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COPC: San Francisco's Employment Roller Coaster: A Report on the City Employment Economy from 1980 to 2000

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Publication Date

1996-03-01



Working Paper 96-04

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**Michael Potepan
Elisa Barbour**

March 1996

**University of California at Berkeley
\$20.00**

Working Paper 96-04

(formerly COPC 8)

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Michael Potepan

Elisa Barbour



The University-Oakland Metropolitan Forum is a partnership of the University of California at Berkeley; California State University, Hayward; Mills College; Holy Names College; the Peralta Community College District; and the Oakland community.

University of California at Berkeley
Institute of Urban and Regional Development

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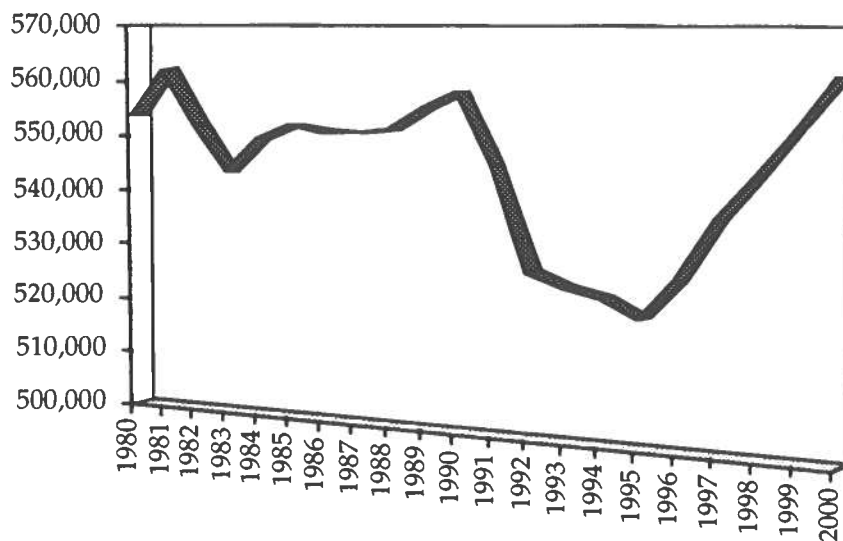
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1. Introduction: San Francisco's Employment Roller Coaster

The figure below suggests that employment in San Francisco behaves a bit like the old roller coaster at Playland At The Beach. It rolls through a series of valleys and peaks, with sharp descents and somewhat more gradual ascents. By the end of 1995, employment in San Francisco had bottomed out from a steep decline which saw it fall in each of the preceding five years. As 1996 begins, however, there are strong indications that we are entering a period of expanding employment. Having lost around 40,000 jobs over the last five years, the latest economic projections suggest we will gain 40,000 new jobs over the next five years.

Figure 1.1
Total Employment in San Francisco



Despite the relatively upbeat projections for the next five years, this is not a picture of a robust economy. Recoveries last just long enough to create as many new jobs as were lost during the last recession, then another recession hits. In contrast, employment in the Bay Area as a whole follows quite a different pattern, one that is more typical of economic growth in the rest of the state and nation. For the entire Bay Area, many more jobs have been created during recent recoveries than were lost during recessions. The long run employment trend in the Bay Area is on an upward trajectory, whereas the long run trend in San Francisco has plateaued. Specifically, San Francisco employment has never gone beyond the 1981 high water mark, and is not likely to do so before the end of the century. In contrast, the Bay Area should have about 715,000 more jobs in 2000 than it did in 1981. San Francisco will have no more jobs than it did twenty years before.

All this suggests that San Francisco's economy, while highly integrated into the rest of the Bay Area's, is fundamentally different in some respects. While San Francisco has long since ceased to dominate its regional metropolitan economy, these latest trends suggest San Francisco is continuing to lose relative position within it. Another indication of this is that during both of the previous two recessions (1981-82 and 1990-93), over half all the jobs lost in the entire Bay Area were lost in San Francisco, even though only one-fifth of all Bay Area jobs are located here. Even during upswings, we continue to lose relative position. Over the past

fifteen years, the rate of employment growth in San Francisco has consistently lagged that of the entire Bay Area's by about two percentage points, in upswings as well as downturns.

By focusing exclusively on the total employment level, we gloss over some fundamental structural changes occurring within sub-units of San Francisco's employment economy. For instance, while employment overall was flat during the 1980's, employment was rising rapidly in some industrial sectors, and falling just as rapidly in others. Over the next five years the economy is projected to gain another 40,000 jobs. In most cases these will not be the same 40,000 jobs that were lost earlier. The new jobs will be in different industrial sectors, and have different occupational titles requiring different skills than the jobs that were lost.

In San Francisco, there is clearly great cause for alarm if we are worried about the widening gap between our city's rich and poor and if we are concerned about creating greater opportunities for workers at the bottom of the job hierarchy. Not only has job growth recently been moving in the wrong direction, but the composition of jobs has been increasingly tilted toward jobs requiring skills and education beyond those of our most disadvantaged workers. This report seeks to address these issues head on by examining San Francisco's employment economy in detail. It aims to identify the relative strengths and weaknesses San Francisco's employment structure in terms of the kinds of industries that hire workers as well as the kinds of occupations workers are employed in. It will clearly document the lack of employment growth since 1980 and point to some of its causes. The report will also present the best available forecasts for job growth in San Francisco over the next five years both by industry and by occupation. Finally, the report will seek to identify niches in the local employment economy that seem most promising for using public resources in attempting to expand employment opportunities for our city's low income and disadvantaged residents.

1.1 Data Sources Used In This Report

This report draws upon data from a variety of different sources. These are briefly described below in the order in which they appear in the report.

The County *Business Patterns Series*, data is the most highly detailed employment data generally available for geographic units as small as counties and zip codes. It is available from the Bureau of the Census, U.S. Department of Commerce in both published and computerized format. The series only includes data on persons employed in private sector jobs covered under Unemployment Insurance (nationally, about 97% of all private sector jobs are covered under U. I.). It therefore does not include government employees (federal, state, or local), non-civilian employees, or self-employed persons.

The 1990 *Census* data used in the report was obtained from computerized records made available by the Bureau of the Census, U.S. Department of Commerce. This is technically entitled the *Census of Population and Housing, 1990: Public Use Microdata Sample: 5-Percent (PUMS)*. This contains records of individual household responses to the census "long form", completed by five percent of the U.S. population in 1990. From these computerized records, we constructed a file that included everyone in the sample employed in San Francisco County.

Annual Planning Information is published each year for each county in California by the California Employment Development Department (EDD), Labor Market Information Division. Among other things, this report gives EDD estimates for employment in each year from 1983 to 1993, broken down by industries somewhat corresponding to the broad industrial sectors identified later in this report. While this data does not provide the highly detailed

industrial breakdowns provided in the *County Business Patterns*, it is useful because it includes Government employment and because it includes employment figures for 1993.

ABAG Employment Projections are unpublished, unofficial employment forecasts for San Francisco County which were generously provided to us by Raymond Brady, Research Director of the Association of Bay Area Governments (ABAG). Mr. Brady developed the County Employment Forecasting System at ABAG. This is a large scale population and employment modeling system using an input/output table and assumptions regarding national and statewide economic growth to forecast employment in each Bay Area county in each of 31 industrial sectors. For the employment projections used in this report, it was conservatively assumed that the U.S. national economy would experience annual growth rates of between 1.8 and 2.2%. This explicitly assumes that no recession will occur nationally before 2000.

The *ABAG Employment Projections* provide employment forecasts for 31 industrial sectors which somewhat correspond to the broad industrial sectors identified later in this report. We revised the ABAG projections to more closely correspond to the broad industrial sectors identified later in this report. This required extrapolation and interpolation within sectors based on a model we developed identifying the changing proportions of employment within industrial sectors from *County Business Patterns* data from 1983-1992.

We developed our own employment projections for each of the broad occupational categories identified later in this report. We did this by combining the ABAG Employment Projections with information from the 1990 Census PUMS. The PUMS data was used to determine how many employees were working in each occupational category in each industrial sector. PUMS is the only data source available for San Francisco that simultaneously gives employment data categorized by both industrial sector and occupation. Using this data allowed us to estimate the proportion of employment employed in an occupation in each industrial sector, at least for 1990. For example, if total employment in Finance and Insurance was 60,000 persons, and 15,000 of these were Managers and Executives, then 25% was the proportion employed of Managers and Executives in Finance & Insurance.

For every other year, we took the same proportion from 1990 and multiplied it by the employment level projected for that industrial sector for that year. For example, if total employment in Finance and Insurance fell to 50,000 in 1995, then using the 25% proportion suggested that 12,500 Managers and Executives would now be employed there. Using the same method for every other industrial sector, and summing up the totals for each occupational category across all industrial sectors allowed us to estimate the projected employment for each occupational category.

There is, however, an implicit distortion that results from using this procedure. It assumes constant occupational proportions within the industrial sectors for all the years being considered. For instance, as Finance & Insurance downsizes, our method assumes that it will nonetheless continue to employ exactly 25% of its employees as managers and executives. In other words, it does not take into account the reality that employment will increase or decrease for certain occupations at different rates than for other occupations. It simply assumes that all occupational categories within the industrial sector will grow or decline at the same rate that the industrial sector as a whole grows or declines. Despite this distortion (which we know exists but is difficult to measure), the method described here is the best available one.

2. The Broad Industrial Structure of San Francisco's Employment Economy

In order to fully understand the direction San Francisco's employment economy is taking, it's important to gain some appreciation of its underlying structure. By structure we refer to the economy's size, industrial composition, occupational composition, pay levels, and recent directions of growth and/or decline. A structural description provides an extensive anatomy of the most significant elements of the employment economy. The structural description will also provide a template of concepts and terms that will be used throughout the rest of the report.

An number of interesting questions can be answered by examining the structure of the employment economy. These would include: How many people are employed in San Francisco? In which industries are they employed? How does San Francisco's distribution of employment within industries compare to the rest of the nation's or to the Bay Area's? Which industries constitute San Francisco's basic economic strength (sometimes referred to as "competitive advantage")? Which industries pay low wages and which pay high wages? Which industries have been growing recently and which have been declining? Do the growing industries pay high or low wages? Are most firms small or large? Do most employees work for small or large firms? Have small firms been growing more rapidly than large firms? These are just some of the questions the analysis in this section will seek answers to.

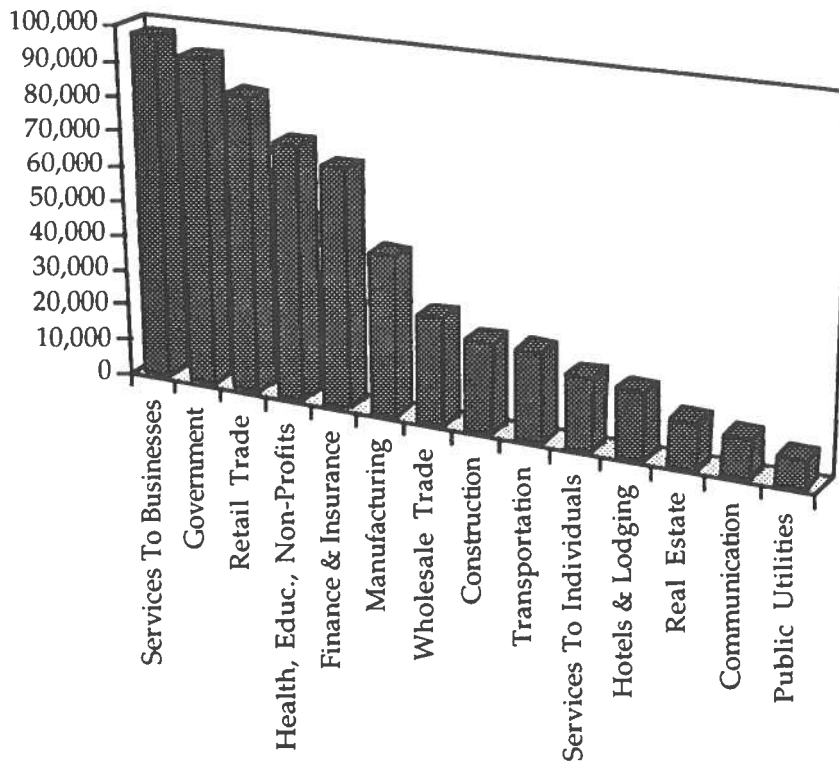
This section will consider San Francisco's employment economy from an industrial perspective. Industries (or sectors) are categories containing a number of business firms all engaged in similar types of economic activity (e.g.: banking, communication, fabricated metal manufacture, contract construction, etc.) An equally valid alternative to the industrial perspective is the occupational perspective. Under the industrial perspective, we look at jobs in terms of the types of businesses people work for, whereas under the occupational perspective, we look at jobs in terms of the types of occupations people have. For example, we might analyze employees in an industry such as banking without distinguishing between those employed as executives and those employed in administrative positions. On the other hand, we might analyze employees in an occupational category such as administrative positions without distinguishing between those employed in banking and those employed in health services. The industrial perspective tends to focus more on the characteristics of the business firms making up the industrial category (their size, growth, competitive strength, etc.). The occupational perspective tends to focus more on the characteristics of the persons working within the occupational category (their skills, education, demographic characteristics, residential location, etc.). A comprehensive analysis will use both approaches, and this report will consider San Francisco's employment economy from an occupational perspective in Section 5. As it turns out, there is much more data available from an industrial perspective than an occupational perspective, so we will begin with that.

Appendix 2.1, found at the end of this report, is a table that breaks down San Francisco's employment economy into seventeen broadly defined industrial sectors⁵ and presents data for seven key variables describing San Francisco's industrial structure.⁶ In the table, these industrial sectors have been arranged according to the total number of persons employed within each sector in 1990. The text in this section will highlight some of the important

⁵ These sectors have been constructed for purposes of this report from the widely-used Standard Industrial Classification (SIC) code developed by the U.S. Bureau of the Census. Appendix 2.2 lists the specific SIC codes for each of the sixteen sectors used in the report.

⁶ All data in Appendix 2.1 was obtained from the *County Business Patterns Series* for San Francisco County, 1982, 1990, and 1992, published by the U.S. Bureau of the Census. At this time, 1992 was the most recent year for which *County Business Patterns* data was available.

Figure 2.1
Total Employment For San Francisco's
Broad Industrial Sectors



Source: County Business Patterns

findings from the information contained in the table, as well as offering further extended analysis.

Figure 2.1, gives the 1990⁷ size distribution of total employment within the broad industrial sectors having more than 2,000 persons employed⁸. Perhaps not surprisingly, the figure clearly demonstrates in San Francisco, the vast majority of persons work in offices. The industrial sector employing the most persons in San Francisco in 1990 was Services Sold

⁷ 1990 was chosen as a reference point for two reasons. First, the 1990 Census of Population was conducted during that year, making for easy comparisons with Census data from the same year. Second, 1990 was the final year of California's economic expansion that began in 1983, and marks a distinct break from the major economic recession that followed in the early 1990's.

⁸ Three sectors, Mining, Agriculture, and Unclassified Establishments had a combined employment of less than 5,000, and so will be dropped from further discussion.

Primarily to Business with almost 94,000 (around 18% of all private sector jobs). This sector includes such sub-sectors as: law, engineering and architecture, temporary employment, copying and reproduction, accounting, management consulting, and advertising. Government was almost as large with almost 93,000 jobs. For purposes of comparing it to the private sector, we will be noting the size and other structural measures of government employment in San Francisco in the report. In terms of tracking changes in the employment economy, however, we note that government employment in the public sector is driven by a different set of factors than those driving the private sector industries the report will primarily be focused on. Other industrial sectors employing sizable numbers of persons in 1990 were Retail Trade (16% of all private sector jobs), Non-governmental Health, Education, Social Services, and Non-Profit Organizations (14% of all private sector jobs), Finance and Insurance (13%), Manufacturing (8.5%), Wholesale Trade (6%), Construction (5%), and Services Sold Primarily To Individuals (5%) which includes such sub-sectors as: auto repair, dry cleaning and laundry, photo labs, movie theatres, etc. Other industrial sectors such as Transportation, Hotels, Real Estate, Communication, and Public Utilities (Gas, Electric, and Waste Disposal) each had fewer than 5% of all private sector jobs.

It is useful to place the size distribution of total employment within the broad industrial sectors described above and shown in Appendix 2.1 into some kind of context. Urban economists and planners have developed a measure called a *location quotient* that essentially compares a region or city's employment size distribution with the employment size distribution for the nation as a whole. In San Francisco's case, this would involve comparing the percent of persons employed in a sector like finance and insurance with the percent of all persons employed nationally in finance and insurance. This would be repeated for all sectors of interest. Appendix 2.1 lists the national location quotients we calculated for each of San Francisco's seventeen broad industrial sectors. The location quotient for each sector was calculated using the following formula:

$$L.Q. = \frac{\% \text{ of San Francisco's Employment in Sector}}{\% \text{ of USA's Employment in Sector}}$$

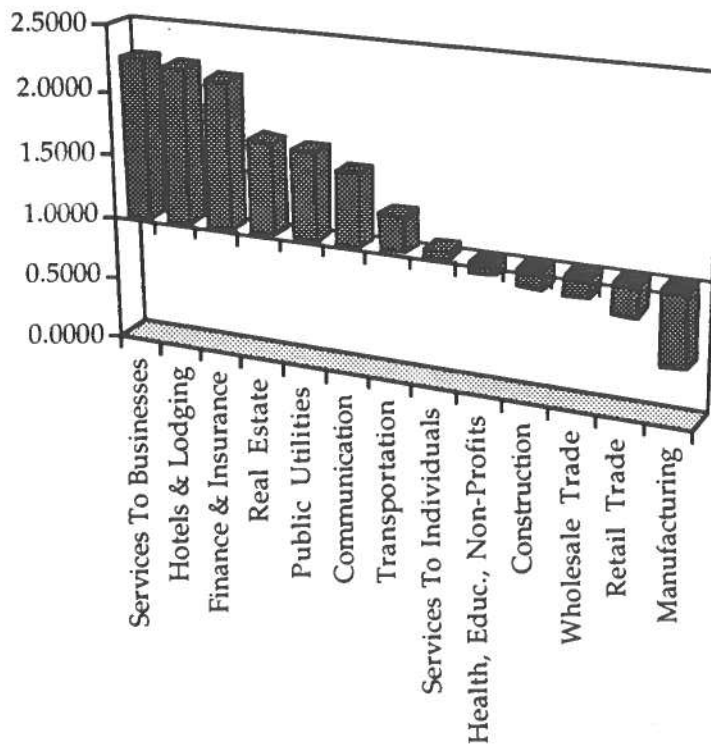
When a location quotient for a sector is above 1.0, it indicates that San Francisco has a disproportionately high concentration of employment in that sector, compared to the U.S. For example, as we have seen, about 18% of San Francisco's employment is concentrated in Services Sold Primarily To Businesses, whereas nationally, only about 8% of all employment is concentrated in Services Sold Primarily To Businesses. In other words, there is a disproportionately high concentration of employment in this sector in San Francisco, compared to the U.S. as a whole. Using the formula above, we would divide the 18% by 8% and obtain a location quotient for Services equal to 2.25.

When a location quotient for a sector is below 1.0, on the other hand, it indicates that San Francisco has a disproportionately low concentration of employment in that sector, compared to the U.S. For example, only 8.5% of San Francisco's employment is concentrated in manufacturing, while 20.5% of all employment in the US is concentrated in manufacturing. In other words, there is a disproportionately low level of employment concentration in San Francisco's Manufacturing sector, compared to the U.S. as a whole. We should expect to see this reflected in the location quotient, and we do. By dividing 8.5% by 20.5%, we obtain a location quotient equal to 0.415 (the actual value shown in the table is 0.4188 -- which differs due to rounding error).

Location quotients can also be used to suggest what are the basic sectors of San Francisco's economy. Urban economists define a basic sector as one that exports goods and/or

services to places outside of the local area. In San Francisco's case, this could be to other parts of the Bay Area, to other parts of the U.S., as well as to other parts of the world. Non-basic sectors, on the other hand, produce goods and/or services consumed by households and businesses within the local area. The basic sectors are vital to economic growth in a local economy, because they are the source of new spending flows into the local economy. This leads to growth in the non-basic sectors as well. For instance, when there is a pickup of business activity for firms in the basic sectors, they will employ new persons to produce products for export. These new employees then spend their earnings partially in the non-basic sectors, creating additional business activity and jobs. When these new employees are paid, they spend again, creating still additional business activity and jobs. The process continues through a number of cycles, so that the initial pickup in business first felt in the basic sector industries is multiplied several times throughout the local economy.

Figure 2.2
National Location Quotients For
San Francisco's Broad Industrial Sectors



Generally speaking, a location quotient for a sector that is significantly greater than 1.0 suggests that part of the production and employment in that sector goes for export, and is basic. The logic behind this is that if a sector has a disproportionately high concentration of

employment (a location quotient greater than 1.0), then the sector is probably producing more than is needed for local households and businesses, and is probably exporting some of this surplus to places outside of the local area. For example, if in the U.S. around 8% are employed in Services For Businesses, then San Francisco probably needs to also have around 8% employed in Services For Businesses to produce for the needs of local businesses. Since San Francisco actually has around 18% employed in Services For Businesses, some of this additional employment probably goes to produce additional services for export. There are a number of important qualifications and assumptions required to use location quotients in this manner to identify a local economy's basic sectors. They should be used only to broadly suggest which are the areas of relative strength in a local economy, particularly when the industrial sectors are broadly defined as the level we are using here.

The location quotients shown in Figure 2.2, indicate that San Francisco has a disproportionately high concentration of jobs in Services Sold Primarily to Businesses, Finance and Insurance, Hotels, Real Estate, Communication and Public Utilities. All these sectors have location quotients above 1.5. A combined total of 211,860 jobs (or 41% of all private sector jobs) are concentrated in these sectors. Of these, Services Sold Primarily to Businesses, Finance and Insurance, and Hotels all have location quotients above 2.0.

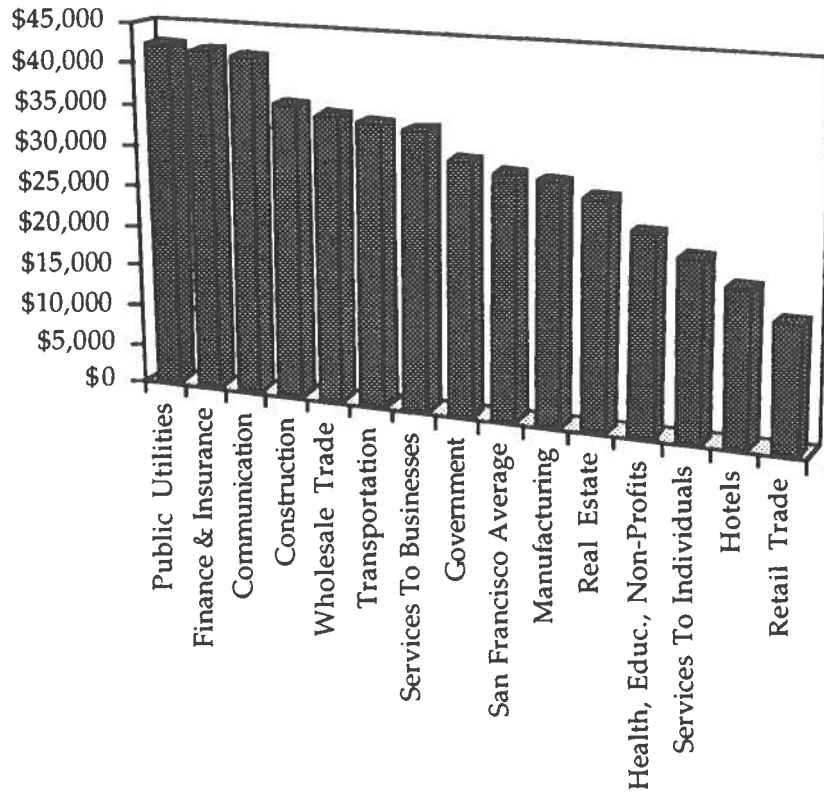
The location quotients shown in Figure 2.2 indicate that San Francisco has a disproportionately low concentration of jobs in Retail Trade, Manufacturing, Wholesale Trade, and Construction. Of these, Manufacturing has the lowest location quotient by far at 0.4. The other sectors have location quotients ranging between 0.76 to 0.87.

The location quotients suggest that the competitive strength of San Francisco's economy lies primarily in sectors that employ persons to work in white collar office jobs. As we will see in the next section of the report where these industrial sectors are further broken down into more narrowly defined industrial sectors, most of the service jobs, virtually all of the Finance, Insurance, and Real Estate, and many of the Transportation, Communication, and Public Utilities jobs are office jobs. On the other hand, small location quotients for Manufacturing and Construction suggest that San Francisco is at a competitive disadvantage in sectors employing persons who work in traditional blue collar jobs.

Another key variable describing San Francisco's employment structure presented in Appendix 2.1 is the annual pay per employee for each broad industry sector. These annual pay figures have been extracted from the appendix and shown here in Figure 2.3. In terms of pay, the industrial sectors tend to fall into several clusters. The three highest paid industries, all with pay above \$40,000 per year, are Public Utilities, Finance and Insurance, and Communication. The next cluster includes Construction, Wholesale Trade, Transportation, and Services Sold Primarily To Businesses with annual pay around \$35,000. Next, there is a middle cluster including Government, Manufacturing, and Real Estate, all with annual pay around \$30,000 or slightly below. Still further down lies Health, Education, Social Services, and Non-Profits, and Services Sold Primarily To Individuals with annual pay around \$25,000. At the bottom are Hotels and Retail Trade, each with annual pay below \$20,000.

Table 2.1 presents these pay figures in terms of the amounts they fall above or below the San Francisco average of \$29,754. For example, annual pay in Public Utilities is \$42,291 which is \$12,537 above the San Francisco average, whereas annual pay in Retail Trade is \$15,765, which is \$13,989 below the San Francisco average. In the left column are the higher than average industrial sectors, with pay differences shown as positive amounts. On the right are the lower than average sectors with pay differences shown as negative amounts.

Figure 2.3
Annual Pay For San Francisco's Broad Industrial Sectors



Sources: County Business Patterns, 1990 Census

Table 2.1
Annual Pay Above Or Below San Francisco Average
Of \$29,754 For Broad Industry Sectors

Public Utilities	\$12,537	Government	\$1,125
Finance & Insurance	\$12,060	Manufacturing	-\$385
Communication	\$11,624	Real Estate	-\$1,938
Construction	\$6,156	Health, Educ., Non-Profits	-\$5,295
Wholesale Trade	\$5,199	Services To Individuals	-\$7,672
Transportation	\$4,741	Hotels	-\$10,694
Services To Businesses	\$4,389	Retail Trade	-\$13,989

So far, our anatomy of San Francisco's employment structure has focused on variables measured at a single point in time, 1990, the year before the most recent large recession began. We will now turn our attention to employment growth and/or decline in the broad industrial sectors in the periods before and after 1990. This will provide a sense of which sectors have been producing jobs more quickly over the last decade. The two time periods are 1983 - 1990, and 1990 - 1992. The earlier period corresponds with the national economic expansion that occurred following the 1981 - 1982 recession. The later period coincides with the 1990 - 1991 national recession.⁹ The employment growth variables we will consider here are only an introduction to the issue of employment changes over time. Section 5 of this report will address this issue in its entirety.

From 1983 to 1990, total private sector employment in San Francisco grew by 42,840 jobs, or a 9% gain. Nine percent stretched out over eight years represents a rather paltry average annual growth rate of 1.1%. However, this modest job growth during the 1980's was more than offset by the decline that occurred during the 1990 - 1991 recession. From 1990 to 1992, private sector employment fell by 57,163 jobs, for an 11% loss. Eleven percent stretched over just two years represents a devastating negative annual growth rate of - 5.5%. So in terms of the total employment level, very modest job growth in the 1980's was followed by steep job declines in the early 1990's. A much more extensive analysis of these trends and comparisons to Bay Area growth during the same period is presented in Section 5.

⁹This recession hit California later and lasted longer than it did in the rest of the country. In California, the recession resulted in losses in total employment during 1991, 1992 and 1993. The County Business Patterns Series data for 1990 was collected in March 1990, before the onset of the recession.

Some industrial sectors, of course, fared better and some fared worse than the San Francisco average during these periods. Table 2.2 breaks down this growth rate performance for each sector relative to the San Francisco average for these two periods. It shows that five of the industrial sectors represented in Appendix 2.1 performed better than the San Francisco average growth rate in both of these periods. Ranked in order of their 1990 - 1992 performance, these sectors were: Hotels, Health, Education, Social Services, and Non-Profits, Services Sold Primarily to Businesses, Services Sold Primarily To Individuals, and Retail Trade. In the 1980's, all of these sectors grew faster than the 9% San Francisco average, and in the early 1990's, all of these sectors declined by less than the - 11% San Francisco average (Public Utilities actually grew by 9% and Hotels grew by 4%). Looking to the other categories, two sectors performed better than average in the 1980's, but worse than average in the 1990's: Real Estate, and Wholesale Trade. Three sectors performed better than average in the 1980's, but worse than average during the 1990's: Government, Public Utilities, and Finance. Finally, four sectors performed worse than average during both periods: Communication, Manufacturing, Construction, and Transportation.

Table 2.2
Industrial Sectors Where Employment Growth Rates Were
Better Than or Worse Than The San Francisco Average

		1990 - 1992	
		Better Than SF Average	Worse Than SF Average
1982 - 1990	Better Than SF Average	Hotels Health, Educ., Non Profit Services To Businesses Services To Individuals Retail Trade	Real Estate Wholesale Trade
	Worse Than SF Average	Public Utilities Government Finance	Communication Manufacturing Construction Transportation

Source: County Business Patterns, Annual Planning Information

Table 2.3
Comparing Employment Change
With Annual Pay Level For 1983 - 1990

	Employment Change	Annual Pay Per Person
Total For San Francisco	42,840	\$29,754
A. High Paying Industrial Sectors		
Services To Businesses	27,436	\$34,143
Wholesale Trade	2,600	\$34,953
Transportation	348	\$34,495
Public Utilities (Gas, Electric, etc.)	-182	\$42,291
Communication	-9,400	\$41,378
Finance & Insurance	-11,655	\$41,814
Construction	-18,494	\$35,910
<hr/>		
Employment Change For All High Paying Jobs	-9,347	
B. Low Paying Industrial Sectors		
Health, Educ., Non-Profits	20,897	\$24,459
Retail Trade	16,624	\$15,765
Services To Individuals	6,249	\$22,082
Hotels & Lodging	5,405	\$19,060
Real Estate	1,847	\$27,816
Manufacturing	310	\$29,369
<hr/>		
Employment Change For All Low Paying Jobs	51,322	

Source: County Business Patterns

An interesting question is whether the new jobs created over the last decade in San Francisco have paid low wages, while the jobs lost have paid high wages. Tables 2.3 and 2.4 seek to address this question by examining data from Appendix 2.1. In each, sectors are categorized into those that are high paying (all with pay above the \$29,754 San Francisco average) and those that are low paying (with pay below \$29,754). Within each category, the sectors are ranked in order of total employment change from high to low. The annual pay for each sector is listed as well.

In the 1980's, the answer seems strikingly clear: yes, job growth was much higher in low paying sectors than high paying sectors. While San Francisco gained a total of 42,840 jobs during this period, the high paying sectors lost 9,347 jobs while the low paying sectors gained 51,322 jobs (1,942 jobs were gained in smaller, non-categorized sectors). Within each category,

Table 2.4
Comparing Employment Change
With Annual Pay Level For 1990 - 1992

	Employment Change	Annual Pay Per Person
Total For San Francisco	-57,163	\$29,754
A. High Paying Industrial Sectors		
Public Utilities (Gas, Electric, etc.)	709	\$42,291
Communication	-1,336	\$41,378
Finance & Insurance	-3,938	\$41,814
Construction	-5,298	\$35,910
Wholesale Trade	-6,243	\$34,953
Services To Businesses	-8,085	\$34,143
Transportation	-9,867	\$34,495
Employment Change		
For All High Paying Jobs	-34,058	
B. Low Paying Industrial Sectors		
Hotels & Lodging	724	\$19,060
Health, Education, Non-Profits	-1,500	\$24,459
Real Estate	-1,591	\$27,816
Services To Individuals	-2,328	\$24,241
Manufacturing	-8,146	\$29,369
Retail Trade	-9,169	\$15,765
Employment Change		
For All Low Paying Jobs	-22,010	

Source: County Business Patterns

the same picture emerges: the higher the job growth, the lower the annual pay. As we move down the list shown in the table, employment gains become smaller, while the pay levels become higher. Here, employment change is presented as total change rather than percentage change, but the same pattern holds when comparing employment growth rates and pay levels.

For the early 1990's, the relationship between job growth and annual pay was not quite clear as in the 1980's. San Francisco lost 57,193 jobs between 1990 and 1992, and 34,058 were lost in high paying sectors, while just 22,010 were lost in low paying sectors (the remaining 2,402 jobs lost were in the smaller, non-categorized sectors). However, Table 2.3 shows that for the group of high paying sectors, job loss was smaller for sectors with pay levels above \$40,000 than for sectors with pay levels around \$35,000. In the low paying category, there appears to be only a slight relationship indicating that the larger job loss occurred in higher paying sectors. The same pattern holds when comparing employment growth rates to pay.

Another interesting question is whether most persons employed in San Francisco work for small, medium, or large businesses. The *County Business Patterns* data can be used to suggest an answer to this question. The *County Business Patterns* provides data on the number of "establishments" within various establishment-size categories (1 - 4 employees, 5 -9 employees, etc.). Establishments are defined as "places of employment", or worksites. A large firm, such as a bank or a retailer could have a number of these establishments located throughout San Francisco, and each would be considered an separate establishment. A small firm, however, would usually only have one establishment. Therefore, the number of establishments in the smaller size categories is approximately equal to the number of firms, but in the large size categories, the number of establishments is larger than the number of firms.

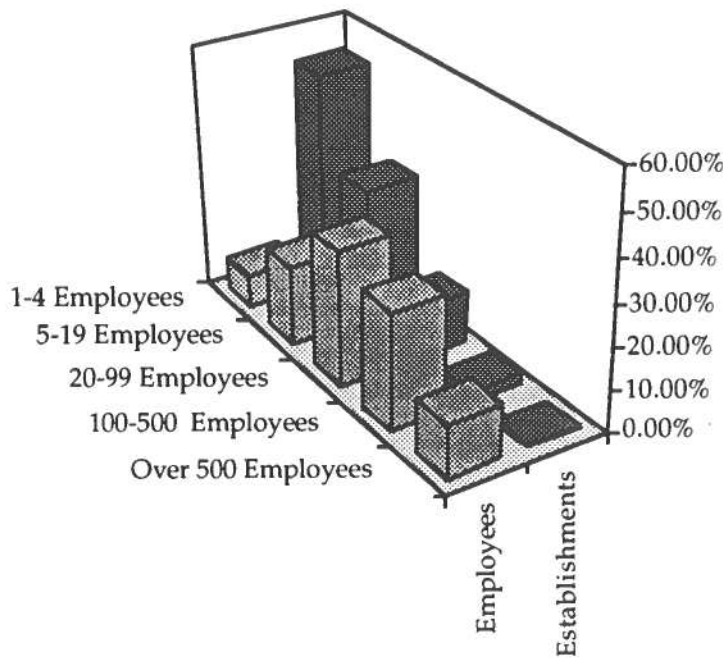
The data shows that, by far, most establishments in San Francisco are small. About 53% of all establishments employ fewer than five persons, and over 85% of all establishments employ fewer than ten persons. Only about 12.5% of all establishments are medium sized (20 - 99 employees), and only 2.5% are large (over 100 employees).

This does not, however, mean that most persons in San Francisco work in small establishments. On the contrary, since small establishments are (by definition) small, even large numbers of them do not contribute that many total jobs. This is clearly seen in Figure 2.4. This figure shows two separate distributions, one for establishments and one for employees. For establishments, it shows the percent of all establishments falling into each of the establishment-size categories. For employees, it shows the percent of all employees that work in establishments falling into each of the establishment-size categories. For instance, 53% of all establishments employ fewer than five employees, but less than 8% of all employees work in establishments of this size.¹⁰

Figure 2.4 indicates that while most establishments are small, most employees work in medium or large sized establishments. For instance, about 85% of all establishments are small (fewer than twenty employees), but only 27% of all employees work in establishments of this size. On the other hand, about 12.5% of all establishments are medium sized (20 - 99 employees), but about 32% of all employees work in establishments of this size. About 2.5% of all establishments are large (over 100 employees), but a substantial 41% of all San Francisco's employees work in these relatively few large establishments. While there was some variation in this pattern across broad industrial sectors, the general picture was fairly similar, with the largest percentage of employees in each sector working in medium and large sized establishments. Finally, recalling that many of the larger *firms* in San Francisco have several establishments (bank branch offices, clothing retailers, supermarket chains, etc.), an even higher percentage of San Francisco's employees in work for large *firms*. So while 41% worked in large establishments, it is safe to assume that well over half worked for *firms* with over 100 employees.

¹⁰The *County Business Patterns* data does not directly report the number of employees within a size-category. It reports the number of establishments within a size-category, instead. To convert the reported establishment count into an employment count for each size-category, we used the following conventional method: the number of firms within each size-category was multiplied by the mid-point of the employment range for that size-category. For example, suppose that in the "5 - 19 employees" size category, there were 2,200 firms. The mid-point of this employment range would be 12. Therefore, 2,200 firms, multiplied by 12 employees per firm, would result in an estimate of 26,400 persons employed within this size-category.

Figure 2.4
Percentage Of Establishments By Size Compared
With Percentage Of Employees By Size of
Establishment Where They Work



This discussion leads to another interesting and related question: how many of the new jobs that were created or lost during the past decade were in small, medium, and large sized businesses? Table 2.5 compares the growth rate of small, medium, and large sized establishments. Again, these figures seem to suggest a different relationship in the 1980's than in the early 1990's. In the 1983 - 1990 period, medium sized establishments grew at a faster rate (34.5%) than either small (22%) or large (8.5%). In the 1990 - 1992 period, however, small firms fared better (lost only 2.3% of their jobs) than either large firms (with almost a 13% job loss) or medium sized firms (with a 14.5% job loss). In terms of total employment change, the large established experienced the biggest employment decline with 27,092 of the 57,163 jobs lost in San Francisco during this period.

This concludes our structural description of the broad industrial sectors of San Francisco's employment economy. The picture that emerges is one of an employment economy heavily dominated by office jobs in services and finance. San Francisco's competitive advantage continues to remain the core business related activities located in its downtown central business district. Pay levels are fairly high, particularly in those sectors linked to these core activities. Recent employment changes, however, suggest there is cause for concern. A number of important high paying industrial sectors grew more slowly during the 1980's. Further, most persons are employed in medium and large sized firms that appeared to suffer

greater job loss during the early 1990's than small firms. The next section will focus on a structural description of the San Francisco's employment economy focused on the sub-sectors within the broad industrial sectors described in this section.

Table 2.5
Employment Change And Growth Rates For
Small, Medium, and Large Sized Establishments

	Employment Change	Growth Rate
A. 1983 - 1990 Period		
Small (1-19 Empl.)	12,405	9.99%
Medium (20 - 99 Empl.)	22,210	15.71%
Large (Over 100 Empl.)	8,225	3.88%
Total Employment Change	42,840	
B. 1990 - 1992 Period		
Small (1-19 Empl.)	-4,614	-3.35%
Medium (20 - 99 Empl.)	-25,457	-14.71%
Large (Over 100 Empl.)	-27,092	-12.95%
Total Employment Change	-57,163	

Source: County Business Patterns

3. A Narrower Look At The Structure Of San Francisco's Industrial Sectors

San Francisco's complex economy is tremendously diverse. It consists of a wide variety of business activities producing a myriad of products. The broadly defined industrial categories described in the last section were essentially statistical composites. They were somewhat arbitrarily formed by summing up data from economic units that are alike in certain details but perhaps very different in some others. Analysing such catch-all categories, as we have seen, can be useful for making generalizations about the shape and structure of the employment economy. Much, however, is lost in summing up this data, as apples and oranges are treated as the same thing. This section of the report will describe and analyze some of the smaller, more narrowly defined sectors that were added together to form the more broadly defined sectors discussed above. The same key variables that were considered above will be considered here.

Appendix 3.1, found at the end of this report, further breaks down the broadly defined industrial sectors described in Section 2 into more narrowly defined industrial sub-sectors.¹ It is presented in the same order as Appendix 2.1 where the broad industrial sectors are ranked in order of total employment. For each of these broad industrial sectors, Appendix 3.1 presents each of the sub-sectors that were totaled together to form the broader sector. Selectively, in a number of cases, we have also presented sub-sectors of the sub-sectors. In every case, sub-sectors are ranked in order of total employment within that sub-sector.

Many of the things we normally think of as services are not included in the Census definition of the Services sector, whereas some of the things that are included, we might not immediately think of as services.² For instance, restaurant work is not included in Services Sold Primarily To Individuals; it goes with Retail Trade. Bank tellers are included in Finance, Insurance, and Real Estate, not in Services Sold Primarily To Businesses. On the other hand, doctors and nurses perform Health Services, and employees of art galleries along with museum employees are included in Non-Profits. In what follows, we will briefly run through some of the interesting findings of Appendix 3.1.

3.1 Services Sold Primarily to Businesses

It has often been noted that San Francisco's financial district functions as the core financial and business service center for the Bay Area and Northern California. The evidence presented here strongly supports this view. Services Sold Primarily To Businesses is arguably *the* key basic sector in San Francisco. Its overall national location quotient of 2.25 strongly suggests that this sector "exports" its services to business users throughout the region, and to the world beyond. In addition, the vital importance of this sector is evidenced by its sheer size with over 97,000 persons employed in 1990, for about 20% of the city's total employment. The annual pay level within this category was \$34,143, about \$4,500 higher than the San Francisco average. Employment grew by 41% between 1983 and 1990, and fell by only 7% during the 1990-92 recessionary years. What are the various sub-sectors and components of this sector? Are all the jobs in this sector at the high end, requiring high levels of education and skills? Are there any particular sub-sectors that appear likely to grow and provide jobs that do not require very

¹The *County Business Patterns Series*, from which Appendix 3.1 was derived, presents data for over 600 separate industrial sub-sectors in San Francisco. In compiling Appendix 3.1, narrowly defined industrial sectors were selected on the basis of their overall contribution to the local economy. Generally, sectors and sub-sectors employing over 1000 persons were chosen.

²To better fit the employment reality of San Francisco, we further broke down the Census' "Services" sector into four broad industrial sectors: Services Sold Primarily To Businesses, Health, Education, Social Services, and Non Profits, Services Sold Primarily To Individuals, and Hotels and Lodging.

high education levels. Might such sub-sectors benefit from the targeting of economic development efforts in their direction?

Services Sold Primarily To Businesses is further divided into three sub-sectors: Business Services, Engineering and Management Services, and finally Legal Services³. Business Services is the largest of these sub-sectors, employing over 45,000 persons. Business Services, as defined by the Census Bureau, includes some mix of high, medium, and low-end services purchased by other businesses. Some higher-level services include: advertising, commercial art and photography, and computer and data processing services. Some middle-level services include: equipment rental and leasing, photo finishing, and credit reporting. Some low-end services include: building maintenance, and security services. The location quotient for Business Services is 1.6, suggesting that while some of these services are exported, not as high a proportion are as in some of the other areas of Services Sold Primarily To Businesses. The pay level in Business Services is around \$4,000 lower than the San Francisco average, and almost \$10,000 lower than the average for Services Sold Primarily to Businesses. However, this is a sub-sector that grew much faster than the San Francisco average in the 1980's, and declined by less than the San Francisco average in the early years of the 1990's.

The largest sub-sector within Business Services is Personnel Supply Services with over 13,000 jobs. It is commonly believed that temp jobs have been rapidly growing in San Francisco, as large firms in particular have downsized and readjusted their work forces. Appendix 3.1 shows that in 1990, San Francisco had about 8,500 temp jobs, listed in the Temporary Personnel Services category. The pay level was quite low in this sub-sector, just \$15,119 which was a little over half the San Francisco average. The location quotient of 1.25, however, indicates that employment in temp agencies is only slightly more concentrated in San Francisco than in the U.S. as a whole. However, temp jobs grew by 48% in the 1980's, or at a very fast 7% rate. In the early 1990's, temp jobs fell by 5% or 2.5% per year. All in all, while this was a rapidly growing sector in the 1980's, its total of 8,500 jobs constitutes less than 2% of the city's total employment. Employment Agencies employed slightly over 4,500 employees in 1990. The location quotient for this category is extremely high at almost 3.5, indicating that employment agencies in San Francisco sell services throughout the Bay Area. The pay level for employment agencies is substantially below the San Francisco average, and it makes sense that jobs would have expanded rapidly during the 1980's and have fallen rapidly during the early 1990's.

Miscellaneous Business Services is a composite category with a location quotient around 1.5 and a pay level over \$10,000 below the San Francisco average. Building Services include custodial help and other low level operations in buildings. The location quotient for this sub-sector is around 1.5 and the pay level is about \$13,000 lower than the San Francisco average. Job growth in building services has been very strong both in the 1980's and early 1990's. Computer and other Data Processing Services employed about 5,500 in 1990 and had a lower location quotient (1.3) than Business Services as a whole (1.6). The pay level, however, is around \$14,000 higher than the San Francisco average. Job growth was very strong in the 1980's, and decline was around the San Francisco average in the early 1990's. Mailing, Reproduction, and Stenographic Services employed slightly more than 4,000 persons in 1990, and the location quotient at 3.4 was quite high. The pay level here was right around the San Francisco average. Job growth was strong in the 1980's, and the decline was very slight in the early 1990's. Advertising employed just under 3,000 in 1990. The location quotient was 2.5 and the pay level was about \$14,000 higher than the San Francisco average. Job growth was only slightly greater than the San Francisco average in the 1980's, however, jobs continued to grow despite the poor economy in the early 1990's. Equipment Rentals employed just under 2,000 in 1990. The location quotient was 2.3 and the pay level was almost \$8,000 more than the San

³These are the terms used in the Standard Industrial Categories (SIC) code.

Francisco average. Job growth was strong in the 1980's, but decline was even sharper in the early 1990's.

The second major sub-sector within Services Sold Primarily to Businesses is the Engineering and Management Services sector. The predominant form of business organization within this sub-sector is the partnership, and this has implications for how these figures should be interpreted. Partners are not considered employees and their numbers do not show up in this data. Also, partnership income is not payroll income, and so is not considered in the average pay levels reported here. That said, Engineering and Management Services employed over 30,000 in 1990. Its location quotient at around 2.0 indicates a substantial level of sales to businesses and individuals outside of San Francisco. The pay level at over \$41,000 is almost \$12,000 higher than the San Francisco average. Employment in this sub-sector grew by 46% in the 1980's, and declined by 9% in the early 1990's. Looking at some of the categories within this sub-sector, we see that Engineering firms alone employed over 7,000 in 1990 and had a location quotient of almost 2.0. The pay level has around \$16,000 higher in engineering firms than for San Francisco as a whole. While job growth figures for the 1980's were not available, job decline in the early 1990's was just at the average rate for all San Francisco. Architectural firms employed just under 4,000 in 1990. The location quotient of 5.0 indicates that these firms export almost all of their service activities to places beyond San Francisco. The pay level was about \$10,000 over the San Francisco average, but the job decline in the early 1990's was sharper than the San Francisco average. Accounting and Bookkeeping firms employed around 5,750 persons in 1990, had a location quotient of 2.0 and paid \$7,000 above the San Francisco average. Commercial Research and Testing Facilities employed slightly over 2,200 in 1990 in jobs that paid slightly above the San Francisco average.

The third major sub-category within Services Sold Primarily to Businesses is Legal Services. Since most law firms are organized as partnerships, the same caveats about partners not being counted as employees and their incomes not being included in payroll figures applies here too. Law firms employed almost 21,000 persons in 1990. With a location quotient of 4.0, a large share of these services were sold to businesses and individuals outside of San Francisco. The average pay level of \$46,406 was about \$17,000 higher than the San Francisco average. While the job growth was very rapid in the 1980's (82%), the decline in the early 1990's was only slightly sharper (-13%) than the San Francisco average.

4. The Broad Occupational Structure of San Francisco's Employment Economy

This portion of the report analyzes the occupational structure of San Francisco's employment economy. A number of measures are used to compare occupational categories: wages, educational levels, residence patterns, race/ethnicity, and age. Changes from 1980 to 1990 are tracked for some measures. Beyond providing a broad overview of San Francisco's occupational structure, the ultimate purpose of this analysis is to formulate a set of benchmarks by which policy-makers can assess important trends by occupation, especially for city residents with educational levels below the city median.

The primary source of data on occupations is the US Census, a rich source of information about demographic characteristics of workers and residents. While trends in the economy are studied elsewhere in this report in terms of industries measured by the behavior of firms, the data on occupations used for this section refers to characteristics of individual workers. Studying the occupations of city workers provides a link between the needs of specific groups in the population targeted for assistance and general economic trends in the city described elsewhere.

Occupations are presumed to be more stable than industries from the perspective of workers. In other words, it is more likely that individuals will change employers across industries than shift to new occupations. Given the more stable nature of occupations, and the long-term consequences of occupational training decisions for individuals, local economic development policy-makers should focus attention on trends in the occupational structure of the city as well as trends by industry.

This analysis is based on data from the Public Use Microdata Samples (PUMS) 5% samples from the 1980 and 1990 censuses. The 5% PUMS is a dataset of actual long-form census questionnaire data for a full 5% of all U.S. residents. Unlike aggregate census data, the individual is the unit of analysis in PUMS data. Unfortunately, the trade-off for attaining the greater flexibility of PUMS data is a loss of geographic detail. PUMS data is aggregated by large geographic districts called Public Use Microdata Areas. In this analysis, data is considered for the entire City of San Francisco as a whole.

A disadvantage of using census data in general is that it provides only a "snapshot" view of changing economic circumstances. The compensating value of the census is that jobs can be studied in relation to individual workers more easily than with other economic data.

Some variables for the study were recoded in order to achieve comparability between census years and with other sections of this report. Race and ethnicity were collapsed in order to create an exclusive "Latino" category. The hundreds of census occupational titles were grouped into twenty-four categories. (See Appendix 4.1 for a listing of Standard Occupational Codes and titles included in each category.) Data on industries was categorized in the same manner used in the other portions of this report.

This analysis refers to the San Francisco workforce, which is made up of city residents and commuters who live elsewhere but work in the city. The census question about "place of work" was used to filter most of the data used for this analysis. Commuters from other areas in California who work in San Francisco were included, but city residents who commute out of the city to work were excluded, as well as the unemployed and those not in the labor force.

Figures for 1990 employment from the PUMS data are largely consistent with the data used to analyze industries in other portions of this report. Specifically, overall employment in San Francisco is determined to be 553,600 in the County Business Patterns data used for the industry analysis. The PUMS sets the total figure at 560,222, a discrepancy of only about 1%. The PUMS data for the 1980 census, on the other hand, is less reliable in one respect. In 1980 only "approximately half the sample," according to the census codebook, was asked about their place of work. Probably due to this factor, the figure for total employment for 1980 was not as close to the figure obtained from the County Business Patterns data as in 1990. There was a discrepancy in the 1980 figures of about 60,000 workers.

The census sample methodology is sound, so proportions and cross-tabulations of variables are extremely reliable. However the figures for total employment were too low for 1980, making comparisons of absolute numbers difficult. Therefore, the census data was weighted up to match the value for total employment in 1980 obtained from the County Business Patterns data, in order to provide a truer picture of occupational trends. The number of jobs overall was increased by a factor representing the discrepancy between the two data sources. As a result of this shortcoming of the data, findings based on differences in absolute numbers of jobs between 1980 and 1990 should be considered less reliable than findings based on 1990 data alone, or on proportions or median values based on 1980 data.

In comparisons between census years, figures for wage earnings are weighted for inflation based on the Consumer Price Index, which is based on 1987 dollar amounts. Comparisons between census years are made for real wages, that is, wages adjusted for inflation. Therefore, changes in real wages reflect changes in constant dollar values.

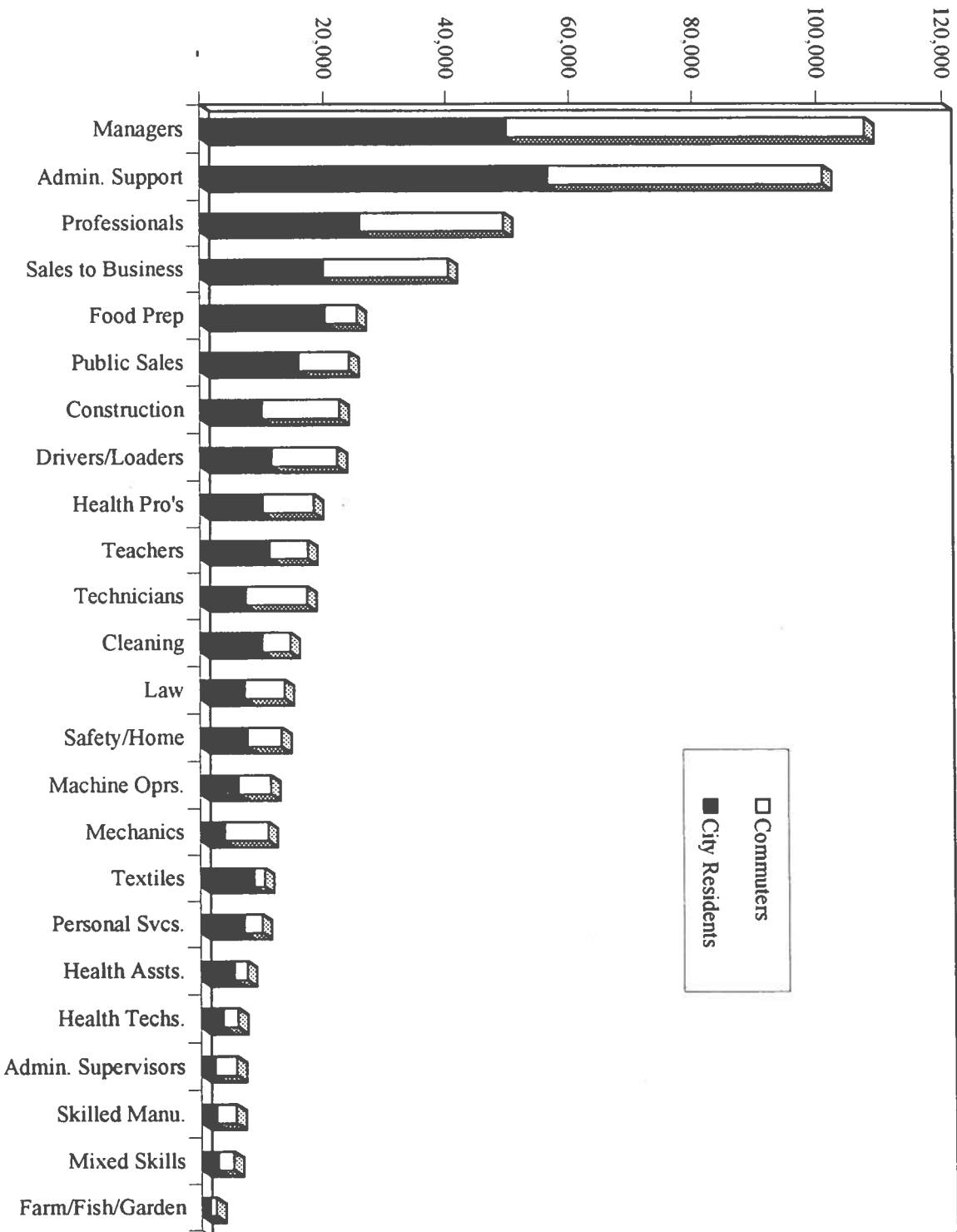
4.1 Overall Structure of Occupations and Shifts in Residence Patterns Since 1980

According to the 1990 census, there are 560,222 people working in San Francisco. City residents comprise 55% of the workforce, and commuters make up 45%. (See Table 1.) By occupation, management jobs comprise the largest portion of all employment, with a share of 19.2%, or 107,596 jobs. This number is closely followed by administrative support jobs, in other words clerical jobs, which comprise 18% of all jobs, or 100,830. Trailing behind, professionals are the next largest category, with 8.8% of jobs, followed by business sales, with 7.2% of jobs, food preparation, with 4.5% of jobs, public sales, with 4.3% of jobs, and construction jobs, at 4% of the total. Skilled manufacturing jobs account for less than one percent of jobs. It is the third lowest category, after "gardening/farming/fishing" and "mixed skills." (See Graph 1.)

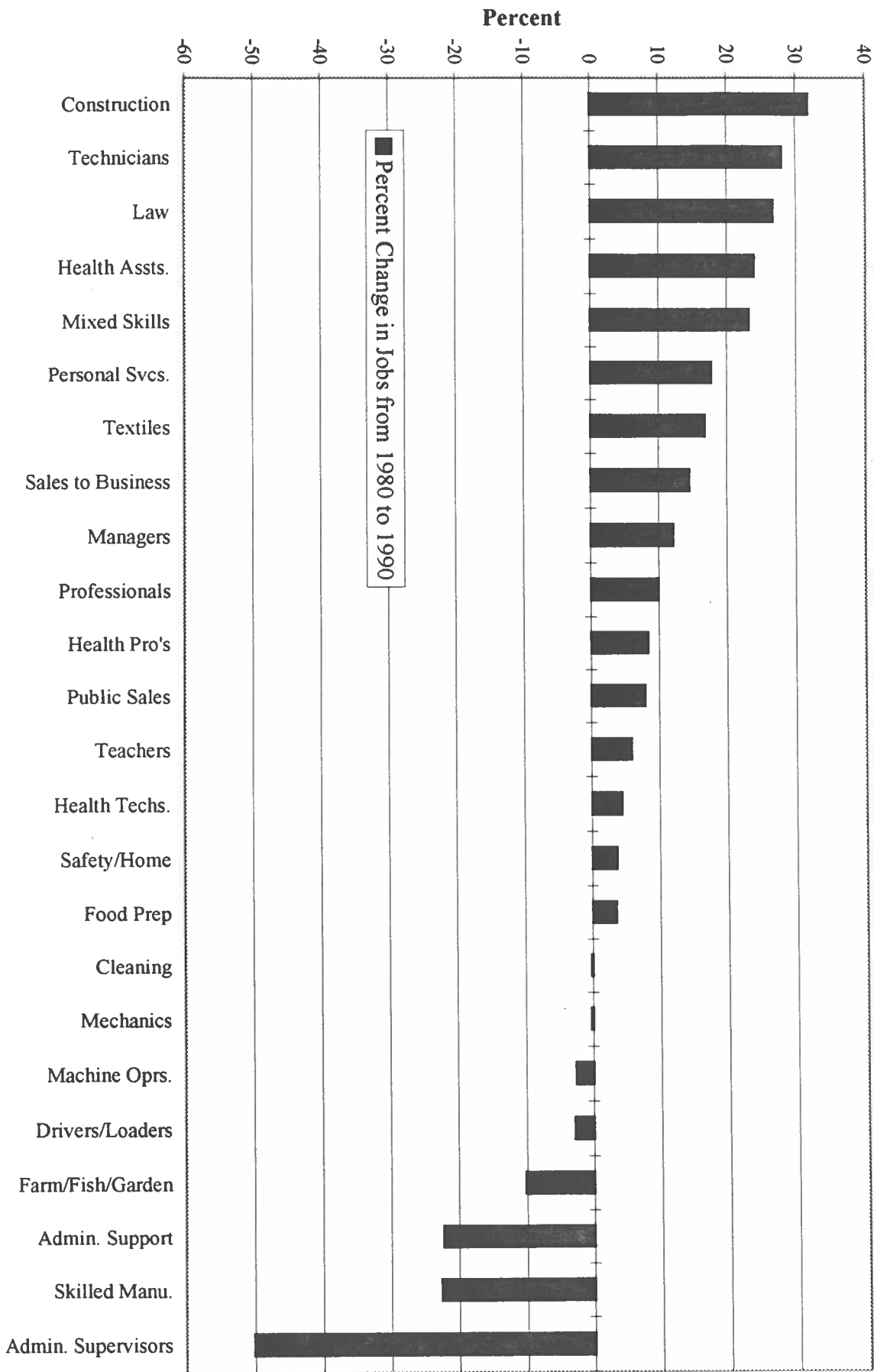
Since 1980 San Francisco has lost many clerical jobs. 28,989 general clerical support jobs have been lost, and 5,691 clerical supervisory positions. No other occupational category shows losses of this magnitude. Skilled manufacturing lost 1,627 workers, and the other five occupations that lost jobs from 1980 to 1990 all lost less than 700 jobs each. Those five are: drivers/loaders, machine operators, gardeners/farmers, cleaning workers, and mechanics/repairers.

Clerical jobs may have been subject to "back-officing" to outlying areas, or lost due to business downsizing, or both. At any rate, this is a significant trend, since clerical jobs account for such a major proportion of overall jobs, nearly one in five, and clerical workers are at the median in terms of wages and educational levels. The loss in clerical employment is even more pronounced when comparing percent changes in the number of jobs by occupation. Over half of administrative supervisory jobs have been lost since 1980. Nearly one-quarter or all administrative support jobs have been lost. Skilled manufacturing also suffered a loss of nearly one-quarter of all jobs. Gardening/ farming lost a tenth of all jobs. No other occupations have comparable losses. (See Graph 2.)

Number of Employees in 1990



Graph 1. San Francisco Workforce by Occupation in 1990



Graph 2. Percent Change in the Number of Jobs by Occupation from 1980 to 1990

Construction workers were the biggest winners in terms of an increase in jobs from 1980 to 1990. Their numbers increased by nearly one-third, a total of 5,444 jobs. Other winners include technicians, law professionals, health assistants, and mixed skill workers.

The occupations with the highest proportions of city residents are textile workers, 84% of whom live in the city, food preparers, 80% of whom are residents, cleaning, with 69% residents, and public sales, with 66% residents. The occupations with the lowest proportions of city residents relative to commuters are mechanics/repairers, only about a third of whom live in San Francisco, and administrative supervisors, 39% of whom are residents. (See Graph 3.)

Nine of the eleven occupations with the highest percent share of jobs held by city residents are occupations with low median wages and education levels. In addition, these nine occupations are badly paid relative to the education level of the workers. All five of the occupations with a median educational level of high school or less (the lowest level) have over 50% resident workers. The occupations with high percent shares of commuters that are also low education level occupations are relatively highly paid.

Occupations in which the share held by commuters has been increasing at the fastest pace include mechanics/repairers and cleaning workers, for which 9% of the jobs switched from city residents to commuters between 1980 and 1990. Other occupations losing share to commuters at a relatively high rate include construction workers, health professionals, gardeners/farmers, and administrative supervisors. Occupations that have gained percent share by city resident workers include skilled manufacturing, professionals, and law occupations.

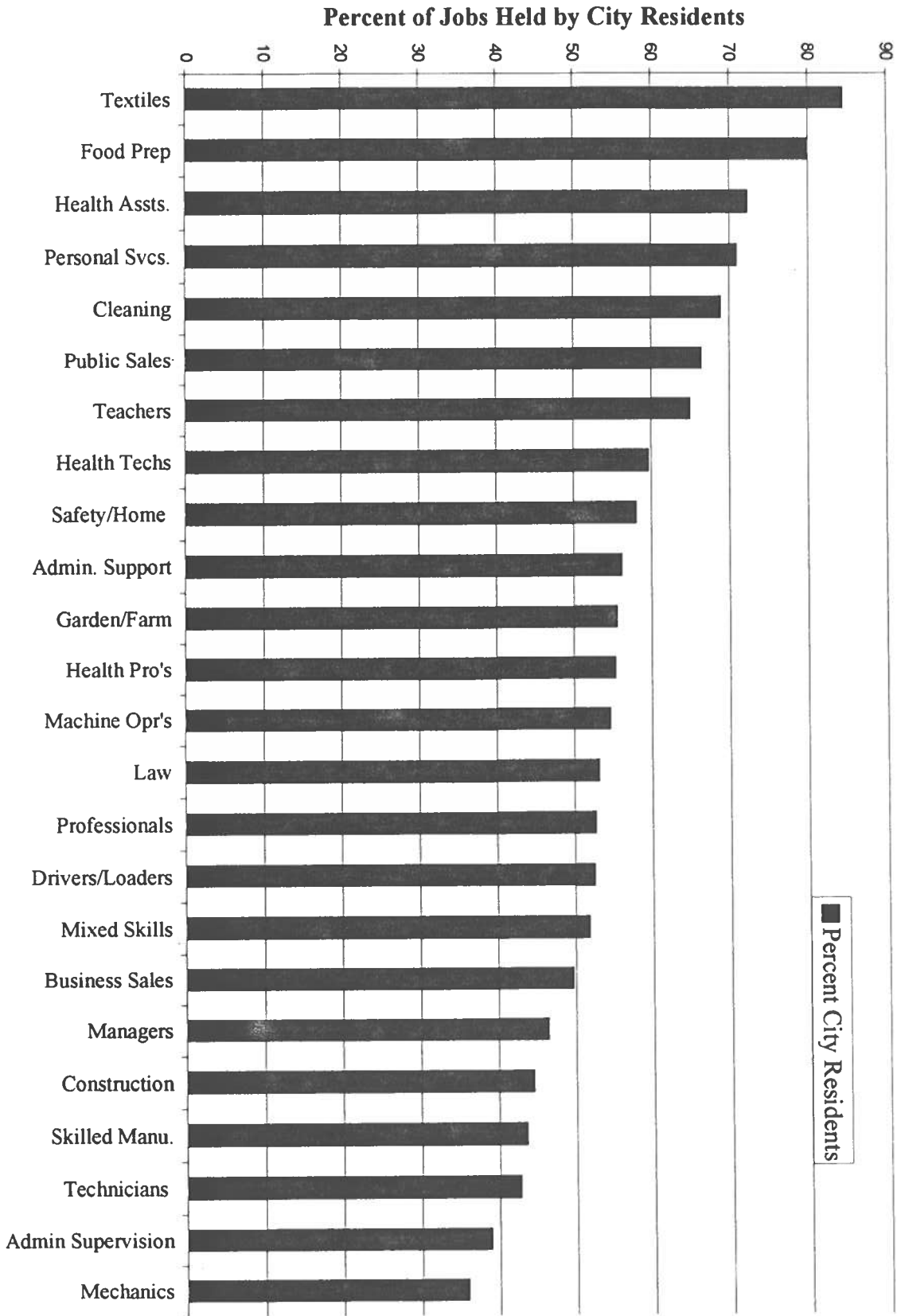
4.2 Median Wages by Occupation

Median wages by occupation vary from a low of \$9,000 a year for personal service workers and \$9,841 for textile workers to a high of \$50,000 for lawyers and judges. The lowest paid occupations after textile workers and personal services are gardeners/farmers at \$11,300, and food preparation and public sales at \$12,000. (See Graph 4.) For every occupation, commuters make higher wages than city resident workers. Large discrepancies occur for many occupations between commuters' wages and city residents' wages. (See Appendix 4.3.)

The occupations with the greatest increases in real wages from 1980 to 1990 are mostly occupations that were well-paid to start with. The only lower-paid occupations with significant increases in wages were safety/home help, for which real wages increased by 11%, administrative support and health assistants, for which wages increased by 7%, and personal services, for which wages increased by 5%. Wages for construction, cleaning, and food preparation increased negligibly.

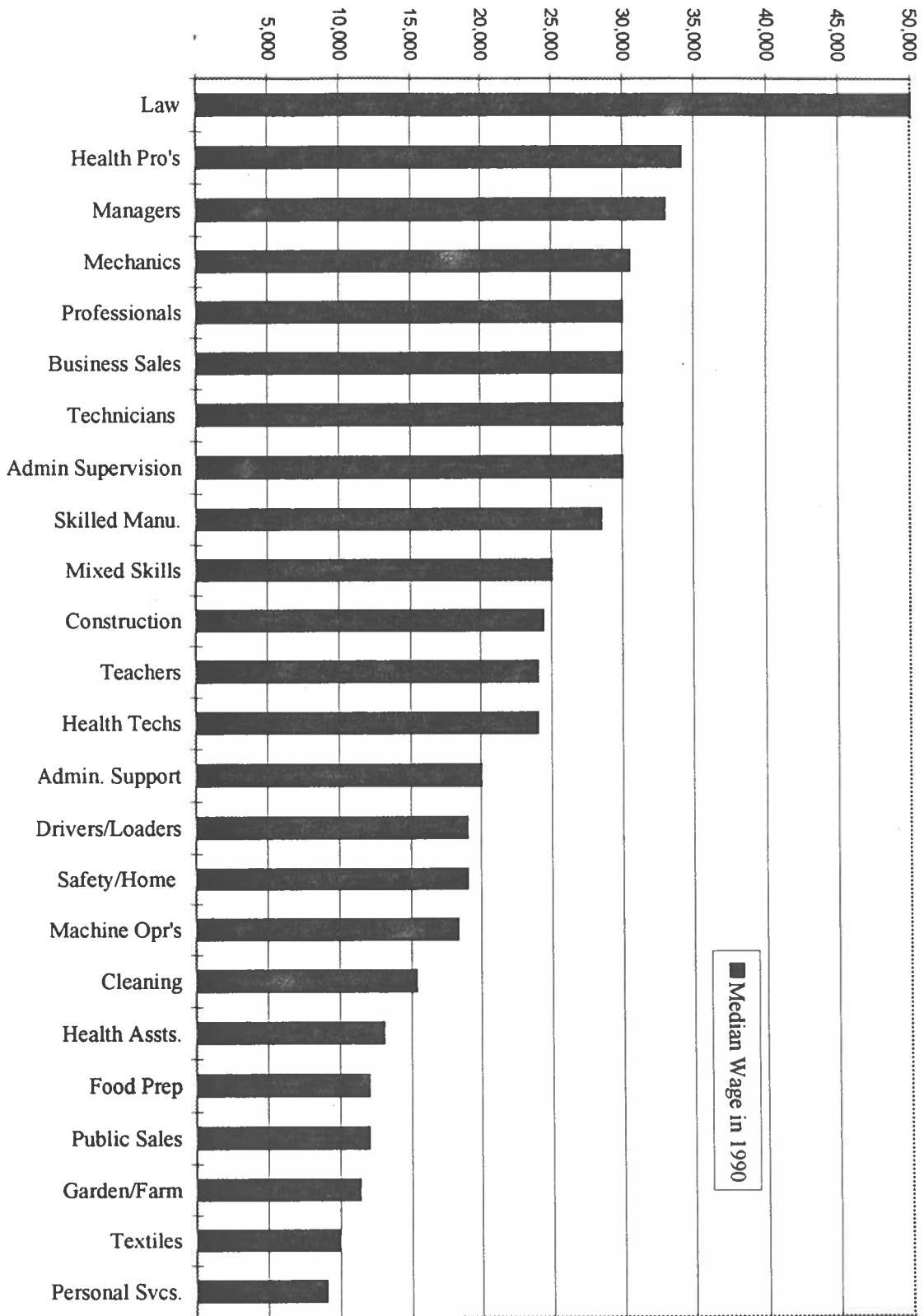
The overall change in the median wage is not the whole story, however, because of discrepancies between wage shifts for resident workers versus commuters. For safety/home help, administrative support, and health assistants, the wages of city resident workers rose more slowly than the wages of commuters. The wages of city residents in personal services, construction, and food preparation actually declined, even though overall wages increased. For only one lower-paid occupation, cleaning, did city resident workers fare better than commuters, and the wage increase was negligible. (See Graph 5.)

The following occupations registered losses in real wages from 1980 to 1990: gardening/farming, drivers/loaders, mixed skills, machine operators, public sales, skilled manufacturing, and textiles. Five of these seven occupations are connected to manufacturing. Five of the seven, or 71%, are also occupations with median wages below the city-wide median.



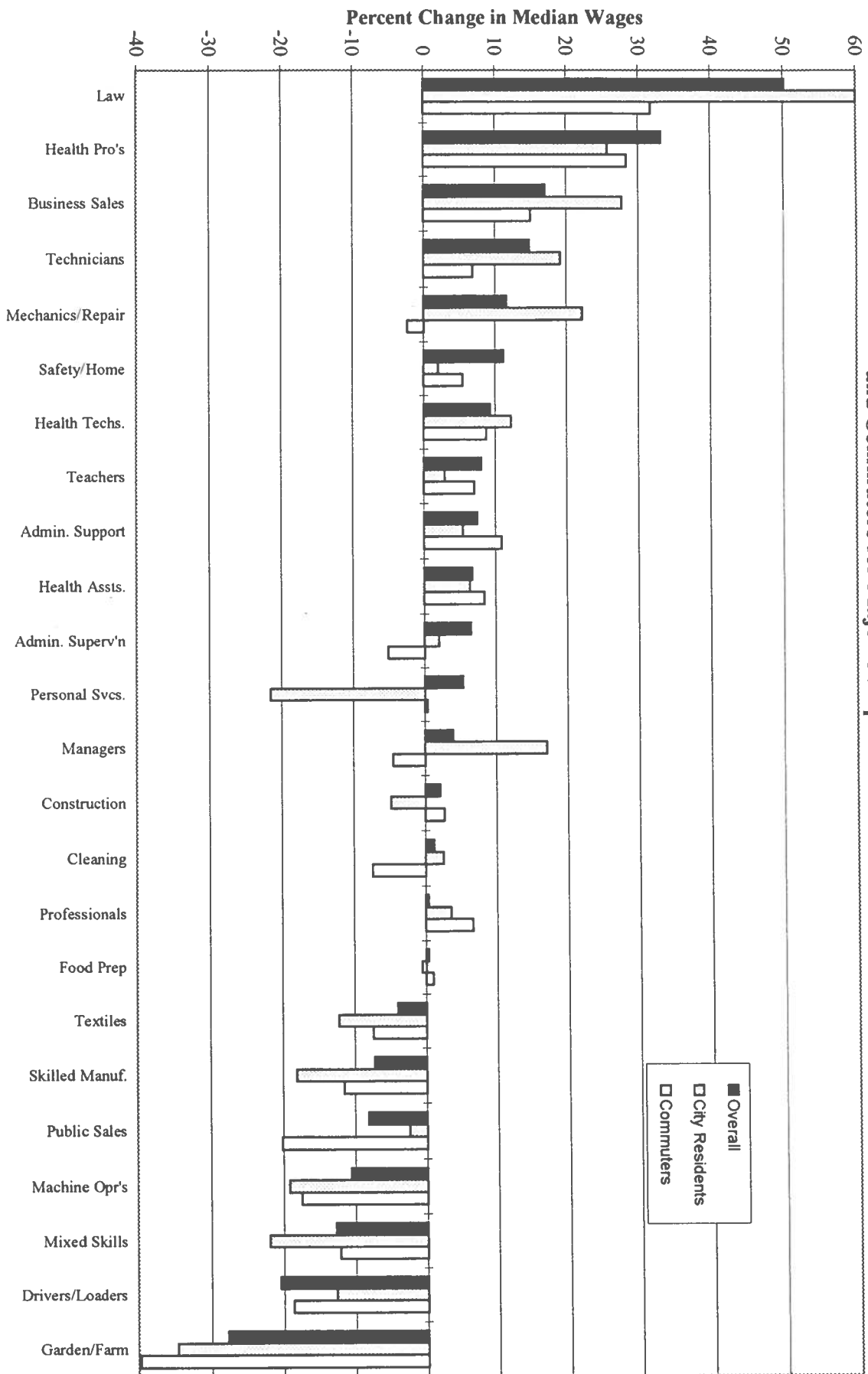
Graph 3. Occupations in San Francisco by Percent of Jobs Held by City Residents in 1990

Median Wages in Dollars



Graph 4. Median Wages in 1990 by Occupation

Graph 5. Percent Change in Median Wages for City Resident Workers and Commuters for Major Occupations from 1980 to 1990



In contrast, eleven of the seventeen occupations that registered wage gains, or 65%, have median wages above the city-wide median wage.

City residents fared worse than commuters in four of the seven occupations that lost in real wages. The opposite is true for high-paid professions, for which the trend is that residents made wage gains relative to commuters. For management, law, business sales, health technicians, technicians, mechanics/repairers, and administrative supervisors, city resident workers did well relative to commuters in terms of gains in real wages.

These figures reveal a growing bifurcation in San Francisco wages, on three scores. First, the gap between better-paid and worse-paid occupations is growing, and secondly, this is true especially for city resident workers. Thirdly, the fact that eleven of sixteen, or 70%, of the occupations that are growing in size include the very best-paid and the very worst-paid occupations, only reinforces this trend.

By race, wages differ significantly within the same occupation and overall. Overall the average white wage is \$34,728, while Latinos make \$19,655, African-Americans make \$24,134, Chinese make \$20,083, Filipinos make \$22,024, Japanese make \$27,019, Koreans make \$19,092, Vietnamese make \$17,749, Native Americans make \$22,685, and people of other races make \$24,137.

4.3 Occupations by Educational Level

A comparison of median education levels by occupation reveals that lawyers and judges are the best educated workers in the city. Textile workers have the lowest education level, with their median at the 10th grade level. Occupations with median education at high school level include food preparation, construction, drivers/loaders, cleaning, machine operators, and mixed skills. (See Table 1 and Appendix 4.4.)

Eighty-five percent of textile workers and 72% of cleaning workers have a high school level education or less. Other occupations in which over half the workers have no more than a high school degree include food preparation, construction, machine operators, drivers/loaders, and mixed skills.

Table 2 compares education levels for commuters, city resident workers, unemployed city residents, and residents not in the labor force, for all individuals over 16 years old. Commuters have the highest median education level, at the associate degree level, followed by city workers, for whom the median level is some college. The median number of the city's unemployed and those not in the labor force have high school diplomas.

Table 2. Population by Labor Force Status and Education Level Attained

Labor Status	Number	Percent	Educational Level
Employed City Residents	385,161	44%	Some College
Commuters to SF	254,611	29%	Assoc. Degree
Unemployed City Residents	26,263	40%	High School
Residents Not in the Labor Force	202,413	23%	High School
TOTAL	868,448	100%	Some College

Table 3 indicates that over half of the unemployed and nearly two-thirds of city residents not in the labor force have not gone beyond high school, while less than a quarter of commuters, and less than a third of employed city residents, have done the same. Nearly half of commuters have a BA or higher, while about one in seven of those who are not in the labor force have gone as far as the BA level.

Table 3. Education Level by Labor Force Status

Education Level Attained	Employed City Residents	Commuters	Unemployed	Not In Labor Force	Total
High School or Less	30%	23%	53%	64%	36%
Some College	29%	32%	27%	20%	28%
BA or Higher	42%	45%	20%	16%	36%
TOTAL	100%	100%	100%	100%	100%

As Table 4 indicates, the city median levels for education and wages merge.

Table 4. Median Wages by Median Education Level Attained

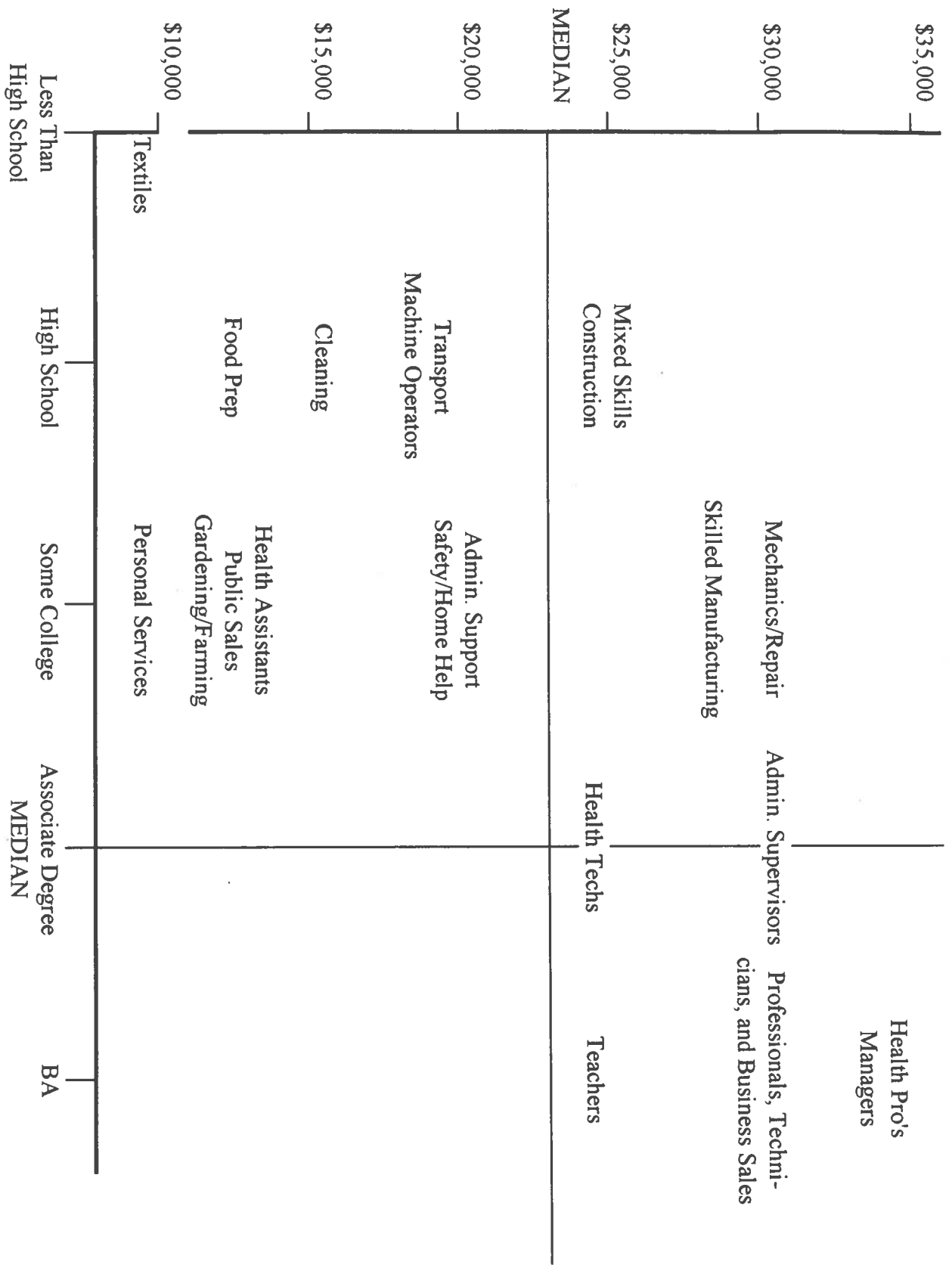
Education Level	Median Wages	
No School	\$ 9,913	
Nursery School	6,370	
Kindergarten	8,745	
1st, 2nd Grade	9,000	
5th, 6th Grade	11,025	
9th Grade	12,000	
10th Grade	10,000	
11th Grade	10,000	
12th Grade, no degree	15,000	
High School degree	18,000	
Some College	22,000	SF Median Education Level
Associate Degree, occupational	25,000	
Associate Degree, academic	24,239	Median Wage = \$23,185
BA	28,000	
Masters	36,000	
Professional degree	40,000	
Doctorate	35,000	
TOTAL	\$23,185	

Graph 6 measures wages by educational level, in order to compare relative wages while holding education constant, in other words comparing wages according to education achieved. The spread of median wages for education at the "some college" level is most striking, ranging from mechanics/repairers who are among the best-paid workers, to personal service workers, who are the worst-paid in the city. (See Graph 6.)

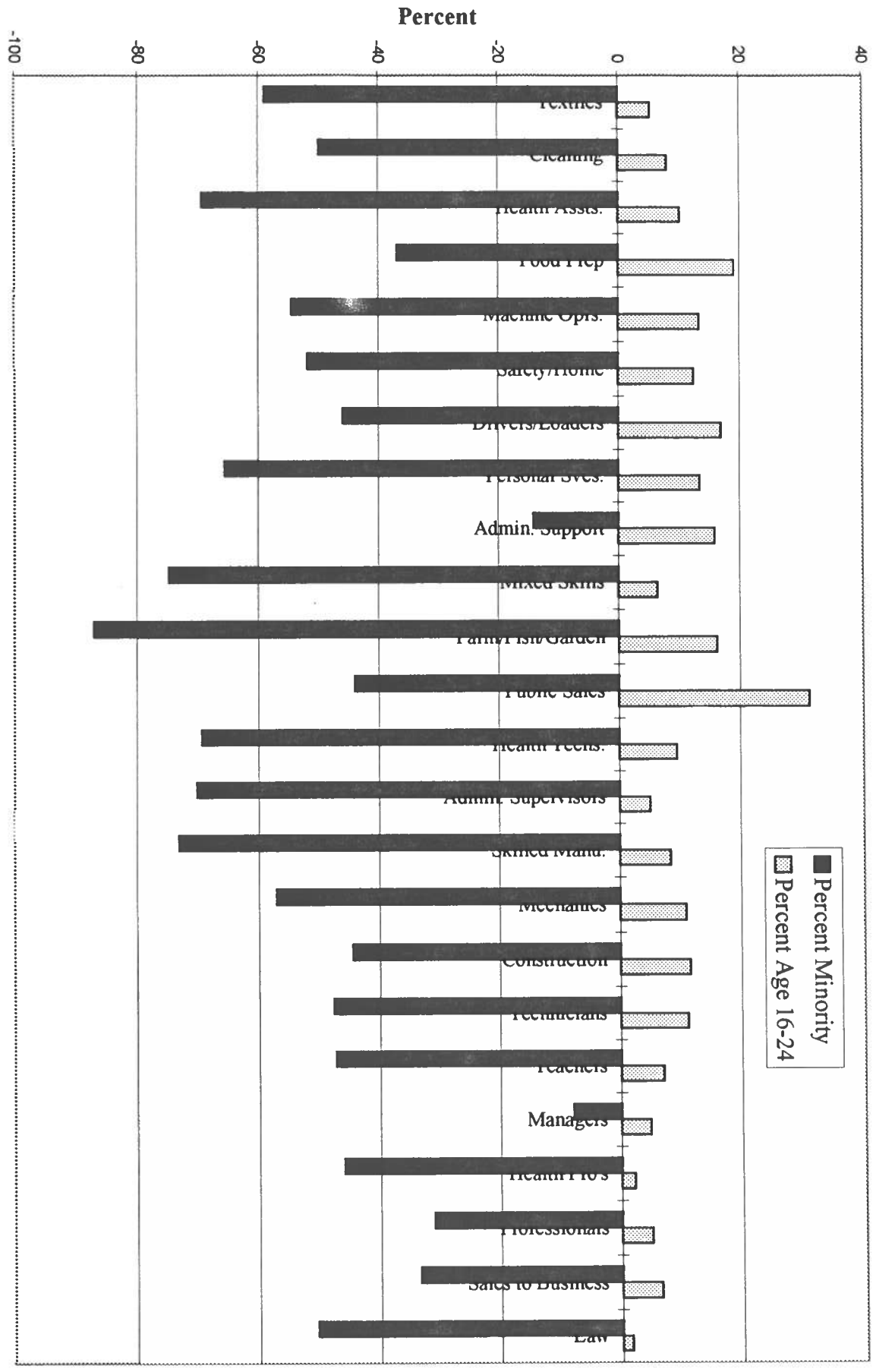
4.4 Occupations by Race/Ethnicity and Age

As Graph 7 indicates, the worst-paid occupations have the highest percent minority workers. Occupations with relatively high wages in relation to the percent minority workers include mixed skills, drivers/loaders, safety/home help and machine operators. Occupations with low wages and relatively low numbers of minorities include public sales, gardening/farming, and personal services. For a more complete breakdown of occupations by race and ethnicity, see Appendix 4.5 and Graph 7. By age, public sales has the highest percent of younger workers, followed by food preparation, drivers/loaders, garden/farming, and administrative support. See Appendix 4.6 for more details.

Graph 6. Median Wages by Median Education Level for Major Occupations in San Francisco



Graph 7. Occupations by Race and Age



4.5 Trends for Clerical Employees

Since clerical workers form such a large portion of city workers, this category deserves closer attention. The subcategories used to analyze clerical jobs are taken from the census occupational categories. See Appendix 4.2 for a list of clerical occupations in each category.

Losses in clerical employment between 1980 and 1990 were quite dramatic, nearly 30,000 jobs overall. Nearly half of all communications equipment operator jobs left the city between 1980 and 1990, and a third of secretarial, miscellaneous, and financial records processing jobs left. While actually only half of the clerical categories lost jobs over this period, the overall effect is dramatic because of the large losses in the categories with the highest numbers of jobs, namely secretarial, miscellaneous, and financial records processing. Together these three categories account for nearly 60% of clerical jobs.

Only one clerical category showed a dramatic increase in jobs. The number of information clerks increased by nearly half from 1980 to 1990. This makes sense when one considers the occupations that are grouped under the "information clerk" title, such as hotel clerks, reservation agents, and receptionists. These are clerical jobs that do not fit the mold of large corporate clerical operations which were likely candidates for back-officing to the suburbs during the last decade. (See Graph 8.)

About half of the city's clerical workers reside in the city. Clerical categories with high shares of city residents include communication equipment operators, office machine operators, and information clerks. Only two categories increased city resident share since 1980, and for only one was the increase significant, namely office machine operators.

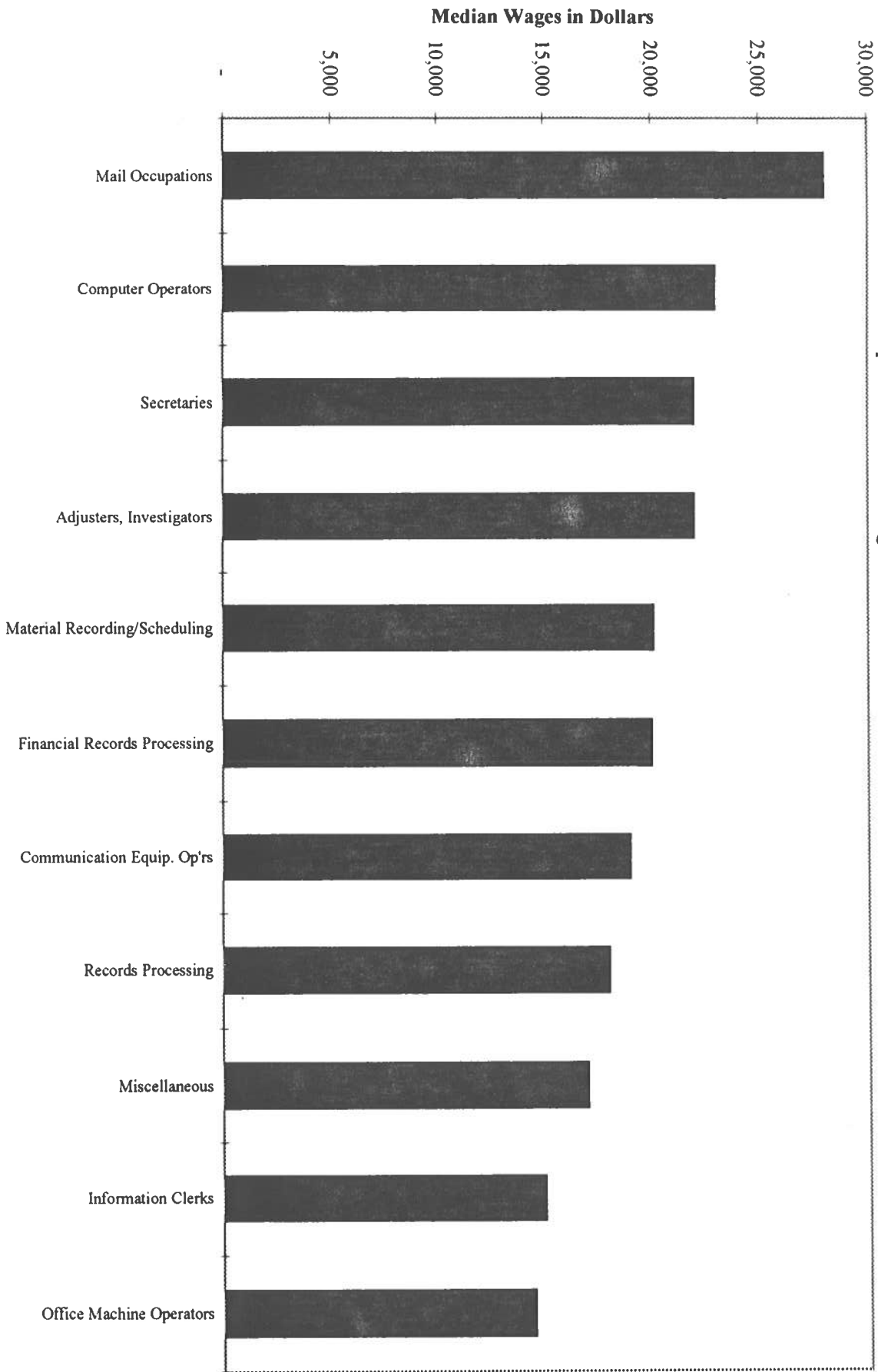
The category with the highest share of workers that have a high school education or less is communication equipment operators, 40% of whom did not go past high school. Other categories with high percentages of less well-educated employees include mail occupations, material recording and scheduling, and records processing. Office machine operators have the highest levels of education overall. Only 8% of them did not go beyond high school.

Mail occupations have the highest median wage, at \$28,000. This is especially interesting given the high share of less well-educated workers in this category. The explanation becomes clear after considering the percent of mail workers employed by government: 72%. The median wage for mail occupations that are employed by private business is only \$16,000. Median wages for clerical workers employed by government are consistently higher than for privately employed clerical workers, except for secretaries, records processors, and office machine operators.

Other clerical occupations with relatively high median wages are computer operators, whose median wage is \$23,000, and adjusters and secretaries, whose median wage is \$22,000. The worst paid clerical workers are office machine operators, who make only \$14,500 median. This is quite strange considering the high education levels among office machine operators. The next most badly paid clerical category is information clerks, who make only \$15,000 median per year. Median wages for city residents are lower in every category for city residents than for commuters. (See Graph 9.)

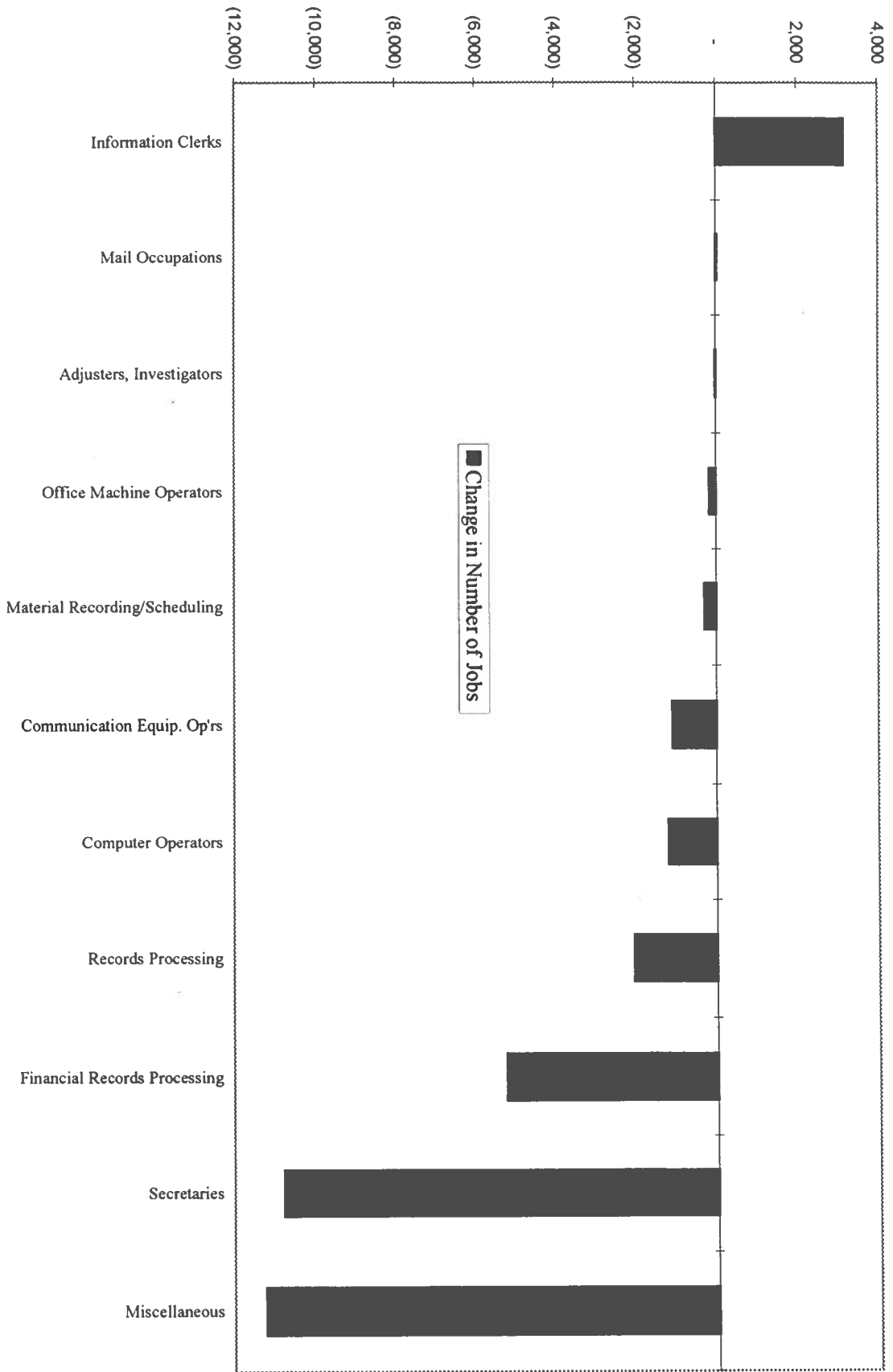
Overall, real wages have increased for clerical workers by 7.4%. This is only about half the city-wide average change in real wages for all workers of 13%. Secretaries, however, did very well. Their wages increased by 17% from 1980 to 1990. For city resident secretarial workers, wages rose 12%.

Communication equipment operators also did well in terms of real wage gains. Their median wage increased by 20%. The median wage of computer operators increased by 12%. For all



Graph 8. Median Wages in 1990 for San Francisco Clerical Occupations

Graph 9. Change in the Number of Clerical Jobs by Category from 1980 to 1990 in San Francisco



other categories, wage increases were less than 10%. Real wages declined for information clerks, mail occupations, material recorders and schedulers, and miscellaneous clerical occupations.

One-third of San Francisco's clerical employees are men. There are over 31,000 male clerical workers in the city, a larger number of jobs than most other occupational categories considered in this report. Clerical work is clearly an important occupation to consider for all city workers, not just women.

4.6 Occupations that Provide the Best Opportunities for Less-Educated Workers

Which occupations are the most promising in terms of providing the best opportunities for workers without high levels of education to find jobs that pay well? Table 5 summarizes key measures of occupations in San Francisco that have less than the median level of education. The matrix compares occupations along three trajectories: relative wages, increasing or decreasing real wages, and increasing or decreasing total jobs. These benchmarks are intended to enable policy-makers to target occupations which are promising for less well-educated workers in relation to local economic development efforts. (See Table 5.)

According to the table, construction is the occupation with the most consistent positive trends. It is a highly paid occupation for which real wages have increased and for which the total number of jobs has increased from 1980 to 1990. The median wage for construction workers is above the city-wide median, and well above the median for the education level of the median construction worker. Construction jobs have increased by over 30% since 1980, the highest percent increase for any occupation. This occupation is one to pay close attention to and analyze further in terms of public policy initiatives. The only down side is that the percent share of city resident construction workers has dropped since 1980. However, that reflects the trend for all better-paid workers in the city.

Safety/home help, health assistants, food preparation, and personal services are occupations which are growing in size and in real wages, but which currently have wages below the median. Of the four, safety/home help is the best occupation in terms of wages relative to median education level. Safety/home help workers make the median wage for their median educational level. The other three occupations not only make wages less than the city's overall median, but also less than the median for the education level of the median worker in the occupation.

Unfortunately, the growth in safety/home help workers since 1980 has been slight. More encouraging is an increase in real wages of over 10% for this occupation since 1980. In contrast, while wage increases have been slight for health assistants and personal service workers, the percent growth in these occupations has been dramatic. Health assistants have grown by nearly a quarter, and personal service workers by about 18%. Wages and jobs have grown only slightly for food prep workers. However, it should be noted that health assistants and food prep workers make a better wage than personal service workers, who are the lowest paid workers in the city.

While real wages for mixed skill workers and mail jobs have decreased, by 13% and 8% respectively, these occupations have grown in number, and the wages are still strong. The wages for mixed skill workers are above the city-wide median, and well above the median for the educational level of the workers in the occupation. Furthermore, there has been a rapid increase in the number of jobs in mixed skills, by nearly a quarter of all jobs since 1980. The wages for mail workers are well above the median. However, there was only a negligible increase in the number of mail jobs since 1980.

Occupations for which wages are moving the right way, but jobs are decreasing, include mechanics/repairers, secretaries, and computer operators. However, the decrease in mechanics/repairers is so negligible as to be insignificant. Furthermore, mechanics are among the best paid workers in the city, and the increase in real wages has been significant, at over 10% since 1980. This occupation deserves attention from policy analysts.

Real wage increases were significant for secretaries and computer operators, at 17% and 12% respectively. The decline in the number of secretarial jobs has been quite dramatic. Nearly 11,000 such jobs, which is 30% of all secretarial jobs, left the city since 1980. The decline in computer operator jobs is equally dramatic in terms of share. 23% of these jobs left the city during the same period. In absolute numbers, this loss was less significant, since secretaries make up a much larger share of all clerical jobs. Graph 10 shows these relationships visually, and Appendix 4.7 includes all actual figures.

4.7 Other Characteristics of City Workers

Commuters tend to be more white, less Latino, more African-American, and much less Asian than city residents. Fewer women commute compared to men. Of the non-commuters, in other words the San Francisco residents who also work in San Francisco, 20,648 have incomes below the poverty line. Of the commuters, 6,337 have poverty level incomes or below.

By occupation, administrative support personnel make up 14.4% of all workers with poverty level incomes, the highest share. Food prep workers make up 10.2%, and public sales workers 8.7%. Professionals also make up a sizable portion at 9.1%. By industry, fully 43.3% of workers with poverty level wages work in services, and 25% in retail trade.

Workers with poverty level wages tend to be Latino, African-American, and Native American. 18.2% of Latino workers and 22.2% of African-American workers make poverty wages, although Latinos only comprise 12.8% of the worker population and African-Americans only 10.1%. Surprisingly, African-Americans make up a slightly larger percentage of commuters with poverty wages than of non-commuters with poverty wages.

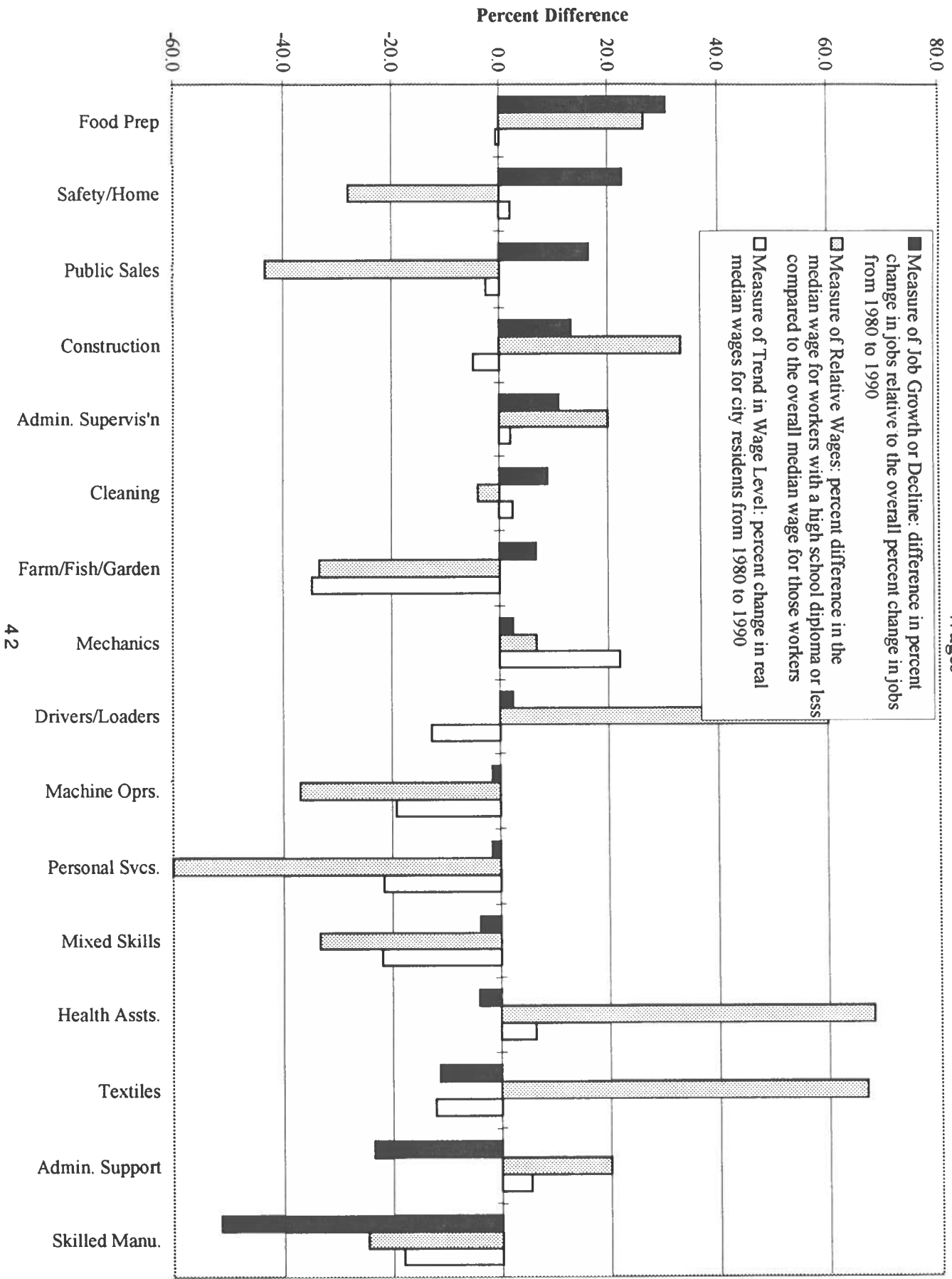
More women than men make poverty wages. Although women make up 45.8% of the San Francisco workforce, they account for 48.3% of those making poverty wages. Among non-commuters, more women make poverty wages. Among commuters, however, 58.4% of poverty wage workers are men.

4.8 Who are San Francisco's unemployed?

There were 26,263 unemployed people residing in San Francisco in 1990, or 4% of the total San Francisco workforce of 560,222.

By occupation, the largest single category among the total unemployed workforce is administrative support, which accounts for 17.4% of the unemployed. Of course it also accounts for almost the exact same percentage of total jobs. Only 8.4% of the unemployed are classified as management employees in spite of their preponderance in the workforce overall. Professionals are 6% of the unemployed. Occupations with high shares of the unemployed workforce relative to total jobs include public sales, with 8.7% of the unemployed compared to

Graph 10. Three Measures of San Francisco Occupations with at Least 20% Employees with High School Level Education Level or Less: Relative Wages, Trend in the Number of Jobs and Trend in Wages



4.3% of jobs, and construction workers, with 6.4% of the unemployed total compared to 4% of all jobs. These numbers probably reflect the economic downturn of recent years.

By industry, restaurants and bars account for the largest share of unemployed workers at 11.3%, more than twice their share of jobs overall. This is followed by business services with 9% of unemployed workers, compared to 5.7% of jobs. Eight percent of unemployed workers list other services as their last industry, while only 5.6% of workers are employed in other services. 6.5% list construction, which accounts for 5.5% of jobs, and 6.2% list other retail trade, which counts for 4.7% of jobs.

Declines in employment in cyclical industries like restaurants and retail trade are more understandable given economic problems during the last few years. The relatively high unemployment in business services is more surprising, however, given that it has been described as a growth sector.

By occupation by industry, the single largest category is food prep workers in restaurants and bars, who comprise 8.8% of the unemployed or 1955 unemployed workers. The next largest category is construction workers in the construction industry, with 5.3% of the total, or 1171 workers. Other relatively large categories include driver/loaders in the transportation industry, public sales workers in other retail trades, administrative support staff in the finance industry and in business services. The numbers are all relatively low at only about 500 workers per category.

The average education level of the unemployed worker is just above a high school diploma. Education level discrepancies between the employed and the unemployed seem insignificant in a number of occupations, including machine operators, mixed skill, textiles, skilled manufacturing, construction, cleaning, health assistant, food prep, administrative support, and business sales. For these occupations, the discrepancy between education levels of the employed versus unemployed worker, on average, is less than 3 points. Nevertheless, in a tight labor market, marginal differences are more important.

By occupation, African-Americans are disproportionately represented among unemployed workers in administrative support, safety and home help, personal service, mechanics and repairers, and driver/loaders. Latinos are disproportionately represented among the unemployed in cleaning, farming/fishing, construction, machine operators, and driver/loaders. Chinese are disproportionately represented among unemployed technical workers and food prep workers, Vietnamese among technical and construction workers, Koreans among administrative support workers, textile workers, mixed skill workers, and driver/loaders, and Japanese are disproportionately represented among unemployed food prep, health assistants, and mechanics and repairers.

By sex, there are 14,541 unemployed men, or 55%. There are 11,722 unemployed women. While whites comprise 46.9% of the work force, they comprise only 37.7% of the unemployed. Latinos are 13.3% of the work force but 18.7% of the unemployed. African-Americans, who form 10.7% of the work force, form 16.4% of the unemployed.

Proportionately more white men than white women are unemployed, although Latino women tend to be more unemployed than Latino men. African-Americans are equally likely to be unemployed by sex. Among Asians, women are more likely to be unemployed than men, except for Japanese. Korean women are much more likely to be unemployed than Korean men.

5. Changes In San Francisco's Employment Economy Between 1980 - 1993

In recent years, San Francisco's employment economy has been buffeted by internal and external forces that are both short-term and long-term in nature. Most recently this was illustrated by the major recession that lasted from 1990-1991 nationally, but hung on for several more years in California and the Bay Area. According to EDD figures, San Francisco lost over 37,500 total jobs between 1990 and 1993¹, representing over 50% of the 70,500 jobs lost in the entire Bay Area. Clearly, the driving force behind this event was external to San Francisco, but the recession interacted with some of our long-term, internal trends, and in doing so wreaked havoc on San Francisco's already fragile employment economy. This also suggests that San Francisco's job woes go back much further than 1990.

5.1 General Causes For San Francisco's Lack of Employment Growth: Its Locational Advantage Declines While Business Costs Increase

For a variety of reasons, both simple and complicated, San Francisco's economy grows much more slowly than the rest of the Bay Area's. This has been true for a long time, though not widely recognized. Partly the reasons are historic and inevitable. San Francisco is geographically constrained, and densely built-out. This leaves relatively little un-developed land for business expansion and employment growth. Redeveloping previously used parcels in San Francisco is inherently more costly than developing new parcels in outlying parts of the Bay Area. It will only be economically feasible (i.e. profitable) for businesses to incur these higher costs if they are offset by strong locational advantages to being in San Francisco. It is in this tradeoff between higher costs and locational advantages that we find the explanation for why San Francisco has been growing more slowly than the rest of the Bay Area. The locational advantages of being in San Francisco have been slowly, but unmistakably, eroding for a number of key employment sectors. At the same time, the cost of business expansion here vis a vis outlying areas has been increasing.

What are some of San Francisco's locational advantages, and why have they been eroding recently? Earlier in the century, a traditional large city like San Francisco completely dominated its surrounding region. There were tremendous locational advantages for businesses and individuals to be in the heart of the city because transportation and communication from outlying areas was simply too costly. The concentration of population and business meant large centralized markets for consumer and business products, and the city served as the center for retail and wholesale trade. Manufacturing located in districts such as South of Market to be close to vital rail and shipping connections. Very importantly, the Financial District emerged as a key business center for the region. Many of the business activities located there were services which required non-routine and frequent face-to-face communication between customer and provider. (Imagine negotiating a complicated business deal entirely through the mail, or providing accounting or legal information entirely over the telephone). Locating many such activities and business services together in one place facilitated the communication and exchange that were necessary to support the other business activities in manufacturing, trade, transportation, etc.

Like every large American city at the center of its metropolitan area, San Francisco has been subject to strong *decentralizing* trends that go back at least to the 1940's. The advantages of a central location depend on how much it saves someone in transportation and communication costs by not having to go back and forth, or to communicate back and forth. Important

¹As we have seen, *County Business Patterns* data for 1990-1992 show a 57,163 job loss. *Annual Planning Information* data from the EDD for 1990-1992 show only a 32,100 job loss. The reasons for this data discrepancy are not clear.

transportation improvements in the beginning and middle of the century had significantly reduced some of San Francisco's central locational advantages. For instance, widespread automobile ownership and freeways meant that it was feasible (much less costly) for people to live in suburbs and commute to jobs over greater distances. The development of interstate trucking meant that it was feasible (much less costly) for manufacturers to locate in outlying areas away from San Francisco's centralized port and railroad facilities. Shipping containerization made it more efficient (much less costly) for ships to come into Oakland which had better rail and highway links to the rest of the region. The suburbanization of the population also shifted the market for consumer products to outlying areas, and an increasing share of retail and wholesale trade moved outward accordingly.

After the war, San Francisco saw a steady decline in jobs in manufacturing, shipping, ground transportation, warehousing, etc. In employment terms, however, this was offset by another trend shifting San Francisco's employment structure away from goods production toward service production. San Francisco continued to maintain strong locational advantages in the kinds of business activities centered in the Financial District: banking, management services, law, engineering, accounting, advertising, etc. As the Bay Area population grew, making this the fourth largest metropolitan area in the U.S., so did business activity in general, though it was increasingly located outside of San Francisco. This greater Bay Area business expansion resulted in an expanding market for the types of business related services offered in the Financial District.

While San Francisco as a whole adapted reasonably well to this changing economic environment, it meant that we were becoming much more dependent on the general economic health of the region. Our fortunes were increasingly tied to the fortunes of the rest of the Bay Area. It also meant more white collar jobs requiring a college degree and fewer blue collar jobs requiring only a high school diploma. This adversely affected city residents who were poorer in both income and education. Some simply became former residents, following blue collar and low level service jobs to the outlying suburbs. Others (usually the poorest) remained in San Francisco, increasing the city's problems with poverty as these residents became increasingly cut off from the city's emerging economy.

Just as earlier transportation improvements reduced some of San Francisco's locational advantages in manufacturing, transportation, and trade; more recent innovations in communication and information processing have reduced some of San Francisco's locational advantages in finance, insurance, communication, and public utilities. Computers and other innovations in telecommunications have reduced the need for businesses to locate all of their functions in the Financial District. Large banks, insurance companies, and public utilities have found it easier to relocate "back office" and middle level management jobs to cheaper outlying facilities outside of San Francisco. Many of these functions do not really require the locational advantage of access to the customers in the Financial District. Instead, these functions serve in support of higher level functions within the company that do require access to customers. These support services can be increasingly accessed electronically from the Financial District. Nowadays, it is mostly the higher level functions that really need to frequently communicate face-to-face with clients and business partners that continue to locate centrally in the Financial District. Of course not all of the support they need can be accessed electronically, so there continue to be a number of middle and low level support functions located in and around the Financial District.

This period also saw the further growth in another type of economic activity San Francisco has traditionally specialized in, tourism. Dozens of new hotels were constructed to accommodate the increased flow of visitors to the city. This created additional business for travel agencies, restaurants, stores, taxis, and others. Part of the increase in tourism was a result of worldwide increases in pleasure travel. A big part of it, however, was related to

nation wide increase in persons traveling for conventions, conferences, and other business related purposes. The Moscone Convention Center was built, expanded once, and there are now plans to expand it a second time.

We have seen that overtime, improvements in transportation and communication have acted to reduce San Francisco's locational advantages. Added to this, more recently the costs of conducting business in San Francisco have risen. Unit labor costs remain higher in San Francisco than in outlying areas, partly to compensate employees for higher housing costs here. In addition, the city's payroll tax is appreciably higher than that of any other municipality or county in the area, and this drives up unit labor costs still higher. As we discussed above, redeveloping previously used parcels in San Francisco is inherently more costly than building on undeveloped parcels in outlying areas. Recently, a combination of factors (environmental cleanup regulations, Proposition M regulations, organized opposition to development by neighborhood activists, planning policy changes, etc.) have further increased redevelopment costs in the city relative to new development costs in outlying areas. Regardless of whatever good effects such policies might have in other areas, they undeniably do raise the costs of doing business in San Francisco. In a market based economy, businesses must make a profit to survive. Many find it increasingly attractive to expand operations or even relocate in outlying areas to reduce costs and raise profits.

5.2 Total Employment Changes For San Francisco And The Bay Area 1972 - 1993

Figures 5.1 and 5.2 illustrate some of these changes by contrasting total employment levels in San Francisco with those for the entire Bay Area between 1972 and 1993.² Over this twenty year span, San Francisco's employment picture can be broken down into three phases. The first phase occurred from 1972 to 1980, where employment in San Francisco grew from around 450,000 to around 550,000 jobs for an annual growth rate of 2.7 percent. During the same period, employment in the Bay Area grew from around 1.8 million to around 2.5 million jobs for an annual growth rate of 4.5%. Even during this period when San Francisco's job growth was relatively healthy, its rate of growth lagged substantially below that of the Bay Area's.

The next phase occurred from 1980 to 1990. During this period, according to the EDD figures, employment in San Francisco plateaued at about 550,000 jobs. Employment dropped by around 20,000 jobs during the 1981-1982 recession, but very slight job growth for the remainder of the 1980's resulted in around 20,000 jobs, almost the entire amount lost during the earlier recession.³ The annual growth rate over the entire decade was essentially zero. Contrast this with the performance of the Bay Area as a whole during the same period. Regionally, employment grew from around 2.5 million to around 3.0 million jobs for an annual growth rate of just 2.0%. Therefore, during this period when the Bay Area's growth rate slowed, San Francisco's rate slowed still further and continued to lag the Bay Area's by two percentage points.

Finally the last phase corresponds to the most recent recession from 1990 to 1993. Here, according to EDD figures, employment in San Francisco dropped by some 38,000 jobs for a -2.2% negative annual growth rate. In the entire Bay Area, employment declined by around 71,000

²These figures and the ones that follow in this section of the report are derived from the *Annual Planning Information* data from EDD. As mentioned in the last footnote, there are some discrepancies between this data and the *County Business Patterns* data presented in Sections 2 and 3.

³Recall that the *County Business Patterns* data showed about a 43,000 job gain during this period.

jobs for a -0.8% negative annual growth rate. If anything is surprizing in these figures it is how consistently San Francisco lags Bay Area growth.

Figures 5.3 and 5.4 convey exactly the same information as Figures 5.1 and 5.2 with two important differences. Figures 5.3 and 5.4 only cover the two most recent phases occuring since 1980. In addition, the scale on the total employment axis has been adjusted to only show the range within which employment fluctuated for both San Francisco and the Bay Area during this period. This has the effect of magnifying the changes shown in the earlier pictures to show them more clearly.

Figure 2.5 shows the annual growth rates for both San Francisco and the Bay Area on the same chart for 1980-1993. This figure clearly demonstrates how closely San Francisco growth tracks that of the Bay Area, and how it consistently lags it by about two percentage points.

Figure 5.1
Total Employment In San Francisco
1972 - 1993

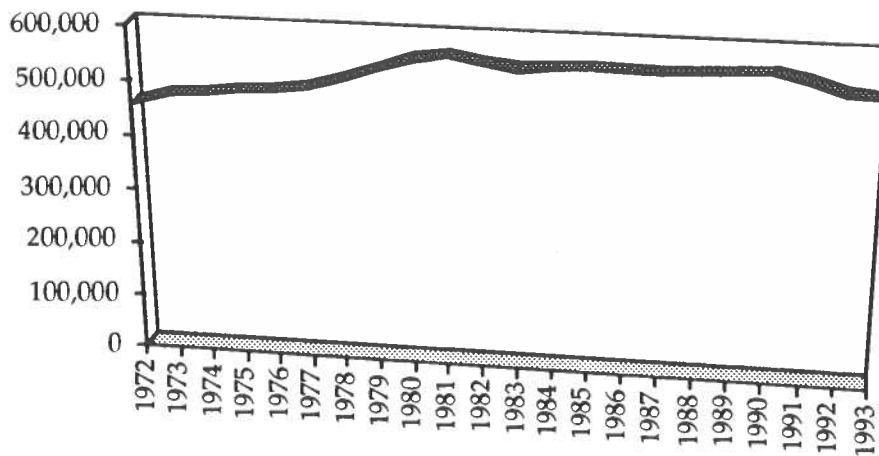


Figure 5.2
Total Employment In The Bay Area
1972 - 1993

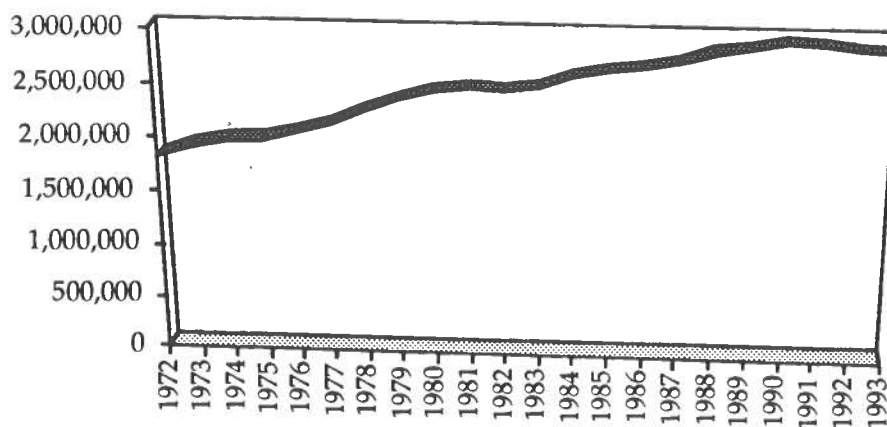


Figure 5.3
Total Employment In San Francisco
1980 - 1993

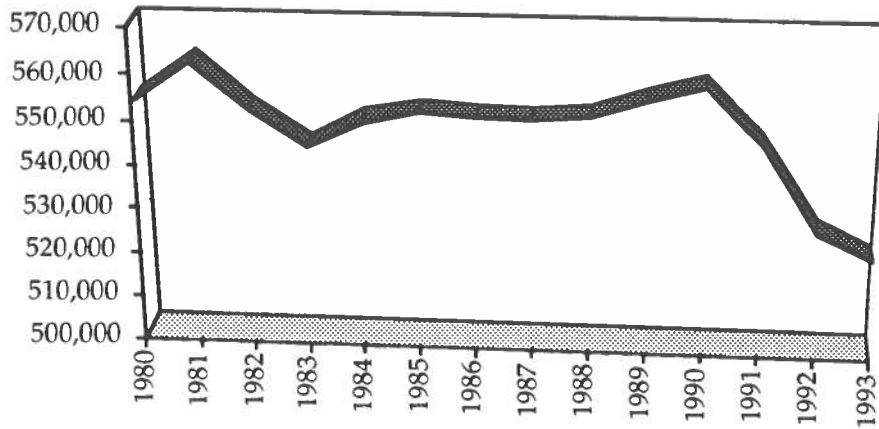


Figure 5.4
Total Employment In The Bay Area
1980 - 1993

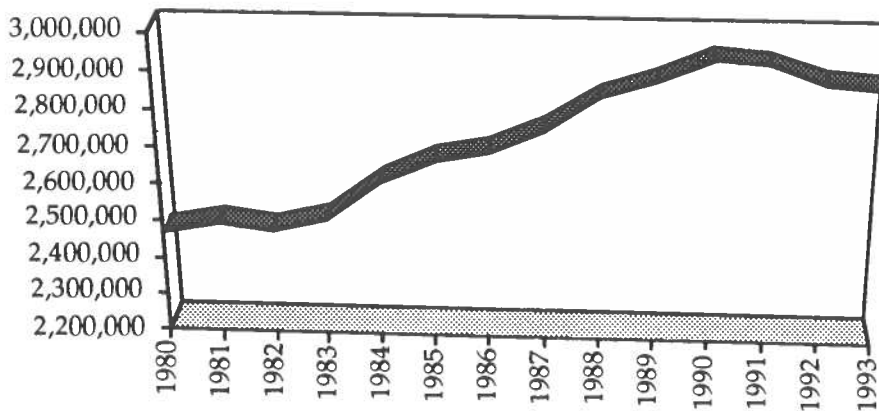
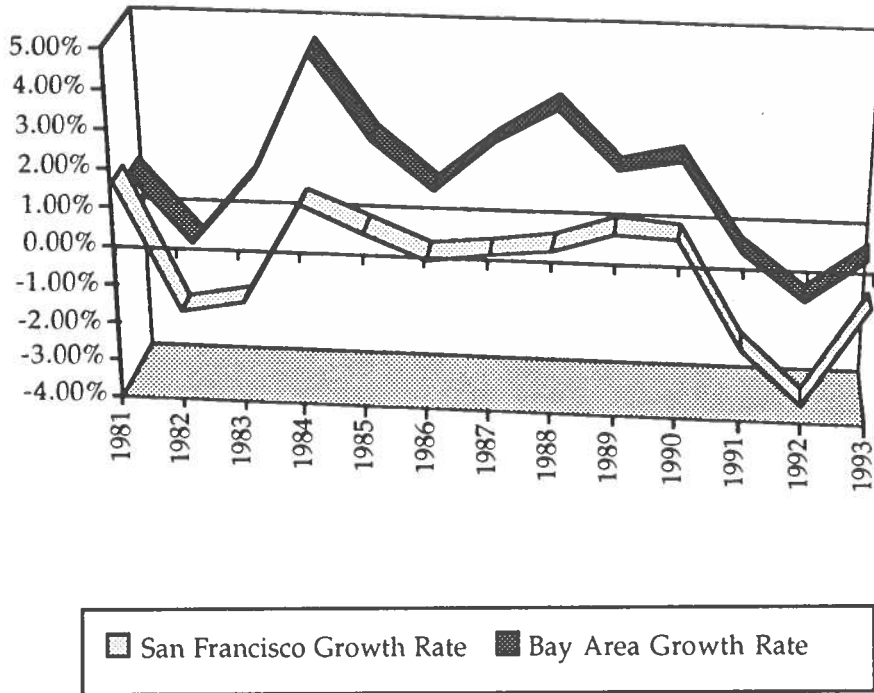


Figure 5.5
Employment Growth Rates For San Francisco and
The Bay Area 1981 - 1993



5.3 Employment Changes For Selected Broad Industrial Sectors In San Francisco 1980 - 1993

While total employment growth for all of San Francisco was relatively flat during the 1980's and declined sharply in the early 1990's, the same pattern did not necessarily hold for each of the broad industrial sectors that together comprise total employment in the city. As we have seen in Section 2 of this report, certain industrial sectors performed better or worse than the overall San Francisco average. Considering the earlier discussion of long run trends affecting locational advantages and business costs, this variation in industrial performance is somewhat more understandable.

Figure 5.6 shows employment in Services Sold Primarily To Business compared to Finance and Insurance from 1980 to 1993. It shows that Finance and Insurance began the period ahead of Services To Business, but declined steadily throughout the period. Over the entire period, employment fell from the 80,000 range to the 50,000 range. This is key evidence in support of the contention made earlier that large banks and insurance companies were able to move lower and mid-level "back office" functions to outlying areas during this period due to improvements in computerization and telecommunication.

Employment in Services To Business generally rose during the 1980's, before declining in the recessionary early 1990's. Overall, employment in Services To Business rose from the 70,000 range to the 90,000 range before falling back to 80,000. Despite this setback, the trend here is positive, and we would expect continued growth now that the recession is over. Indeed, employment in 1993 rose slightly from the 1992 level.

Figure 5.6
Employment In Services To Business
and Finance & Insurance 1980 - 1993

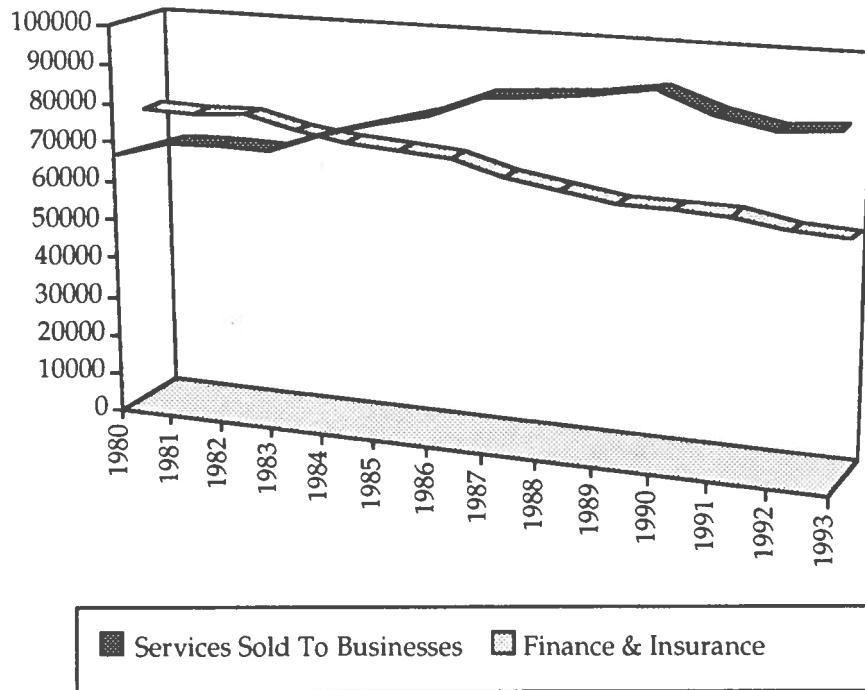


Figure 5.7
Employment In Health, Educ., & Non-Profits
And Government 1980 - 1993

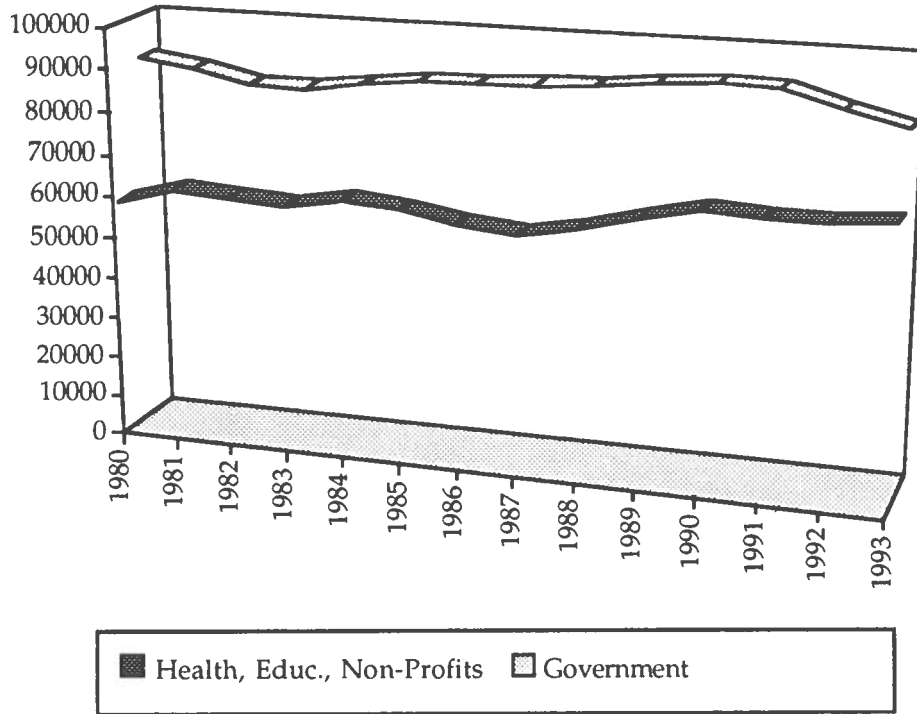


Figure 5.7 Shows that employment in both Health, Education, Social Services, and Non-Profits and in Government remained fairly flat during this period. Government employment hovered around the 90,000 range before dipping down toward 85,000 by 1993. Health, Education, Social Services, and Non-Profits, on the other hand, appears to dip downward from the 65,000 level during the mid 1980's, rise in the late 1980's up to the 70,000 level, and remain there during the recessionary early 1990's. This partly reflects growth in the Health Services component of this sector, which grew by about 2,500 jobs during this period.

Figure 5.8
Employment In Wholesale And Retail Trade
1980 - 1993



Figure 5.8 shows that Wholesale Trade has responded differently during this period than Retail Trade. Because of general trends discussed earlier in this section, San Francisco no longer provides a locational advantage as a trans-shipment center for the region. Consequently, its share of the Bay Area's Wholesale Trade industry had declined sharply. Job loss in this sector has been continuous throughout this period, falling from the 40,000 range to the 25,000 range. Retail Trade, on the other hand, closely mirrors total employment for the city as a whole. San Francisco has a steady population of over 700,000 persons. This population, in addition to the many commuters and tourists, provides a large and important consumer market for retail trade.

Figure 5.9
Employment In Construction And Manufacturing
1980 - 1993

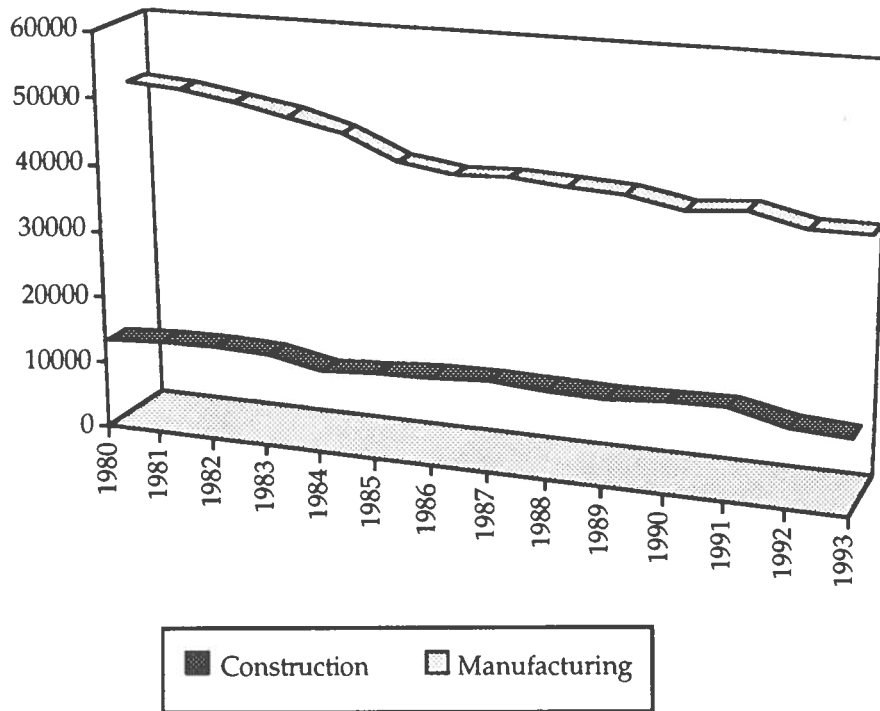


Figure 5.9 clearly demonstrates that San Francisco continues to have a declining Manufacturing base. Employment declined at a higher rate during the early 1980's, but continued to decline throughout the period. Overall, Manufacturing fell from the 50,000 level at the beginning of the period to the 30,000 level by the end. Construction, on the other hand, while a much smaller sector, has remained more stable. Employment in this sector has remained quite steady in the 12,000 range.

Figure 5.10
Employment In Hotels And Real Estate
1980 - 1993

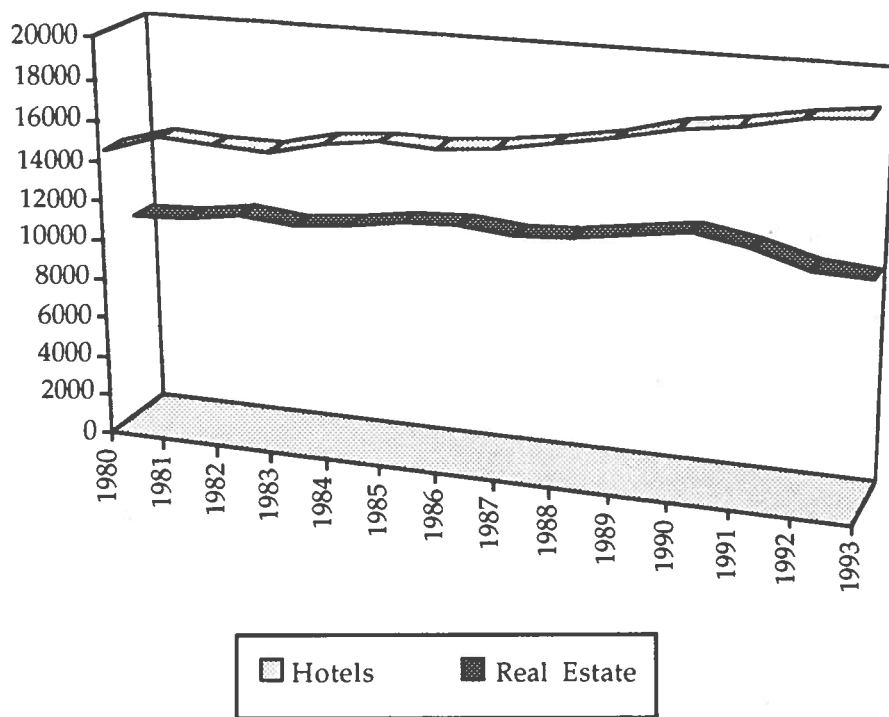


Figure 5.10 suggests that the tourist industry has grown steadily and against the more general trend during this period. Hotel employment has increased from around 14,000 to around 18,000 during this time. It has even increased during the recessionary early 1990's. Real Estate, on the other hand has remained fairly flat, hovering in the 12,000 range during the 1980's, before dipping down to around 10,000 by 1993.

Figure 5.11
Employment In Services Sold Primarily
To Individuals 1980 - 1993

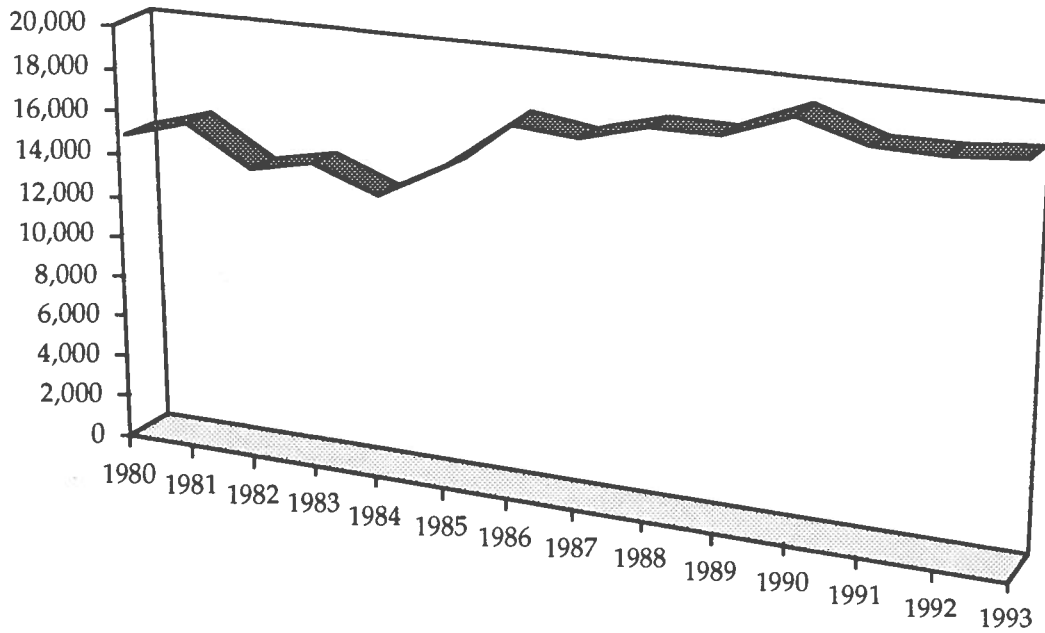


Figure 5.11 shows that Services Sold Primarily To Individuals has, like Retail Trade, performed fairly similar to total employment for the city as a whole. To some extent, this undoubtedly reflects the same patterns affecting consumer expenditures in Retail Trade. Spending on services like laundry and entertainment reflect general economic and employment conditions.

6. Projected Employment Growth In San Francisco 1995 - 2000

In the last section, we have shown that the overall employment effects of the 1990-93 recession in San Francisco have been severe. Somewhere between 37,500 jobs (EDD figures) and 57,000 jobs (County Business Patterns figures) were lost during these years. Are these jobs permanently lost? Will new jobs be created to replace them? What will San Francisco's employment picture look like five years from now? This section attempts to shed light on how the economy is likely to fare during the years running out to 2000. If the next five years are a repeat of the 1980's recovery experience, the number of jobs created during the next five years will be approximately equal to the number lost during the recession. In other words, total employment would not rise appreciably above the 1990 level before the next recession is likely to occur. If, however, job creation is stronger than in the 1980's, employment could end the decade at a higher level than in 1990.

No matter which of these patterns actually occur over the rest of the 1990's, we know that what is true for jobs in the economy as a whole is not equally true for jobs in its constituent parts. Some industries and occupations are likely to expand beyond their 1990 levels, while others will not be able to reach that height again. This section reports on employment forecasts prepared specifically for this report by ABAG's Research Director using the ABAG County Employment Forecasting System (CEFS). This data source is described in more detail in Section 1.1 of this report. Employment forecasts were made for overall San Francisco employment, as well as for employment by broad industrial sectors and occupational categories.

6.1 Projected Total Employment in San Francisco And The Bay Area 1990-2000

Figure 6.1 shows ABAG's projected total employment levels for San Francisco for the years 1990-2000. These forecasts show employment slipping from 567,000 in 1990 to a low of 535,000 by 1995. However, the employment picture brightens after this, posting gains in every year running up through 2000, when employment is projected to reach the 575,000 level. These forecasts suggest that when all is said and done, the 1990's will look remarkably like the 1980's: significant job losses in the early years of the decade, followed by a gradual recovery that returns employment to its pre-recession peak but not much higher by the end of the decade. It is important to note that the ABAG forecasts were based on the assumption that the U.S. economy would grow annually at rates between 1.8 and 2.2% during these years.

Figure 6.2 shows ABAG's projected employment levels for the Bay Area as a whole for 1990-2000. For the entire Bay Area, total employment is expected to be substantially higher at the end of the decade. The figures show Bay Area employment slipping from 3.08 million in 1990 to a low of 3.0 million by 1993. Employment rebounded earlier in the Bay Area as a whole than in San Francisco. By 1996, employment is projected to have returned to the 3.08 million level. By the year 2000, it is projected to reach 3.34 million. In other words, for the entire Bay Area, full recovery to the pre-recession level takes six rather than ten years, and this is followed by a four year period of substantial net employment increase. In San Francisco, it takes 10 years just to recover fully to the pre-recession level.

In terms of growth rates, however, the main difference between the Bay Area and San Francisco appears to be in the response to the recession, as we have noted earlier above. Table 6.1 shows that between 1990 and 1993, Bay Area employment fell at an annualized rate of less than 1%, whereas San Francisco employment fell at an annualized rate of over 1.5%. Between 1993 and 1995, Bay Area employment grew by an anemic but positive .4% rate, whereas San Francisco employment continued to fall by .4%. In the recovery phase, however, between 1995

Figure 6.1
Projected Employment In San Francisco
1990 - 2000

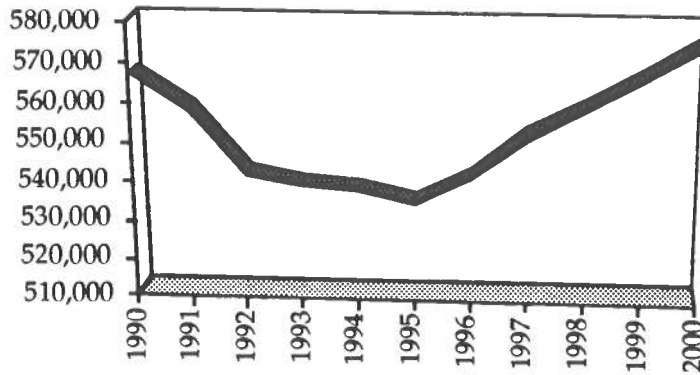
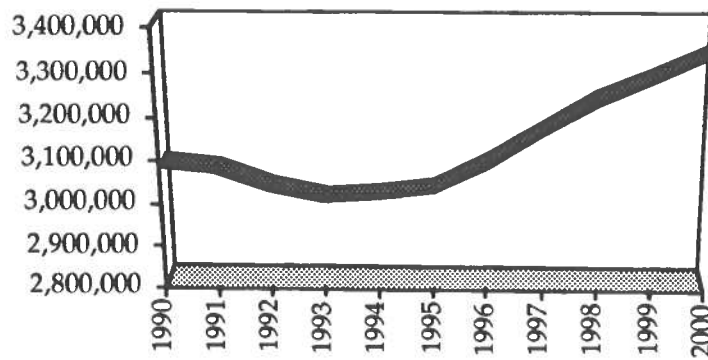


Figure 6.2
Projected Employment in The Bay Area
1990 - 2000



and 2000, Bay Area employment is projected to grow at an annualized rate of just under 2%, whereas San Francisco employment is projected to grow at a rate slightly below 1.5%.

These projections, if realized, suggest that in broad terms, the 1990's for San Francisco will be a replay of the 1980's. There are, however, some detailed differences in growth rates suggesting that the next five years will see faster job growth than the later half of the 1980's. Growth rates presented in Table 6.1 show that between 1990 and 1993, employment declined in San Francisco at about the same annualized rate (-1.6%) as it did during the early 1980's. For the remainder of each decade, however, there are detailed differences in the growth patterns. For instance, in the middle years between 1993 and 1995, employment continued to decline (-.4%), while between 1983 and 1985, employment began to grow (.8%). This pattern reverses, however, during the last five years of each decade. In the late 1990's, employment is projected to grow at around 1.5%, whereas in the late 1980's, employment growth decelerated to just +.24%.

Table 6.1
Annualized Employment Growth Rates
For San Francisco & The Bay Area

	<u>Bay Area</u>	<u>San Francisco</u>
The 1990's		
1990-1993	-0.84%	-1.65%
1993-1995	0.38%	-0.41%
1995-2000	1.99%	1.46%
The 1980's		
1981-1983	0.25%	-1.60%
1983-1985	3.38%	0.78%
1985-1990	1.99%	0.23%

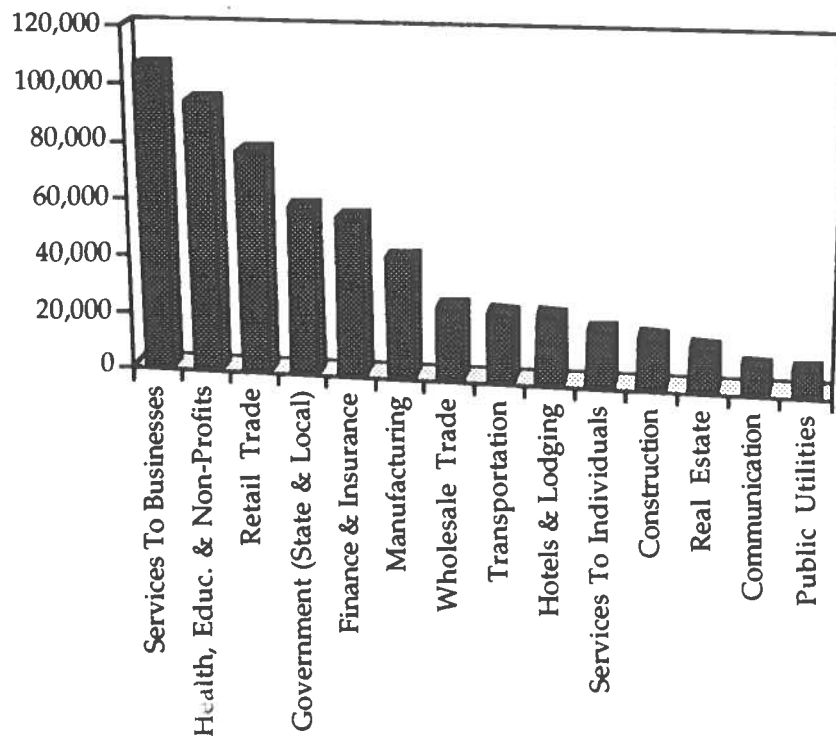
Sources: ABAG Employment Projections, EDD Annual Planning Information

For the entire Bay Area, the employment growth patterns between the 1980's and the 1990's show a different relationship. Employment in the Bay Area actually grew slightly (+ .25%) during the recessionary period between 1981 and 1983, whereas it fell (-.84%) between 1990 and 1993. Between 1983 and 1985, however, employment grew rapidly (3.4%), whereas between 1993 and 1995, employment growth was anemic (.4%). Finally, for the last five years of each decade, employment growth is projected to be identical (1.99%).

6.2 Projected Employment By Broad Industrial Sector in San Francisco 1990-2000

Appendix 6.1 displays ABAG projected employment data for each broad industrial sector in 1990, 1995, and 2000. As we have seen in the previous section 6.1, these years neatly correspond to natural breakpoints in the San Francisco economy of the 1990's. 1990 represents the pre-recession peak, 1995 represents the post-recession trough, and 2000 represents the last year of the projected recovery for which we have credible forecasts. The first three columns simply give the projected employment levels for each sector in these three years. The next two columns give the total of amount of employment change between 1990-1995 and 1995-2000. The last two columns convert employment change into annualized rates of employment change for 1990-1995 and 1995-2000. It is important to note that figures for all three years (including 1990) are from the ABAG sectoral projections. As mentioned previously, these 1990 figures differ (in some respects substantially) from the County Business Patterns, and EDD data reported on earlier.

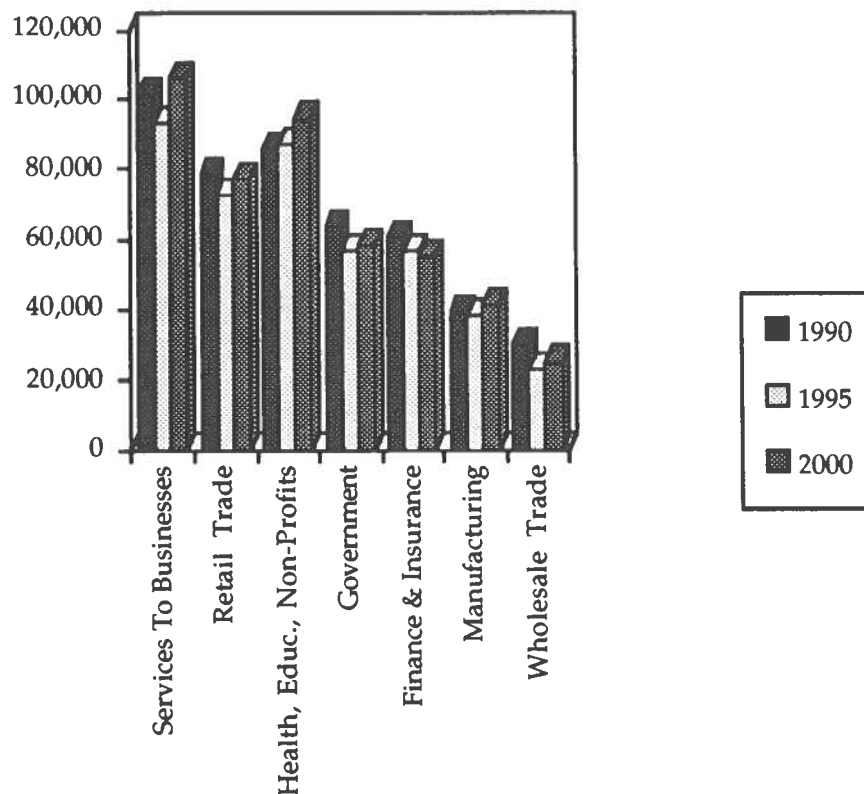
**Figure 6.3
Projected Employment By
Broad Industrial Sector In 2000**



Source: ABAG Employment Projections

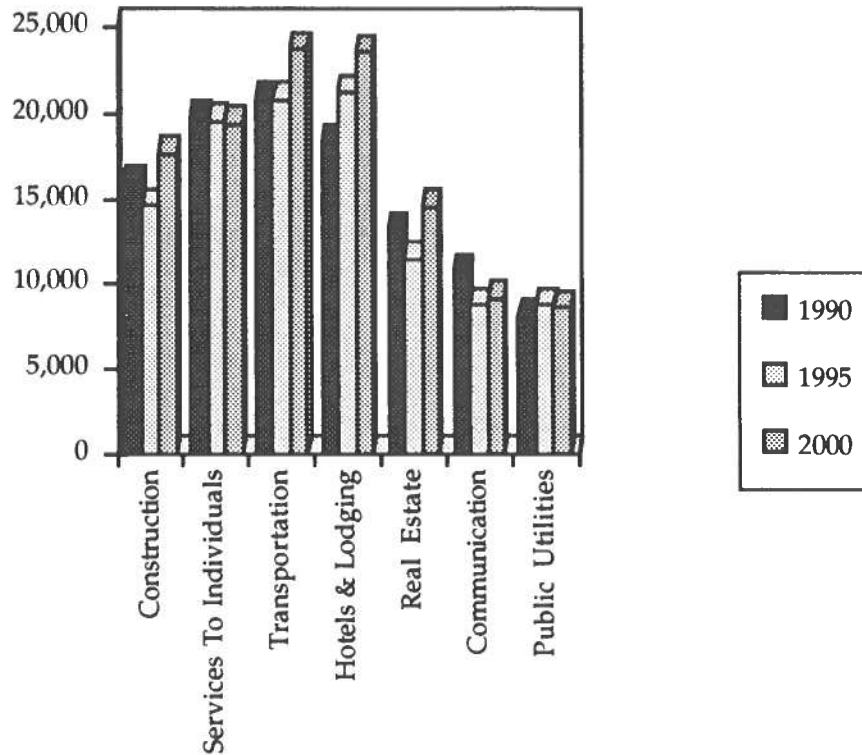
Figure 6.3 is drawn from data found in the third column of Appendix 6.1. It shows the projected employment level of each broad industrial sector in 2000. It is interesting to compare this to an earlier figure (Figure 2.1 in Section 2) which depicts total employment in 1990. This comparison illustrates some of the structural transformations continuing in San Francisco's economy during this decade. Between 1990 and 2000, there will be some shifting in the relative size and rank of the sectors. Services Sold to Businesses will still lead the other sectors in terms of overall size in 2000. For Government, the second largest sector in 1990, the figures are not comparable because the ABAG figures for 2000 only include state and local employment, while the 1990 figures include federal employment as well. Health, Education, Social Services, and Non-Profits were ranked the fourth largest sector in 1990 behind third ranked Retail Trade. By 2000, this rank order will be reversed, with Health, Education, Social Services & Non-Profits exchanging positions with Retail Trade. Another important structural change will occur with the Hotel sector, which was ranked the eleventh largest sector in 1990. It will move up to be the ninth largest sector by 2000. Construction, on the other hand, will slip from the eighth largest sector in 1990 to the eleventh largest by 2000.

Figure 6.4
Projected Employment By Broad Industrial Sector 1990, 1995, & 2000



Source: ABAG Employment Projections

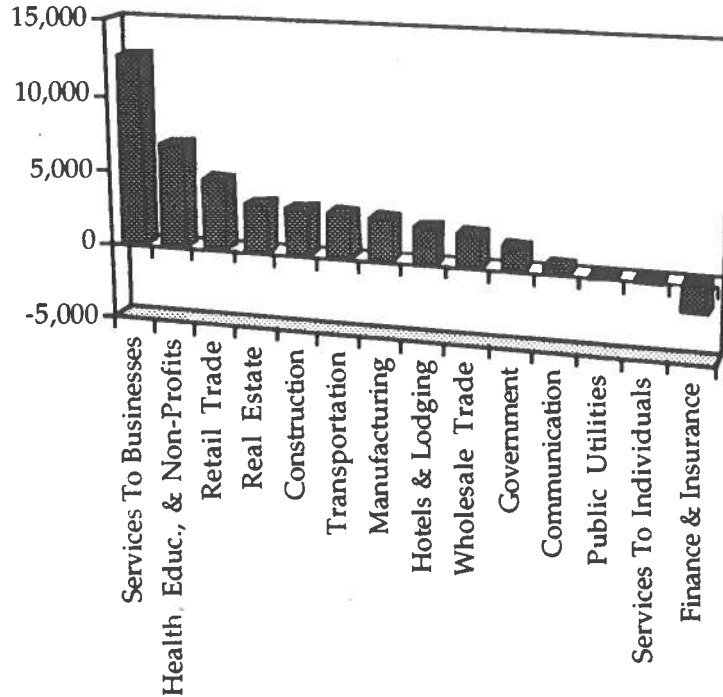
Figure 6.5
Projected Employment By Broad
Industrial Sector 1990, 1995, & 2000



Source: ABAG Employment Projections

Figures 6.4 and 6.5 provide further insight into the structural shifts transforming San Francisco throughout the 1990's. These figures depict total employment side by side in 1990, 1995, and 2000 for each sector. The figures show that some sectors are likely to expand beyond their 1990 employment levels once the recovery of the late 1990's has taken its course. These sectors are: Services To Businesses, Health, Education, Social Services, & Non-Profits, Manufacturing, Construction, Transportation, Hotels, and Real Estate. Net employment gains over the decade in these sectors are partially offset by net employment losses in the following sectors that will fail to return to their 1990 employment levels: Retail Trade, Government (state and local), Finance & Insurance, Wholesale Trade, Services To Individuals, and Communication. Two industries are shown to experience steady upward growth even during the recession: Health, Education, Social Services, & Non-Profits and the Hotel sector. Only one industrial sector shows steady decline (Finance & Insurance). The remainder show a dip in employment between 1990 and 1995 followed by some recovery in between 1995 and 2000.

Figure 6.6
Projected Employment Growth
By Broad Industrial Sector
1995 - 2000



Source: ABAG Employment Projections

Figure 6.6 is based on projected employment changes found in the fifth column of Appendix 6.1. The figure shows projected job creation between 1995 and 2000 for each broad industrial sector. We can see that almost half of all new jobs (19,540 or 48.5%) will be created in just two sectors: Services Sold to Business, and the Health, Education, Social Services, & Non-Profits sector. In addition to these, Retail Trade will create another 4,600 new jobs. For all the other sectors, job gains will be small or even negative. Real Estate, Construction, Manufacturing, Transportation, Hotels, Wholesale Trade, and Government are each projected to create between 1,400 and 3,000 jobs. Communication is projected to create only 450 jobs. Public Utilities and Services To Individuals will each lose around 200 jobs, and Finance and Insurance will lose an additional 1,800 jobs.

It would be interesting to see if industrial sectors that performed relatively well at creating jobs during the 1980's recovery are projected to continue creating jobs in the recovery expected to take place for the rest of the 1990's. Table 6.2 attempts to identify patterns of consistency in job creation for these two recovery periods. This same technique was used before

in Table 2.2 in trying to pick out patterns present over the 1980's and early 1990's. In Table 6.2, the broad industrial sectors are categorized according to whether they grew more rapidly or less rapidly than the average growth rate for all of San Francisco during both the recovery of the 1980's and the recovery expected to take place in the late 1990's. According to County Business Patterns data, the annualized employment growth for all San Francisco between 1983 and 1990 was 1.29%. This compares with a projected growth rate of 1.46% between 1995 and 2000 according to the ABAG projections.

Table 6.2
Industrial Sectors Where Projected Employment Growth Rates
Are Better or Worse Than The San Francisco Average

		1995 - 2000	
		Better Than SF Average	Worse Than SF Average
Better Than SF Average 1982 - 1990	Real Estate Services To Businesses Hotels Wholesale Trade Health, Educ., Non Profit	Retail Trade Services To Individuals	
	Worse Than SF Average	Construction Transportation	Manufacturing Communication Government Public Utilities Finance & Insurance

Sources: ABAG Employment Projections, County Business Patterns, Annual Planning Information

Some discernible sectoral growth patterns do show up in Table 6.2. Most industrial sectors either performed consistently better than average over both periods, or consistently worse than average over both periods. Relatively few sectors were inconsistent, performing better in one period and worse in the other. Strong performers that consistently grew faster than the city-wide average included (in order of their projected 1995-2000 growth rates): Real Estate, Services To Business, Hotels, Wholesale Trade, and Health, Education, Social Services, & Non Profits. Weak performers that consistently grew more slowly than the city-wide average included: Manufacturing, Communication, Government, Public Utilities, and Finance. Just two sectors did better than average in the 90's and worse than average in the 80's: Construction and Transportation. Another two did better than average in the 80's, but are projected to do worse than average in the 90's: Retail Trade, and Services To Individuals.

It would also be interesting to see whether or not job creation in the remainder of the 1990's will tend to be concentrated in sectors that pay relatively low wages. Recall from Section 2, that during the 1983-1990 period, there was a notable tendency for job growth to be concentrated in low paying sectors of the economy. In the 1990-1992 period, however, this tendency appeared to weaken. It was unclear whether this weakening was a result of the recession, or the result of longer term structural readjustment. Therefore, an interesting question

is: will job growth the remainder of the 1990's be more like it was the 1980's recovery with faster growth in the lower paid sectors? Or, will job growth be more like it was during the 1990's recession with similar employment changes for low and high paying sectors? Table 6.3 attempts to answer this question.

Table 6.3
Comparing Projected Employment Change
By Pay Level For Broad Industrial Sectors 1995-2000

	Projected Employment Change	Annual Pay Per Person 1992
Total For San Francisco (Private Sector)	38,820	\$33,178
A. High Paying Industrial Sectors		
Services To Businesses	12,610	\$36,159
Construction	3,030	\$40,495
Transportation	2,940	\$39,342
Wholesale Trade	2,090	\$37,592
Communication	450	\$44,110
Public Utilities (Gas, Electric, etc.)	-160	\$39,342
Finance & Insurance	-1,827	\$49,582
Sub-Total Projected Employment Change	19,133	
B. Low Paying Industrial Sectors		
Health, Education, Non-Profits	6,930	\$29,387
Retail Trade	4,670	\$16,941
Real Estate	3,137	\$31,135
Manufacturing	2,790	\$33,171
Hotels & Lodging	2,350	\$18,665
Services To Individuals	-190	\$26,524
Sub-Total Projected Employment Change	19,687	

Sources: ABAG Employment Projections, County Business Patterns

Table 6.3 categorizes industrial sectors according to whether the annual pay per person in 1992 in the sector was above or below the San Francisco mean of \$33,178. The group of high paying sectors is ranked according to projected employment growth for the rest of the 1990's, as is the group of low paying sectors. Table 6.3 indicates that job growth during the remainder of the 1990's will be more like the during the early 1990's than it was during the 1980's recovery. Over the next five years, job growth will be fairly evenly distributed between the high paying sectors (with 19,133 new jobs) and low paying sectors (with 19,687 new jobs). Further, within each group, there is no strong pattern suggesting that job growth is more rapid in the low paying sectors and less rapid in the high paying sectors. There is one exception to this, however, and this is with the most highly paid sector: Finance and Insurance. It's pay level (\$49,582) is more

than \$5,000 higher than the next most highly paid sector (Communication, \$44,110). It also is the only sector projected to have a significant employment decline (1,827 jobs lost for a -.6% annualized rate).

In summary, most industrial sectors are projected to experience growth over the next five years. In some cases, this will be more than enough to make up for job losses suffered during the recession. In other cases, there will not be enough new jobs created to make up for recent past declines. There also does not seem to be any strong evidence that job growth will be more rapid in low paying sectors. Several individual trends stand out with regard to specific industrial sectors.

It appears that San Francisco will continue to maintain its competitive advantage in certain sectors where it has previously demonstrated strength. For example, business activities centered in the Financial District, particularly in sub-sectors within Services Sold Primarily To Business are projected to remain a major strength of the local economy. From 1995 to 2000, Services To Business is projected to create far more jobs than any other sector (12,610). It is also projected to grow at a healthy overall rate (2.7%). This comes on the heels of an even stronger performance during 1983-1990 when it created 27,436 new jobs at an annualized growth rate of almost 6%. Therefore, we can safely say that Services Sold Primarily To Business will continue to remain San Francisco's largest and most crucial industrial sector.

The Health, Education, Social Services, & Non Profit sector shows surprising strength creating jobs throughout the 1990's. Projections for this sector are probably not as reliable as projections for other sectors because of changes occurring within the health care industry, and because of pending Federal budget cuts that will seriously impact non profit service providers included in this industrial sector. Nonetheless, this sector is already a very large player in San Francisco's employment economy, and is projected to create an additional 6,900 jobs over the next five years. It bears paying particular attention to because of all the uncertainties involved with these projections.

The Hotel & Lodging sector, though relatively small in terms of overall employment size, shows a very strong growth tendency. It created almost 2,900 jobs (3.15% growth) during the recessionary period between 1990 and 1995, and is projected to create another 2,350 jobs (2.2% growth) over the next five years. This performance comes on the heels of strong growth during the 1983 to 1990 period (5.7% annual growth). These figures strongly suggest that tourism will continue to be a strong vital component of the local economy. Unfortunately, as we have seen, this sector pays relatively low wages. It does, however, employ a high proportion of people with educational attainment at the high school level or below.

Both Manufacturing and Construction are expected to create jobs (2,800 and 3,000 respectively) over the next five years. Since during the 1980's, these sectors experienced employment decline (Manufacturing) and stagnation (Construction), it will be particularly welcome news if these projections are realized. As we have noted before, these sectors pay relatively high wages and have high proportions of employees with educational attainment at the high school level or below.

6.2 Projected Employment By Broad Occupational Category in San Francisco 1990-2000

Appendix 6.2 displays employment projections for each broad occupational sector. It has the same format as Appendix 6.1 which concentrated on broad industrial sectors. Appendix 6.2 shows projected employment levels for each occupational category for 1990, 1995, and 2000, employment change between 1990-1995 and 1995-2000, as well as annualized rates of growth for 1990-1995 and 1995-2000. These projections were derived by us using information from the ABAG employment projections and 1990 Census data. While these are the best available occupational employment projections, they do suffer from some distortion due to the method used to derive them¹.

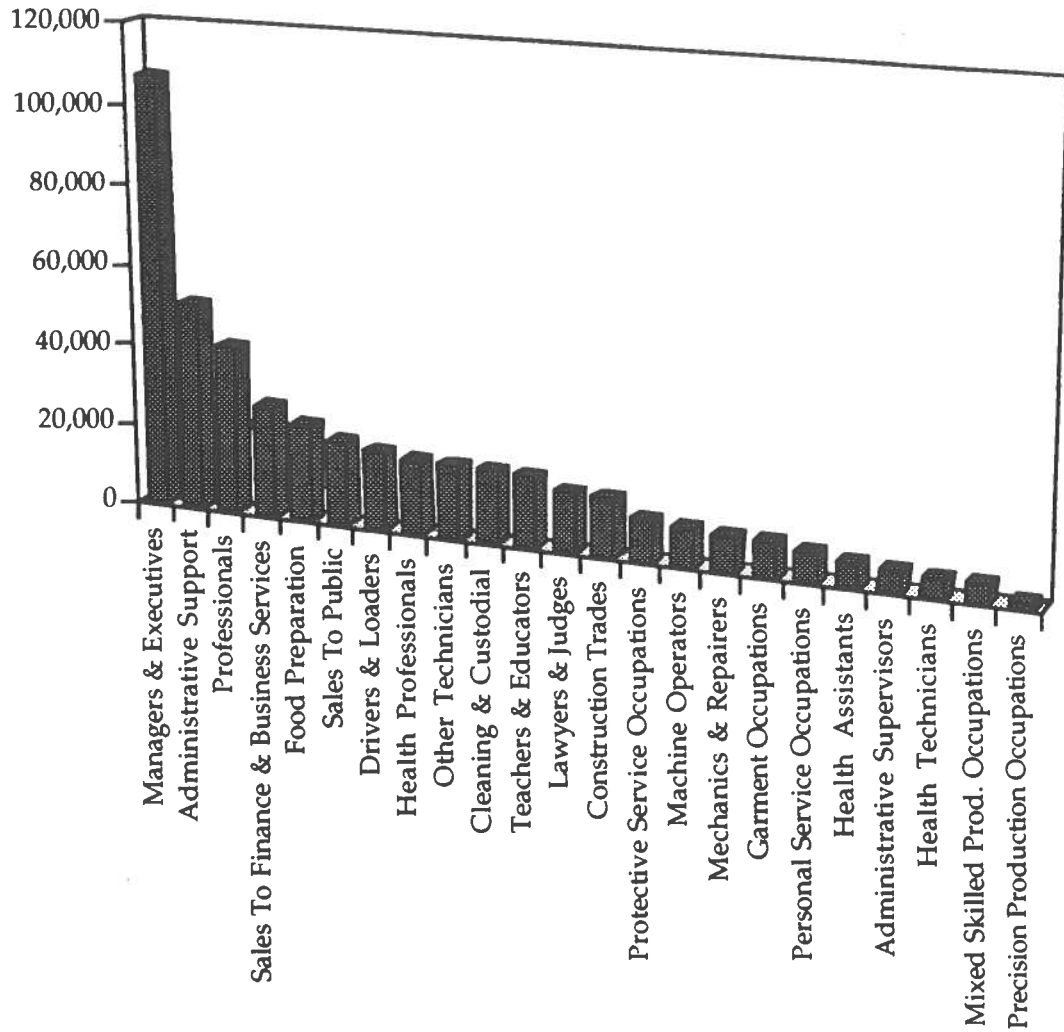
Figure 6.7 is drawn from data from the third column of Appendix 6.2. It shows the projected employment level in the year 2000 for each broad occupational category. This figure is similar to Figure 4.1 in Section 4, which showed the distribution of employment in 1990 by occupational category. Comparing the figures would appear to show relatively little shifting in the relative size and rank of these occupations between 1990 and 2000. Similarly, it is instructive to compare the first three columns of Appendix 6.2 which show employment by occupational category for 1990, 1995, and 2000. It also appears to indicate that occupations that ranked high in employment in 1990, tend to continue to be ranked high in employment in 1995 and 2000. In other words, we do not see the wide changes in the position of the occupational categories that we did for a similar breakdown of industrial sectors shown in Appendix 6.1. Employment by occupation appears to be more stable than employment by industrial sector.

One of the reasons employment by occupation is more stable than employment by industry is that the same occupational category is employed within a number of different industries. As employment declines in one industry, employees in occupational categories within it leave jobs in that industry and pick up jobs in the same occupational category in other industries. Thus, employment fluctuation between industries will be greater (less stable) than it is between occupational categories. However, another reason employment by occupation appears to be more stable than employment by industry is due to the distortions inherent in the method we used to come up with the 1995 and 2000 occupational employment projections. The method we used implicitly assumes that each industry will continue to employ the same *proportion* in each occupational category throughout the decade that it did in 1990. This proportion was taken from the 1990 Census PUMS data.

As an example of how our method works, suppose an industry employed 25% of its work force as machine operators in 1990. To project the employment in that occupation by 2000, our method is to take the ABAG employment projection for that industry in 2000, and multiply it by 25% to project the number of machine operators that industry will employ in 2000. This method assumes that the industry continues to employ 25% in this category. A distortion would be introduced if the industry changed its proportion of machine operators from 25% over the decade. For instance, if this industry hired machine operators at a slower (or even negative) rate than other occupational categories, by the end of the decade the true proportion would have fallen, perhaps to 20%. In this case, by multiplying the industry projected employment in 2000 by 25% instead of 20%, our method would over-estimate the number of machine operators. For occupations where the rate of hiring was faster than average, the proportion used by each industry would rise, and our method would under-estimate employment for these occupational categories. Ideally, we would like to use the proportions actually employed in each industry for that year, but unfortunately this information is only available for San Francisco once every ten years with the census.

¹See the Section 1.1 at the beginning of this report for a detailed description of the method used to obtain these projections and an explanation for why they may contain some distortion.

Figure 6.7
Projected Employment By Broad Occupational Category In 2000



Sources: ABAB Employment Projections, 1990 Census

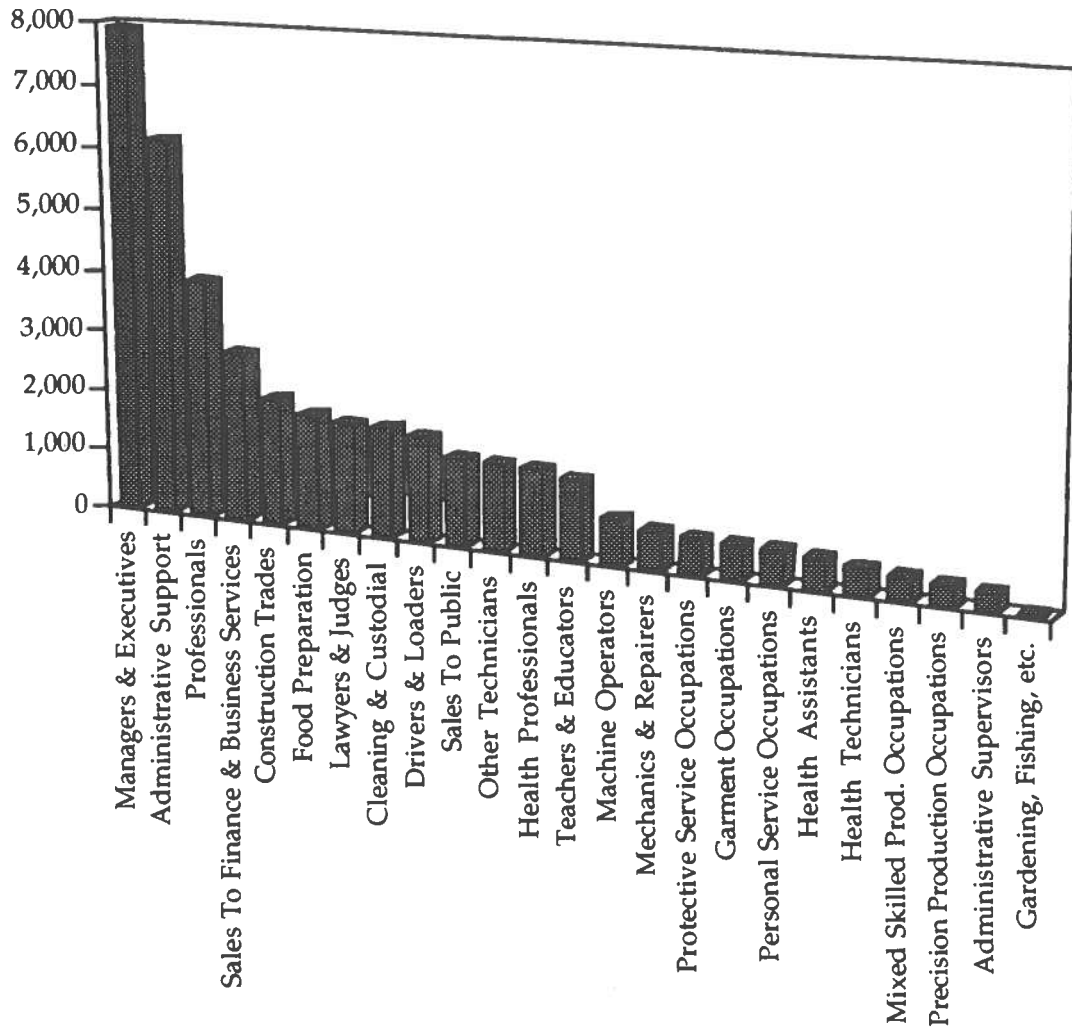
What our method will show is occupational employment change that occurs because different industries grow at different rates, and these industries employ different proportions in each occupation. For example, Services Sold To Businesses employs a relatively high proportion of Managers and Executives, and a relatively low proportion of Machine Operators. Manufacturing, on the other hand, employs a relatively low proportion of Executives and Managers and a relatively high proportion of Machine Operators. In terms of projected employment growth for the rest of the 1990's, Services To Business is projected to grow at a faster rate than Manufacturing. Therefore, using our method will project the Managers and Executives category to grow at a faster rate than the Machine Operators category.

Figure 6.8 is based on information found in the fifth column of Appendix 6.2 and shows the projected employment growth of each occupational category between 1995 and 2000. We can see that over half of the jobs created (22,807 for 57%) fell in the top five occupational categories: Managers & Executives, Administrative Support, Professionals, Sales To Finance & Business Services, and Construction. Over one-third (14,069 for 35%) fell in the top two: Managers & Executive and Administrative Support. Figure 6.8 provides further evidence of the dominance of white collar office employment in San Francisco. About three-fourths of all jobs created over the next five years (31,351) will fall in the top ten occupational categories shown in Figure 6.8. Of these, five are white collar office jobs (Managers & Executives, Administrative Support, Professionals, Sales To Finance & Business Services, and Lawyers & Judges) while five are not (Construction Trades, Food Preparation, Cleaning & Custodial, Drivers & Loaders, and Sales To The Public). However, of the 31,351 jobs created in the top ten categories, 72% of them are office jobs, while only 28% of them are non-office jobs.

It would be interesting to see in occupational categories that performed relatively well during the 1980's in terms of creating jobs will continue to create jobs through the rest of the decade. Table 6.4 attempts to identify patterns of consistency in job creation for the 1980's and the 1995-2000 period. This table is similar to Table 6.2 which made a similar comparison between industrial sectors in the 1980's and 1990's. In Table 6.4, the occupational categories are arranged according to whether they grew more rapidly or less rapidly than the San Francisco average annualize growth rate for both the 1980-1990 and the 1995-2000 periods.

Table 6.4 suggests there is not as much consistency with regard to employment growth rates within occupational categories as there is within broad industrial sectors. A number of occupations consistently grew above the average rate in both periods (Construction Trades, Lawyers & Judges, Professionals, etc.) and a number consistently grew at rates below the average (Machine Operators, Precision Production Occupations, etc.). However, there were also a large number of occupations that grew at a faster than average rate during one period and a slower than average rate in the other period. Several generalizations are in order, however. Occupations associated with manufacturing as well as the two administrative categories consistently grew below the average rate. Occupations associated with the health sector, on the other hand, consistently grew at faster than average rates.

Figure 6.8
Projected Employment Growth By Broad
Occupational Category 1995-2000



Sources: ABAG Employment Projections, 1990 Census

Table 6.4

Occupational Categories Where Employment Growth Rates Are Better Or Worse Than The San Francisco Average

1990- 2000

		Better Than SF Average	Worse Than SF Average
1980-1990	Better Than SF Average	Construction Trades Lawyers & Judges Other Technicians Professionals Health Technicians Health Professionals Mixed Skilled Prod. Occupations Teachers & Educators	Health Assistants Food Preparation Managers & Executives Sales To Finance & Business Services Sales To Public Personal Service Occupations Garment Occupations Protective Service Occupations
	Worse Than SF Average	Cleaning & Custodial Drivers & Loaders	Machine Operators Precision Production Occupations Mechanics & Repairers Administrative Support Administrative Supervisors Gardening, Fishing, etc.

Sources: ABAG Employment Projections, 1990 & 1980 Census

It would also be interesting to see whether or not job creation in the remainder of the 1990's will tend to be concentrated in occupational categories that pay relatively low wages. Recall from Section 6.2, that for industrial sectors, projected employment growth is fairly evenly distributed between high paying and low paying industrial sectors. Table 6.5 attempts to address the same issue from the standpoint of occupational categories. The table is categorized according to occupations with 1990 median pay above or below the 1990 San Francisco average of \$23,248. Both the high and low paying occupational categories are then ranked according to level of projected employment growth. The table indicates that over 60% of the new jobs created for the rest of this decade (24,470) will be in occupational categories that paid above the median annual pay level in 1990. Further, within each pay category, there does not appear to be any tendency for job growth to be higher or lower according to annual pay level. Some of the fast growing occupational categories paid high levels and some paid low levels. The same is true for the slow growing occupational categories. Therefore, we cannot conclude from this evidence, that employment growth will be stronger in lower paid occupations.

Table 6.5

**Comparing Projected Employment Change
By 1990 Pay Level For Occupational Categories 1995-2000**

	Projected Employment Growth	Median Annual Pay 1990
Total For San Francisco	40,296	\$23,248
A. High Paying Occupational Categories		
Managers & Executives	7,916	\$33,000
Professionals	3,914	\$30,000
Sales To Finance & Business Services	2,758	\$30,000
Construction Trades	2,066	\$24,407
Lawyers & Judges	1,787	\$50,000
Other Technicians	1,397	\$30,000
Health Professionals	1,388	\$34,111
Teachers & Educators	1,283	\$24,000
Mechanics & Repairers	603	\$30,492
Health Technicians	421	\$24,000
Mixed Skilled Prod. Occupations	365	\$25,000
Precision Production Occupations	315	\$28,500
Administrative Supervisors	258	\$30,000
Sub-Total Projected Employment Change	24,470	
B. Low Paying Occupational Categories		
Administrative Support	6,154	\$20,000
Food Preparation	1,861	\$12,000
Cleaning & Custodial	1,778	\$15,332
Drivers & Loaders	1,702	\$19,000
Sales To Public	1,416	\$12,000
Machine Operators	728	\$18,317
Protective Service Occupations	577	\$19,000
Garment Occupations	543	\$9,841
Personal Service Occupations	526	\$9,000
Health Assistants	501	\$13,000
Gardening, Fishing, etc.	35	\$11,300
Sub-Total Projected Employment Change	15,821	

Sources: ABAG Employment Projections, 1990 Census

7. Projected Employment Growth In Areas Promising For Low Income & Disadvantaged Segments of San Francisco

The previous section examined the prospects for employment growth in San Francisco for the rest of the 1990's. We saw that San Francisco stands to gain some 40,000 new jobs between now and the end of the decade. We now turn our attention to what this projected employment growth is likely to mean for residents of San Francisco from low income and/or disadvantaged backgrounds. This should be of particular interest to those making decisions about economic development programs that serve low income and disadvantaged segments of our population. To make informed decisions, it is important to be aware of which industries and occupations are likely to grow in ways that will most benefit the prospective workers the programs were designed to help.

As we have seen, income levels are highly correlated with education levels. In general, those with low educational levels and limited skills receive lower pay rates, work fewer hours, and earn less income. Therefore, in this section we focused on education level as a summary measure to distinguish low income and disadvantaged workers and to identify areas that are potentially promising for them. In Section 4, we presented Census data from 1990 indicating that about 27% of those employed in San Francisco had a high school education or less. The median annual pay level for these low educated workers was just \$15,000, about \$8,000 below the median pay for all workers that year. Therefore, we used high school education or less as the dividing line to broadly identify low income disadvantaged workers. Clearly this is an imperfect measure and there are undoubtedly many persons with a high school education or less whose income is not low and are not disadvantaged. Nevertheless, as a broad generalization, and as a way to categorize the information we have, it is a useful measure.

How many of the new jobs to be created over the next five years are likely to go to persons with only high school or less? In which industries and which occupations will we most likely see job growth for those with low education and limited skills? Will employment growth be stronger for relatively low paying jobs, or will some of these jobs pay relatively high? This section seeks to answer these questions while addressing related issues. At first, the analysis will be on employment growth from the standpoint of industrial sectors. Then the analysis shifts to consider employment growth by occupational category.

7.1 Projected Employment Growth For Low Educated Workers By Broad Industrial Sector 1995-2000

Table 7.1 attempts to provide estimates of employment growth for workers with low education by broad industrial sector. The first column simply shows the projected employment growth for each industrial sector as shown previously in Appendix 6.1. The next column shows the percent of workers employed within the sector who had a high school education or less in 1990. The third column shows the projected employment growth that will go to low educated workers in each sector assuming that the sector continues to employ the same proportion of low educated workers that it did in 1990 throughout the rest of the decade¹. The table has been arranged to rank the sectors according to how many low educated jobs each is projected to create. The fourth column shows the annual pay level in 1990 for each sector for workers with high school or less.

¹These projections therefore are subject to the same qualifications made for the occupational projections in Section 6: if structural changes within the industry mean that higher or lower proportions of low educated workers will be employed between 1995-2000 than in 1990, then these projections will suffer some distortion.

Table 7.1 indicates that Retail Trade will create the most jobs (1,961) for low educated workers, but that the annual pay level is below the San Francisco average. Services Sold Primarily to Business will produce 1,765 jobs with annual pay above the city average. Other industrial sectors that will create over 500 jobs and have pay levels above the city average include: Construction, Hotels & Lodging, Transportation, and Wholesale Trade.

Table 7.1
Projected Employment Growth For
Workers With High School or Less
By Broad Industrial Sector 1995-2000

Broad Industrial Sector	Total Projected Employment Growth 1995 - 2000	Percent With High School Education or Less	Projected Employment Growth For Low-Educated Workers	Median Annual Pay For Workers With High School or Less
<i>Total For San Francisco (Public & Private)</i>	40,290	27%	10,878	\$15,000
Retail Trade	4,670	42%	1,961	\$10,800
Services To Businesses	12,610	14%	1,765	\$16,750
Construction	3,030	41%	1,242	\$20,000
Manufacturing	2,790	42%	1,172	\$14,000
Hotels & Lodging	2,350	49%	1,152	\$16,800
Health, Educ., & Non-Profits	6,930	16%	1,109	\$14,300
Transportation	2,940	30%	882	\$24,000
Wholesale Trade	2,090	29%	606	\$18,000
Real Estate	3,137	18%	565	\$10,800
Communication	450	19%	86	\$28,000
Mining	90	10%	9	\$17,650
Agriculture, Forest, Fisheries	-40	16%	-6	\$10,900
Public Utilities	-160	18%	-29	\$35,100
Services Sold Primarily To Individuals	-190	42%	-80	\$7,800
Finance & Insurance	-1,827	17%	-311	\$20,000

Sources: ABAG Employment Projections, 1990 Census

7.2 Projected Employment Growth For Low Educated Workers By Broad Occupational Category 1995-2000

Table 7.2 presents our estimates of employment growth for workers with low education by broad occupational category. The projections were derived by the same method as the projections presented in Table 7.1 for broad industrial categories, and are therefore subject to the same qualifications mentioned in footnote 1. The first column in Table 7.2 simply shows the projected employment growth for each occupational category as shown previously in Appendix 6.2. The second column shows the percent of workers employed within the occupational category who had a high school education or less in 1990. The third column shows the projected employment growth that will go to low educated workers in each occupational category

assuming that the occupational category will continue to have the same proportion of low educated workers for the rest of the decade that it did in 1990. The table has been arranged to rank the occupations according to how many low educated jobs are projected to be created in each.

Table 7.2 indicates that 1,723 Administrative Support jobs for employees with low education will be created over the next five years. We must be cautious in accepting this projection, however, in light of the qualifications we have made regarding the method used to make occupational projections in general. Recall that the employment projection for any occupation between 1995-2000 (6,154 in this case) depends on the assumption that each sector will continue to employ the same proportion of the occupation for the rest of the decade that it did in 1990. Recall from Section 4 that there was substantial downsizing in Administrative

Table 7.2
Projected Employment Growth For
Workers With High School or Less
By Broad Occupational Category 1995-2000

Broad Occupational Category	Total Projected Employ- ment Growth 1995-2000	Percent with High School Education or Less	Projected Employment Growth For Low Educated Workers
<i>Total For San Francisco</i>	40,296	27%	10,880
Administrative Support	6,154	28%	1,723
Cleaning & Custodial	1,778	72%	1,280
Food Preparation	1,861	60%	1,116
Construction Trades	2,066	54%	1,116
Managers & Executives	7,916	11%	871
Drivers & Loaders	1,702	51%	868
Sales To Public	1,416	40%	566
Other Technicians	1,397	34%	475
Garment Occupations	543	85%	462
Sales To Finance & Business Services	2,758	15%	414
Machine Operators	728	52%	378
Professionals	3,914	7%	274
Mechanics & Repairers	603	41%	247
Personal Service Occupations	526	46%	242
Protective Service Occupations	577	37%	213
Health Assistants	501	42%	210
Mixed Skilled Prod. Occupations	365	51%	186
Precision Production Occupations	315	49%	154
Teachers & Educators	1,283	6%	77
Administrative Supervisors	258	20%	52
Health Technicians	421	11%	46
Health Professionals	1,388	3%	42
Gardening, Fishing, etc.	35	47%	16
Lawyers & Judges	1,787	0%	0

Sources: ABAG Employment Projections, 1990 Census

Table 7.3
Projected Employment Growth For
Various Proportions of High School or Less
By Broad Occupational Category 1995-2000

Broad Occupational Category	Percent with High School Education or Less	Median Educational Level	Projected Employ- ment Growth For Low- Educated Workers
<i>Combined Total For San Francisco</i>	27%	<i>Assoc. Degree</i>	10,880
A. Over Fifty Percent With High School of Less			
Garment Occupations	85%	10th Grade	462
Cleaning & Custodial	72%	High School	1,280
Food Preparation	60%	High School	1,116
Construction Trades	54%	High School	1,116
Machine Operators	52%	High School	378
Drivers & Loaders	51%	High School	868
Mixed Skilled Prod. Occupations	51%	High School	186
Sub-Total			5,407
B. Twenty To Fifty Percent With High School of Less			
Precision Production Occupations	49%	Some College	154
Gardening, Fishing, etc.	47%	Some College	16
Personal Service Occupations	46%	Some College	242
Health Assistants	42%	Some College	210
Mechanics & Repairers	41%	Some College	247
Sales To Public	40%	Some College	566
Protective Service Occupations	37%	Some College	213
Other Technicians	34%	B.A.	475
Administrative Support	28%	Some College	1,723
Sub-Total			3,849
C. Less Than Twenty Percent With High School of Less			
Administrative Supervisors	20%	Assoc. Degree	52
Sales To Finance & Business Services	15%	B.A.	414
Managers & Executives	11%	B.A.	871
Health Technicians	11%	Assoc. Degree	46
Professionals	7%	B.A.	274
Teachers & Educators	6%	B.A.	77
Health Professionals	3%	B.A.	42
Lawyers & Judges	0%	Prof. Degree	0
Sub-Total			1,775

Sources: ABAG Employment Projections, 1990 Census

Support jobs throughout the 1980's. Given the size of this trend, it has most likely continued to some extent during the 1990's (although we cannot know for certain until the 2000 Census is available). Therefore, it is likely that fewer than 6,154 Administrative Support jobs will be created between 1995 and 2000 (how many fewer we cannot say). Therefore, it is also likely that fewer than 1,723 Administrative Support jobs for low educated workers will be created, even if low educated persons continue to take 28% of these jobs. To some extent (probably less than with Administrative Support jobs) the other projections presented in Table 7.2 are subject to the same qualifications.

Table 7.3 arranges the employment growth projections by occupational category according to the proportion of persons employed within the occupational category who have high school or less. As we have seen, on average, 27% of all San Francisco employees have an educational attainment of high school or less. Table 7.3 arranges the occupational categories according to this benchmark. The table is further divided into three sub-sets: occupations where over half of all persons have high school or less, occupation where between fifty and twenty percent do, and occupations where less than twenty percent do.

Sub-set A. in Table 7.3 shows the occupations with the highest proportion of persons with low education. Garment workers lead in this category, where 85% have high school or less, and the median educational level is only 10th grade. Other occupational categories also having a large proportion of lowly educated workers include: Cleaning & Custodial, Food Preparation, Construction Trades, Machine Operators, Drivers & Loaders, and Mixed Skilled Production Occupations. Sub-set B. shows occupations where between fifty and twenty percent of the employees are lowly educated. Actually, each of these occupations have more than the San Francisco average of 27%. Finally, Sub-set C. shows occupations where less than twenty percent of the employees have high school or less. The median educational level in most of these occupations is a college degree.

Table 7.4 shows the same basic breakdown of the broad occupational categories as Table 7.3, but ranks the occupations according to the level of projected employment growth within each sub-set. It also shows the median annual pay for workers with high school or less. Table 7.4 indicates that in Sub-set A., 5,407 projected jobs will be created for low educated persons. This represents just under 50% of the 10,880 total of projected jobs created for low educated persons. Of the 5,407 projected jobs in sub-set A., about half will be in Cleaning & Custodial, Food Preparation, and Garment Occupations. All of these occupations pay below the San Francisco mean pay of \$15,000 for high school or below. The other half of the projected jobs will be in occupations paying above the San Francisco average. All in all, the average pay level for low educated workers in sub-set A. was \$15,203 in 1990, which is slightly above the San Francisco average for workers with low education.

Table 7.4 indicates that in sub-set B., 3,848 projected jobs will be created for low educated persons. This represents about 35% of all projected jobs for low educated persons. Of these 3,848 jobs, about 45% are in Administrative Support. As mentioned above, projections for Administrative Support are probably too high due to the method used to derive them. All in all, the average pay level for low educated workers in sub-set B. was \$16,669, which is about \$1,700 higher than the San Francisco average for workers with low education. In sub-set C., Table 7.4 indicates that about 1,775 projected jobs for persons with low education will be created. This represents just 15% of all projected jobs for low educated persons. Since in almost every occupational category, the pay level is above the San Francisco average of \$15,000, the average pay level of \$20,729 for the jobs created in sub-set C. is almost \$6,000 higher than the San Francisco average. Taken together, the evidence presented in Table 7.4 indicates that the average annual pay levels of the new jobs to be created for low educated workers will be higher than the \$15,000 average for all persons with low educational levels in San Francisco.

Table 7.4
Projected Employment Growth
And Median Annual Pay For Low Educated Workers
By Broad Occupational Category 1995-2000

Broad Occupational Category	Projected Employment Growth For Low- Educated Workers	Median Annual Pay For Workers With High School or Less
<i>Combined Total For San Francisco</i>	<i>10,880</i>	<i>\$15,000</i>
A. Over Fifty Percent With High School of Less		
Cleaning & Custodial	1,280	\$14,400
Food Preparation	1,116	\$10,800
Construction Trades	1,116	\$20,000
Drivers & Loaders	868	\$18,000
Garment Occupations	462	\$9,451
Machine Operators	378	\$16,000
Mixed Skilled Prod. Occupations	186	\$18,000
Sub-Total	5,407	\$15,203
B. Twenty To Fifty Percent With High School of Less		
Administrative Support	1,723	\$19,000
Sales To Public	566	\$8,500
Other Technicians	475	\$23,000
Mechanics & Repairers	247	\$24,000
Personal Service Occupations	242	\$6,000
Protective Service Occupations	213	\$10,000
Health Assistants	210	\$10,000
Precision Production Occupations	154	\$25,000
Gardening, Fishing, etc.	16	\$11,300
Sub-Total	3,848	\$16,669
C. Less Than Twenty Percent With High School of Less		
Managers & Executives	871	\$24,000
Sales To Finance & Business Services	414	\$20,000
Professionals	274	\$15,000
Teachers & Educators	77	\$10,987
Administrative Supervisors	52	\$25,208
Health Technicians	46	\$16,000
Health Professionals	42	\$15,000
Lawyers & Judges	0	\$0
Sub-Total	1,775	\$20,729

Sources: ABAG Employment Projections, 1990 Census

Appendices

Appendix 2.1
Key Variables of Employment Structure
1990 Employment & Pay, Employment Changes 1983-1992

	Total Employment		Location Quotient		Pay Per Person		Total Employment Change		Annual Rate of Employment Growth	
	1990	1990	1990	1990	1990	1990	1983-1990	1990-1992	1983-1990	1990-1992
Broadly Defined Industrial Sector	520,054	1,0000	\$29,754	42,840	-57,163	1.28%	-5.50%			
<i>Total For San Francisco (Private Sector)</i>										
Services Sold Primarily To Businesses	97,328	2.2463	\$34,143	27,436	-8,085	5.86%	-4.50%			
Government	92,800	N.A.	\$30,879	7,900	-4,500	1.13%	-2.44%			
Retail Trade	83,503	0.7575	\$15,765	16,624	-9,169	3.55%	-5.49%			
Health, Education, Social Services, And Non-Profits	71,430	0.9200	\$24,459	20,897	-1,500	5.85%	-1.05%			
Finance & Insurance	66,823	2.1431	\$41,814	-11,655	-3,938	-2.43%	-2.95%			
Manufacturing	44,673	0.4188	\$29,369	310	-8,146	0.10%	-9.12%			
Wholesale Trade	29,937	0.8504	\$34,953	2,600	-6,243	1.36%	-10.43%			
Construction	25,304	0.8681	\$35,910	-18,494	-5,298	-6.03%	-10.47%			
Transportation	24,918	1.2970	\$34,495	348	-9,867	0.20%	-19.80%			
Services Sold Primarily To Individuals	20,362	1.0602	\$22,082	6,249	-2,328	5.05%	-4.86%			
Hotels & Lodging	18,844	2.2156	\$19,060	5,405	724	5.75%	1.92%			
Real Estate	13,164	1.7217	\$27,816	1,847	-1,591	2.33%	-6.04%			
Communication	11,087	1.5644	\$41,378	-9,400	-1,336	-6.55%	-6.03%			
Public Utilities (Gas, Electric, Disposal)	8,180	1.6874	\$42,291	-182	709	-0.31%	4.33%			
Mining	1,932	0.4802	\$60,612	-4,047	298	-9.67%	7.71%			
Unclassified Establishments	1,597	0.9017	\$30,016	-935	-1,356	-7.22%	-42.45%			
Agriculture, Forest, Fisheries	972	0.3290	\$19,422	275	-37	5.64%	-1.90%			

Sources: County Business Patterns, Annual Planning Information, 1990 Census

Appendix 2.2
Key Variables of Employment Structure Continued
Real (Inflation Adjusted) Pay Changes, 1983-1992

	Real Pay Per Person			Change In Real Pay 1983-1990	Change In Real Pay 1990-1992	Annual Rate of Change, 1983-1992	
	1983	1990	1992			1983-1990	1990-1992
Broadly Defined Industrial Sector							
<i>Total For San Francisco (Private Sector)</i>							
Services Sold Primarily To Businesses	\$22,981	\$22,765	\$23,648	-\$216	\$883	-0.13%	1.94%
Retail Trade	\$21,564	\$26,123	\$25,772	\$4,559	-\$351	3.02%	-0.67%
Health, Education, Social Services, And Non-Profits	\$12,547	\$12,062	\$12,075	-\$484	\$12	-0.55%	0.05%
Finance & Insurance	\$17,127	\$18,714	\$20,945	\$1,587	\$2,232	1.32%	5.96%
Manufacturing	\$25,090	\$31,992	\$35,340	\$6,903	\$3,348	3.93%	5.23%
Wholesale Trade	\$23,733	\$22,470	\$23,643	-\$1,263	\$1,173	-0.76%	2.61%
Construction	\$26,767	\$26,743	\$26,794	-\$24	\$51	-0.01%	0.10%
Transportation	\$35,024	\$27,475	\$28,863	-\$7,549	\$1,388	-3.08%	2.53%
Services Sold Primarily To Individuals	\$27,739	\$26,393	\$28,041	-\$1,346	\$1,649	-0.69%	3.12%
Hotels & Lodging	\$16,452	\$16,895	\$18,905	\$444	\$2,010	0.39%	5.95%
Real Estate	\$13,980	\$14,583	\$13,303	\$603	-\$1,280	0.62%	-4.39%
Communication	\$17,145	\$21,283	\$22,192	\$4,138	\$909	3.45%	2.14%
Public Utilities (Gas, Electric, Disposal)	\$31,212	\$31,659	\$31,439	\$446	-\$219	0.20%	-0.35%
Mining	\$27,168	\$32,357	\$28,041	\$5,189	-\$4,316	2.73%	-6.67%
	\$38,581	\$46,375	\$44,370	\$7,793	-\$2,005	2.89%	-2.16%

Source: County Business Patterns

Appendix 3.1
Seven Key Variables Of Employment Structure
For San Francisco's Narrowly Defined Industrial Sectors

	Total		Annual Payroll Per Employee In 1990	Total Employment		Percent Employment		Total Employment	
	Employment In 1990	Location Quotient		1983-1990 Change	1983-1990 Change	1990-1992 Change	1990-1992 Change		
Narrowly Defined Industrial Sector	520,059	1.0000	\$29,754	42,840	9%	-57,163	-11%		
Total For San Francisco									
I. Services Sold Primarily To Businesses	97,328	2.2463	\$34,143	27,436	41%	-8,085	-9%		
1. Business Services	45,792	1.6080	\$24,286	9,531	26%	-3,009	-7%		
a) Personnel supply services	13,369	1.5831	\$15,412	4,697	54%	-1,845	-14%		
i) Temporary personnel services	8,478	1.2591	\$15,119	2,743	48%	-429	-5%		
ii) Employment agencies	4,756	3.4616	\$15,973	1,819	62%	-1,532	-32%		
b) Misc. Business Services	8,856	1.4566	\$18,082	1,531	21%	-471	-5%		
c) Building services	6,673	1.4951	\$16,460	1,919	40%	1,382	21%		
d) Computer and Data Processing Services	5,502	1.2798	\$44,160	2,001	57%	-565	-10%		
e) Mailing, reproduction, stenographic	4,381	3.3846	\$30,171	1,847	73%	-91	-2%		
f) Advertising	2,859	2.5224	\$44,864	344	14%	164	6%		
g) Misc. equipment rental	1,885	2.3268	\$37,486	463	33%	-795	-42%		
h) Credit Reporting & Collection	710	0.7356	\$24,111	322	83%	-502	-71%		
2. Engineering & Management Services	30,754	1.9761	\$41,399	8,518	46%	-2,457	-9%		
a) Engineering & Architectural Services	11,228	2.3437	\$43,449	2,048	22%	-1,535	-14%		
i) Engineering Services	7,111	1.9632	\$45,822	7,111	N.A.	-755	-11%		
ii) Architectural Services	3,879	4.9959	\$39,080	3,879	N.A.	-766	-20%		

Source: County Business Patterns, 1990 Census

Appendix 3.1 Continued

	Total Employment		Annual Payroll Per Employee In 1990	Total Employment Change		Percent Employment Change	
	In 1990	Location Quotient		1983-1990	1990-1992	1983-1990	1990-1992
Narrowly Defined Industrial Sector							
<i>Total For San Francisco</i>	520,059	1.0000	\$29,754	42,840	9%	-57,163	-11%
I. Services Sold Primarily To Businesses (Continued)							
2. Engineering & Management Services (Continued)	97,328	2.2463	\$34,143	27,436	41%	-8,085	-9%
c) Accounting & Bookkeeping	5,778	1.9830	\$36,877	1,774	44%	382	7%
d) Research & Testing Services	2,224	1.0179	\$31,967	938	73%	-134	-6%
e) Services Administrative & Auxiliary	2,165	1.1037	\$39,383	74	4%	197	9%
f) Services, nec.	1,406	1.3698	\$32,203	1,117	387%	-519	-37%
3. Legal Services	20,782	4.0088	\$46,406	9,387	82%	-2,619	-13%
II. Retail Trade							
1. Eating & drinking places	35,838	0.9970	\$10,783	7,933	28%	-4,535	-13%
2. Misc. (Drugs, Books, Liquor, Sporting, etc.)	12,098	1.14	\$16,715	3,009	33%	-803	-7%
3. Food Stores	9,600	0.5524	\$15,263	2,322	32%	-320	-3%
4. Apparel Stores	6,874	1.0361	\$16,021	2,185	47%	-228	-3%
5. General Merchandise	5,945	0.5004	\$22,291	-434	-7%	-1,616	-27%
7. Administrative & Auxiliary	4,505	1.0622	\$33,648	-394	-8%	18	0%
8. Furniture & Home Furnishings	3,613	0.8670	\$19,349	1,539	74%	-343	-9%
9. Auto & Motorcycle Dealers	2,030	3.8446	\$31,609	-42	-2%	-595	-29%
10. Service Stations	1,521	0.2588	\$13,522	8	1%	-396	-26%
11. Building & Gardening Supplies	1,479	2.6456	\$21,961	498	51%	-351	-24%

Appendix 3.1 Continued

	Total Employment Location		Annual Payroll Per Employee In 1990	Total Employment-ment		Percent Employment-ment		Total Employment-ment		Percent Employment-ment	
	In 1990	Quotient		Change 1983-1990	Change 1983-1990	Change 1990-1992	Change 1990-1992	Change 1990-1992	Change 1990-1992		
Narrowly Defined Industrial Sector	520,059	1.0000	\$29,754	42,840	9%	-57,163	-11%				
<i>Total For San Francisco</i>											
III. Health, Education, Social Services, And Non-Profits	71,430	0.9200	\$24,459	20,897	41%	-1,500	-2%				
1. Health (Private Sector)	37,807	0.7712	\$30,116	10,802	40%	-1,048	-3%				
a) Hospitals	21,167	0.8796	\$30,217	5,832	38%	120	1%				
b) Offices of Medical Doctors	6,697	0.8677	\$43,893	2,191	49%	-543	-8%				
2. Educational Services (Private Sector)	11,723	1.2005	\$17,501	3,510	43%	-684	-6%				
3. Social Services (Private Sector)	10,506	1.0790	\$16,743	4,532	76%	504	5%				
4. Membership Organizations (Non-Profits)	10,358	0.9840	\$19,512	1,615	18%	-528	-5%				
5. Museums, Art Galleries	1,036	2.9283	\$22,078	438	73%	256	25%				
IV. Finance & Insurance	66,823	2.1431	\$41,814	-11,655	-17%	-3,938	-6%				
1. Depository Institutions	30,273	2.6768	\$32,782	-4,661	-13%	-1,310	-4%				
2. Insurance Carriers	9,596	1.2262	\$37,749	-2,046	-18%	2,063	21%				
3. Security & Commodity Brokers	9,355	4.0929	\$69,478	2,019	28%	473	5%				
4. Insurance Agents & Brokers	7,174	1.8103	\$41,517	294	4%	-2,015	-28%				
5. Administrative & Auxiliary	3,965	2.8421	\$32,225	-7,177	-64%	-2,885	-73%				
6. Holding & Investment Companies	3,599	2.4582	\$60,929	224	7%	-398	-11%				
7. Nondepository Institutions	2,861	1.0167	\$50,543	-308	-10%	134	5%				

Appendix 3.1 Continued

	Total Employment In 1990		Annual Payroll Per Employee In 1990	Total Employment Change 1983-1990		Total Employment Change 1990-1992	
	Employment In 1990	Location Quotient		Change 1983-1990	Change 1983-1990	Change 1990-1992	Change 1990-1992
Narrowly Defined Industrial Sector							
Total For San Francisco	520,059	1.0000	\$29,754	42,840	9%	-57,163	-11%
V. Manufacturing							
1. Apparel	11,959	2.0921	\$16,235	1,801	18%	3	0%
2. Printing & Publishing	10,917	1.2646	\$35,287	2,431	29%	-1,419	-13%
3. Administrative & Auxiliary	5,198	0.7456	\$55,579	-2	0%	253	5%
4. All Other Manufacturing	4,628	0.1337	\$27,167	-3,236	-41%	-2,272	-49%
5. Food	2,875	0.3557	\$28,056	-950	-25%	-337	-12%
6. Electronic & Other Electronic Equipment	2,352	0.2715	\$27,106	231	11%	-1,292	-55%
7. Fabricated Metal Products	1,967	0.2383	\$29,314	984	100%	-751	-38%
8. Transportation Equipment	1,548	0.1548	\$32,110	-1,266	-45%	-520	-34%
9. Industrial Machinery & Equipment	1,219	0.1140	\$21,090	-32	-3%	-895	-73%
10. Misc. Manufacturing Industries	1,038	0.4733	\$21,647	160	18%	-466	-45%
11. Furniture & Fixtures	972	0.3423	\$33,076	189	24%	-450	-46%
VI. Wholesale Trade							
1. Durable Goods	14,444	0.7293	\$33,467	585	4%	-3,176	-22%
2. Nondurable Goods	11,615	0.8581	\$29,402	1,245	12%	-2,307	-20%
3. Administrative & Auxiliary	3,878	2.0829	\$57,111	770	25%	-760	-20%
Total	29,937	0.8504	\$34,953	2,600	10%	-6,243	-21%

Appendix 3.1 Continued

	Total Employment		Annual Payroll Per Employee In 1990	Total Employment		Percent Employment		Total Employment		Percent Employment	
	1990	Location Quotient		1983-1990 Change	1983-1990 Change	1990-1992 Change	1990-1992 Change				
Narrowly Defined Industrial Sector											
<i>Total For San Francisco</i>											
	520,059	1.0000	\$29,754	42,840	9%	57,163	-11%				
VII. Construction											
1. Special Trades	10,868	5.2961	\$35,107	2,720	33%	-4,386	-40%				
2. General Contractors & Operative Builders	9,000	1.1965	N.A.	2,298	50%	-2,252	-25%				
3. Heavy Construction	5,000	1.2236	N.A.	-23,185	-77%	1,740	35%				
4. Administrative & Auxiliary	436	3.4810	N.A.	-366	-46%	-361	-83%				
VIII. Transportation	24,918	1.2970	\$34,495	348	1%	-9,867	-40%				
1. Trucking & Warehousing	8,687	0.9915	\$28,262	3,434	65%	-6,075	-70%				
2. Transportation Services	5,136	2.4944	\$26,915	-307	-6%	-626	-12%				
3. Water Transportation	4,341	4.9374	\$49,389	-3,710	-46%	-1,967	-45%				
4. Administrative & Auxiliary	2,573	1.4217	\$53,735	1,823	243%	-1,277	-50%				
5. Air Transportation	2,431	0.6482	\$25,824	178	8%	78	3%				
6. Local & Interurban Passenger Transit	1,704	0.8895	N.A.	-1,080	-39%	638	37%				

Appendix 3.1 Continued

	Total Employment Location		Annual Payroll Per Employee In 1990	Total Employment Change		Percent Employment Change		Total Employment Change		Percent Employment Change	
	In 1990	Quotient		1983-1990	1983-1990	1990-1992	1990-1992	1990-1992	1990-1992	1990-1992	
Narrowly Defined Industrial Sector											
Total For San Francisco	520,059	1.0000	\$39,754	42,840	9%	-57,163	-11%				
IX. Services Sold Primarily To Individuals											
1. Personal Services	6,592	1.0097	\$11,285	1,689	34%	-1,663	-25%				
a) Misc. Personal Services	2,549	0.2541	\$6,845	1,023	67%	-1,388	-54%				
b) Beauty Shops	1,661	1.2426	\$12,460	408	33%	-397	-24%				
c) Laundry & Dry Cleaning	1,627	1.4294	\$14,369	167	11%	176	11%				
2. Amusement & Recreation Services	5,841	1.0169	\$35,029	1,577	37%	-383	-7%				
3. Auto Repair, Rental, Parking, & Carwash	4,318	1.1298	\$22,151	1,195	38%	348	8%				
a) Automotive Repair	1,785	1.5814	\$26,208	548	44%	-26	-1%				
b) Automobile Parking	1,072	0.2742	\$18,977	58	6%	134	13%				
c) Automotive Rentals (no driver)	909	0.8967	\$21,537	270	42%	188	21%				
d) Carwash & Other Services	500	1.6142	\$15,734	267	115%	52	10%				
4. Motion Pictures	2,691	1.1253	\$19,178	456	20%	-140	-5%				
a) Motion picture theatres	1,034	1.7370	\$7,177	-312	-23%	-42	-4%				
b) Video Rental	420	1.3601	\$10,005	N.A.	N.A.	-110	-26%				
5. Misc. Repair Service	920	2.4391	\$25,573	141	18%	-138	-15%				
X. Hotels & Lodging	18,844	2.2156	\$19,060	5,405	40%	724	4%				

Appendix 3.1 Continued

	Total Employment In 1990	Location Quotient	Annual Payroll Per Employee In 1990	Total		Percent		Total		Percent	
				Employ- ment Change 1983-1990	Employ- ment Change 1983-1990	Employ- ment Change 1990-1992	Employ- ment Change 1990-1992				
Narrowly Defined Industrial Sector											
Total For San Francisco											
	520,059	1.0000	\$29,754	42,840	9%	-57,163	-11%				
XI. Real Estate	13,164	1.7217	\$27,816	1,847	16%	-1,591	-12%				
1. Operators & Lessors	5,680	0.4986	\$19,789	-908	-14%	-1,417	-25%				
2. Agents & Managers	5,736	0.0567	\$33,260	1,501	35%	712	-12%				
3. All Other	1,748	0.8929	\$36,035	1,254	254%	-886	-51%				
XII. Communication	11,087	1.5644	\$41,378	-9,400	-46%	-1,336	-12%				
1. Telephone & Telegraph	7,745	1.6196	\$38,679	-9,483	-55%	-1,136	-15%				
2. Television & Radio Broadcasting	2,765	2.1031	\$50,840	91	3%	-311	-11%				
3. Cable & Other Pay Television	519	0.5239	\$28,582	-66	-11%	-108	-21%				
XIII. Public Utilities (Gas, Electric, Waste Disposal)	8,180	1.6874	\$42,291	-182	-2%	709	9%				
XIV. Mining	1,932	0.4802	\$60,612	-4,047	-68%	298	15%				
XV. Unclassified Establishments	1,597	0.9017	\$30,016	-935	-51%	-1,356	-85%				
XVI. Agriculture, Forest, Fisheries	972	0.3290	\$19,422	275	39%	-37	-4%				

Appendix 4.1

Occupations And Standard Occupational Code

Occupational Category	Standard Occupational Code
Management	3-37
Professionals	43-83, 166-199
Law	178, 179
Health Professionals	84-106
Teachers	113-165
Health Technicians	203-208
Technicians	213-235
Business Sales	243-259
Public Sales	263-285
Administrative Supervisors	303-307
Administrative Support	308-389
Safety/Home Help	403-427
Food Preparation	433-443
Health Assistants	445-447
Cleaning Occupations	448-455
Personal Services	456-469
Gardening/Farming/Fishing	473-499
Mechanics/Repairers	503-549
Construction	553-599, 866, 869
Skilled Manufacturing	613-659
Textiles	666-674, 738-749
Mixed Skills	675-699
Machine Operators	703-799
Drivers/Loaders	803-889

Appendix 4.2

Administrative Support Occupations

Note: Numbers in left margin are census codes, and numbers to the right of titles are SOC codes.

Supervisors, Administrative Support Occupations

- 303 Supervisors, general office (4511, 4513, 4514, 4516, 4519, 4529)
- 304 Supervisors, computer equipment operators (4512)
- 305 Supervisors, financial records processing (4521)
- 306 Chief communications operators (4523)
- 307 Supervisors, distribution, scheduling, and adjusting clerks (4522, 4524-4528)

Computer Equipment Operators

- 308 Computer operators (4612)
- 309 Peripheral equipment operators (4613)

Secretaries, Stenographers, and Typists

- 313 Secretaries (4622)
- 314 Stenographers (4623)
- 315 Typists (4624)

Information Clerks

- 316 Interviewers (4642)
- 317 Hotel clerks (4643)
- 318 Transportation ticket and reservation agents (4644)
- 319 Receptionists (4645)
- 323 Information clerks, n.e.c. (4649)

Records Processing Occupations, Except Financial

- 325 Classified-ad clerks (4662)
- 326 Correspondence clerks (4663)
- 327 Order clerks (4664)
- 328 Personnel clerks, except payroll and timekeeping (4692)
- 329 Library clerks (4694)
- 335 File clerks (4696)
- 336 Records clerks (4699)

Financial Records Processing Occupations

- 337 Bookkeepers, accounting, and auditing clerks (4712)
- 338 Payroll and timekeeping clerks (4713)
- 339 Billing clerks (4715)
- 343 Cost and rate clerks (4716)
- 344 Billing, posting, and calculating machine operators (4718)

Duplicating, Mail and Other Office Machine Operators

- 345 Duplicating machine operators (4722)
- 346 Mail preparing and paper handling machine operators (4723)
- 347 Office machine operators, n.e.c. (4729)

Communications Equipment Operators

- 348 Telephone operators (4732)
- 353 Communications equipment operators, n.e.c. (4733, 4739)

Mail and Message Distributing Occupations

- 354 Postal clerks, except mail carriers (4742)
- 355 Mail carriers, postal service (4743)
- 356 Mail clerks, except postal service (4744)
- 357 Messengers (4745)

Material Recording, Scheduling, and Distributing Clerks

- 359 Dispatchers (4751)
- 363 Production coordinators (4752)
- 364 Traffic, shipping, and receiving clerks (4753)
- 365 Stock and inventory clerks (4754)
- 366 Meter readers (4755)
- 368 Weighers, measurers, checkers, and samplers (4756, 4757)
- 373 Expeditors (4758)
- 374 Material recording, scheduling, and distributing clerks, n.e.c. (4759)

Adjusters and Investigators

- 375 Insurance adjusters, examiners, and investigators (4782)
- 376 Investigators and adjusters, except insurance (4783)
- 377 Eligibility clerks, social welfare (4784)
- 378 Bill and account collectors (4786)

Miscellaneous Administrative Support Occupations

- 379 General office clerks (463)
- 383 Bank tellers (4791)
- 384 Proofreaders (4792)
- 385 Data-entry keyers (4793)
- 386 Statistical clerks (4794)
- 387 Teachers' aides (4795)
- 389 Administrative support occupations, n.e.c. (4787, 4799)

Appendix 4.3

Real Wages For City Residents And Commuters

Occupation	Total Employees		City Residents		Commuters	
	Median Wage in 1990	Percent Change in Median Real Wages from 1980 to 1990	Median Wage in 1990	Percent Change in Median Adjusted Wage 1980 to 1990	Median Wage in 1990	Percent Change in Median Real Wages from 1980 to 1990
Managers	\$33,000	3.8 %	\$ 28,000	17.1 %	\$ 37,500	-4.8
Administrative Support	20,000	7.4	18,000	5.3	22,641	10.8
Professionals	30,000	0.3	21,212	3.5	36,400	6.5
Sales to Business	30,000	17.1	24,000	27.7	36,300	15.0
Food Preparation	12,000	0.3	11,042	-0.6	15,500	0.9
Sales to Public	12,000	-8.2	10,000	-2.5	15,000	-20.2
Construction	24,407	2.0	15,000	-4.9	31,536	2.5
Drivers/Loaders	19,000	-20.6	14,910	-12.7	25,000	-18.7
Health Professionals	34,111	33.1	31,554	25.7	35,748	28.3
Teachers	24,000	8.0	20,000	2.9	27,499	7.0
Technicians	30,000	14.8	26,000	19.2	32,500	6.8
Cleaning	15,332	1.1	15,000	2.4	16,604	-7.5
Law	50,000	50.1	49,032	120.7	54,000	31.7
Safety/Home Help	19,000	11.2	11,200	2.0	36,000	5.4
Machine Operators	18,317	-10.7	13,800	-19.2	24,163	-17.6
Mechanics/Repairers	30,492	11.5	24,000	22.1	33,369	-2.3
Textile Workers	9,841	-4.1	9,000	-12.3	13,000	-7.5
Personal Services	9,000	5.3	6,200	-21.6	12,000	0.3
Health Assistants	13,000	6.7	12,717	6.3	15,000	8.4
Health Technicians	24,000	9.2	23,000	12.2	26,000	8.7
Administrative Supervision	30,000	6.4	26,000	2.0	32,400	-5.2
Skilled Manufacturing	28,500	-7.3	20,200	-18.2	30,212	-11.6
Mixed Skills	25,000	-12.8	16,000	-22.0	30,000	-12.2
Farming/Fishing	11,300	-27.8	9,485	-34.7	13,000	-39.8
TOTAL	\$23,248	13.4 %	\$ 18,000	5.3 %	\$ 29,457	7.2%

Source: 1980 and 1990 PUMS Census Data

Appendix 4.4

Educational Attainment By Occupation

<i>Occupation</i>	Median Education Level	High School or Less	Some College	BA or Higher
Textile Workers	10th Grade	85 %	11 %	4 %
Cleaning	High School	72	21	6
Food Preparation	High School	60	27	12
Construction	High School	54	34	13
Machine Operators	High School	52	31	17
Mixed Skills	High School	51	34	15
Drivers/Loaders	High School	51	36	13
Skilled Manufacturing	Some College	49	35	16
Farming/Fishing	Some College	47	35	18
Personal Services	Some College	46	35	19
Health Assistants	Some College	42	39	18
Mechanics/Repairers	Some College	41	45	14
Sales to Public	Some College	40	35	24
Safety/Home Help	Some College	37	39	24
Administrative Support	Some College	28	44	28
Administrative Supervision	Assoc. Degree	20	42	38
Sales to Business	B.A.	15	29	56
Health Technicians	Assoc. Degree	11	44	45
Technicians	B.A.	11	31	58
Managers	B.A.	11	28	62
Professionals	B.A.	7	20	74
Teachers	B.A.	6	12	82
Health Professionals	B.A.	3	19	78
Law	Prof'nl Degree	0	0	100
TOTAL	Assoc. Degree	27 %	31 %	42 %

*Source: 1990 PUMS Census
Data*

Appendix 4.5

Race By Occupation

<i>Occupation</i>	Percent White Non- Hispanic	Percent Latino	Percent African- American	Percent Asian/ Pacific Islander	Percent Other
Textile Workers	8.0 %	15.1 %	2.4 %	74.5 %	0.0 %
Cleaning	14.2	39.4	12.6	32.7	1.0
Health Assistants	31.2	19.3	18.3	30.9	0.4
Food Preparation	33.5	23.7	3.7	38.7	0.4
Machine Operators	36.9	22.6	10.8	28.5	1.2
Safety/Home Help	44.1	21.7	13.4	19.4	1.4
Drivers/Loaders	44.6	16.8	17.0	21.2	0.5
Personal Services	46.0	18.2	11.7	23.6	0.4
Administrative Support	46.2	12.2	11.7	29.2	0.8
Mixed Skills	47.4	16.1	5.1	31.4	0.0
Garden/Farming/Fishing	47.7	32.8	7.4	11.1	1.0
Sales to Public	49.9	11.6	6.7	31.1	0.8
Health Technicians	50.5	9.1	11.1	29.4	0.0
Administrative Supervision	51.9	9.0	13.4	25.4	0.4
Skilled Manufacturing	54.6	17.2	6.4	20.9	0.9
Mechanics/Repairers	57.2	14.1	7.3	20.4	1.0
Construction	59.1	20.3	6.9	12.8	0.9
Technicians	65.6	6.8	7.7	19.5	0.4
Teachers	69.4	7.4	9.2	13.8	0.2
Managers	69.5	6.8	6.2	17.0	0.5
Health Professionals	70.4	5.5	5.7	17.9	0.5
Professionals	73.3	6.2	4.7	15.6	0.3
Sales to Business	74.8	5.4	4.4	15.2	0.3
Law	87.0	3.9	2.8	6.0	0.3

Source: 1990 PUMS Census Data

Appendix 4.6

Occupations With Highest Percentages of Young Employees

<i>Occupation</i>	Percent 16 - 19 Years Old	Percent 20 -24 Years Old	Percent 25 Years Old and Older
Sales to Public	11.3 %	19.8 %	68.8 %
Farming/Fishing	6.3	9.9	83.8
Food Preparation	6.2	12.8	81.0
Drivers/Loaders	3.6	13.3	83.1
Administrative Support	3.2	12.7	84.1
Safety/Home Help	2.9	9.4	87.7
Machine Operators	2.9	10.5	86.7
Personal Services	2.5	10.9	86.6
Construction	1.9	9.5	88.6
Health Assistants	1.5	8.6	89.9
Technicians	1.0	10.1	88.9
Mechanics/Repairers	0.4	10.4	89.2
<i>SF AVERAGE</i>	2.1 %	8.3 %	89.6 %

Source: 1990 PUMS Census Data

Appendix 4.7
Real Wage And Employment Changes 1980 - 1990

<i>Occupation</i>	Difference in Percent Change in Jobs from Overall Percent Change in Jobs 1980 to 1990	Percent Difference in the Median Wage for Workers with a High School Diploma or Less Compared to Overall Median Wage for Those Workers	Percent Change in Real Median Wages for City Resident Workers from 1980 to 1990
Managers	25.5 %	60 %	17.1 %
Admin. Support	-23.5	27	5.3
Professionals	15.6	0	3.5
Sales to Business	3.2	33	27.7
Food Prep	30.8	-28	-0.6
Public Sales	16.5	-43	-2.5
Construction	13.2	33	-4.9
Drivers/Loaders	2.3	20	-12.7
Health Pro's	7.1	0	25.7
Teachers	-23.9	-27	2.9
Technicians	22.1	53	19.2
Cleaning	8.7	-4	2.4
Law	26.9	-100	120.7
Safety/Home	22.7	-33	2.0
Machine Oprs.	-1.5	7	-19.2
Mechanics	2.4	60	22.1
Textiles	-11.5	-37	-12.3
Personal Svcs.	-1.6	-60	-21.6
Health Assts.	-4.1	-33	6.3
Health Techs.	4.7	7	12.2
Admin. Supervisors	10.9	68	2.0
Skilled Manu.	-51.4	67	-18.2
Mixed Skills	-3.9	20	-22.0
Farm/Fish/Garden	6.7 %	-25 %	-34.7 %

Source: 1980 and 1990 PUMS Census Data

Appendix 4.8

Employment Levels and Changes For Administrative Support Occupations

Clerical Occupation	Total Employees in 1990	Percent of Total	Change in Total 1980 to 1990	Change in Percent of Total 80 to 90	Percent Change in Jobs 1980 to 1990	Percent City Residents in 1990	Change in Percent City Residents 1980 to 1990	Percent with High School or Less Educ.	Percent Employed by Gov't.	Percent Employed by Private Industry
Secretaries	24,743	24.5 %	-10,800	-2.8 %	-30.4	56 %	-4.0 %	27 %	10 %	90 %
Miscellaneous	22,790	22.6	-11,239	-3.6	-33.0	59	-1.6	28	11	89
Financial Records Processing	11,207	11.1	-5,246	-1.6	-31.9	55	-2.7	28	4	96
Information Clerks	9,856	9.8	3,167	4.6	47.4	62	-2.7	26	4	96
Mail Occupations	7,197	7.1	20	1.6	0.3	50	-13.6	39	72	28
Material Recording/Scheduling	6,972	6.9	-303	1.3	-4.2	53	-4.8	37	9	91
Adjusters, Investigators	6,560	6.5	-31	1.4	-0.5	47	-8.3	19	5	95
Records Processing	5,706	5.7	-2,057	-0.3	-26.5	58	-4.5	33	6	94
Computer Operators	3,968	3.9	-1,207	-0.1	-23.3	47	-6.5	21	11	89
Communication Equip. Op's	1,040	1.0	-1,108	-0.6	-51.6	75	1.9	40	7	93
Office Machine Operators	791	0.8	-185	0.0	-19.0	66	10.9	8	6	94
TOTAL	100,830	100.0 %	-28,989	0.0 %	-22.3	53 %	-7.1 %	28 %	13 %	87 %

Appendix 4.9

Wage Levels and Changes For Administrative Support Occupations

Clerical Occupation	Median Wages in 1990	Percent Change in Real Wages from 1980 to 1990	Residents		Commuters		Employees		Median Wage for Gov't. Employees	Median Wage for Workers with H. S. or Less Educ.	Percent Female
			Median Wage for City	Percent Change in Real Wages from 1980 for City	Median Wage for	Percent Change in Real Wages from 1980 for	Private Wage for	Private Wage for			
Secretaries	\$22,000	17.0 %	\$20,000	11.5 %	\$24,000	17.0 %	\$22,000	\$20,400	\$21,000	90 %	
Miscellaneous	\$17,000	-0.5	\$15,000	-5.6	\$20,000	12.0	\$16,673	\$20,382	\$16,211	71	
Financial Records Processing	\$20,000	6.4	\$18,000	0.8	\$22,000	17.0	\$20,000	\$21,541	\$19,500	74	
Information Clerks	\$15,000	-2.8	\$14,024	-2.3	\$18,000	5.3	\$15,000	\$24,434	\$14,048	76	
Mail Occupations	\$28,000	-7.9	\$26,460	-10.5	\$30,000	-2.4	\$16,000	\$30,000	\$27,000	32	
Material Recording/Scheduling	\$20,103	-7.4	\$18,000	-12.2	\$24,380	-4.9	\$20,000	\$26,500	\$18,200	40	
Adjusters, Investigators	\$22,000	7.3	\$19,928	-2.5	\$24,380	7.0	\$22,000	\$29,000	\$20,000	63	
Records Processing	\$18,000	5.7	\$12,160	-25.1	\$22,100	10.5	\$18,000	\$17,804	\$12,500	62	
Computer Operators	\$23,000	12.2	\$21,800	6.3	\$24,000	8.0	\$22,493	\$27,000	\$21,600	48	
Communication Equip. Op'rs	\$19,000	20.2	\$18,470	28.7	\$21,993	9.9	\$18,750	\$22,000	\$19,493	65	
Office Machine Operators	\$14,500	2.8	\$13,740	7.2	\$23,000	40.2	\$14,500	\$11,786	\$18,536	31	
TOTAL	\$20,000	7.4 %	\$18,000	5.3 %	\$22,641	10.8 %	\$19,697	\$26,000	\$19,000	69 %	

Appendix 6.1
Projected Employment Levels, Changes, and
Annualized Growth Rates For Broad Industrial Sectors
1990 - 2000

	Total Employment			Employment Change		Annual Rate Change	
	1990	1995	2000	1990-1995	1995-2000	1990-1995	1995-2000
Total For San Francisco (Public & Private)	566,650	534,590	574,880	-32,060	40,290	-1.16%	1.46%
Services Sold Primarily To Businesses	101,200	93,070	105,680	-8,130	12,610	-1.66%	2.57%
Government (State & Local)	63,490	56,470	57,890	-7,020	1,420	-2.32%	0.50%
Retail Trade	78,390	72,500	77,170	-5,890	4,670	-1.55%	1.26%
Health, Education, Social Services, Non-Profits	85,360	87,250	94,180	1,890	6,930	0.44%	1.54%
Finance & Insurance	60,606	56,809	54,982	-3,797	-1,827	-1.29%	-0.65%
Manufacturing	38,920	38,600	41,390	-320	2,790	-0.16%	1.41%
Wholesale Trade	29,900	23,000	25,090	-6,900	2,090	-5.11%	1.75%
Construction	16,000	14,630	17,660	-1,370	3,030	-1.77%	3.84%
Services Sold Primarily To Individuals	19,680	19,520	19,330	-160	-190	-0.16%	-0.20%
Transportation	20,740	20,740	23,680	0	2,940	0.00%	2.69%
Hotels & Lodging	18,270	21,150	23,500	2,880	2,350	2.97%	2.13%
Real Estate	13,164	11,391	14,528	-1,773	3,137	-2.85%	4.99%
Communication	10,700	8,640	9,090	-2,060	450	-4.19%	1.02%
Public Utilities (Gas, Electric, Waste Disposal)	7,980	8,700	8,540	720	-160	1.74%	-0.37%
Mining	520	370	460	-150	90	-6.58%	4.45%
Agriculture, Forest, Fisheries	1,730	1,750	1,710	20	-40	0.23%	-0.46%

Source: ABAG Employment Projections

Appendix 6.2
Projected Employment Levels, Changes, and Annualized
Growth Rates For Broad Occupational Categories 1990 - 2000

Broad Occupational Category	Total	Total	Total	Employ-	Employ-	Annual Rate	Annual Rate
	Employ- ment 1990	Employ- ment 1995	Employ- ment 2000	ment Change 1990-1995	ment Change 1995-2000	Change 1990-1995	Change 1995-2000
<i>Total For San Francisco</i>	566,675	534,612	574,903	-32,057	40,296	-1.16%	1.46%
Managers & Executives	114,636	107,365	115,281	-7,270	7,916	-1.30%	1.43%
Professionals	49,817	46,992	50,905	-2,826	3,914	-1.16%	1.61%
Lawyers & Judges	17,372	15,929	17,716	-1,443	1,787	-1.72%	2.15%
Health Professionals	17,669	17,860	19,248	191	1,388	0.22%	1.51%
Teachers & Educators	16,364	16,562	17,845	198	1,283	0.24%	1.50%
Health Technicians	5,183	5,266	5,686	82	421	0.32%	1.55%
Other Technicians	17,771	16,628	18,025	-1,144	1,397	-1.32%	1.63%
Sales To Finance & Business Services	43,483	38,526	41,284	-4,957	2,758	-2.39%	1.39%
Sales To Public	23,697	22,080	23,496	-1,618	1,416	-1.40%	1.25%
Administrative Supervisors	6,546	6,034	6,292	-512	258	-1.62%	0.84%
Administrative Support	108,205	101,005	107,159	-7,200	6,154	-1.37%	1.19%
Protective Service Occupations	15,322	14,129	14,706	-1,193	577	-1.61%	0.80%
Food Preparation	26,085	25,217	27,077	-868	1,861	-0.67%	1.43%
Health Assistants	6,713	6,780	7,282	67	501	0.20%	1.44%
Cleaning & Custodial	16,157	16,201	17,979	45	1,778	0.06%	2.10%
Personal Service Occupations	8,204	8,325	8,852	121	526	0.29%	1.23%
Gardening, Fishing, etc.	1,569	1,539	1,574	-30	35	-0.38%	0.45%
Mechanics & Repairers	9,727	9,068	9,671	-659	603	-1.39%	1.30%
Construction Trades	13,745	12,735	14,801	-1,010	2,066	-1.52%	3.05%
Precision Production Occupations	4,579	4,418	4,733	-161	315	-0.71%	1.39%
Garment Occupations	8,686	8,591	9,134	-95	543	-0.22%	1.23%
Mixed Skilled Prod. Occupations	4,868	4,714	5,079	-154	365	-0.64%	1.50%
Machine Operators	10,343	9,910	10,638	-433	728	-0.85%	1.43%
Drivers & Loaders	19,931	18,737	20,440	-1,194	1,702	-1.23%	1.75%

Sources: ABAG Employment Projections, 1990 Census