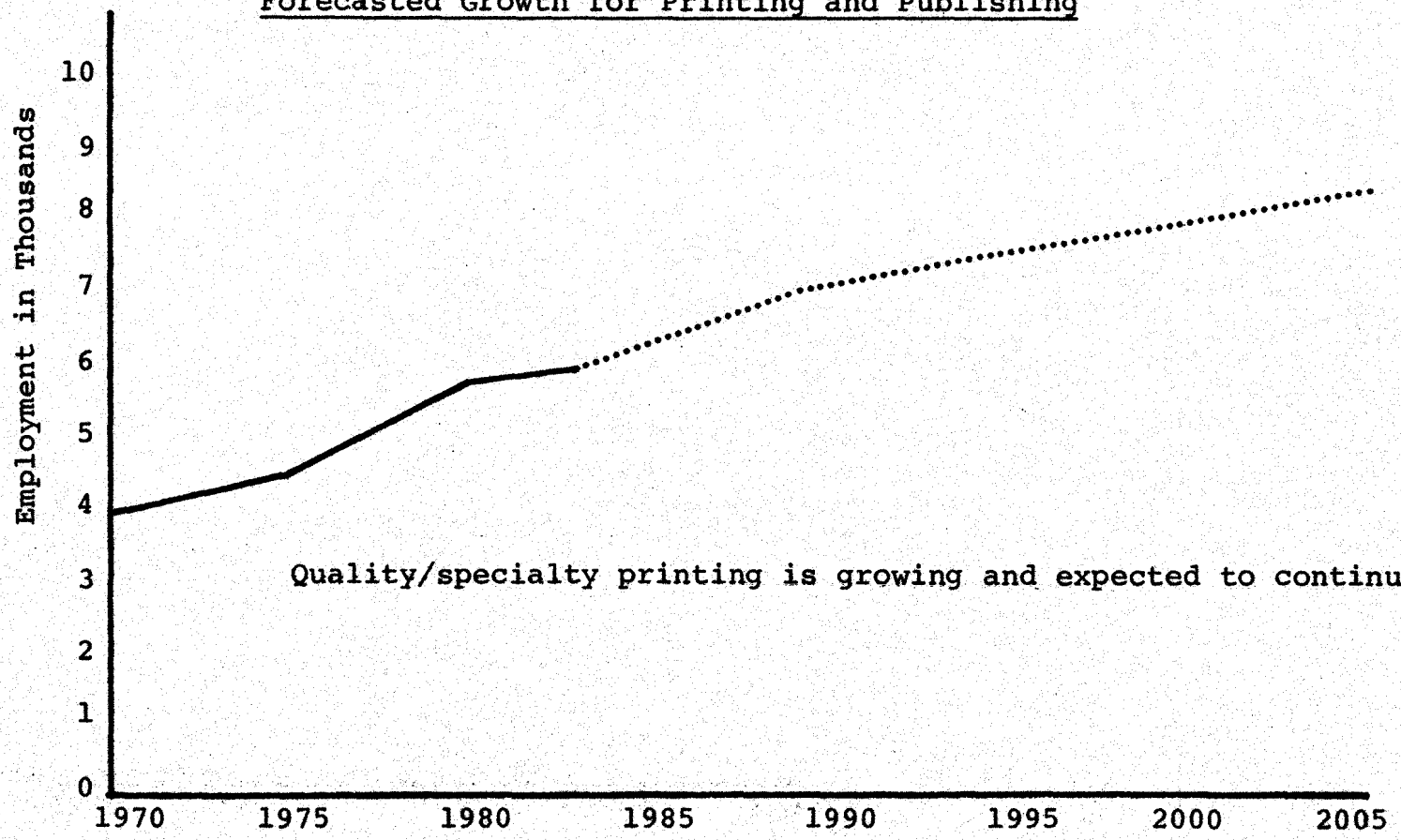


Forecasted Growth for Food Processing



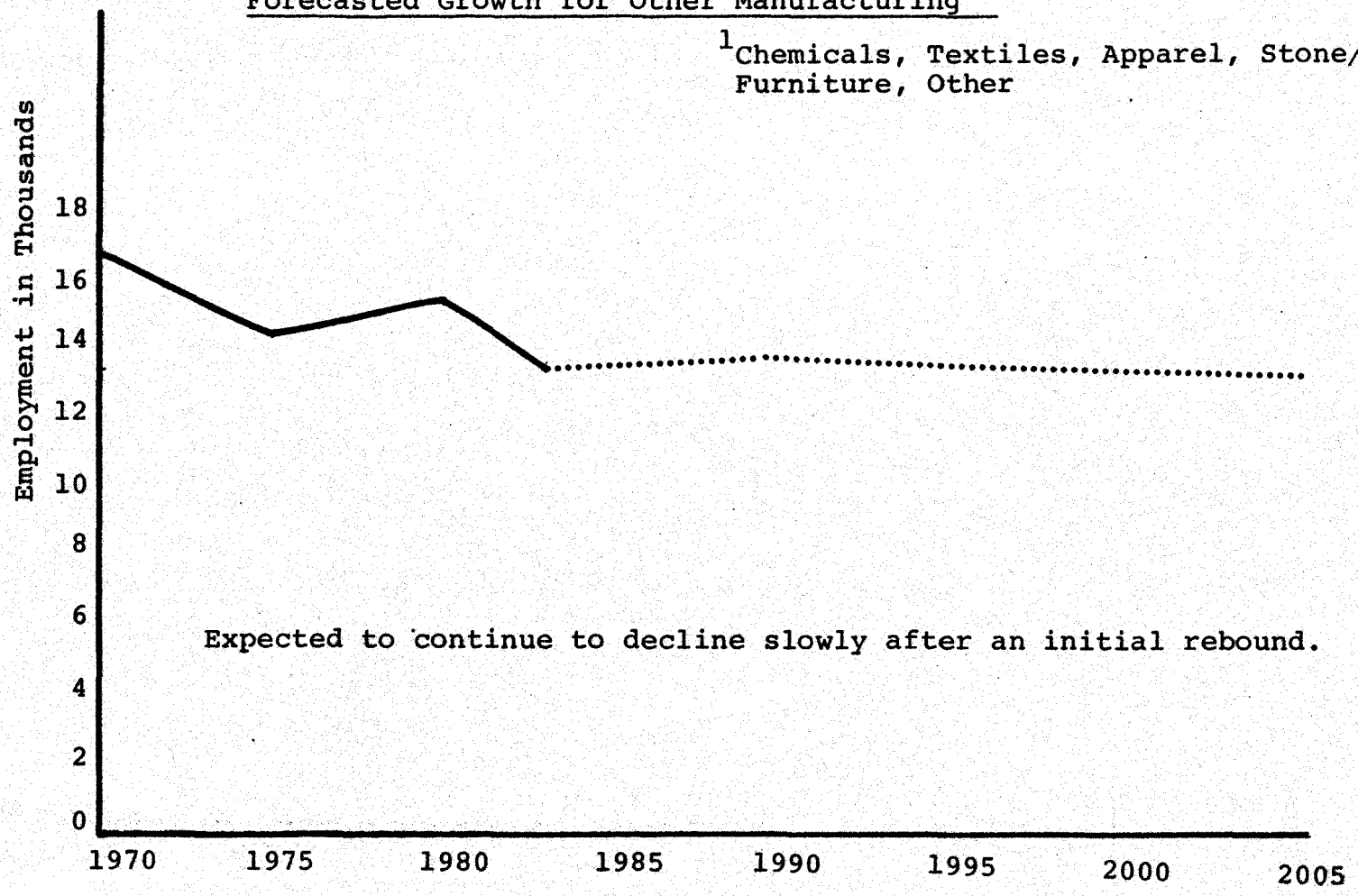
Forecasted Growth for Paper and Allied Products

Forecasted Growth for Printing and Publishing

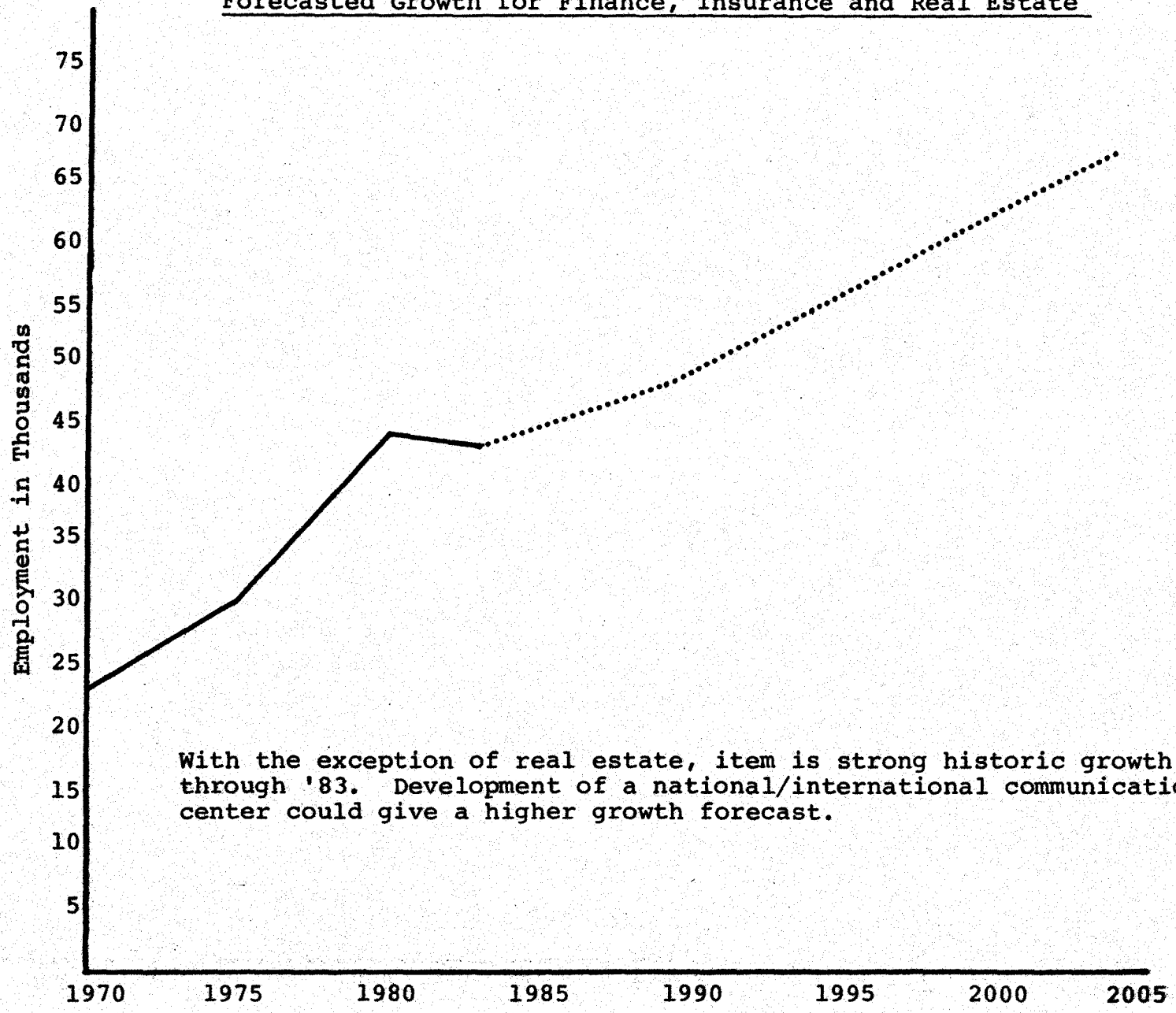


Forecasted Growth for Other Manufacturing[1]

[1]Chemicals, Textiles, Apparel, Stone/Clay/Glass, Furniture, Other

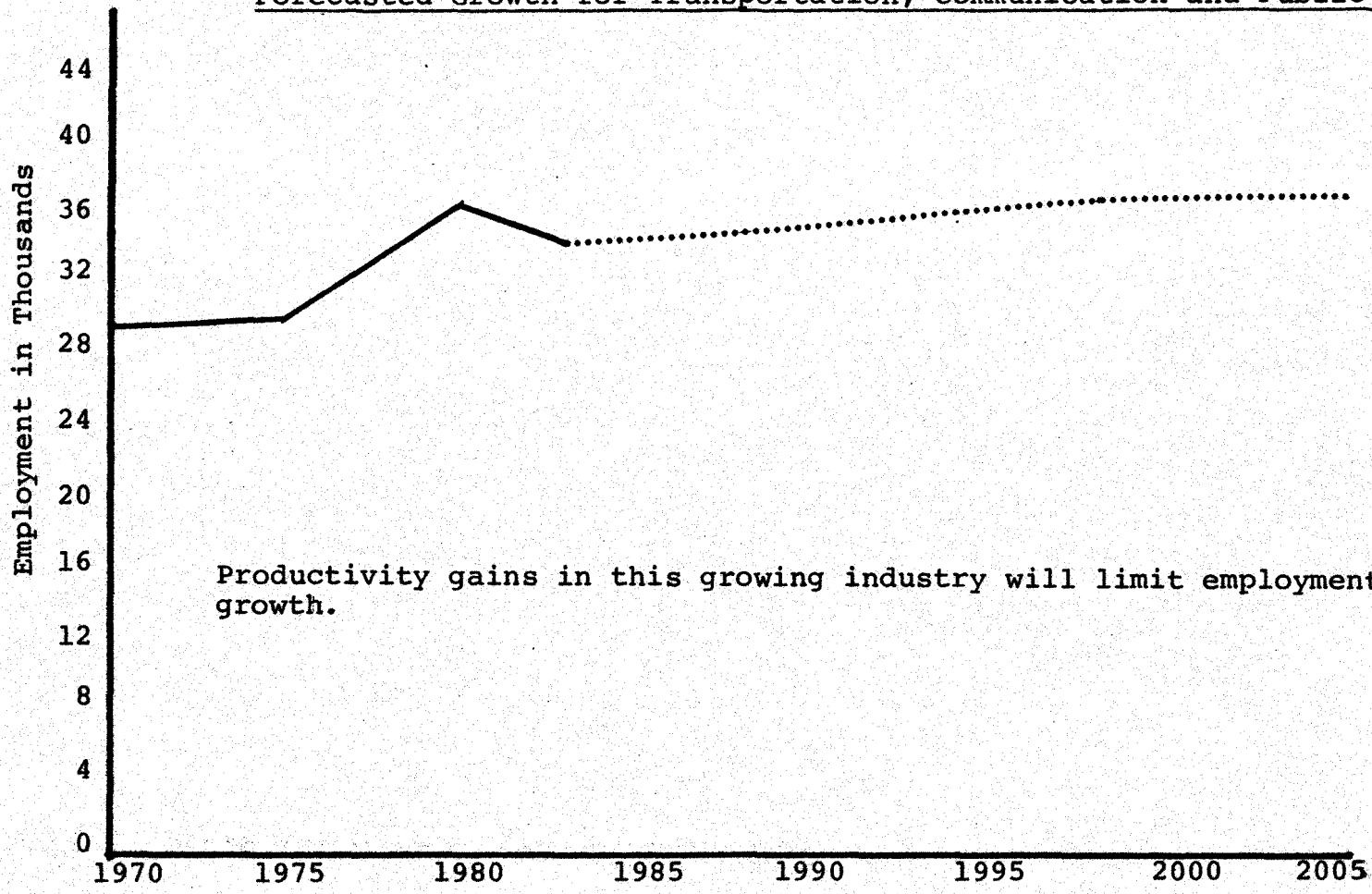


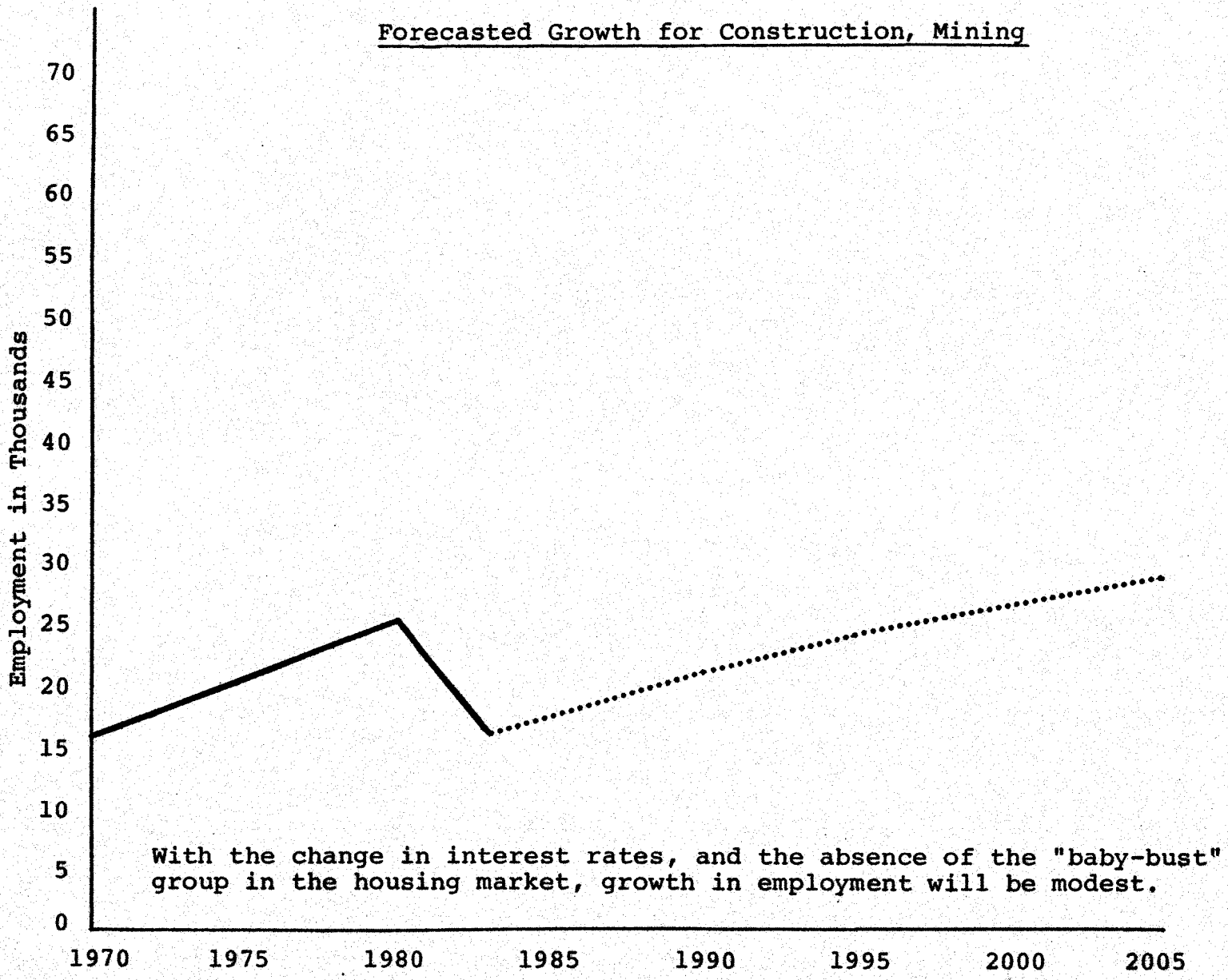
Forecasted Growth for Finance, Insurance and Real Estate



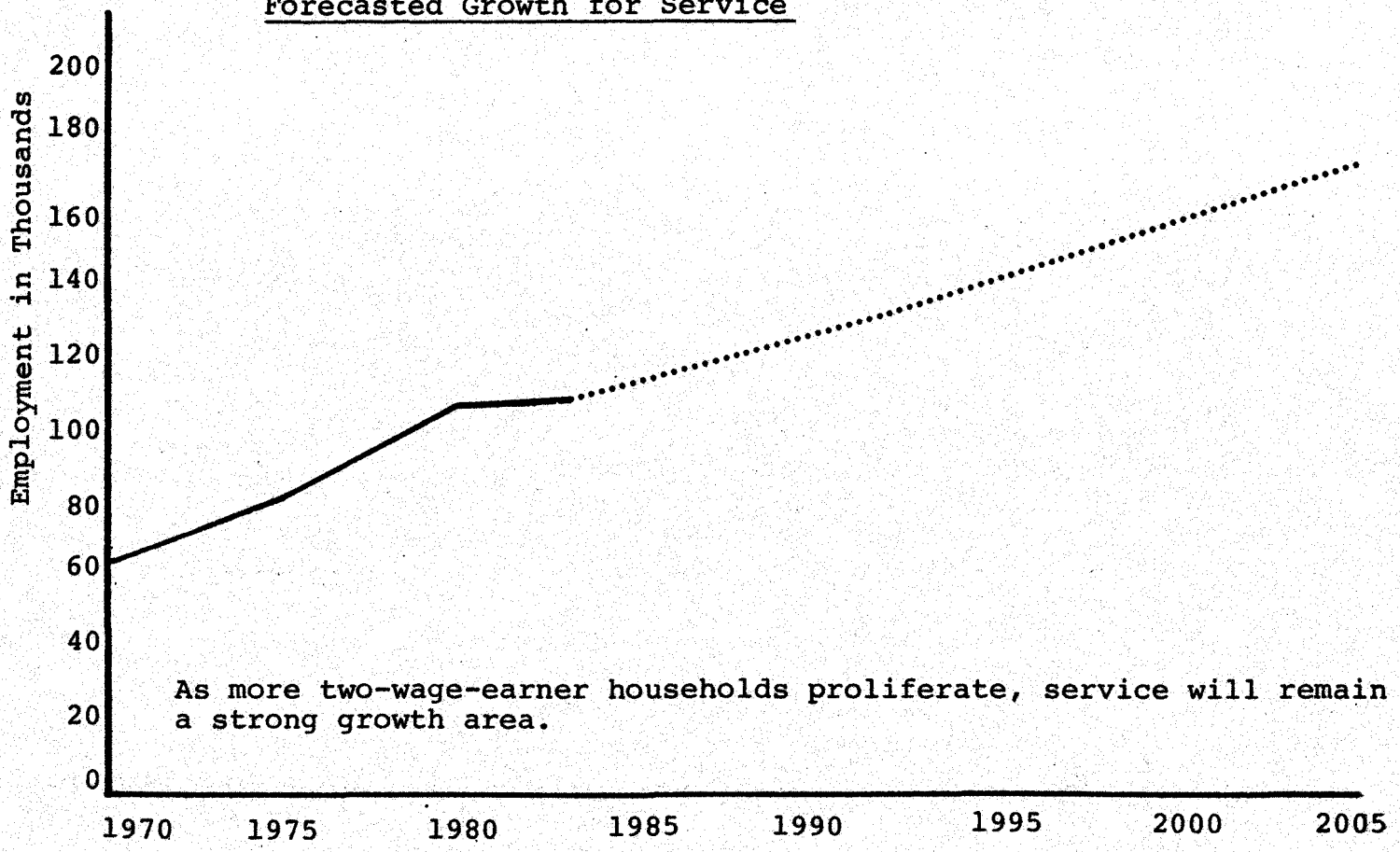
With the exception of real estate, item is strong historic growth through '83. Development of a national/international communications center could give a higher growth forecast.

Forecasted Growth for Transportation, Communication and Public Utilities

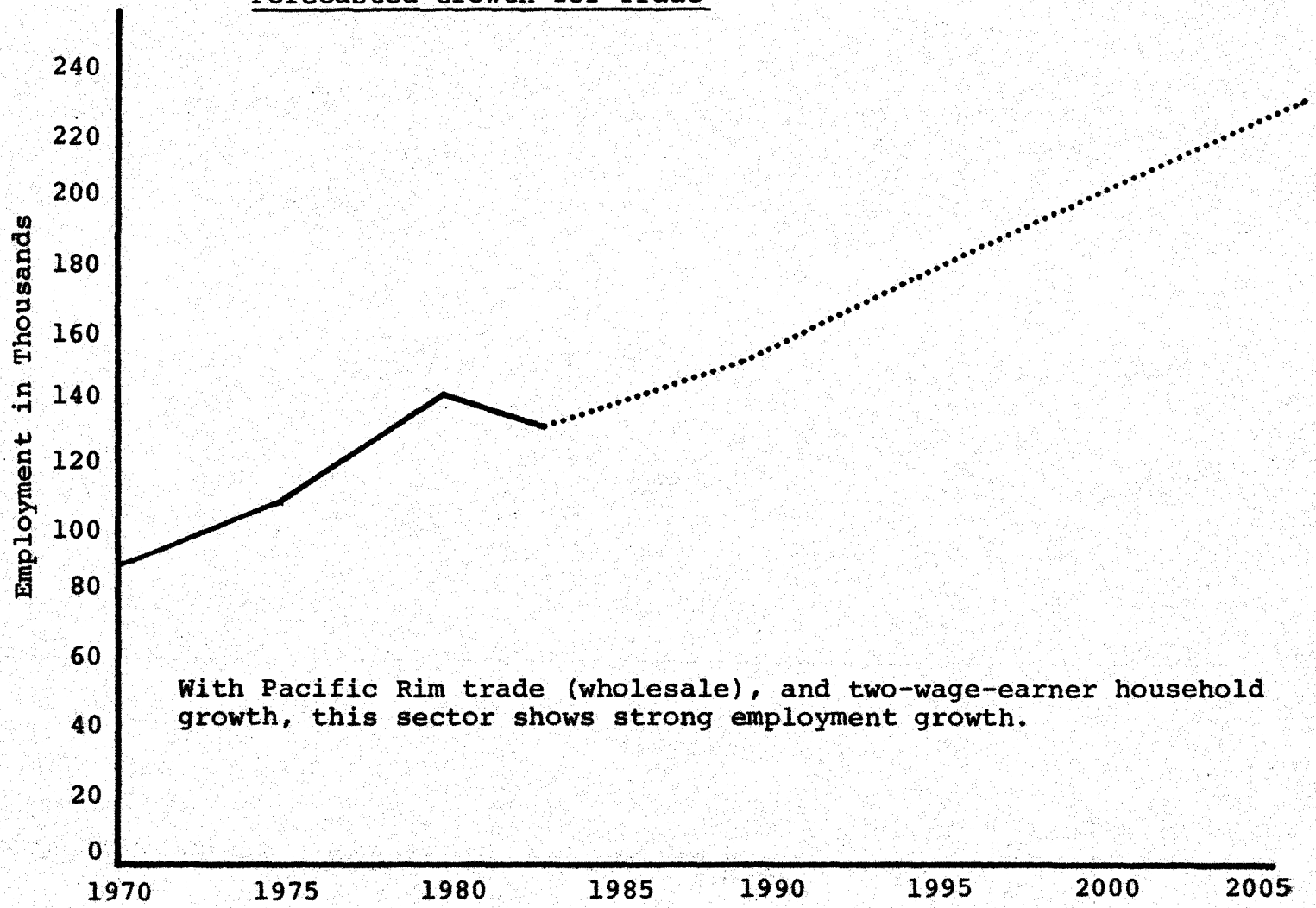



Forecasted Growth for Construction, Mining
Employment in Thousands
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1970
1975
1980
1985
1990
1995
2000
2005
With the change in interest rates, and the absence of the "baby-bust" group in the housing market, growth in employment will be modest.

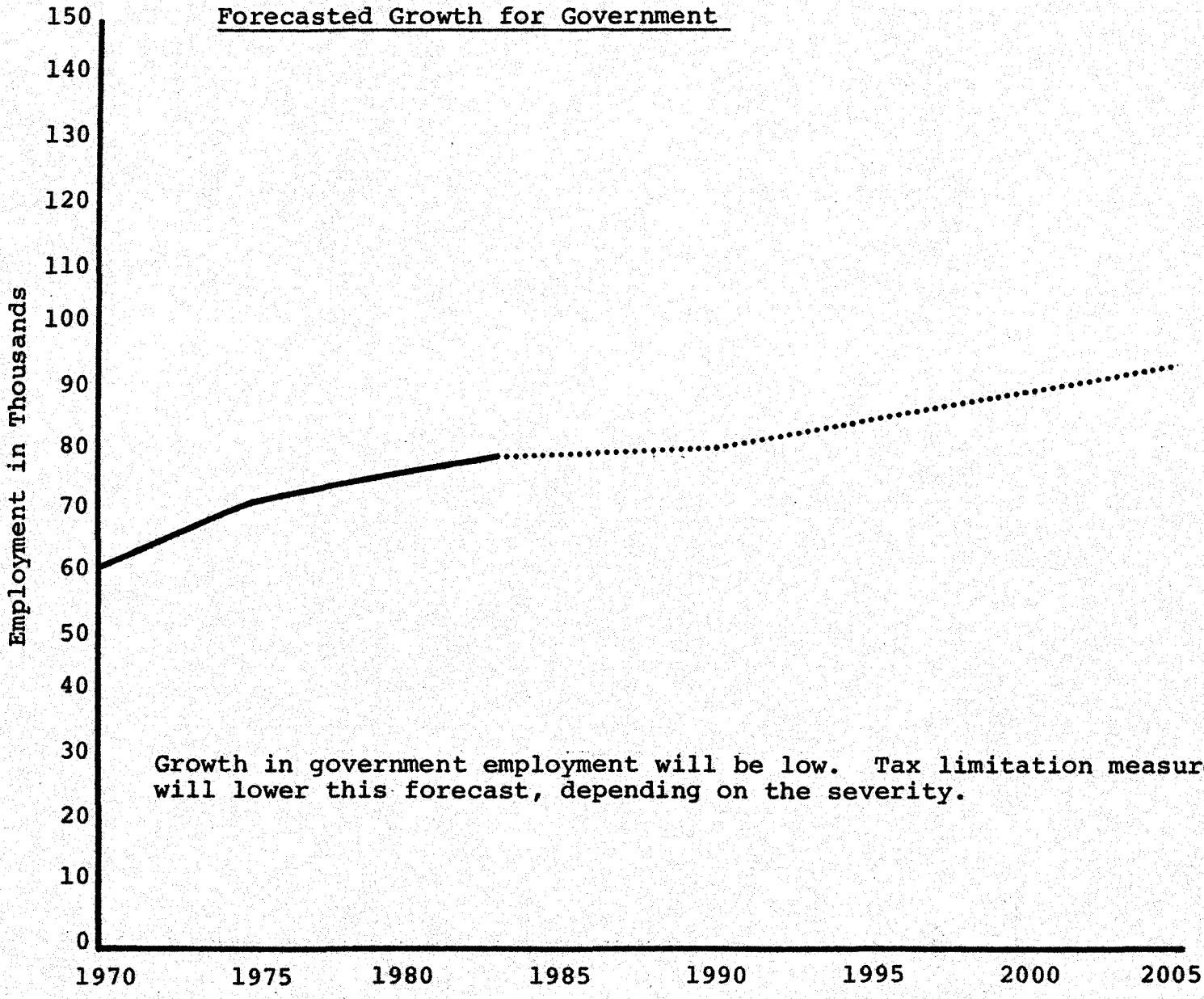
Forecasted Growth for Service



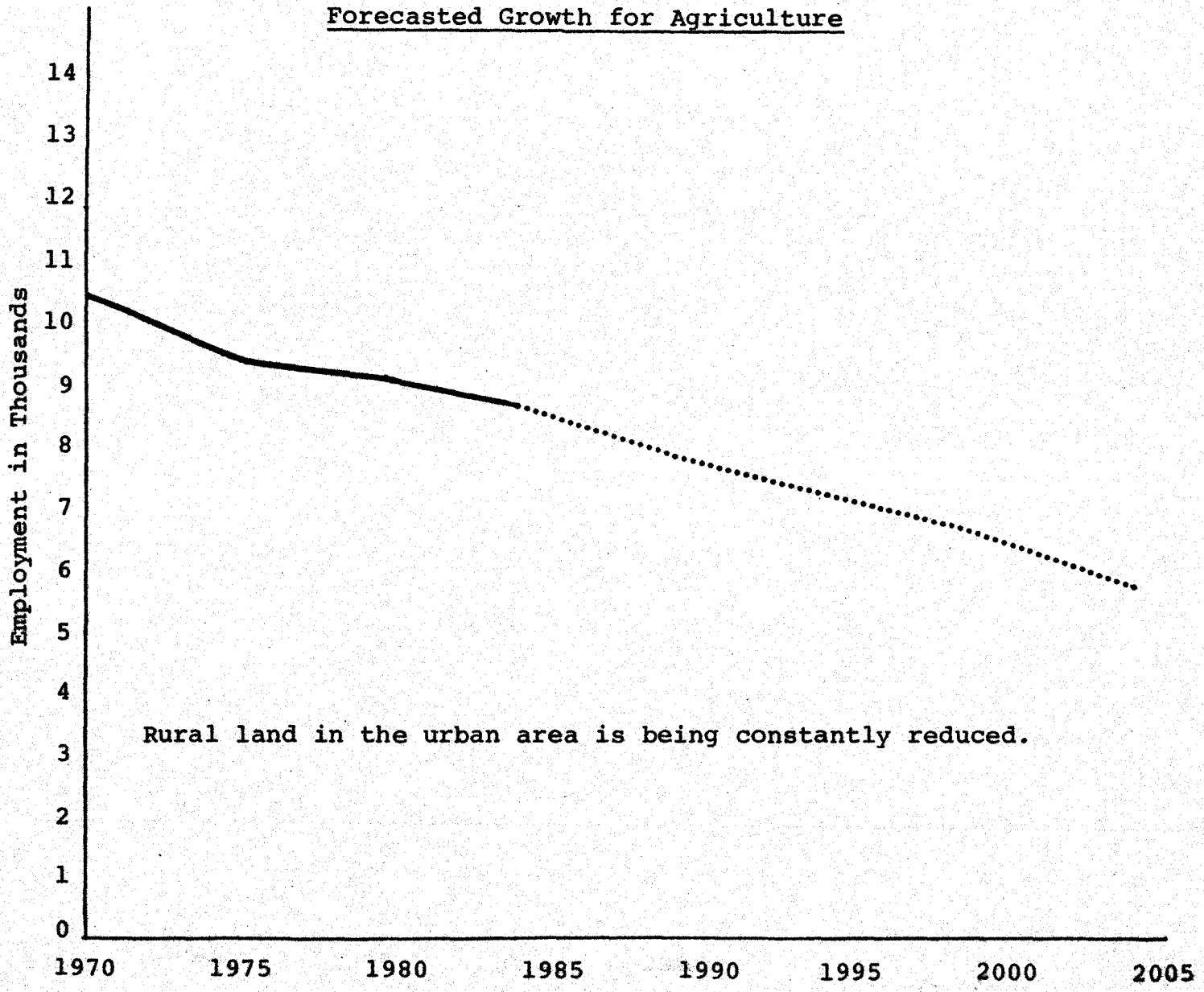
Forecasted Growth for Trade



With Pacific Rim trade (wholesale), and two-wage-earner household growth, this sector shows strong employment growth.


Forecasted Growth for Government
Employment in Thousands
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
1970
1975
1980
1985
1990
1995
2000
2005
Growth in government employment will be low. Tax limitation measures will lower this forecast, depending on the severity.

Forecasted Growth for Agriculture



Rural land in the urban area is being constantly reduced.

POPULATION FORECAST

To a large extent, the strength of the economy in this region strongly affects population change. Historically the growth in jobs has led to in-migration of population as the natural increase has been insufficient to provide an adequate labor force. Conversely a weak economy would lead to a net out migration. The population forecast can thus be assumed to be dependent on the employment forecast.

PROCESS

The process is as follows:

1. Remove employment satisfied by net inward commuting.

   Employment (population) = Total Employment - Net External Commuting Employment

2. Determine population based labor force using an assumed unemployment rate.

   $$\text{Labor Force (population)} = \frac{\text{Employment (population)}}{(1 - \text{Unemployment Rate})}$$

3. Estimate population using a modeled output of the population profile (age/sex distribution) and assumptions on labor force participation rates by age and sex.

   This is carried out using a five-year interval cohort survival/migration model which uses assumptions on fertility rates and deaths, and assumptions on the age/sex profile of in-migrants where these are needed to satisfy labor force needs. This model is located at the Center for Population Research and Census at Portland State University and uses base year and migration profiles which are representative of the Portland region.

4. Household Population - Those who live in houses and apartments, is estimated by removing the population in institutions (old-age homes, nursing homes, prisons, dormitories, etc.).

5. The number of households is then calculated using assumptions on household size (number of persons per household).

6. The number of detached (houses) and attached (apartments, condominiums, duplex dwellings, row houses) dwelling units is then estimated using assumptions on vacancy rates and the component mix of new construction (detached versus attached).

The Appendix contains detailed information on the assumptions that evolved from the discussions. These assumptions are described briefly in the next section.

ASSUMPTIONS

Net External Commuting Employees: This is the net difference between those who live outside the SMSA and work inside and those who live inside and work outside. The net inbound is expected to increase at an average of 300 per year to go from 5,500 in 1980 to 13,000 in 2005.

Unemployment Rate: Discussion centered around the traditional 1 to 2 percent over national figures experienced locally. Nationally, with the change in labor force participation (higher, more women) there is a growing attitude that the lowest structural unemployment rate has moved from 4 percent to 5 or 6 percent. This led to an expected average value locally of about 7 percent.

Population-Age/Sex Profile: The population profile is made up of each surviving five-year cohort aged by five years (original population in the sex and age group minus those expected to die in a five-year period, plus a new zero- to five-year cohort based on birth rates) plus the in-migrants for a five-year period who have a younger profile. Details of these profiles can be found in the Appendix. The profile here is expected to change with a greater representation of the 35 to 65 year age groups compared with the 0-15 year age group and the 16 to 34 year olds. The results are shown in Table 4, "Population Profiles."

Labor Force Participation: In the Growth Forum discussions, the continued trend of reduction in the 55 to 64 year age group was challenged. It was suggested that with an aging population there will be a reversal of this trend for this age group. The early retirement programs brought on by the baby-boom impact were thought to be near their end, and age discrimination is also expected to be less prevalent. Arguments were also made for an expected increase in participation of the 65+ age group. In the light of this, Metro staff decided to use the National Planning Associates assumptions for the nation, factored to the SMSA, which respond to the above concerns. The participation rates for the 55 to 64 and the 65+ age groups are thus expected to increase. This forecast also assumes that the trend of rapidly increasing participation of women in the 25 to 34 year age group will start to level off at about 73 percent, increasing to 76 percent by 2005. It is thus assumed that there is some participation limit to those women in the prime child-bearing and rearing years. The assumed rates are shown in Table 5 and Graphs G21 through G27.

Group/Institutional Population: This group includes the population in dormitories, prisons, nursing homes, old age homes, etc., and is assumed at a constant 2 percent of population.

TABLE 4

Population Profiles (CPRC Model)
(Expressed as a Percent of Total Population for Year)

	1980			1990			2005		
	% M	% F	% T	% M	% F	% T	% M	% F	% T
0-15	12.2	11.6	23.8	11.6	10.9	22.5	9.7	9.1	18.0
16-19	3.3	3.3	6.6	2.7	2.6	5.3	2.7	2.6	5.3
20-24	4.4	4.6	9.0	3.6	3.5	7.1	3.5	3.3	6.8
25-34	9.7	9.8	19.5	8.1	8.3	16.4	7.4	6.9	14.3
35-44	6.1	5.9	12.0	9.1	9.2	18.3	8.1	7.8	15.9
45-54	4.5	4.7	9.2	5.4	5.4	10.8	8.0	8.2	16.2
55-64	4.2	4.8	9.0	3.7	4.0	7.7	5.8	6.0	11.8
65+	4.3	6.6	10.9	4.8	7.1	11.9	4.4	6.5	10.9
All Total	48.7	51.3	100.0	49.0	51.0	100.0	49.6	50.4	100.0

TABLE 5

Labor Force Participation Rates
NPA U.S. Factored to SMSA

	1980		1985		1990		1995		2000 & 2005	
	M	F	M	F	M	F	M	F	M	F
16-19	59.1	56.4	61.3	59.3	63.5	62.3	65.5	64.4	67.4	66.5
20-24	86.2	72.3	85.1	74.4	84.0	76.6	84.4	77.4	84.8	78.1
25-34	93.1	67.3	92.4	70.3	91.7	73.4	91.4	74.7	91.0	76.0
35-44	95.2	67.9	95.4	73.3	95.7	78.8	96.7	82.1	97.7	85.4
45-54	92.1	61.4	91.7	62.7	91.4	64.0	93.2	65.3	94.6	66.6
55-64	72.0	43.5	65.9	42.8	67.7	42.1	71.3	42.2	74.9	42.3
65+	18.0	8.5	16.5	8.3	16.7	8.2	19.3	8.3	21.8	8.4

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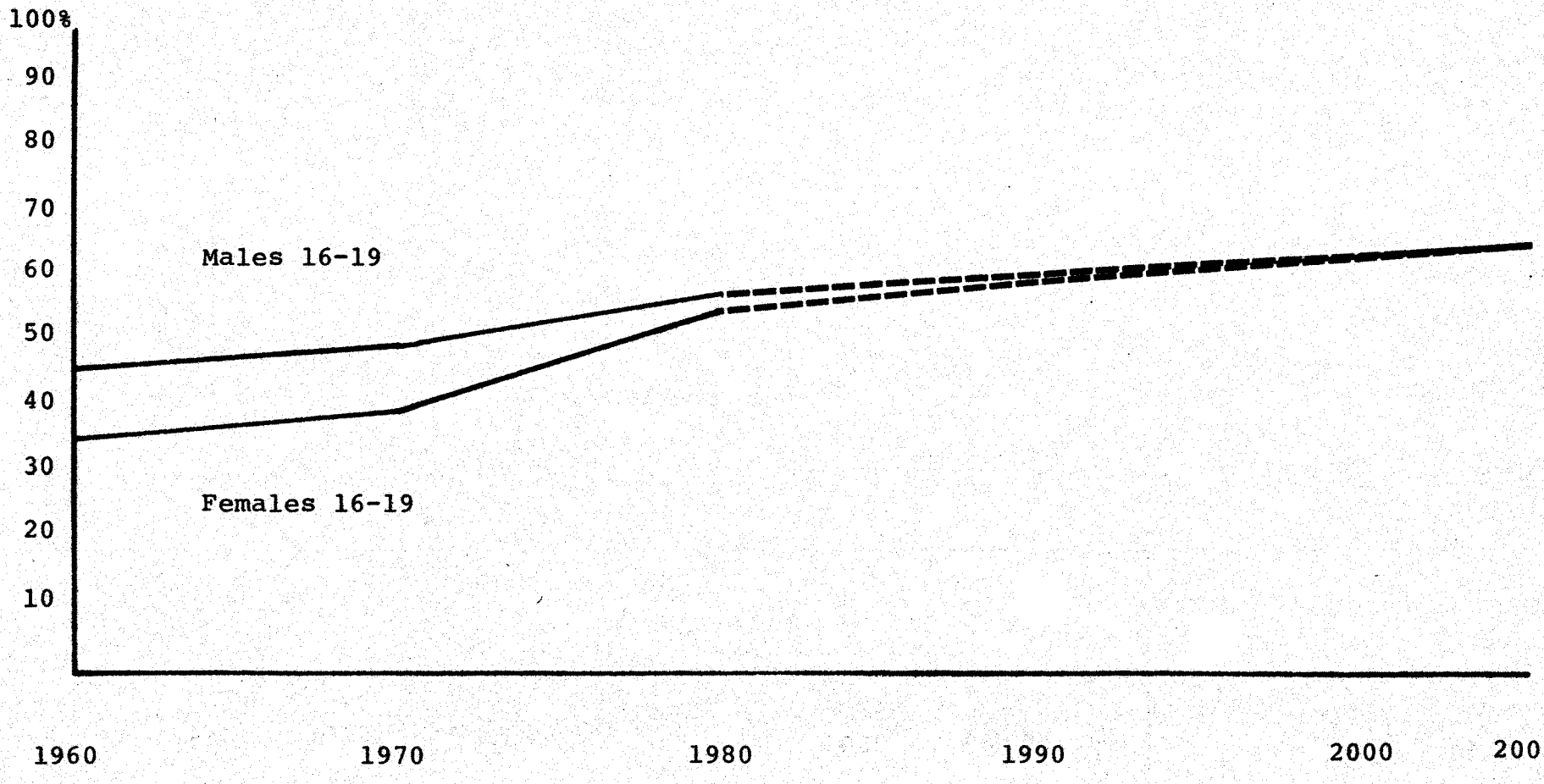
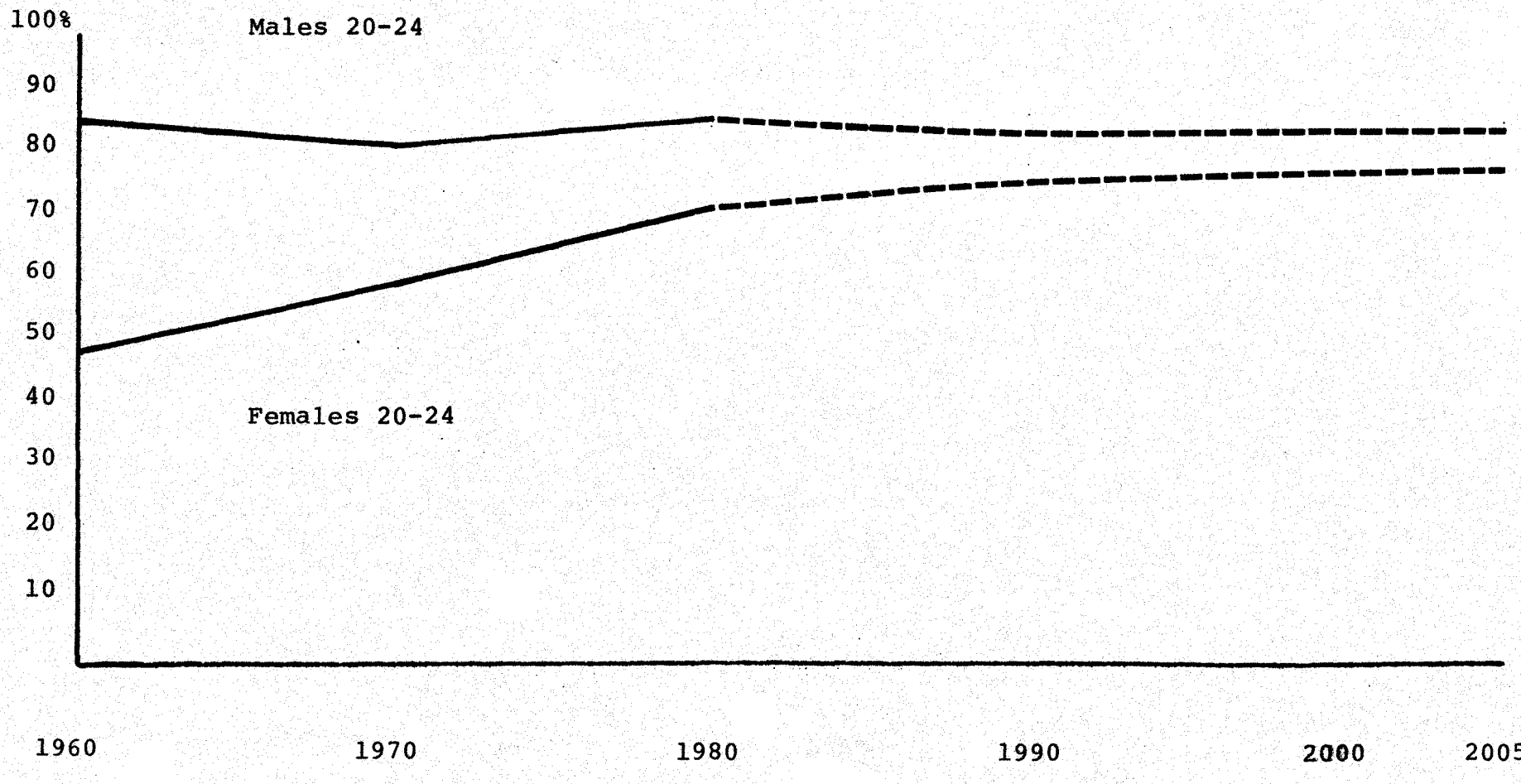
Labor Force Participation Rates

Historic and Forecast



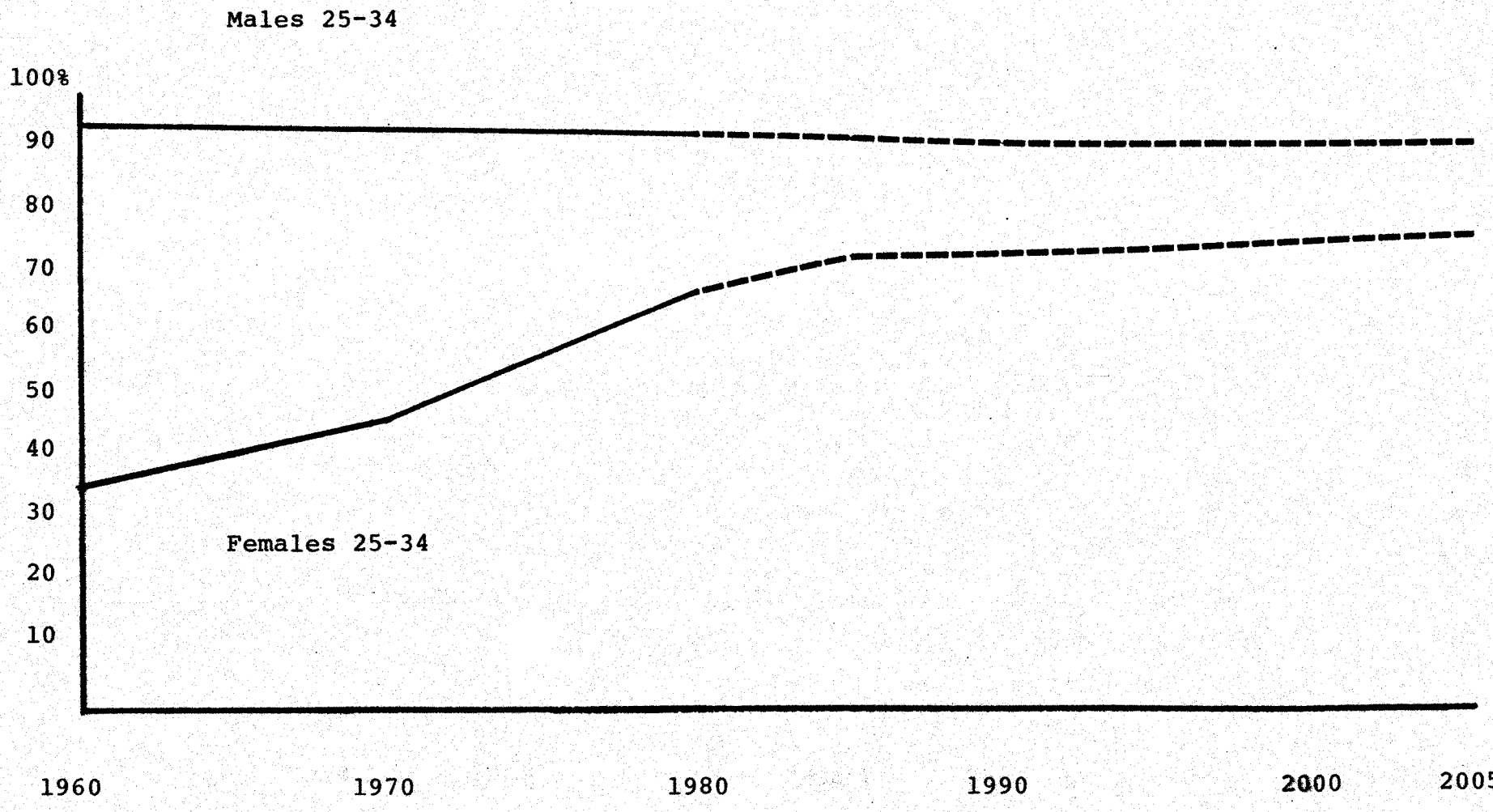
Labor Force Participation Rates

Historic and Forecast



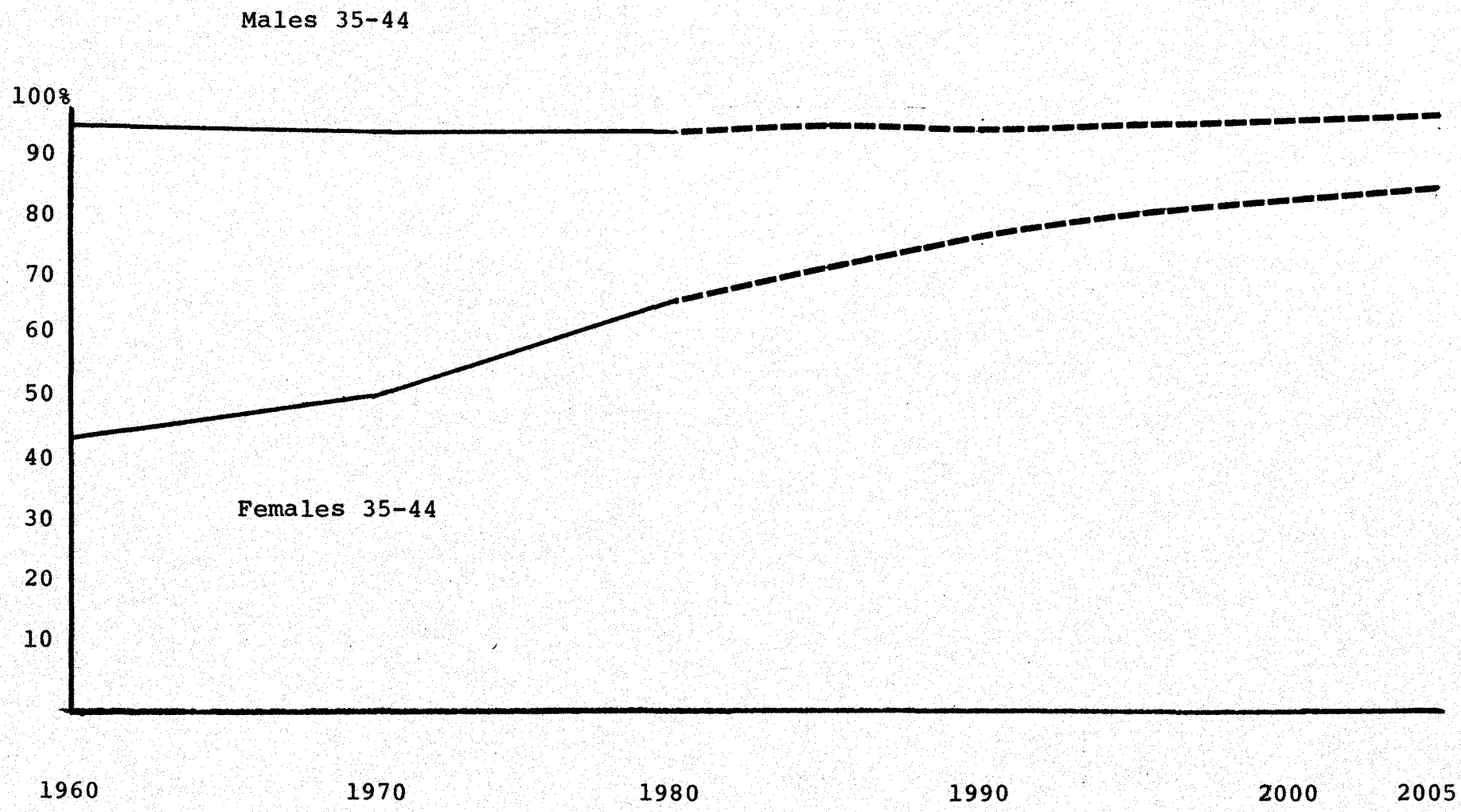
Labor Force Participation Rates

Historic and Forecast



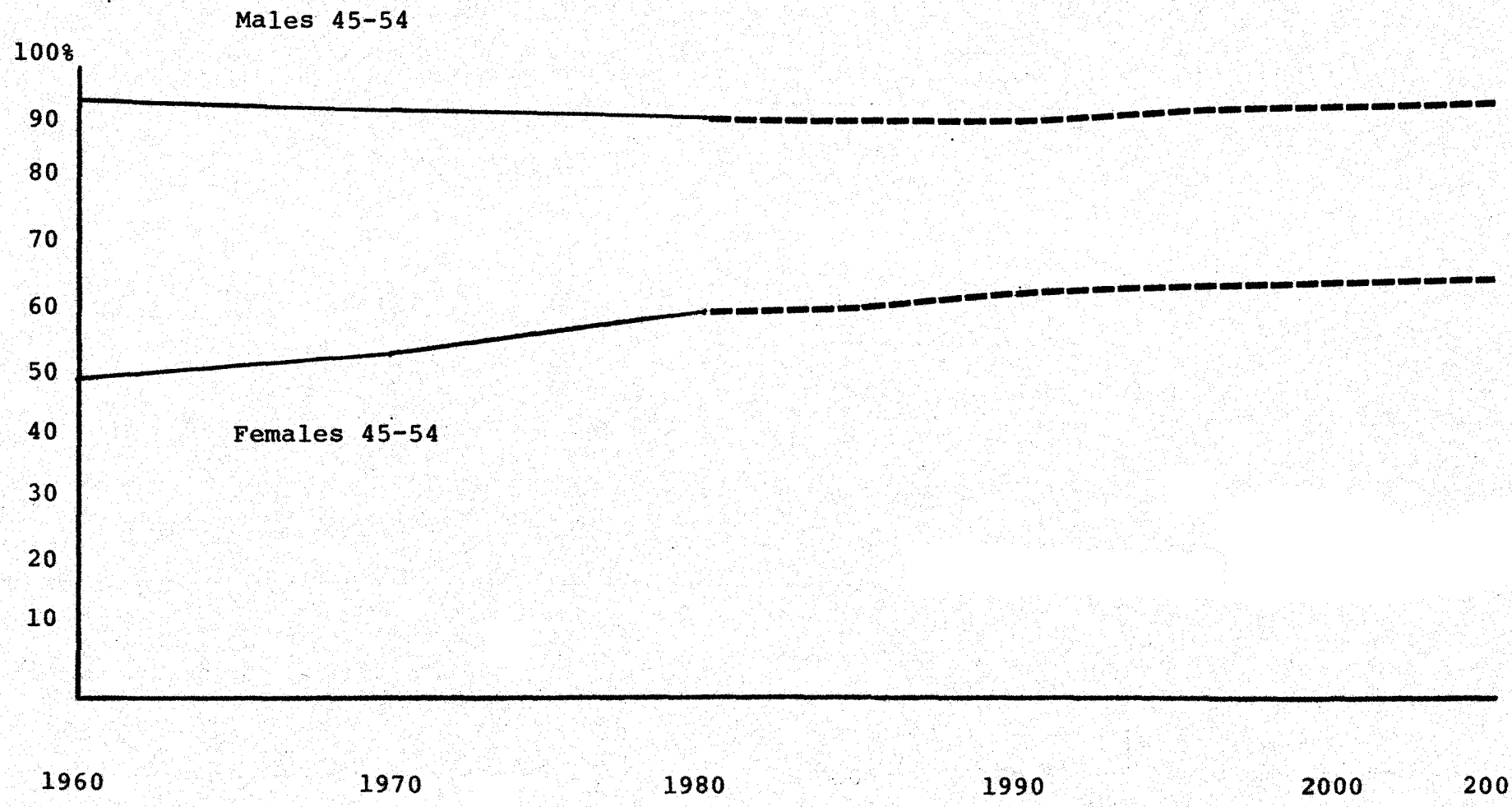
Labor Force Participation Rates

Historic and Forecast



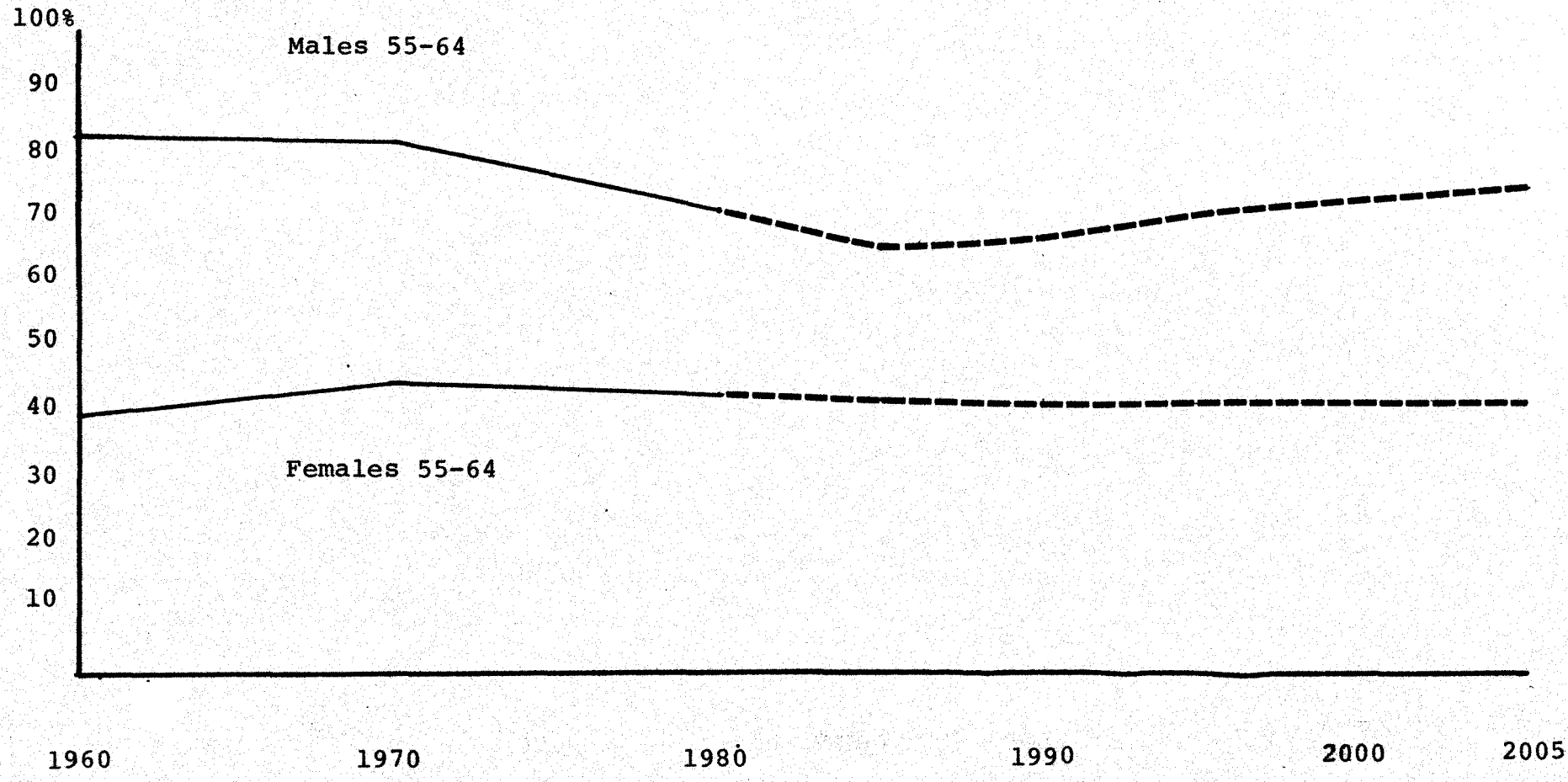
Labor Force Participation Rates

Historic and Forecast



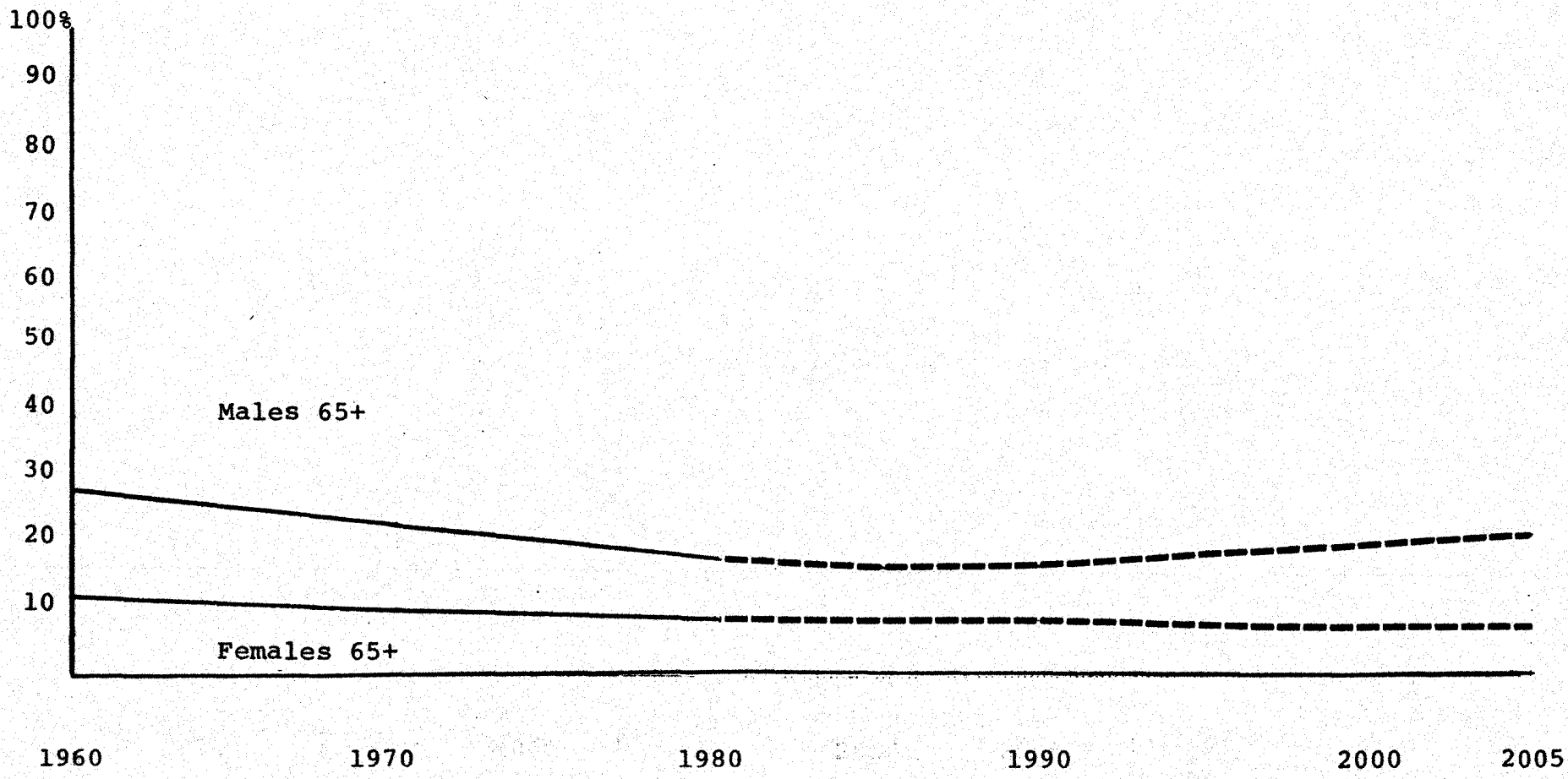
Labor Force Participation Rates

Historic and Forecast



Labor Force Participation Rates

Historic and Forecast



Household Size: The average size of households has been declining since 1960 when it was 2.99 persons per household for the SMSA, to 2.59 persons per household in 1980. The causes are reduced birthrate, increased divorce rate and a reduction in the marriage rate. This was helped by good economic times and low mortgage rates during a time when the real cost of housing seemed to be declining (or conversely people were buying larger and higher quality homes). There are possibilities that all of the above trends may change, becoming less pronounced or even becoming reversed. Economic necessity may lead to young adults staying with parents longer, may make it more expensive to divorce and live in two households, and may make sharing more important. Also the birthrate may have bottomed out, the divorce rate seems to be stabilizing and marriage is becoming fashionable again. While these are mostly 'maybe' it was apparent that the trend of reducing size is expected to bottom out with a reasonable assumption that the household size will stabilize at between 2.4 and 2.5 persons per household. This forecast will assume 2.45 persons per household.

Detached/Attached Housing Ratio: It appears that the acceptance of condominiums in this SMSA has not been good, with a perceived preference for smaller detached homes rather than condominiums as a way of responding to increasing land, building and mortgage costs. With an increase in the older population (35+), the demand for apartments is expected to decline. After some discussion, an expected ratio for new construction was agreed to at between 65/35 and 70/30 (detached/attached). For this forecast, a 65/35 ratio has been assumed.

RESULTS

The process and assumptions led to population and dwelling unit forecasts for this region, as shown in Table 6.

TABLE 6

Population and Dwelling Units
Portland/Vancouver SMSA

	1980	1983	1990	2005
Population	1,245,000	1,277,200	1,410,500	1,739,600
Detached Dwellings	353,600	367,100	398,700	498,000
Attached Dwellings	150,200	156,800	173,800	231,800
Total Dwellings	503,800	523,900	572,500	730,400

Detailed information on assumptions and relationships are given in the Appendix.

COMPARISON OF FORECASTS:

Table 7, "Comparison of Population Forecasts," shows some very significant differences in population forecasts and growth rates from the various sources, varying from 1.15 percent per year to 2000 (NPA) to 1.66 percent per year (BPA 1983).

Table 7

COMPARISON OF POPULATION FORECASTS

	Year 2000 (in 1,000s)	Year 2005 (in 1,000s)	AAGR[1,2]	Persons/Year (in 1,000s)
Pre-Recession				
Metro 1978	1,545		1.40	18.1
Metro 1981	1,740		1.69	24.8
ERA 1980	1,706		1.59	23.1
BPA 1979	1,594		1.24	17.5
Post-Recession				
BPA (1983)	1,731	1,832	1.81/1.66	26.8/25.3
NPA (1983)	1,550	-	1.15	16.1
CPRC[3]	1,581		1.27	17.9
Metro 1984	1,599	1,740	1.33/1.42	18.9/21

1 Average Annual Growth Rate (compounded).
2 1983 base population estimate by Metro.
3 Center for Population Research and Census--Portland State University--Forecast used BPA forecast for Clark as CPRC only forecasts Oregon county population.

Table 8 shows past trends in housing construction, together with the implications of the forecast.

Table 8

PAST TRENDS AND FORECAST OF HOUSING

Year	Measure	Single Family Dwellings	Multi-Family Dwellings	Total Dwellings
1960	No.	230,280	49,230	279,510
	%	82.4	17.6	100.0
1970	No.	244,840	81,800	356,640
	%	77.1	22.9	100.0
	AAGR 60-70	1.78	5.21	2.47
	DU/YR 60-70	4,456	3,257	7,713
1980	No.	353,570	150,190	503,760
	%	70.2	29.8	100.0
	AAGR 70-80	2.55	6.26	3.51
	DU/YR 70-80	7,873	6,839	14,712
1983	No.	367,100	156,800	523,900
	%	70.1	29.9	100.0
	AAGR 80-83	1.26	1.45	1.32
	DU/YR 80-83	4,510	2,203	6,713
1990	No.	398,680	173,830	572,510
	%	69.6	30.4	100.0
	AAGR 83-1990	1.19	1.48	1.28
	DU/YR 83-1990	4,511	2,433	6,944
2005	No.	498,600	231,800	730,400
	%	68.3	31.7	100.0
	AAGR 83-2005	1.40	1.79	1.52
	DU/YR 83-2005	5,977	3,409	9,386

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ALLOCATION OF GROWTH - GROWTH ALLOCATION WORKSHOPS 1984

INTRODUCTION

The Growth Allocation Workshops, which followed the completion of the regional forecast, utilized local jurisdictional planners to distribute the region's 2005 growth increment to regional subareas. This section summarizes the sub-regional growth allocation process.

In this report, the use of the word forecast refers to a projection of the entire region's growth in population and employment by the year 2005. Allocation refers to the subsequent process of geographically distributing this forecasted growth control total to smaller sub-areas throughout the region.

Metro staff provided technical data and services to the workshop participants, including current population, employment and land use information. In addition, relevant data such as past growth trends and comprehensive plan designations of vacant land were made available for predicting future development in each of the region's 20 sub-areas.

ALLOCATION ASSUMPTIONS

The results of the workshops represent a prediction for the region in 21 years, assuming some continuation of past economic trends and current governmental policies as reflected in local comprehensive plans. Collectively, the comprehensive land use plans of the region's 25 cities and four counties form a composite plan for the region. This composite offers a picture of the region when all local plans are "built-out." The role of the workshop participants was to estimate the degree to which each of these plans will be developed in the next 22 years.

Determining the 22-year growth increment of the composite regional plan provides a year 2005 land use pattern to serve as the basis for predicting future travel demands to revise the Regional Transportation Plan (RTP). It is intended that the RTP will recommend a transportation system tailored to serve the travel demand generated by this future arrangement of land development. However, in cases where future transportation deficiencies due to growth remain, despite the projects recommended in the RTP, further analysis will be necessary. This may entail identification of additional projects, a modification of the land uses planned for an area, or a combination of both.

For the purpose of this allocation of population and employment growth, it was necessary to make a number of general assumptions regarding existing and future conditions:

1. The composite of all city and county comprehensive plans will comprise the regional land use plan. Future land development will be consistent with these plans.

2. Currently adopted policies of jurisdictions influencing regional growth and development will not change significantly in the future.

3. Current or projected transportation deficiencies are not considered as a constraint on the future land development pattern.

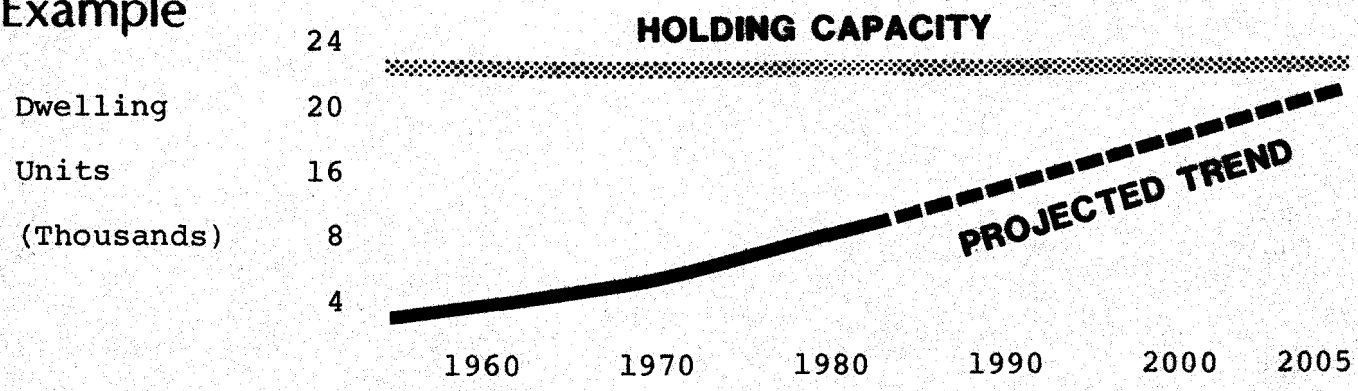
ALLOCATION PROCEDURE

Allocation of population growth was based upon each sub-area's potential for residential development. Therefore, the dwelling units needed to house the added population were first allocated to 20 sub-areas. Population was then estimated by using subarea household size and vacancy assumptions.

This allocation method is consistent with local comprehensive plans which control dwelling unit growth and location, through density and housing-type restrictions.

The allocation methodology was primarily based upon the detailed knowledge of the area's planner. For each of the 20 districts, the 1960 to 1980 growth was plotted on a graph in the manner shown on Figure 4.

Example



Using the projected trend line as the topic of discussion, the workshop participants considered what factors had resulted in the past trend and the likelihood that these factors would continue into the future. The trend line was then adjusted upward, downward or left alone depending upon the group's determination of incentives or contraints upon future growth in the district under consideration.

Growth was limited by the holding capacity of each district. The holding capacity line shown on Figure 1 represents the total number of single or multi-family dwelling units that can be built on available vacant land at the densities permitted by the controlling comprehensive plan. The land in the district was considered "filled

up" when 95 percent of the single family holding capacity had been reached, and when 100 percent of the multi-family holding capacity had been used. This process was repeated for each district. Upon allocation to all districts, the total was compared with the forecast and the allocation was reiterated until the units distributed oir allocated matched the regional forecast. These results were then converted to total population for the district based upon the appropriate vacancy rate and household size.

RESULTS

Detached dwelling units - Very little growth is expected in Multnomah County with the exception of District 5, the Gresham, Troutdale, Wood Village area, where growth is expected to continue; and District 3, where the primary growth is expected to be in Forest Park Estates. Clackamas County is expected to maintain growth in the rural and non-contiguous urban growth areas (District 19) and District 8 (Lake Oswego, West Linn). Washington County is expected to see continued growth with the areas of emphasis moving from District 13 (Beaverton) to Districts 14 and 15 (Aloha and Hillsboro). Clark County is expected to grow at the same rate as Washington County. See Table 9.

Attached dwelling units - Multnomah County is expected to have the highest growth with District 4 (Mid-County) showing the expected influence of provision of sewers, the Banfield Light Rail and numerous large developable lots. District 5 (Gresham area) following recent trends, plus the expected impact of the LRT investment, is also expected to see growth in attached units. Clackamas County is expected to show slow growth with minor concentrations in District 7 (Clackamas Town Center area), and District 8 (Lake Oswego, West Linn). Washington County is expected to see a continued strong growth in these units with concentrations in Aloha, Beaverton and Hillsboro. Clark County is expected to show a continued moderate growth. See Table 10.

The method for deriving future 20-district populations was to use the dwelling units previously allocated with assumptions on vacancy and household size by type (attached/detached) and by district. The household sizes were assumed to be the same as in the 1980 Census (for each district) reduced by the same percentage as the overall assumed reduction in household size for the region as a whole. This gave the population allocation shown in Table 12.

EMPLOYMENT GROWTH ALLOCATION

Employment growth was distributed to the 20 districts in a 'Delphi' process which relied upon time series data and the participants' judgment regarding the locational choices for various classifications of industry moving into or about the region.

Graphs G28 and G29 display shares of total employment and manufacturing employment growth to 1983 for the four counties and the downtown. The forecast portion of these graphs, 1983 to 2005,

depicts the growth shares determined by the workshop participants working as a whole. These growth shares were then distributed to the 20 districts during similar workshops held with caucuses of workshop participants representing affected jurisdictions.

RESULTS

It was assumed that the Central Business District (District 1) would maintain its past strong share in the region's growth. Growth in District 2 was also expected, partially a re-employment of recently lost workers and also to reflect expected growth in the Lloyd Center area and the Columbia-South Shore area. Growth in Clackamas County is expected to be concentrated in the Clackamas Town Center and Highway 212/224 areas. Washington County is expected to see strong growth with existing trends, availability of desirable serviced land in large lots, very aggressive marketing by the private and quasi-public sectors, and an expected change from a bedroom community to a more balanced community supplying the impetus. This growth is expected primarily in the Beaverton-Aloha-Hillsboro corridor. Clark County is also expected to experience significant growth with an assist from the I-205 completion, a supportive tax structure and aggressive marketing. Table 11 shows the outcome of the allocation process.

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SINGLE-FAMILY DWELLING UNIT FORCAST - 20 DISTRICTS

DIST	1970	1983	70-83 CHANGE	2005	83-2005 CHANGE
1	170	200	30	200	0
2	98420	95650	-2770	95750	100
3	17570	20490	2920	24490	4000
4	18710	23270	4560	24080	810
5	13590	20320	6730	33510	13190
20	1390	2130	740	2280	150
MULTCO	149850	162060	12210	180310	18250
6	15150	19200	4050	21700	2500
7	3600	6050	2450	11650	5600
8	8730	13690	4960	20990	7300
9	4290	6960	2670	11960	5000
10	3050	5610	2560	11610	6000
19	12610	24660	12050	34785	10125
CLACKCO	47430	76170	28740	112695	36525
11	1590	3800	2210	6650	2850
12	5290	8560	3270	12710	4150
13	14480	18280	3800	21000	2720
14	6160	16930	10770	32320	15390
15	5250	9010	3760	17200	8190
16	3790	5530	1740	8810	3280
18	4860	7050	2190	8910	1860
WASHCO	41420	69160	27740	107600	38440
CLARKCO	36140	59710	23570	98000	38290
SMSA	274840	367100	92260	498605	131505

MULTI-FAMILY DWELLING UNIT FORECAST -20 DISTRICTS

DIST	1970	1983	70-83 CHANGE	2005	83-2005 CHANGE
1	5290	6900	1610	9000	2100
2	31390	41820	10430	50920	9100
3	15160	20260	5100	23060	2800
4	3840	10620	6780	20980	10360
5	2580	9060	6480	16700	7640
20	80	120	40	120	0
MULTCO	58340	88780	30440	120780	32000
6	3100	6520	3420	7520	1000
7	200	1180	980	4060	2880
8	1090	3450	2360	5450	2000
9	890	2130	1240	2830	700
10	350	1950	1600	3750	1800
19	540	1910	1370	2680	770
CLACKCO	6170	17140	10970	26290	9150
11	220	2250	2030	5250	3000
12	2110	4940	2830	9000	4060
13	5450	14405	8955	18025	3620
14	600	6520	5920	16500	9980
15	1120	2985	1865	6625	3640
16	950	2440	1490	4500	2060
18	140	360	220	600	240
WASHCO	10590	33900	23310	60500	26600
CLARKCO	6700	17000	10300	24200	7200
SMSA	81800	156820	75020	231770	74950

EMPLOYMENT FORECAST - 20 DISTRICTS

DIST	1970	1983	70-83 CHANGE	2005	83-2005 CHANGE
1	59039	80430	21391	117990	37560
2	146789	150620	3831	184220	33600
3	63024	61740	-1284	72520	10780
4	17780	22310	4530	24910	2600
5	14775	19160	4385	32600	13440
20	790	660	-130	760	100
MULTCO	302197	334920	32723	433000	98080
6	13685	19210	5525	25710	6500
7	3877	8700	4823	25700	17000
8	6800	8950	2150	17450	8500
9	6175	10450	4275	14450	4000
10	2884	8640	5756	18390	9750
19	8339	13200	4861	18300	5100
CLACKCO	41760	69150	27390	120000	50850
11	948	6950	6002	17500	10550
12	6702	16410	9708	30750	14340
13	23980	43750	19770	76180	32430
14	4985	11170	6185	44860	33690
15	4318	13930	9612	31940	18010
16	4875	6000	1125	10100	4100
18	2863	9450	6587	15680	6230
WASHCO	48671	107660	58989	227010	119350
CLARKCO	40971	73190	32219	130000	56810
SMSA	433599	584920	151321	910010	325090

POPULATION FORECAST - 20 DISTRICTS

DIST	1970	1983	70-83 CHANGE	2005	83-2005 CHANGE
1	8290	10840	2550	11990	1150
2	343070	309310	-33760	321120	11810
3	76410	78100	1690	93470	15370
4	69720	74300	4580	100220	25920
5	52690	79160	26470	127460	48300
20	4490	5790	1300	6250	460
MULTCO	554670	557500	2830	660510	103010
6	53610	62030	8420	71480	9450
7	12350	18510	6160	37740	19230
8	31190	43550	12360	67830	24280
9	15650	24190	8540	40010	15820
10	10340	19400	9060	38880	19480
19	42960	75920	32960	104110	28190
CLACKCO	166100	243600	77500	360050	116450
11	5270	15400	10130	27740	12340
12	20330	31590	11260	46820	15230
13	58680	74360	15680	85580	11220
14	22490	61970	39480	123800	61830
15	19430	32680	13250	61800	29120
16	14620	20650	6030	33090	12440
18	17090	20750	3660	27480	6730
WASHCO	157910	257400	99490	406310	148910
CLARKCO	128450	200000	71550	312710	112710
SMSA	1007130	1258500	251370	1739580	481080

ERRATA SHEET
(Replaces p. 45)

	Employment Forecast - 20 Districts					Population Forecast - 20 Districts				
District	1970	1983	70-83 Change	2005	83-2005 Change	1970	1983	70-83 Change	2005	83-2005 Change
1	59,039	81,320	22,281	118,860	37,540	8,290	10,840	2,550	11,990	1,150
2	146,789	151,390	4,601	184,760	33,370	343,070	309,310	-33,760	321,120	11,810
3	63,024	62,300	-724	72,950	10,650	76,410	78,100	1,690	93,470	15,370
4	17,780	19,910	2,130	24,980	5,070	69,720	74,300	4,580	100,220	25,920
5	14,775	21,850	7,075	32,470	10,620	52,690	79,160	26,470	127,460	48,300
20	790	660	-130	700	40	4,490	5,790	1,300	6,250	460
Mult. Co.	302,197	337,430	35,233	434,720	97,290	554,670	557,500	2,830	660,510	103,010
6	13,685	18,880	5,195	25,840	6,960	53,610	62,030	8,420	71,480	9,450
7	3,877	10,750	6,873	25,740	14,990	12,350	18,510	6,160	37,740	19,230
8	6,800	8,790	1,990	17,500	8,710	31,190	43,550	12,360	67,830	24,280
9	6,175	9440	3,265	14,540	5,100	15,650	24,190	8,540	40,010	15,820
10	2,884	8,810	5,926	18,680	9,870	10,340	19,400	9,060	38,880	19,480
19	8,339	13,200	4,861	18,300	5,100	42,960	75,920	32,960	104,110	28,190
Clack. Co.	41,760	69,870	28,110	120,600	50,730	166,100	243,600	77,500	360,050	116,450
11	948	6,820	5,872	17,500	10,680	5,270	15,400	10,130	27,740	12,340
12	6,702	16,770	10,068	31,610	14,840	20,330	31,590	11,260	46,820	15,230
13	23,980	44,070	20,090	77,240	33,170	58,680	74,360	15,680	85,580	11,220
14	4,985	11,090	6,105	44,670	33,580	22,490	61,970	39,480	123,800	61,830
15	4,318	13,730	9,412	32,040	18,310	19,430	32,680	13,250	61,800	29,120
16	4,875	5,870	995	10,100	4,230	14,620	20,650	6,030	33,090	12,440
18	2,863	9,450	6,587	15,680	6,230	17,090	20,750	3,660	27,480	6,730
Wash. Co.	48,671	107,800	59,129	228,840	121,040	157,910	257,400	99,490	406,310	148,910
Clark Co.	40,971	73,190	32,219	130,000	56,810	128,450	200,000	71,550	312,710	112,710
SMSA	433,599	588,290	154,691	914,160	325,870	1,007,130	1,258,500	251,370	1,739,580	481,080

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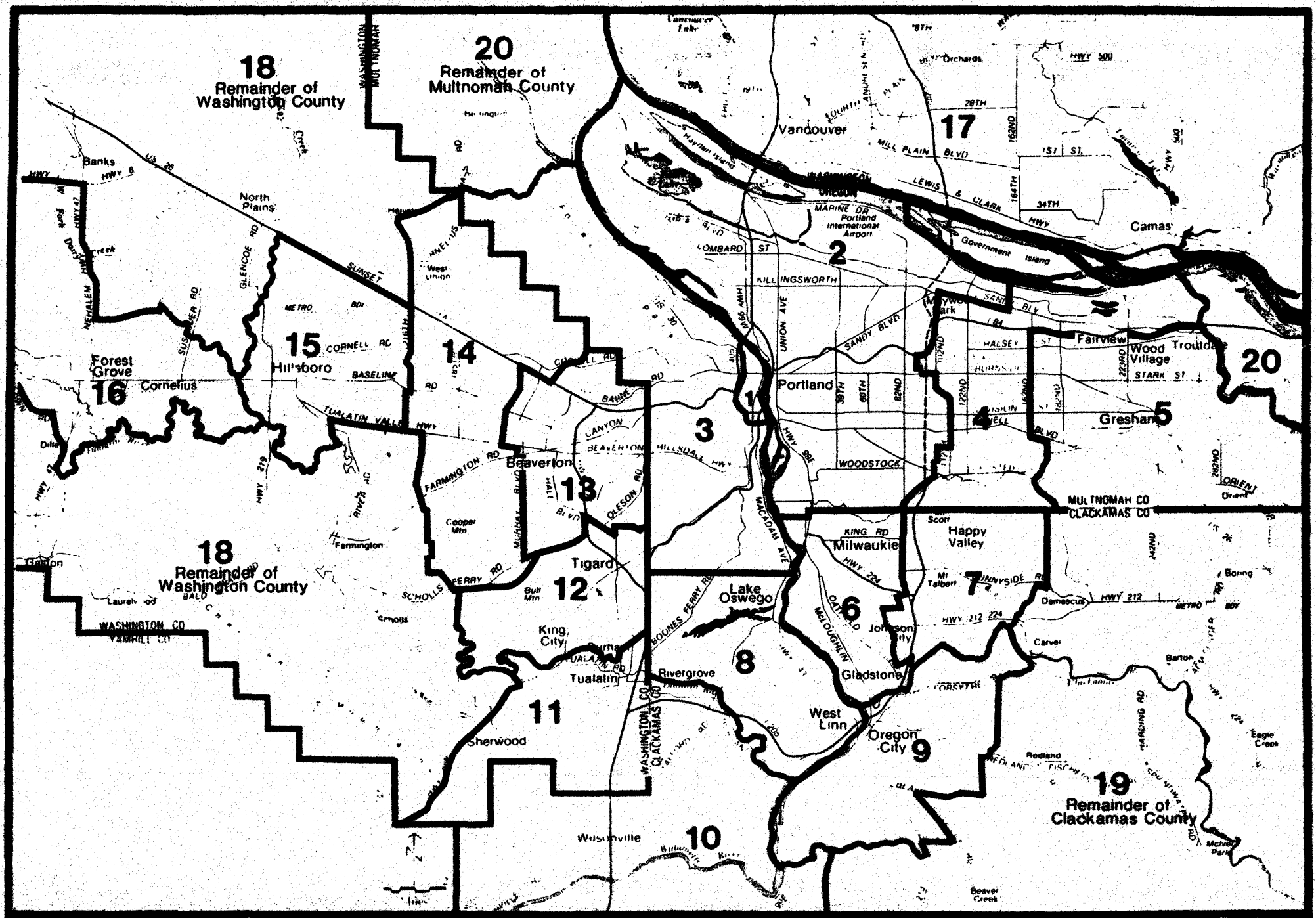
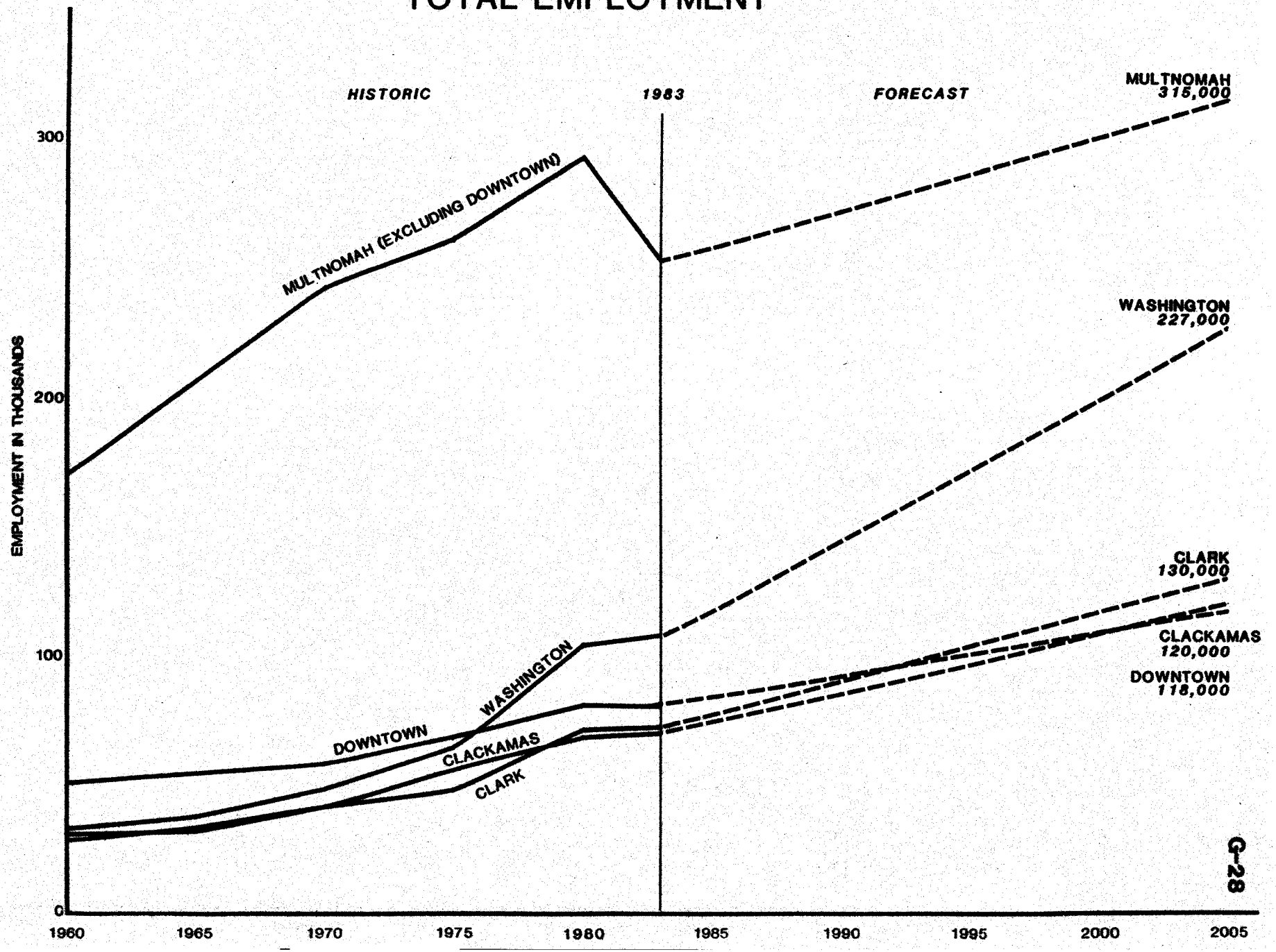

18
Remainder of
Washington County
20
Remainder of
Multnomah County
17
Vandouver
Banks
North
Plains
Forest
Grove
16
Cornelius
15
Hillsboro
14
2
Portland
3
1
4
Gresham
5
20
Fairview
Wood
Village
Troutdale
Beaverton
13
Tigard
12
Lake
Oswego
6
7
Milwaukie
Happy
Valley
Damascus
King
City
Tualatin
8
Rivergrove
Gladstone
West
Linn
Oregon
City
9
11
Sherwood
10
Wilsonville
19
Remainder of
Clackamas County
18
Remainder of
Washington County
MULTNOMAH CO
CLACKAMAS CO
WASHINGTON CO
YAMHILL CO
WASHINGTON CO
CLACKAMAS CO
Growth Allocation Workshop
Portland Metro Area: July1984
20 DISTRICTS

TOTAL EMPLOYMENT



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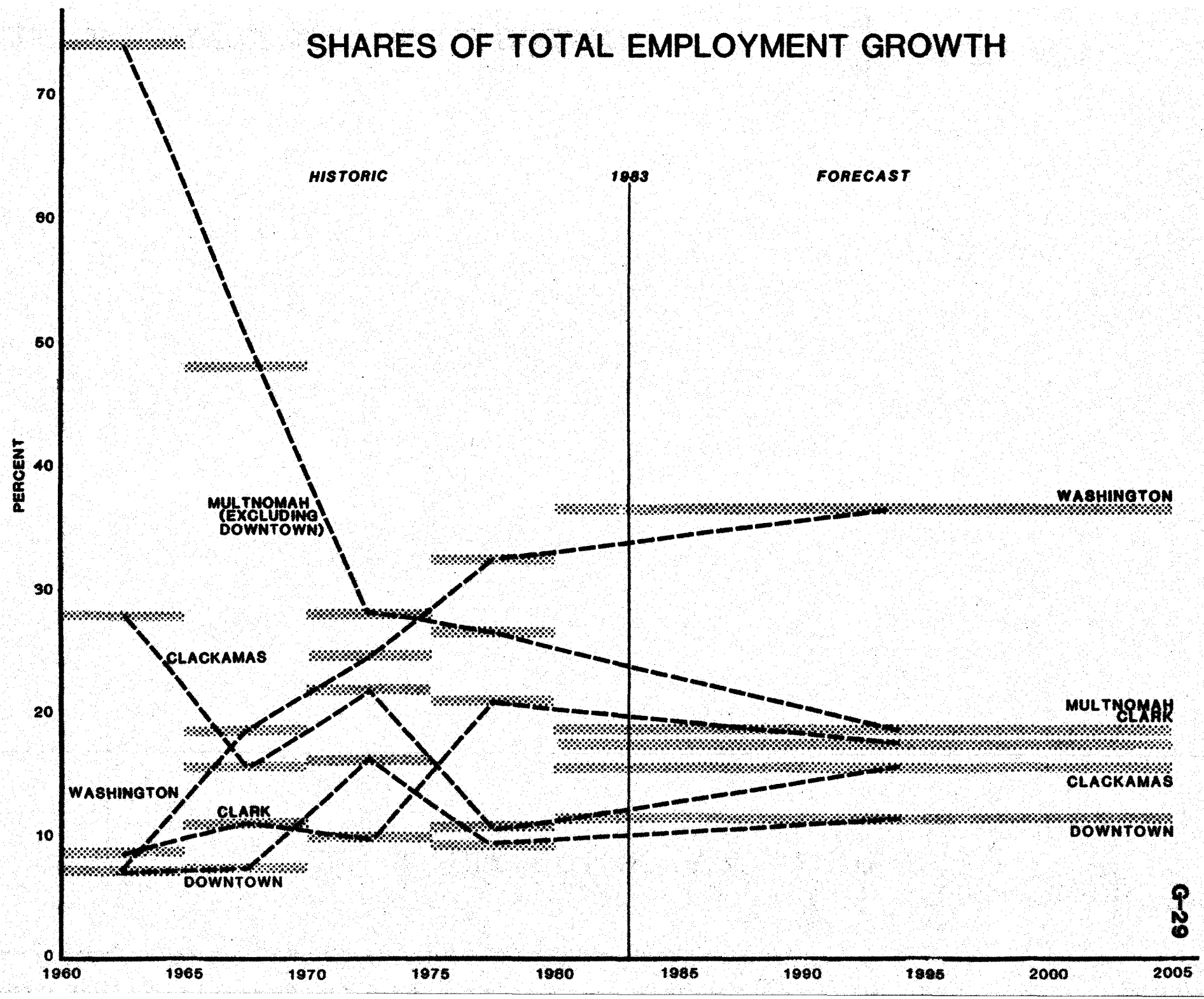
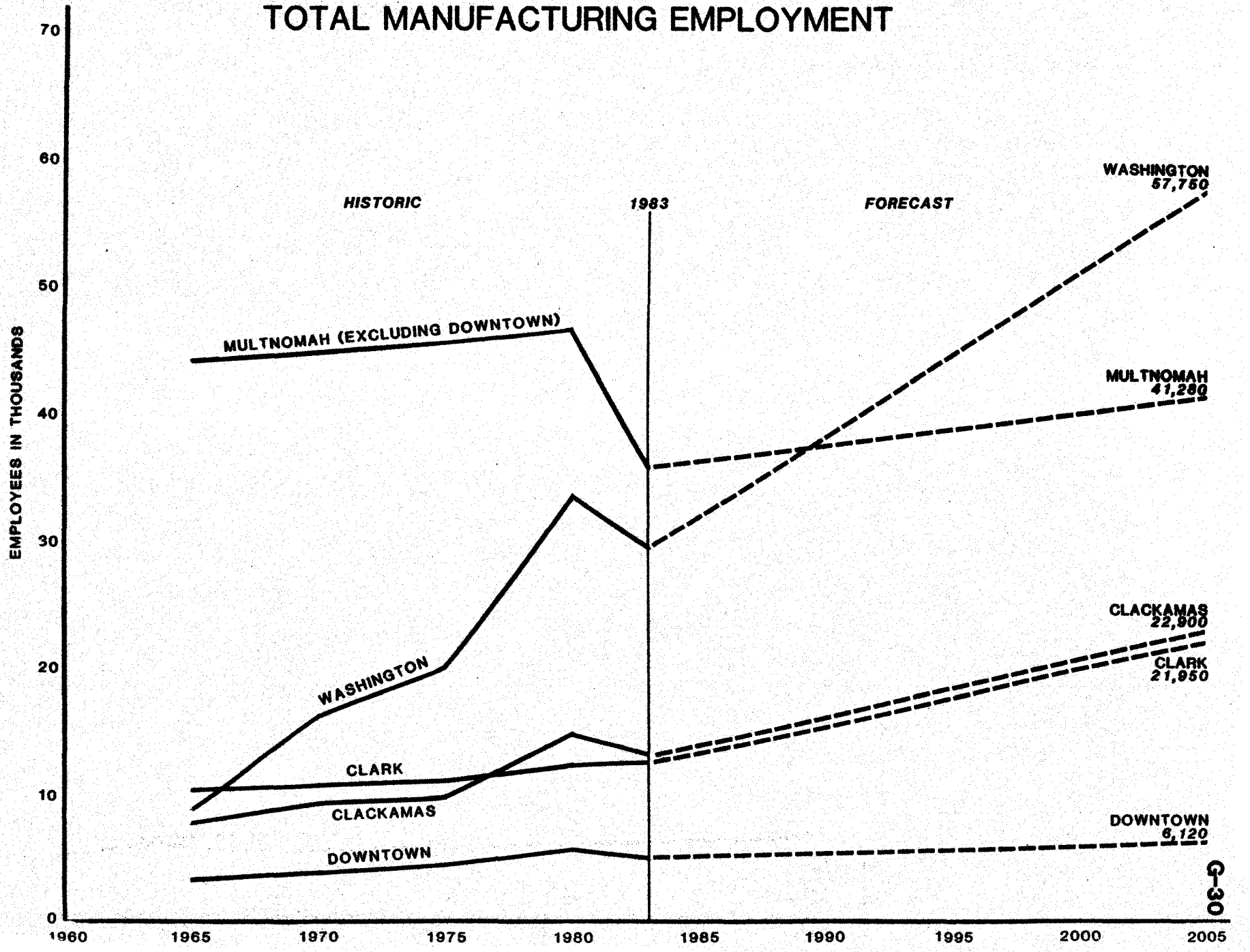
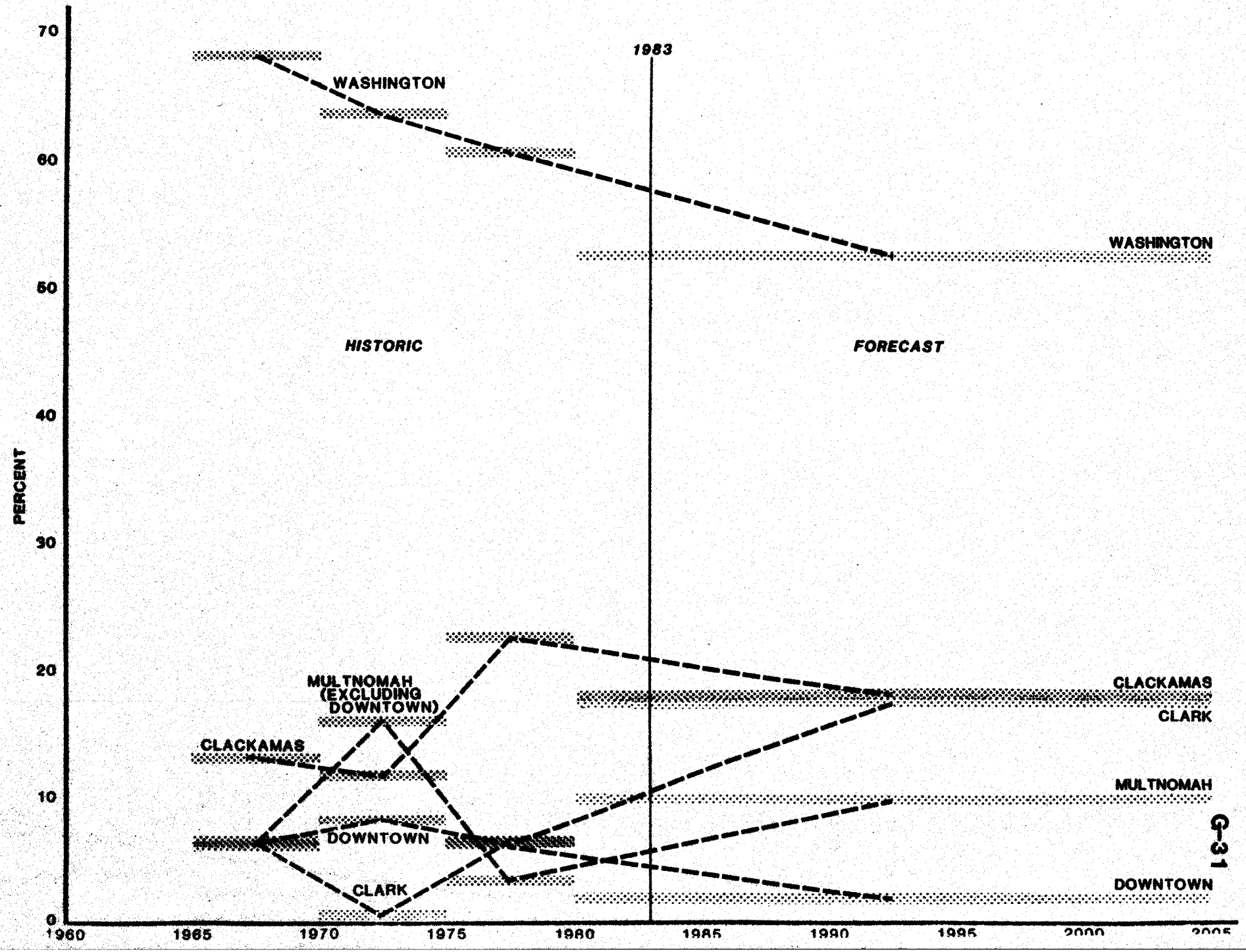

SHARES OF TOTAL EMPLOYMENT GROWTH
HISTORIC
1983
FORECAST
PERCENT
70
60
50
40
30
20
10
0
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
MULTNOMAH (EXCLUDING DOWNTOWN)
CLACKAMAS
WASHINGTON
CLARK
DOWNTOWN
WASHINGTON
MULTNOMAH
CLARK
CLACKAMAS
DOWNTOWN
G-29

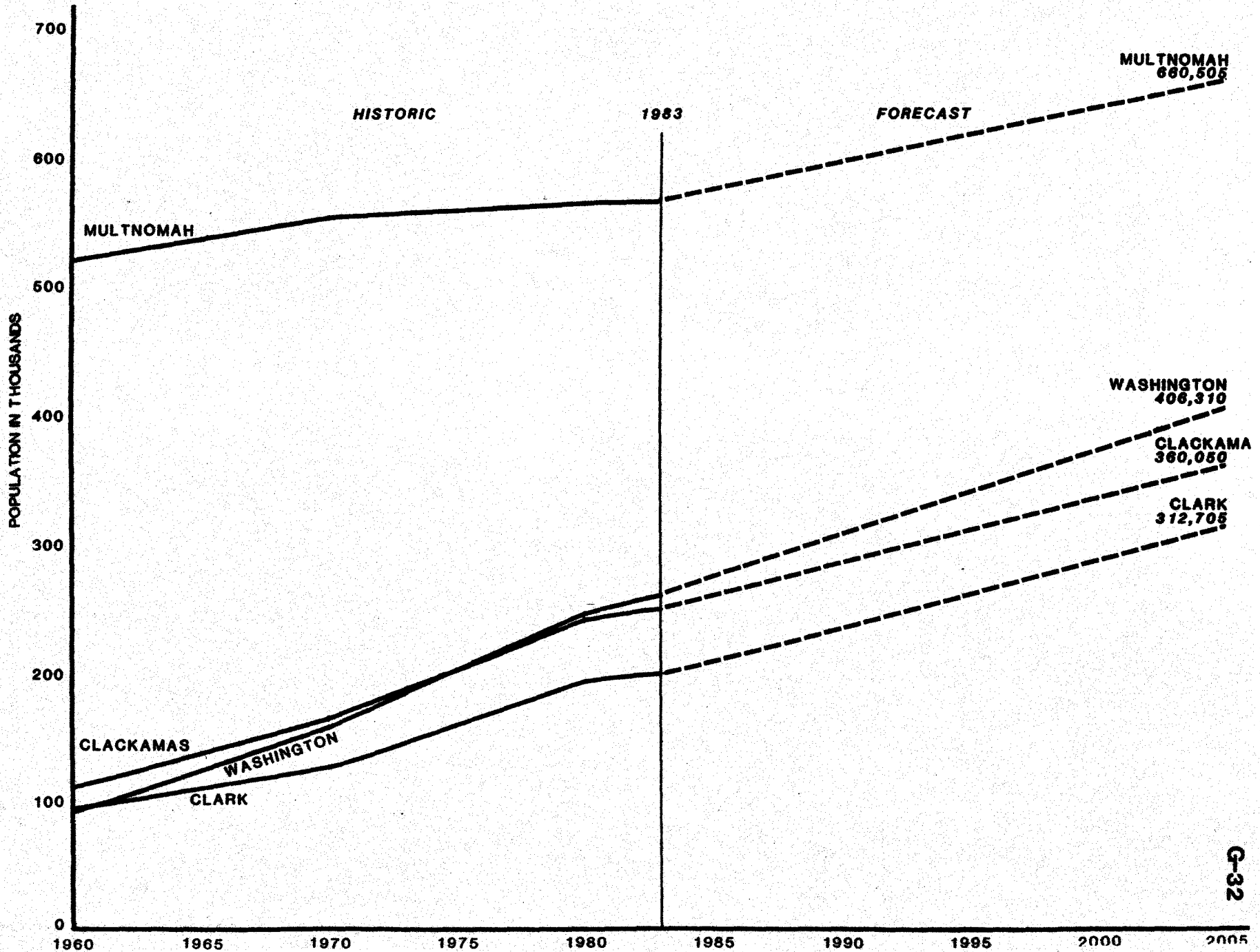
TOTAL MANUFACTURING EMPLOYMENT



SHARES OF MANUFACTURING EMPLOYMENT GROWTH



TOTAL POPULATION



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INFORMATION FOR ASSUMPTIONS/ESTIMATES

External Commuting Employees

External commuting employees are, in this context, the net difference between those who live outside the SMSA and work inside and those who live inside the SMSA and work outside. Because of the Urban Growth Boundary (UGB), the continued growth of the group will be slowed, particularly in the movements between Marion and Yamhill Counties and the SMSA.

Table A1

PORTLAND/VANCOUVER SMSA

Year	Net Inbound Employees	Net Change (Per Year)
1960	-873	376 (60-70)
1970	2,887	256 (70-80)
1980	5,454	

Source: U.S. Census.

Comment: Trend is upward and inconclusive. Also, the number is small.

Assumption: Use an average value (+ 300 per year growth).

Unemployment

Table A2

UNEMPLOYMENT RATE

	1960	1965	1970	1975	1980	1990*	2005*
Labor	344,700	390,900	465,500	544,900	582,364	768,200	983,300
Unemployed	16,700	15,600	26,900	49,500	38,391	43,100	39,300
% Unemployed	4.8	3.9	5.8	9.0	6.2	5.61	4.0

Sources: 1980 Census.
1960-1975 CRAG Employment Historical Data, April 1978.
*1990 and 2005 BPA 1983 Forecast.

Assumption: Use 7 percent continuously, the basic structural rate of unemployment nationally is expected to be 5 to 6 percent, with this SMSA 1 to 2 percent above that.

Age/Sex Profile

The age/sex profile has been developed from a cohort-survival analysis combined with migration assumptions. These have been run by the Center for Population Research and Census (CPRC) at PSU.

Group/Institutional Population

Table A3

GROUP/INSTITUTIONAL POPULATION PORTLAND SMSA

Year	Group Population	% Total Population
1960	15,997	1.95
1970	20,910	2.07
1980	18,642	1.5

Source: Census.

There is no explanation at this stage for the change 1970 to 1980. The single room occupancy group has been dropping during this period, but it seems unlikely that this would be the cause, because the aging population generally lives as "Group Population," either single-room or institutional.

Suggestion For DRAFT: Assume 2 percent.

Household Size

Table A4

HOUSEHOLD SIZE PORTLAND SMSA

1950	1960	1970	1980
2.97	2.99	2.89	2.59

This is graphed in the following chart, which also shows the trend for the state and the forecast for the state in the BPA/Wharton model.

Discussions by staff with George Masnick of MIT (Joint Center for Urban Studies MIT/Harvard) yielded the opinion that no one really knows what to do with this. The question here is one of lifestyle change, particularly between 1960 to 1980. In going through his paper "The Demographic Factor in Household Growth" Working Paper No. W83-3, May 1983, - Joint Center for Urban Studies MIT/Harvard,

it is clear that a continuation of this trend should not be expected. There is not a good sense of what will ultimately happen with this variable. Forum discussion ended with a suggestion that 2.4 to 2.5 would be a sensible number.

Suggestion For DRAFT: We will use 2.5.

Table A5

DETACHED/ATTACHED DWELLING UNIT RATIO

Year	1960		1970	
Type	SF	MF	SF	MF
Dwellings	230,280	49,230	274,840	81,800
Percent	82.4	17.6	77.1	22.9

Year	1980		1983	
Type	SF	MF	SF	MF
Dwellings	353,570	150,190	367,100	156,800
Percent	70.2	29.8	70.1	29.9

Source: 1960, 70, 80 -- Census 1983 - Metro Development Trends Report.

The above data is also depicted in Chart 2 which follows:

The past change in share has been .53 percent/year (1960-1983) average.

The assumption by the Forum was that 70/30 to 65/35 was a reasonable ratio for the split of new construction (Attached/Detached).

Vacancy Rates

Table A6

PORTLAND SMSA DWELLING UNIT VACANCY RATES
(Percent Vacant)

Historical

	1960	1970	1980
Single Family Dwelling Units	2.32	2.72	3.98
Multi-Family Dwelling Units	10.22	9.87	8.35

Assumption: There is an economic limit to the vacancy rate as an average value. For the DRAFT, a single family vacancy rate of 2.75 percent and a multi-family rate of 9 percent has been assumed.

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