DEMOGRAPHICS - THE SPATIAL REDISTRIBUTION OF PEOPLE AND JOBS

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Although my topic was listed only as demographics, I will talk about demographics and employment and how they might possibly interact affecting demand for aviation both in terms of passenger travel and air freight. Demographics, I believe, are particularly useful when one wants to assess long-term projections, conduct bottom-up types of analyses and forecasts, market forecasts, as well as to look at processes for improving the forecasts for individual hubs such was described by Alice Herman of the Port Authority of New York and New Jersey. Even if one starts with a national aggregate forecast, the question that seems to arise immediately from this top-down procedure is how best to break it down to regions, States, metropolitan areas, or, individual hubs.

Redistribution of Demand

Today I am going to talk about some of the basic trends that I think will shape redistribution of demand for enplanements and air freight over the next decade. I am going to present some figures on forecasts from various public and private agencies, from the regional level right down to the Metropolitan Statistical Area (MSA) level. I have included an addendum to the tables that describes methodologies underlying the forecasts derived from private and public agencies such as Bureau of Economic Affairs (BEA), Wharton Econometrics, Bureau of the Census, and the National Planning Association. (For additional details you may refer to the Appendix to this paper to obtain appropriate baseline information used by demographers used at these various agencies).

If one looks at patterns and shifts taking place, one sees that over the last two or three decades there has been a dramatic change in the location of population and jobs in individual metropolitan areas, city-suburban shifts, and more macro cross-regional Frostbelt-Sunbelt shifts. In interpreting these data I believe that we have to separate the megatrends from the short-term cycles.

In the Table 1 you can see the net inter-regional migration flows. This represents flows of people between census regions for five-year periods beginning with 1955 to 1960, up through the last date we have data available, which is the Current Population Survey of 1988.

You can see the dramatic shift to the West in the 1950s and 1960s. There are many reasons why the West demographic explosion in the west, California particularly, after World War II. Most deal with its expanding economic base. Over three million people alone moved to California between 1945 and 1960. During this period, the South also turned around from a net exporter of people to a demographic magnet. You can see by 1955 to 1960, in and out migration in the South had pretty much evened out, although the South was still sending more people to the West. These, incidentally, are net figures. Everyone knows there is no such person as a net migrant, the difference in in-movers and out-movers in each region so what this says is that between 1955 and 1960, 380,000 more Southerners moved to the West than Westerners moved to the South. During the following 25 years the South became a demographic magnet, attracting people from all other regions. By the 1980 to 1985 period, for every one person moving to the West, three were moving to the South in terms of net migration exchange.

The Midwest continued to send people to other regions except the Northeast. During the 1980 and 1985 period, dominated by the 1980 to 1982 recession, there was a hemorrhage of midwestern migrants. Notice how this loss really slowed down with the Midwest's economic recovery. Many of these states had cyclically sensitive industries that 1988 responded quite well after 1982 to the economic recovery and, as they stabilized, their outmigration slowed. Thus, the Midwest went from losing 1.5 million people in the net between 1980 and 1985 to a loss of just 183,000 between 1985 and 1988.

Such is not the case in the Northeast. Their net out-migration continued at a rapid pace. The last three years, 817,000 in the net, compared to a 1,022,000 loss between 1980 and 1985. So these are the internal shifts taking place and generally you can see, looking at the totals, not only the Frostbelt-Sunbelt moves but also increasingly over the last 30 years, a shift in terms of internal flows from the West to the South.

Impact of Immigration. All I have discussed so far is internal flows. If you look at movers from abroad who are mostly immigrants, although there are some expatriates here, you see that two basic changes have taken place in immigration. (Table 2.) One, since the 1950s there has been a substantial increase in the number of movers from

TABLE 1. NET INTERREGIONAL MIGRATION FLOWS, 1955 TO 1988

Regional Migration Exchanges	Net Migration in Thousands					
	1955-60[1]	1965-70[2]	1970-75[3]	1975-80[4]	1980-85[4]	1985-88[4]
South: Net Exchange With						
Northeast	+314	+438	+964	+945	+737	+588
Midwest	+122	+275	+790	+813	+1,100	+104
West	-380	-56	+75	+176	+60	+ 41
Total Other Regions	+56	+657	+1,829	+1,935	+1,897	+732
West: Net Exchange With						
Northeast	+285	+224	+311	+518	+234	+118
Midwest	+760	+415	+472	+634	+475	+190
South	+380	+56	-75	-176	-60	- 41
Total Other Regions	+1,425	+695	+708	+976	+649	+267
Midwest: Net Exchange With						
Northeast	+40	+53	+67	+146	+50	+111
South	-122	-275	-790	-813	-1,100	-104
West	-760	-415	-472	-634	-475	-190
Total Other Regions	-842	-637	-1,195	-1,302	-1,525	-183
Northeast: Net Exchange With						
Midwest	-40	-53	-67	-146	-50	-111
South	-314	-438	-964	-945	-737	-588
West	-285	-224	-311	-518	-234	-118
Total Other Regions	-639	-715	-1,342	-1,609	-1,022	-817

[1] U.S. Census of Population, Vol 1, U.S. Summary 1960: Table 237

[2] U.S. Census of Population, 1970 Vol 1, U.S. Summary: Table 274

[3] Mobility of the Population of the U.S.: March 1970 to March 1975, Series P-20, No. 285 in Current Population Reports

[4] Current Population Survey machine-readable files, 1980, 1985, 1986, 1987, 1988

abroad. Secondly, comparing the figures from 1955 to 1960 right across to 1985 to 1988, the net gain in immigrants has been picked up almost entirely in the South and the West, with the West really pulling ahead as the nation's magnet for immigrants. If you look back at 1955 to 1960 you can see the Northeast was the modal immigration region. This reflected the fact that until the late 1960s, the bulk of the immigrants were orginating from nations that were geographically to the east and north of the United States, primarily Europe.

TABLE 2. MOVERS FROM ABROAD BY REGION, IN 1955 TO 1988

Region	1955-1960[1]	1965-70[2]	1970-75[3]	1975-80[4]	1980-85[4]	1985-88[4]
Northeast	592	821	903	834	832	672
Midwest	361	440	638	590	457	509
South	505	740	1,082	1,164	1,180	1,001
West	545	697	980	1,475	1,387	1,340

[1] 1960 Census of Population, Vol. 1, U.S. Summary Table 237.

[2] 1970 Census of Population, Vol. 1, U.S. Summary Table 274.

[3] Mobility of the Population of the U.S.: March 1970 to March 1975
Series P-20, No. 285 in Current Population Reports.

[4] Current Population Survey Machine-Readable Files, 1980, 1985, 1986, 1987, 1988

This does not include illegals; these are census figures. The Census and Current Population Survey might pick up a few illegals, but I doubt most respond to the census questionnaire. If anything, my guess is that illegals would inflate further the West and the South in terms of their immigration dominance.

You can see that when people were moving from nations in Europe, the closest port of entry would be New York City and points in the Northeast. As sending nations shifted to Asia, South America, and the Pacific Islands, the closest ports of entry became San Francisco, Los Angeles, Houston, and Miami. Between the early 1970s and 1984, one million Asian and Hispanic immigrants settled in Los Angeles County alone. Clearly, Los Angeles has become the nation's leading growth node for immigrants.

One other point. Notice that between 1980 and 1985, the West attracted 649,000 people from other regions of the country. It grew twice as fast from immigration, 1,387,000, so that the demographic driving force for the West is no longer people moving from other regions of the country, but people moving to the West from abroad, primarily from Asia and South America. This might also go against conventional wisdom. We think of "Go West Young Man," but a lot of it is "Go East", -- immigrants coming from Asia. Those living in California surely recognize this. A lot of immigration is by air, increasingly so. Many of the immigrants today have the resources to afford international air travel for return trips to see family and friends. Places like Los Angeles, with a million immigrants in 14 years, are going to feel this immigrant impact on air travel.

But when you combine the flows of internal shifts, with immigration, you can see that the South and the West during the last eight years, that is (1980 to 1988) captured approximately 90 percent of the nation's population increase. (Table 3) In fact, three States alone, California, Florida, and Texas captured half of the increase. California grew by 4,500,000, Florida by 2,600,000, Texas by 2,500,000, which together account for 51 percent of the total nation's population growth. Projections we will see in a moment indicate that these trends will continue.

Projecting Aviation Demand

In projecting demands for aviation, I tend to look at business travel and economic development as being the key factors. When one wants to predict these, one has to go beyond the economic data and look at other changes such as labor force characteristics. We can see already certain parts of the country are facing a serious labor force squeeze which is driving up wages and preventing businesses from adding employees. These businesses are moving elsewhere to look for employees.

Table 4 gives a population projection for the 10-year period 1990 to 2000 for those aged 18 to 44 in each State. I chose 18 to 44 year olds as an indication of the growth of the new labor force entrants, which I consider critical to employment growth and further business expansion. You can see the number of States towards the bottom of the table that are going to take a beating. They are ranked on the left in terms of net changes, this is absolute numbers and on the right in terms of percent change. So, on a percent-change basis,

TABLE 3. POPULATION CHANGES IN U.S. REGIONS AND STATES, 1980 -1988

Area	1980[1]	1988[2]	Change 1980-1988 Net	Percent
United States	226,546	245,807	19,261	8.5
Northeast	49,135	50,611	1,476	3.0
Midwest	58,866	59,894	1,028	1.7
South	75,372	84,878	9,506	12.6
West	43,172	50,424	7,252	16.8
Alabama	3,894	4,127	233	6.0
Alaska	402	513	111	27.6
Arizona	2,717	3,466	749	27.6
Arkansas	2,286	2,422	136	5.9
California	23,668	28,168	4,500	19.0
Colorado	2,890	3,290	400	13.8
Connecticut	3,108	3,241	133	4.3
Delaware	594	660	66	11.1
Dist. of Columbia	638	620	-18	-2.8
Florida	9,747	12,377	2,630	27.0
Georgia	5,463	6,401	938	17.2
Hawaii	965	1,093	128	13.3
Idaho	944	999	55	5.8
Illinois	11,427	11,511	84	0.7
Indiana	5,490	5,575	85	1.5
Iowa	2,914	2,834	-80	-2.7
Kansas	2,364	2,487	123	5.2
Kentucky	3,660	3,721	61	1.7
Louisiana	4,206	4,420	214	5.1
Maine	1,125	1,206	81	7.2
Maryland	4,217	4,644	427	10.1
Massachusetts	5,737	5,871	134	2.3
Michigan	9,262	9,300	38	0.4
Minnesota	4,076	4,306	230	5.6
Mississippi	2,521	2,627	106	4.2
Missouri	4,917	5,139	222	4.5
Montana	787	804	17	2.2
Nebraska	1,570	1,601	31	2.0
Nevada	801	1,060	259	32.3
New Hampshire	921	1,097	176	19.1
New Jersey	7,365	7,720	355	4.8
New Mexico	1,303	1,510	207	15.9
New York	17,558	17,898	340	1.9
North Carolina	5,880	6,526	646	11.0
North Dakota	653	663	10	1.5
Ohio	10,798	10,872	74	0.7
Oklahoma	3,026	3,263	237	7.8
Oregon	2,633	2,741	108	4.1
Pennsylvia	11,865	12,027	162	1.4
Rhode Island	947	995	48	5.1
South Carolina	3,121	3,493	372	11.9
South Dakota	691	715	24	3.5
Tennessee	4,591	4,919	328	7.1
Texas	14,226	16,780	2,554	18.0
Utah	1,461	1,691	230	15.7
Vermont	512	556	44	8.6
Virginia	5,347	5,996	649	12.1
Washington	4,132	4,619	487	11.8
West Virginia	1,950	1,884	-66	-3.4
Wisconsin	4,706	4,858	152	3.2
Wyoming	470	471	1	0.2

Hawaii is ranked number one with a 62,000 increase in those 18 to 44, but that is an 11.9 percent increase because the base is much smaller. The left is the where the States are ranked by absolute increase, California dominates with 714,000 projected growth. If you look at the States down towards the bottom, they are actually going to be facing dramatic declines of new labor force entrants over the next 10 or 15 years. Pennsylvania, for example, is actually going to lose only about 300,000 people overall, but lose 500,000 people in the 18 to 44 year age range.

TABLE 4. THE STATES RANKED BY NET CHANGE AND PERCENT CHANGE FOR THE POPULATION   Aged 18-44, 1990-2000

	Ranked by Net Change				Ranked by Percent Change		
	STATE	Net Chng (1000s)	% Chng		STATE	Net Chng (1000s)	% Chng
1	California	714	5.5	1	Hawaii	62	11.9
2	Florida	441	9.0	2	Alaska	33	11.3
3	Texas	440	5.6	3	Arizona	175	11.1
4	Georgia	329	11.0	4	Georgia	329	11.0
5	Arizona	175	11.1	5	New Mexico	75	10.7
6	North Carolina	84	2.9	6	Nevada	47	9.5
7	New Mexico	75	10.7	7	Florida	441	9.0
8	Hawaii	62	11.9	8	Utah	44	6.1
9	Virginia	55	1.9	9	Texas	440	5.6
10	Nevada	47	9.5	10	California	714	5.5
11	Utah	44	6.1	11	New Hampshire	24	4.6
12	Maryland	39	1.8	12	North Carolina	84	2.9
13	Alaska	33	11.3	13	Virginia	55	1.9
14	New Hampshire	24	4.6	14	Maryland	39	1.8
15	South Carolina	22	1.4	15	Delaware	5	1.7
16	Mississippi	6	0.5	16	South Carolina	22	1.4
17	Delaware	5	1.7	17	Mississippi	6	0.5
18	D. C.	0	0.0	18	D. C.	0	0.0
19	Rhode Island	-11	-2.5	19	New Jersey	-17	-0.5
20	Vermont	-13	-5.1	20	Colorado	-15	-0.9
21	Colorado	-15	-0.9	21	Alabama	-42	-2.4
22	South Dakota	-16	-5.7	22	Rhode Island	-11	-2.5
23	New Jersey	-17	-0.5	23	Tennessee	-56	-2.6
24	Maine	-23	-4.4	24	Arkansas	-37	-3.9
25	Idaho	-26	-6.2	25	Connecticut	-56	-4.0
26	Wyoming	-30	-12.9	26	Missouri	-95	-4.4
27	North Dakota	-32	-11.5	27	Maine	-23	-4.4
28	Montana	-34	-10.1	28	Massachusetts	-129	-4.9
29	Arkansas	-37	-3.9	29	Washington	-105	-5.0
30	Alabama	-42	-2.4	30	New York	-384	-5.1
31	Tennessee	-56	-2.6	31	Vermont	-13	-5.1
32	Connecticut	-56	-4.0	32	Oklahoma	-73	-5.3
33	Nebraska	-66	-10.1	33	South Dakota	-16	-5.7
34	Kansas	-69	-6.6	34	Idaho	-26	-6.2
35	Oklahoma	-73	-5.3	35	Minnesota	-118	-6.3
36	Missouri	-95	-4.4	36	Kansas	-69	-6.6
37	Washington	-105	-5.0	37	Illinois	-377	-7.6
38	Oregon	-106	-8.7	38	Louisiana	-154	-8.0
39	Minnesota	-118	-6.3	39	Oregon	-106	-8.7
40	West Virginia	-121	-15.8	40	Michigan	-357	-8.8
41	Massachusetts	-129	-4.9	41	Kentucky	-141	-8.8
42	Kentucky	-141	-8.8	42	Indiana	-215	-9.1
43	Louisiana	-154	-8.0	43	Ohio	-428	-9.4
44	Iowa	-180	-16.1	44	Wisconsin	-200	-9.9
45	Wisconsin	-200	-9.9	45	Nebraska	-66	-10.1
46	Indiana	-215	-9.1	46	Montana	-34	-10.1
47	Michigan	-357	-8.8	47	Pensylvania	-537	-11.1
48	Illinois	-377	-7.6	48	North Dakota	-32	-11.5
49	New York	-384	-5.1	49	Wyoming	-30	-12.9
50	Ohio	-428	-9.4	50	West Virginia	-121	-15.8
51	Pennsylvania	-537	-11.1	51	Iowa	-180	-16.1

Source: U.S. Census, Projections of the Population of States by Age, Sex & Race: 1988-2010 Current Population Reports P-25 #1017, 1988.

When we look at the Massachusetts miracle of unemployment decline, much of that was demographically driven. Their labor force did not grow. They added jobs only at a national average rate, but their very slow labor force growth pushed down their unemployment rate.

In Table 5, you can see the overall projections for State population growth. Again, the nation will be dominated in the next 10 to 12 years by the growth of California, Florida and Texas. I think Texas is a good example of separating cycles from trends. Houston's economy is booming right now. They added 36,000 jobs in the last eight months, over 50,000 jobs in the last 14 months. Talking to real estate investor members of the Urban Land Institute, Houston is considered to be a hot spot for investment when just a couple of years ago it

TABLE 5. THE STATES RANKED BY NET CHANGE AND PERCENT CHANGE IN POPULATION
1987-2000

	State	Net Chng (1000s)	% Chng		State	Net Chng (1000s)	% Chng
1	California	5969	21.7	1	Arizona	1186	34.6
2	Florida	3453	28.9	2	Nevada	310	31.2
3	Texas	3274	19.3	3	New Mexico	450	29.6
4	Georgia	1713	27.4	4	Florida	3453	28.9
5	Arizona	1186	34.6	5	Georgia	1713	27.4
6	North Carolina	1061	16.5	6	Alaska	143	26.3
7	Virginia	994	16.9	7	New Hampshire	275	26.0
8	New Jersey	859	11.2	8	Hawaii	264	24.4
9	Maryland	742	16.4	9	California	5969	21.7
10	Colorado	505	15.3	10	Texas	3274	19.3
11	South Carolina	486	14.2	11	Utah	297	17.5
12	Washington	477	10.6	12	Virginia	994	16.9
13	New Mexico	450	29.6	13	North Carolina	1061	16.5
14	Tennessee	418	8.6	14	Maryland	742	16.4
15	Alabama	324	7.9	15	Colorado	505	15.3
16	Nevada	310	31.2	16	Delaware	93	14.5
17	Utah	297	17.5	17	South Carolina	486	14.2
18	Missouri	283	5.5	18	New Jersey	859	11.2
19	New Hampshire	275	26.0	19	Washington	477	10.6
20	Hawaii	264	24.4	20	Mississippi	234	8.9
21	Massachusetts	249	4.3	21	Tennessee	418	8.6
22	Minnesota	247	5.8	22	Vermont	44	8.0
23	Mississippi	234	8.9	23	Alabama	324	7.9
24	Connecticut	233	7.3	24	Maine	87	7.3
25	New York	227	1.3	25	Connecticut	233	7.3
26	Oregon	161	5.9	26	Rhode Island	67	6.8
27	Alaska	143	26.3	27	Arkansas	143	6.0
28	Arkansas	143	6.0	28	Oregon	161	5.9
29	Delaware	93	14.5	29	Minnesota	247	5.8
30	Maine	87	7.3	30	Missouri	283	5.5
31	Oklahoma	81	2.5	31	Massachusetts	249	4.3
32	Rhode Island	67	6.8	32	Idaho	41	4.1
33	Kansas	60	2.4	33	Oklahoma	81	2.5
34	Michigan	59	0.6	34	Kansas	60	2.4
35	Vermont	44	8.0	35	D. C.	13	2.1
36	Idaho	41	4.1	36	New York	227	1.3
37	D. C.	13	2.1	37	South Dakota	7	1.0
38	Louisiana	12	0.3	38	Michigan	59	0.6
39	Illinois	11	0.1	39	Louisiana	12	0.3
40	South Dakota	7	1.0	40	Illinois	11	0.1
41	Kentucky	0	0.0	41	Kentucky	0	0.0
42	Wisconsin	-7	-0.1	42	Wisconsin	-7	-0.1
43	Indiana	-16	-0.3	43	Indiana	-16	-0.3
44	Wyoming	-17	-3.4	44	Ohio	-138	-1.3
45	Montana	-20	-2.5	45	Nebraska	-39	-2.4
46	Nebraska	-39	-2.4	46	Montana	-20	-2.5
47	North Dakota	-45	-6.7	47	Pennsylvania	-371	-3.1
48	Ohio	-138	-1.3	48	Wyoming	-17	-3.4
49	West Virginia	-180	-9.5	49	North Dakota	-45	-6.7
50	Iowa	-277	-9.8	50	West Virginia	-180	-9.5
51	Pennsylvania	-371	-3.1	51	Iowa	-277	-9.8

Source: U.S. Bureau of Census, Current Population Reports "Population
Estimates and Projection, Series P-25, no.1017, 1988.

was a sure loser, and before that a boom area. So you have to separate the cycles from the trends. In projecting air travel demand in the early 21st century, one wants to look at the longer-term trends, not the short term cycles. Taking any one of these short-term cyclical boom or bust periods and extrapolating could get you into big trouble. You can see when States are ranked in terms of net change and percent change in employment, Texas is second. The National Planning Association projections, the BEA projections, and the Bureau of Labor Statistics projections closely correspond. As a matter of fact, the National Planning Association derives its projections here, as you can see in the Appendix, from the Bureau of Economic Analysis figures, so the growth nodes will, in terms of employment, continue to be California, Texas and Florida, with Georgia and Virginia following close behind.

TABLE 6. THE STATES RANKED BY NET CHANGE IN EMPLOYMENT
1987-2000

	State	Net Chng (1000s)	% Chng		State	Net Chng (1000s)	% Chng
1	California	3556.3	24.1	1	Nevada	200.1	34.0
2	Texas	2000.8	24.4	2	Arizona	515.8	32.0
3	Florida	1807.3	30.1	3	Florida	1807.3	30.1
4	Georgia	691.6	20.4	4	Alaska	85.7	29.0
5	Virginia	654.3	19.8	5	Colorado	515.4	28.0
6	New Jersey	648.9	15.2	6	New Hampshire	169.6	27.6
7	New York	626.4	6.6	7	Utah	207.3	26.7
8	North Carolina	592.3	16.6	8	Texas	2000.8	24.4
9	Massachusetts	529.5	14.8	9	New Mexico	165.1	24.4
10	Arizona	515.8	32.0	10	California	3556.3	24.1
11	Colorado	515.4	28.0	11	Wyoming	61.8	23.6
12	Washington	513.0	21.7	12	Washington	513.0	21.7
13	Pennsylvania	481.8	8.1	13	Georgia	691.6	20.4
14	Illinois	450.7	7.6	14	Virginia	654.3	19.8
15	Ohio	436.2	8.0	15	Idaho	95.1	19.5
16	Minnesota	419.7	17.2	16	Hawaii	119.2	19.3
17	Maryland	397.3	16.5	17	Oregon	268.0	18.7
18	Michigan	379.9	8.9	18	Vermont	55.0	17.7
19	Tennessee	358.5	14.0	19	South Carolina	314.7	17.6
20	Wisconsin	343.8	13.2	20	Minnesota	419.7	17.2
21	Missouri	328.6	11.8	21	Oklahoma	275.6	16.9
22	Louisiana	318.9	16.4	22	Maine	109.5	16.9
23	South Carolina	314.7	17.6	23	North Carolina	592.3	16.6
24	Connecticut	296.7	15.2	24	Maryland	397.3	16.5
25	Oklahoma	275.6	16.9	25	Louisiana	318.9	16.4
26	Oregon	268.0	18.7	26	New Jersey	648.9	15.2
27	Indiana	263.2	9.2	27	Connecticut	296.7	15.2
28	Alabama	241.8	12.6	28	Montana	60.2	14.9
29	Kentucky	209.6	11.8	29	Massachusetts	529.5	14.8
30	Utah	207.3	26.7	30	Arkansas	165.0	14.4
31	Nevada	200.1	34.0	31	Tennessee	358.5	14.0
32	Kansas	192.0	13.7	32	Kansas	192.0	13.7
33	New Hampshire	169.6	27.6	33	Wisconsin	343.8	13.2
34	New Mexico	165.1	24.4	34	Rhode Island	70.6	13.1
35	Arkansas	165.0	14.4	35	Alabama	241.8	12.6
36	Iowa	121.7	7.8	36	North Dakota	44.1	12.2
37	Hawaii	119.2	19.3	37	Kentucky	209.6	11.8
38	Maine	109.5	16.9	38	Missouri	328.6	11.8
39	Mississippi	106.3	9.1	39	Nebraska	105.5	11.4
40	Nebraska	105.5	11.4	40	South Dakota	37.9	10.2
41	Idaho	95.1	19.5	41	Delaware	35.2	9.6
42	Alaska	85.7	29.0	42	Indiana	263.2	9.2
43	Rhode Island	70.6	13.1	43	Mississippi	106.3	9.1
44	West Virginia	64.0	8.5	44	Michigan	379.9	8.9
45	Wyoming	61.8	23.6	45	West Virginia	64.0	8.5
46	Montana	60.2	14.9	46	Pennsylvania	481.8	8.1
47	Vermont	55.0	17.7	47	Ohio	436.2	8.0
48	North Dakota	44.1	12.2	48	Iowa	121.7	7.8
49	South Dakota	37.9	10.2	49	Illinois	450.7	7.6
50	Delaware	35.2	9.6	50	New York	626.4	6.6
51	D. C.	26.5	3.6	51	D. C.	26.5	3.6

Source: National Planning Assoc., Regional Projection Series,
R-87-1, 1988.

Tables 6, 7 and 8 describe population and employment projections by labor market area and by metropolitan area. They speak for themselves. I also present projections for single-unit housing construction, (Table 9) multi-unit (Table 10) and non-residential (Table 11) construction and some other factors for your consideration.

Effect on Air Transportation

What does this all mean? Well, I thought I heard Paul Biederman say that airline travel is not likely to grow very fast. Aggregate air passenger forecasts are based on a number of variables -- GNP, CPI, fuel prices. I would like to comment on such factors for a moment because we found

TABLE 7. THE TOP 50 METROPOLITAN AREAS RANKED BY NET CHANGE AND PERCENT CHANGE IN POPULATION, 1987-2000

Metropolitan Area	Population Change 1987-2000 Net Chng (1000s)	Percent Change	Metropolitan Area	Population Change 1987-2000 Net Chng (1000s)	Percent Change
1 Los Angeles-Long Beach CA	874.8	10.4	1 Naples FL	68.6	53.3
2 Houston TX	752.1	23.0	2 Fort Pierce FL	97.2	44.9
3 Riverside-San Bernardino CA	643.3	30.9	3 Fort Meyers FL	124.5	42.4
4 Atlanta GA	547.3	20.8	4 Ocala FL	67.6	37.7
5 Dallas TX	546.8	22.5	5 Olympia WA	54.7	35.9
6 Phoenix AZ	527.4	26.8	6 Bryan-College Station TX	43.7	35.3
7 Anaheim-Santa Ana CA	498.9	22.3	7 West Palm Beach-Boca Raton FL	273.2	34.7
8 San Diego CA	494.7	21.8	8 Santa Cruz CA	78.1	34.3
9 Washington D.C.	488.7	13.5	9 Fort Collins-Loveland CO	56.9	31.9
10 Tampa-St Petersburg FL	419.4	21.3	10 Santa Rosa-Petaluma CA	113.3	31.7
11 Denver CO	370.9	22.5	11 Riverside-San Bernardino CA	643.3	30.9
12 Fort Lauderdale-Hollywood FL	302.2	25.6	12 Vallejo-Fairfield CA	118.4	29.1
13 Minneapolis-St. Paul MN-WI	300.9	13.0	13 Bremeton WA	50.4	28.9
14 Oakland CA	298.5	15.1	14 Sarasota FL	73.4	28.6
15 Fort Worth-Arlington TX	293.3	23.1	15 Orlando FL	262.4	28.2
16 San Jose CA	283.5	19.7	16 Phoenix AZ	527.4	26.8
17 West Palm Beach-Boca Raton FL	273.2	34.7	17 Portsmouth-Dover NH	87.6	26.8
18 Sacremento CA	271.9	20.5	18 Las Vegas NV	156.3	26.3
19 Boston-Lawrence-Salem MA	267.6	7.2	19 Oxnard-Ventura CA	164.7	26.0
20 Orlando FL	262.4	28.2	20 Fort Lauderdale-Hollywood FL	302.2	25.6
21 Seattle WA	241.8	13.6	21 Reno NV	60.1	25.6
22 Miami-Hialeah FL	235.9	13.1	22 Brazoria TX	47.7	24.9
23 Philadelphia PA-NJ	190.2	3.9	23 Daytona Beach FL	82.3	24.8
24 Salt Lake City-Ogden UT	184.8	17.6	24 Anchorage AK	57.5	24.8
25 San Antonio TX	184.4	14.4	25 Austin TX	179.1	24.3
26 Austin TX	179.1	24.3	26 Provo-Orem UT	57.8	23.7
27 Oxnard-Ventura CA	164.7	26.0	27 Bradenton FL	42.7	23.4
28 Baltimore MD	164.6	7.1	28 Tucson AZ	145.0	23.4
29 San Francisco CA	161.8	10.0	29 Fort Worth-Arlington TX	293.3	23.1
30 Las Vegas NV	156.3	26.3	30 Houston TX	752.1	23.0
31 Tucson AZ	145.0	23.4	31 Chico CA	39.5	23.0
32 Monmouth-Ocean NJ	143.7	15.2	32 Dallas TX	546.8	22.5
33 Norfolk-Virginia Beach VA	141.4	10.6	33 Denver CO	370.9	22.5
34 Portland OR	133.0	11.4	34 Anaheim-Santa Ana CA	498.9	22.3
35 Nassau-Suffolk NY	132.5	5.0	35 McAllen-Edinburg TX	82.7	22.3
36 Raleigh-Durham NC	126.1	18.9	36 Lafayette LA	48.7	22.2
37 Fort Meyers FL	124.5	42.4	37 Boise City ID	43.2	22.2
38 Charlotte-Gastonia NC-SC	121.0	11.2	38 Midland TX	24.8	22.1
39 Tulsa OK	120.0	16.4	39 Vancover WA	47.9	22.1
40 Vallejo-Fairfield CA	118.4	29.1	40 San Diego CA	494.7	21.8
41 Oklahoma City OK	113.7	11.7	41 Manchester-Nashua MH	70.1	21.7
42 Santa Rose-Petaluma CA	113.3	31.7	42 Panama City FL	27.1	21.6
43 New Orleans LA	109.8	8.3	43 Santa Fe NM	23.2	21.5
44 Jacksonville FL	105.4	12.1	44 Boulder-Longmont CO	46.4	21.4
45 Baton Rouge LA	105.2	19.2	45 Laredo TX	26.1	21.4
46 Columbus OH	104.1	7.9	46 Tampa-St Petersburg FL	419.4	21.3
47 Nashville TN	102.8	10.9	47 Fort Walton Beach FL	30.9	21.3
48 Kansas City MO-KS	98.4	6.4	48 Salinas-Seaside CA	73.7	21.1
49 Fort Pierce FL	97.2	44.9	49 Richland-Kennewick WA	32.4	21.1
50 Albuquerque NM	95.0	19.7	50 Atlanta GA	547.3	20.8

Source: National Planning Association, Regional Economic Projections, Series 87-R-1, 1988.

that, at least in terms of the territorial shifts of population, they did not predict very well.

For example, when the real energy prices went up, it was thought that people would come back to the cities. When prices went up in the mid- to late-1970s, we had one of our greatest period of population deconcentration. We had the non-

metropolitan revival. People moved even further away from their urban jobs. We saw figures on airline trends that bucked the CPI; and during the 1980-82 recession, certain hubs -- Phoenix for example -- boomed, as did the Texas airports. When we look at exogenous factors, we need to get into industry-specific propensities, getting back to the idea of structural change in the economy. As

TABLE 8. THE TOP 50 METROPOLITAN AREAS RANKED BY NET CHANGE
AND PERCENT CHANGE IN EMPLOYMENT,
1987-2000

Metropolitan Area	Employment Change 1987-2000		Metropolitan Area	Employment Change 1987-2000	
	Net Chng (1000s)	Percent Change		Net Chng (1000s)	Percent Change
1 Los Angeles-Long Beach CA	723.6	15.1	1 Naples FL	36.2	54.4
2 Anaheim-Santa Ana CA	616.4	45.7	2 Fort Meyers FL	71.1	52.0
3 Washington D.C.	522.5	21.4	3 Fort Pierce FL	46.3	49.4
4 Houston TX	515.1	30.7	4 Anaheim-Santa Ana CA	616.4	45.7
5 Dallas TX	471.6	31.1	5 West Palm Beach-Boca Raton FL	171.5	42.3
6 Atlanta GA	452.2	28.1	6 Bradenton FL	36.2	41.8
7 Boston-Lawrence-Salem MA	396.1	15.9	7 Boulder-Longmont CO	54.0	39.2
8 San Diego CA	351.3	29.4	8 Orlando FL	215.2	39.1
9 San Jose CA	348.8	35.9	9 Ocala FL	27.7	38.2
10 Phoenix AZ	347.5	34.3	10 Fort Lauderdale-Hollywood FL	216.2	37.5
11 Denver CO	291.0	29.0	11 Santa Rose-Petaluma CA	64.7	37.4
12 Minneapolis-St. Paul MN-WI	290.5	19.9	12 San Jose CA	348.8	35.9
13 Tampa-St Petersburg FL	286.4	30.0	13 Sarasota FL	46.3	35.0
14 Seattle WA	278.2	25.4	14 Bryan-College Station TX	20.6	34.5
15 Chicago IL	261.4	7.6	15 Las Vegas NV	113.0	34.5
16 Nassau-Suffolk NY	258.7	18.5	16 Santa Cruz CA	35.3	34.4
17 Philadelphia PA-NJ	256.3	10.0	17 Phoenix AZ	347.5	34.3
18 Fort Lauderdale-Hollywood FL	216.2	37.5	18 Oxnard-Ventura CA	92.4	34.1
19 Orlando FL	215.2	39.1	19 Fort Collins-Loveland CO	27.8	33.5
20 San Francisco CA	214.7	18.2	20 Portsmouth-Dover NH	56.1	33.3
21 Riverside-San Bernardino CA	198.1	26.3	21 Reno NV	51.8	32.5
22 Oakland CA	195.9	19.4	22 Austin TX	133.2	32.2
23 Sacramento CA	193.4	28.7	23 Tucson AZ	90.8	31.9
24 Miami-Hialeah FL	188.0	18.5	24 Midland TX	19.5	31.4
25 Baltimore MD	180.1	13.8	25 McAllen-Edinburg TX	35.1	31.2
26 West Palm Beach-Boca Raton FL	171.5	42.3	26 Lafayette LA	34.3	31.2
27 Fort Worth-Arlington TX	168.6	28.2	27 Dallas TX	471.6	31.1
28 St. Louis MO-IL	151.2	11.3	28 Gainesville FL	33.6	31.0
29 Detroit MI	149.0	7.2	29 Houston TX	515.1	30.7
30 San Antonio TX	143.9	23.5	30 Boise City ID	34.9	30.6
31 Middlesex-Somerset NJ	143.8	25.2	31 Tampa-St Petersburg FL	286.4	30.0
32 Salt Lake City-Ogden UT	137.1	26.0	32 Fort Walton Beach FL	22.8	29.7
33 Austin TX	133.2	32.2	33 Brazoria TX	20.9	29.4
34 Portland OR	130.5	19.1	34 San Diego CA	351.3	29.4
35 Norfolk-Virginia Beach VA	130.0	17.0	35 Albuquerque NM	79.6	29.3
36 Charlotte-Gastonia NC-SC	127.5	19.2	36 Panama City FL	19.1	29.2
37 Columbus OH	126.8	16.6	37 Atlantic City NJ	62.1	29.2
38 Raleigh-Durham NC	122.4	28.1	38 Denver CO	291.0	29.0
39 Nashville TN	119.2	21.0	39 Anchorage AK	39.7	28.7
40 Hartford-New Britain CT	118.1	16.5	40 Sacramento CA	193.4	28.7
41 Kansas City MO-KS	115.7	13.2	41 Olympia WA	18.4	28.4
42 Las Vegas NV	113.0	34.5	42 Santa Fe NM	17.6	28.3
43 Oklahoma City OK	108.5	19.9	43 Fort Worth-Arlington TX	168.6	28.2
44 Newark NJ	105.6	9.5	44 Tallahassee FL	34.7	28.2
45 Monmouth-Ocean NJ	105.2	25.7	45 Atlanta GA	452.2	28.1
46 New Orleans LA	104.0	16.3	46 Colorado Springs CO	57.7	28.1
47 Indianapolis IN	96.6	13.3	47 Redding CA	15.8	28.1
48 Jacksonville FL	93.5	19.9	48 Raleigh-Durham NC	122.4	28.1
49 Greensboro-Winston Salem NC	93.3	16.7	49 Chico CA	19.1	27.8
50 Milwaukee WI	92.5	11.3	50 Manchester-Nashua MH	57.6	27.5

Source: National Planning Association, Regional Economic Projections Series, 87-R-1, 1988.

we move from a goods-processing to an information-processing society, with the types of businesses changing, business travel is, in all likelihood, going to increase. If we can get industry-specific propensities to fly, and then calculate the forecasts in employment in specific industries I think we are going to get a better sense of what we might expect from a business travel standpoint in different areas of the country.

We have to look at other industry factors as well such as acquisitions and mergers and what they mean from the standpoint of spatial distribution of units. When you have one single-site company buying other companies located at different sites but controlled from the corporate headquarters, what is that going to mean in terms of linking and controlling these various multiple dispersed-site locations for air travel?

TABLE 9. THE TOP 50 METROPOLITAN AREAS RANKED BY PROJECTED 1997
SINGLE UNIT HOUSING CONSTRUCTION STARTS (in thousands)

Metropolitan Area	1987 (1000s)	1997 (1000s)	1987-1997 Net Change	1987-1997 Percent Change
1 Dallas-Ft. Worth TX	22.1	30.5	8.4	38.0
2 Atlanta GA	30.6	30.3	-0.3	-1.0
3 Riverside-San Bernardino CA	29.2	26.6	-2.6	-8.9
4 Washington D.C.	28.7	21.6	-7.1	-24.7
5 Philadelphia PA-NJ	24.3	19.1	-5.2	-21.4
6 Phoenix AZ	17.3	17.5	0.2	1.2
7 Orlando FL	14.8	16.5	1.7	11.5
8 Tampa-St Petersburg FL	13.2	16.1	2.9	22.0
9 Chicago IL	19.6	15.1	-4.5	-23.0
10 Boston-Lawrence-Salem MA	13.6	14.6	1.0	7.4
11 West Palm Beach-Boca Raton FL	13.1	14.2	1.1	8.4
12 Minneapolis-St. Paul MN-WI	17.7	13.9	-3.8	-21.5
13 St. Louis MO-IL	11.9	12.7	0.8	6.7
14 Los Angeles-Long Beach CA	16.2	12.5	-3.7	-22.8
15 San Francisco-Oakland CA	15.3	11.9	-3.4	-22.2
16 Baltimore MD	17.4	11.9	-5.5	-31.6
17 Nassau-Suffolk NY	10.4	11.7	1.3	12.5
18 Houston TX	5.8	11.4	5.6	96.6
19 Norfolk-Virginia Beach VA	11.4	10.5	-0.9	-7.9
20 Jacksonville FL	9.5	10.2	0.7	7.4
21 San Diego CA	14.9	10.1	-4.8	-32.2
22 Raleigh-Durham NC	8.7	9.6	0.9	10.3
23 Charlotte-Gastonia NC-SC	8.1	9.5	1.4	17.3
24 Monmouth-Ocean NJ	12.5	9.3	-3.2	-25.6
25 Kansas City MO-KS	8.9	9.1	0.2	2.2
26 Richmond-Petersburg VA	9.4	8.9	-0.5	-5.3
27 Indianapolis IN	8.4	8.9	0.5	6.0
28 Nashville TN	9.7	8.8	-0.9	-9.3
29 Detroit MI	11.5	8.7	-2.8	-24.3
30 Greensboro-Winston Salem NC	7.5	8.6	1.1	14.7
31 Sacramento CA	10.6	8.6	-2.0	-18.9
32 Fort Lauerdale-Hollywood FL	7.5	8.3	0.8	10.7
33 Portland OR	6.0	7.4	1.4	23.3
34 Columbus OH	9.1	7.2	-1.9	-20.9
35 Hartford-New Britain CT	8.4	7.2	-1.2	-14.3
36 Las Vegas NV	7.8	7.2	-0.6	-7.7
37 Miami-Hialeah FL	8.2	6.9	-1.3	-15.9
38 Daytona Beach FL	5.9	6.8	0.9	15.3
39 Memphis TN-AR-MS	7.1	6.6	-0.5	-7.0
40 Melbourne-Titusville FL	5.4	6.5	1.1	20.4
41 Seattle-Everett WA	9.3	6.2	-3.1	-33.3
42 Cincinnati OH-KY-IN	8.5	6.2	-2.3	-27.1
43 Denver-Boulder CO	6.6	5.8	-0.8	-12.1
44 Fort Meyers FL	5.0	5.8	0.8	16.0
45 Albany-Schenectady-Troy NY	5.0	5.1	0.1	2.0
46 Oklahoma City OK	2.8	5.0	2.2	78.6
47 Tucson AZ	5.1	5.0	-0.1	-2.0
48 Middlesex-Somerset NJ	8.3	4.8	-3.5	-42.2
49 New York NY	5.7	4.6	-1.1	-19.3
50 Rochester NY	5.4	4.5	-0.9	-16.7

Source: Real Estate and Construction Service Long-term MSA Tables,
Wharton Econometric Forecasting Associates, Spring 1988.

Air Freight

What do just-in-time manufacturing processes mean? These new processes of inventory control add to the growing importance of air freight. We can see already that parts of Southeast Asia are booming in air freight shipments, which are growing faster than container sea shipping. North Africa now is beginning to take off in terms of its air freight shipments. I do not have time to go into the details, but I really believe that air freight is going to take on an increased importance and that airports are certainly going to be as important as railroads were to our economy and cities in the past. I understand that Ross Perot, Jr. is building an air-freight-only facility on the periphery of Fort Worth. I will not be surprised to see more of them in the future with the economic vitality of the area being driven by air freight. Just think of types of multiplier effects we are going to have in

TABLE 10. THE TOP 50 METROPOLITAN AREAS RANKED BY PROJECTED 1997, MULTI-UNIT HOUSING CONSTRUCTION STARTS.

Metropolitan Area	1987 (1000s)	1997 (1000s)	1987-1997 Net Change	1987-1997 Percent Change
1 Los Angeles-Long Beach CA	47.2	38.8	-8.4	-17.8
2 Dallas-Ft. Worth TX	3.3	21.5	18.2	551.5
3 Atlanta GA	17.0	15.8	-1.2	-7.1
4 Houston TX	0.0	13.1	13.1	(X)
5 San Diego CA	19.0	12.9	-6.1	-32.1
6 Riverside-San Bernardino CA	15.1	12.3	-2.8	-18.5
7 Phoenix AZ	10.2	12.2	2.0	19.6
8 Nashville TN	2.3	12.0	9.7	421.7
9 Chicago IL	15.5	10.4	-5.1	-32.9
10 Detroit MI	18.8	10.3	-8.5	-45.2
11 Seattle-Everett WA	18.7	10.1	-8.6	-46.0
12 Anaheim-Santa Ana CA	14.7	9.4	-5.3	-36.1
13 Kansas City MO-KS	10.2	9.3	-0.9	-8.8
14 West Palm Beach-Boca Raton FL	13.3	9.2	-4.1	-30.8
15 Minneapolis-St. Paul MN-WI	10.6	9.1	-1.5	-14.2
16 Las Vegas NV	8.4	8.5	0.1	1.2
17 Fort Lauerdale-Hollywood FL	12.2	7.9	-4.3	-35.2
18 St. Louis MO-IL	9.2	5.9	-3.3	-35.9
19 Boston-Lawrence-Salem MA	10.0	5.9	-4.1	-41.0
20 Miami-Hialeah FL	10.0	5.5	-4.5	-45.0
21 New York NY	5.7	5.3	-0.4	-7.0
22 Sacramento CA	5.9	4.7	-1.2	-20.3
23 San Antonio TX	1.0	3.9	2.9	290.0
24 Norfolk-Virginia Beach VA	2.8	3.5	0.7	25.0
25 Columbus OH	3.8	3.5	-0.3	-7.9
26 Denver-Boulder CO	5.3	3.5	-1.8	-34.0
27 Baltimore MD	4.9	3.2	-1.7	-34.7
28 Austin TX	0.8	2.9	2.1	262.5
29 Portland OR	2.4	2.7	0.3	12.5
30 Tampa-St Petersburg FL	6.5	2.7	-3.8	-58.5
31 Charlotte-Gastonia NC-SC	3.8	2.7	-1.1	-28.9
32 Tucson AZ	1.5	2.7	1.2	80.0
33 San Francisco-Oakland CA	5.4	2.6	-2.8	-51.9
34 Salt Lake City-Ogden UT	0.9	2.3	1.4	155.6
35 Indianapolis IN	3.0	2.1	-0.9	-30.0
36 Washington D.C.	7.3	2.1	-5.2	-71.2
37 Raleigh-Durham NC	1.6	2.0	0.4	25.0
38 El Paso TX	0.2	1.9	1.7	850.0
39 Providence-Pawtucket RI	1.9	1.5	-0.4	-21.1
40 Philadelphia PA-NJ	4.5	1.5	-3.0	-66.7
41 Atlantic City NJ	2.9	1.5	-1.4	-48.3
42 Richmond-Petersburg VA	1.2	1.4	0.2	16.7
43 New Haven-Waterbury CT	2.7	1.4	-1.3	-48.1
44 Middlesex-Somerset NJ	2.2	1.4	-0.8	-36.4
45 McAllen-Edinburg TX	0.0	1.3	1.3	(X)
46 Greensboro-Winston Salem NC	1.5	1.3	-0.2	-13.3
47 Jacksonville FL	2.7	1.3	-1.4	-51.9
48 Bergen-Passaic NJ	2.4	1.2	-1.2	-50.0
49 Orlando FL	3.3	1.2	-2.1	-63.6
50 Grand Rapids MI	1.6	1.2	-0.4	-25.0

Note: (X) indicates that percent change could not be calculated.
Source: Real Estate and Construction Service Long-term MSA Tables, Wharton Econometric Forecasting Associates, Spring 1988.

warehousing and just-in-time manufacturing facilities around such facilities.

In addition, we have to look at foreign trade deficits and what all those U. S. dollars that are building up in Japan mean. I believe that in the next 10 years, you are going to see that Japanese teenagers and young people coming into the U.S. will continue to increase. They have all these dollars that have to be spent, and a lot of them are going to be spent travelling here.

What is the effect of age distribution and shifts in the age distribution that Alice Herman mentioned earlier? Oftentimes, we look at airlines and airports as endogenous factors. They could be activistic. They can, themselves, play a role through innovative marketing and service and create growth opportunities that otherwise would not exist. Where are the foreign investors located? What does this mean for future air travel demand? Are they changing? To date they have been concentrated in the Northeast and in

TABLE 11. TOP 50 METROPOLITAN AREAS RANKED BY PROJECTED 1997 VALUE OF
NONRESIDENTIAL CONSTRUCTION PUT IN PLACE IN 1982 DOLLARS.

Metropolitan Area	1987 (in millions $)	1997 (in millions $)	1987-1997 Net Change	1987-1997 Percent Change
1 Los Angeles-Long Beach CA	3203.4	2630.3	-573.1	-17.9
2 Atlanta GA	1787.2	2078.1	290.9	16.3
3 Washington D.C.	2221.0	2021.5	-199.5	-9.0
4 Chicago IL	1913.7	1840.0	-73.7	-3.9
5 Detroit MI	1805.6	1517.5	-288.1	-16.0
6 Seattle-Everett WA	717.4	1114.0	396.6	55.3
7 Dallas-Ft. Worth TX	1791.1	1086.1	-705.0	-39.4
8 Philadelphia PA-NJ	1167.7	1076.6	-91.1	-7.8
9 New York NY	1406.9	1046.7	-360.2	-25.6
10 San Diego CA	797.3	1025.8	228.5	28.7
11 Riverside-San Bernardino CA	1031.5	879.8	-151.7	-14.7
12 Boston-Lawrence-Salem MA	1263.9	867.4	-396.5	-31.4
13 Minneapolis-St. Paul MN-WI	1088.6	827.3	-261.3	-24.0
14 Anaheim-Santa Ana CA	1265.0	821.4	-443.6	-35.1
15 San Jose CA	551.9	720.4	168.5	30.5
16 Greensboro-Winston Salem NC	346.5	699.6	353.1	101.9
17 Tampa-St Petersburg FL	978.2	688.1	-290.1	-29.7
18 Baltimore MD	738.6	676.2	-62.4	-8.4
19 Phoenix AZ	1237.3	672.2	-565.1	-45.7
20 Jacksonville FL	402.5	652.2	249.7	62.0
21 St. Louis MO-IL	719.8	643.1	-76.7	-10.7
22 Indianapolis IN	676.5	641.5	-35.0	-5.2
23 Middlesex-Somerset NJ	760.5	579.9	-180.6	-23.7
24 Orlando FL	781.6	561.1	-220.5	-28.2
25 Columbus OH	543.1	526.6	-16.5	-3.0
26 Raleigh-Durham NC	446.1	521.1	75.0	16.8
27 Houston TX	663.2	515.2	-148.0	-22.3
28 Cleveland OH	604.6	485.2	-119.4	-19.7
29 West Palm Beach-Boca Raton FL	444.8	480.9	36.1	8.1
30 Newark NJ	442.4	457.5	15.1	3.4
31 Miami-Hialeah FL	532.8	443.6	-89.2	-16.7
32 Kansas City MO-KS	597.7	438.0	-159.7	-26.7
33 Norfolk-Virginia Beach VA	576.0	426.4	-149.6	-26.0
34 Cincinnati OH-KY-IN	443.9	425.4	-18.5	-4.2
35 Portland OR	252.0	412.5	160.5	63.7
36 Nashville TN	582.7	412.0	-170.7	-29.3
37 New Haven-Waterbury CT	371.0	385.9	14.9	4.0
38 Charlotte-Gastonia NC-SC	433.8	385.9	-47.9	-11.0
39 Nassau-Suffolk NY	548.8	385.0	-163.8	-29.8
40 Sacramento CA	539.3	373.7	-165.6	-30.7
41 Monmouth-Ocean NJ	294.4	370.9	76.5	26.0
42 Birmingham AL	284.1	370.5	86.4	30.4
43 Pittsburg PA	488.7	343.3	-145.4	-29.8
44 Memphis TN-AR-MS	533.7	340.8	-192.9	-36.1
45 Milwaukee WI	393.3	334.8	-58.5	-14.9
46 Louisville KY	345.9	331.0	-14.9	-4.3
47 Fort Lauerdale-Hollywood FL	582.6	325.4	-257.2	-44.1
48 Richmond-Petersburg VA	282.7	320.9	38.2	13.5
49 Grand Rapids MI	278.7	314.6	35.9	12.9
50 Hartford-New Britain CT	432.9	314.4	-118.5	-27.4

California, but that is beginning to shift. More and more foreign money is going to Chicago for example. Where are the immigrants locating? I talked about the circulatory nature of immigration. Immigrants are not just coming in and staying. They go back and forth and this is going to have an impact on air passenger flows.

Discussion

Comment: Who are the workers going to be in the coming decade? Who is going to take care of the airport, the planes? Who is going to do all of the things that entry-level workers are currently doing?

Mr. Kasarda: There are going to be labor force squeezes. One of the unfortunate aspects is that people leaving are not just retirees. The modal category are college-educated young adults seeking employment opportunity throughout the Southeast. So, in addition to the stereotype snowbirds moving down South, many well-educated people are also relocating. As labor forces decline in certain areas, problems of finding appropriate manpower, both skilled and entry-level, will increase.

Comment: One of the things, in addition to propensity, that we look at in the FAA is how the propensity to fly by age group might also change the long-run forecast because of the significantly aging population. We assumed a constant propensity to travel and looked at that. We then broke it down by age group. First we did a forecast using the propensity to travel to 2010 just by the number of people that are going to be around using census data. Then we broke that down and looked at the different propensities of travel based on different age groups and looked at those age-group distributions projected in 2010. We found, very surprisingly, that it changed the long-run forecast less than one percent in 2010 by considering all of the distributions from the Gallup survey.

Comment: This is a good point because right now, all these groups have about the same propensity. I suspect that a lot of the regional distributions and the propensities for flying are correlated with income. From an airline perspective it is important to understand exactly where their growth is going to be, but from a broader perspective, if you are looking at an amount of money to budget 10 years down the road for facilities, the top-down forecast may give you a fairly good idea of how much money to budget. Then, as you get closer to the time for implementation, you have an idea of where to invest that money in facilities.

Mr. Kasarda: As industries change and income levels of certain groups rise, more demand for air travel and air facilities will occur.

Comment: We are seeing some different roles in society that are not directly correlated to age as they were in the past. For example, McDonald's is getting a lot of their new employees from people who are 60 and over. What other roles like that do you see changing? We are also seeing that older people are not necessarily all on the beach in Florida, some are still working somewhere part time.

Mr Kasarda: There are two factors playing a role here. One is that the younger age cohorts are declining in size. This is why I expect that in the 1990s immigration might play a greater role in aviation demand. I think there is going to be tremendous pressure on Congress from the business community to relax Simpson-Mazzoli, to put the drawbridges down and get more labor into the country. The Bureau of Census forecasts immigration stabilization at 500,000 per year. Given the demographic trends of shrinking younger cohorts, there is going to be political pressure to increase this. Part of the problem is that there are young people out there, but many do not even have the most elementary skills, – interpersonal, let alone education or technical -- to assume jobs, or who are not inclined to take these jobs. Thus, we have the irony in many of our metropolitan areas where there are simultaneously labor shortages and high unemployment among youth, particularly minority youth.

This has a double-barrelled effect that is encouraging business to keep or to attract older labor, and I think this trend is going to continue. Then you have to ask, if they have the resources and they are working at MacDonald's rather than sitting home, are they more likely to fly? Likewise you have to ask what is going to happen as a result of the two-income families. Is that going to help or hinder air travel? I have a gut feeling it is going to help it, because we're going to have a larger percentage of people with quite a bit of discretionary resources that could be used for travel. Those people at that bottom, of course, probably would not be flying anyway.

Comment: In addition to the population distribution and the age effects, which have a major macro effect, consideration should be given to the fact that the population growth rate is now so much lower than it was when many of these models were being developed. Also, there may be some other correlation between GNP growth and population growth so that when GNP growth was basically going along at two percent a year or so, then you had population growth that was in the late 1960s growing at two percent a year. By the year 2010, we see population growth going down to less than half a percent a year. In fact, being very close to zero percent after that. Absent the wholesale immigration that was mentioned, this will be a major factor in the forecasts.

APPENDIX

ALTERNATIVE PROJECTIONS SERIES

A large number of government, nonprofit, and for-profit organizations produce projections and forecasts of a wide range of variables, several of which can be used as measures of real estate demand. A sampling of series produced by these firms and reviewed for this paper include projections/forecasts of population, employment, housing starts, and value of construction put in place (in 1982 dollars). Firms providing these projections/forecasts and the Bureau of Economic Analysis; the National Planning Association; Woods & Poole Econometrics, Inc.; and Wharton Econometrics Forecasting Associates (WEFA).

Projections should be distinguished from forecasts in that projections assume that past trends will persist; whereas forecasts build in anticipation of future events that may not follow a historical trend. Typical forecasting processes allow greater modification of the mathematical output based on judgement. Discussions which follow will use the term projection as a generalized reference to either a projection or a forecast.

Organizations producing projections must often trade off time and resource constraints against the benefit of comprehensive review on a series by series, or area by area basis. Similarly, the need for timeliness and comprehensiveness of the projected series and level of geographic detail may outweigh the ability of an organization to undertake a detailed review. Organizations like BEA build into their projections a major allocation of time for internal review, including adjustments for recent strikes, plant closings and openings, as well as a formalized process for local and State review. However, their projections are available only every five years, and include only about 35 variables at the MSA level. With this time lag, even if comprehensive analysis were undertaken, short-term projections may be out of line with current data by their release. On the other hand, for-profit firms, like WEFA, often provide quarterly forecasts of hundreds, if not thousands, of series for many, many geographic areas. The resources necessary to undertake a comprehensive review for all series, for all areas, for all periods would be prohibitive and probably would preclude many data users from purchasing their services. In addition, it would be unlikely that they could compete against other for profit firms, who control quality in the aggregate, not at every level.

To evaluate projections from different types of organizations, one must judge the quality, timeliness, and degree of detail of the of the overall projections program relative to cost. For private and not-for-profit organizations, the cost would be reflected through client fees; for government organizations, the cost would have to be determined through information on the direct funding of the projection program.

A brief description of the source, series, release date, and general methodological approach of each organization follows:

Source: U.S. Department of Commerce, Bureau of Census

Series: Population by State

Release Date: October, 1988

Methodology: These projections are developed using a cohort-component method which allows for different assumptions for each component of population change , categorized by age, race and sex, births, deaths, internal migration, and international migration. The base data are resident population of the States by sex and single year of age as July 1, 1986. These data are disaggregated into racial groups based on 1980 census information and administrative records. The projections for mortality are State-specific and assume a slight increase in overall life expectancy. The appropriate age, race, and sex survival rates by State are developed from the 1979-81 State life tables developed by the National Center for Health Statistics. Future births are developed from applying age-race-specific fertility rates by State to the projected number of females of child-bearing age by State. In general, these projections assume a slight increase in the levels of fertility to an ultimate level of 1.8 births per woman. Fertility differences across States are based on historical patterns. International migration is assumed to decrease linearly from an annual level of 600,000 through 1988 to 500,000 by 1998 and remaining constant thereafter. State-to-State migration rates are used to develop estimates of domestic migration. A set of synthetic data was created using migration rates from the Current Population Survey March Annual Demographic File, migration flows from the 1980 decennial census, and annual State-to-State migration flows from matched federal income tax returns. Final State populations by age, sex, and

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race are controlled to the middle series national totals, which are independently projected.

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Series: Employment by State and MSA

Release Date: 1986(?)

Methodology: The Bureau of Economic Analysis develops detailed regional projections every five years, with the most recent set being the 1985 OBERS, BEA Regional Projections. BEA develops its State and metropolitan projections using a step down method, moving from a national projection, to state-level, to MSA level, where the smaller constituent areas are forced to sum to larger areas. BEA relies on gross national product and employment projections by detailed industrial sector from the Bureau of Labor Statistics for 1990 and 1995, extending these series further into the future themselves. BLS develops GNP projections by 1) projecting the labor force participation rate, applying it to Census projections of population to obtain the labor force, 2) projecting unemployment rates, applying them to the projected labor force to obtain employment through substraction, and 3) projecting output per employee and multiplying it by employment to yield projected GNP. BLS distributes GNP across about 150 industrial sectors using a variety of interindustry relationships. For State and substate level projections, BEA aggregates industry detail to 57 industry sectors. BEA adopts the middle series national population projections by age produced by the Bureau of Census.

Employment in each national industry is distributed among the States, according to whether an industry is basic (produces products generally exportable) or service (satisfies local demand) by use of a base-service model of the economy of each State. Each State's share of the basic industries is projected into the future and controlled to a national total. Service employment flows from basic employment with the relationship varying from State to State, sensitized by changing national trends.

Projections of population by State are driven by the employment base, taking into account changing State and national trends in this relationship. Total population is the sum of three separate age group projections, the population

0 - 14, 15 - 64, and 65 plus. The population 15-64 is developed through a ratio of age-group population to total employment by State, adjusted for trends in the State-to-national relationship of this ratio over time. The population under age 15 is developed from trends in the ratio of the under-15 category to the 15-64 category, sensitized by the State-to-national relative. The projection of population over 65 is developed similarly using the 0-64 population base.

At all phases of the State/industry projection process, the mathematical model results were reviewed and modifications made, when necessary, to adjust for 1) unusually rapid growth or decline, 2) a permanent event, such as factory shutdown, that primarily affected the level, rather than the trend in economic activity, 3) a temporary event, such as a strike, that should have no long-term impact, or 4) a planned event, such as an opening of a new facility after 1983, that was not reflected in the base data. The review process involved first BEA staff, followed by State review by Federal State Cooperatives for Population Projections and other State organizations knowledgeable in these fields. Finalized industry and population projections served as the controls for the MSA and non-metropolitan aggregate projections.

MSA projections flow from the State level projections. The historical annual growth rate in the MSA's share of the State level employment by industry is projected into the future at a declining rate, then applied to the projected state level employment. This assumes that economic forces will emerge which will preclude an MSA share from either growing or declining at a rapid rate for extended periods of time. Once again, preliminary projections are reviewed and modified based on current data. As with State population projections, MSA population is driven by the employment projections. For all series and all levels of geography, smaller areas are summed and controlled to larger areas.

Source: National Planning Association

Series: Population and Employment by State and MSA

Release Date: Late 1987 to Early 1988

Methodology: The National Planning Association uses the population, employment, earnings, and income historical data base from the Bureau of Economic Analysis as their core data base. NPA uses a regional growth accounting model which disaggregates a national forecast into consistent subnational forecasts. NPA allocates their forecast to economic areas of the country, then to counties within these areas through a two-step disaggregation process, utilizing relative growth rate differential and multiplier analyses. The counties are then aggregated into State, regional, and MSA area totals. Hisorical growth rate differentials, (the ratio of the area growth rate to the national growth rate) are projected to decay over the projection horizon. The resulting area specific growth rates are then applied to prior year employment, while controlling the sum of the areas to the national total. Population, as with the BEA projections, is driven by the employment projections. A similar methodology is followed for the counties, except differentials by county are used instead of multipliers, since at the county level, population (by place of residence) may not be as closely related to employment (by place of work) as in larger geographic areas where commuting does not influence the ratios as much.

Source: Wharton Econometric Forecasting Associates (WEFA)

Series: Single and Multifamily Housing Starts and Value of Nonresidential Construction Put in Place, in 1982 dollars

Release Date: Spring 1988

Methodology: Wharton Econometrics produces, on a quarterly basis, quarterly forecasts ten years into the future for a large number of economic and demographic variables. These series are available only to their clients, and detailed information on how the series is developed is unavailable for public distribution. WEFA in general uses an econometric approach in their forecasts by developing structural equations for all concepts, adjusting the forecasts through add factoring for deviations in the most current information which have not been picked up by the mathematical model.