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Back Offices and San Francisco's
Office Development Growth Cap

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Megacities and innovative technologies

Janice E. Perlman

This paper explores the unprecedented challenges and opportunities posed by the world's largest cities in the year 2000. These cities, according to the UN projections, will range in population from 10 to 26 million and are largely in Latin America and Asia. The question posed is the possible contribution of technology and applied science in addressing critical issues of urban livability including food, shelter, water, energy, transport and communications. It addresses both successful in-place urban innovations and promising new technologies for urban adaptation. These span the range from 'low-tech' to 'hi-tech', from 'software' or 'orgware' to 'hardware', and from decentralized to centralized in application.

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The purpose of this paper is to explore the dissemination of existing urban innovations and the applicability of new technologies to the problems of urban livability in the world's largest cities.

The extraordinary growth of cities around the world, rising demands for urban services, rising prices for provision of services and materials for basic human needs, inadequacy of existing systems and limited municipal budgets, have given new impetus to the search for urban innovations. By urban innovations, we mean the creative use of traditional technologies as well as relevant applications of new ones; they may be managerial, organizational or financial technologies as well as physical ones; and they may be decentralized (neighbourhood or household level) as well as centralized (city level) initiatives.

Different approaches are needed to examine successful in-place innovations in the world's cities and their applicability elsewhere; explore the possibility of adapting existing ('off the shelf') technologies to urban problems in ways that have not been addressed thus far; and invent new concepts and technologies to meet the needs of the urban future.

In all three cases, the point is to mobilize new or idle human and physical resources in the quest for better coping mechanisms for urban livability – whether bottom up or top down. This quest has become urgent in light of present realities and future projections.

The challenge

The world is becoming predominantly urban. In 1800 only 3% of the world's population lived in cities; by the year 2000, according to the United Nations, the majority of the world's population will live in urban areas. Big cities are growing at unprecedented rates and reaching unprecedented sizes. By the year 2000, UN projections show that there will be about 78 cities of 4 million or over, and 22 megacities (over 10 million). The largest of these – Mexico City – is projected to have a population of 26.3 million (more than the current population of Canada). And UN data show that overall the megacities are growing faster than any other size city.¹

In the process, the balance of urban concentration is shifting from the industrialized nations to the developing ones (see Table 1, p. 136). Of the 22 megacities, 18 will be in developing countries – mostly in Asia

¹Rafael Salas, 'Super cities of the future', *New Scientist*, 15 May 1986, p. 27.

the transit system is not geared to the 'reverse commuter'.²⁸ Other cities have recognized the extreme economic hardship caused by losing grey collar jobs and have mounted efforts to stem the tide. As New York City has come to recognize, there are no more 'smokestacks' to defend; back-office jobs are the new kind of employment that must be protected.

Suggestion for amending the growth cap

Recognizing that there are two distinct office markets, the City should consider policies which differentiate between front- and back-office markets. Because of its unique ability to provide jobs for entry level female and minority workers, the City should choose to exempt back-office projects from any growth cap. Back-office tenants will then find it easier to find space as they are displaced by front-office users seeking space in the CBD. By declaring that back-office users will, to the fullest extent possible, be encouraged to remain, the climate for back-office relocation is likely to be altered.

²⁸Robert Cervero, 'Urban passenger transportation', Institute of Urban and Regional Development, University of California, Berkeley, 1984.

Table 7. Back-office location criteria ranked by importance.

Rank	Criteria
1.	Cost of space
2.	Reliability of electrical power
3.	Safety and security
4.	Quality of labour pool
5.	Access to transit
6.	Cost of electric power
7.	Government regulation
8.	Physical attractiveness of site area
9.	Fibre optics cable to communicate with headquarters
10.	Adequate floor space
11.	Location to employees' residences
12.	Secure, proximate parking
13.	Proximity to headquarters
14.	Satellite communications systems
15.	Attractive residential neighbourhoods for employees
16.	Direct microwave link to headquarters
17.	Restaurants and shops in site area
18.	Income of nearby residents
19.	Waterfront access

Source: Regional Plan Association, 1983.

communications connections to headquarters and the suitability of a site or building to workspace needs. Notice that image and prestige are not mentioned nor is proximity to competitors or professional and technical firms.

Back-office operations have a distinct labour market

Back-office jobs tend to be predominantly clerical and data entry. The insurance industry, a typical back-office industry, had over 63% of its employment in clerical workers.²⁶ These are generally lower paying, entry level jobs held predominantly by women and minorities.²⁷

As a San Francisco example, Table 8 illustrates gender and minority composition for a typical governmental back-office user, the Internal Revenue Service. In this case 40.5% of all employees are minority: of those workers under 40 years of age, nearly 50% were from minority groups.

A growth cap would have a severe impact on female and minority workers

Thus, back-office employees are more likely to be from minorities, female, and have less experience in the labour market than those in front-office locations. Any policy that adversely affects back-office development in San Francisco will be likely to place an uneven burden on female and minority workers.

As more firms relocate to suburban centres, jobs predominantly held by lower and middle income central city residents will be lost. Central city workers cannot easily commute to these new suburban jobs because

²⁶Op cit, Ref 10.

²⁷US Equal Employment Opportunity Commission, *Minorities and Women in Private Industry*, 1979, Washington, DC, 1979.

Table 8. Profile of a back office: Western Region Internal Revenue Service.

Employee category	All employees (%)	Employees over 40 years (%)
Female	56.5	66.5
Male	43.5	33.5
Black	17.6	22.9
Hispanic	7.1	7.6
Asian	14.8	16.5
Other minority	1.0	1.3
Total minority	40.5	48.3
White	59.5	51.7

Source: Data from federal Freedom of Information Act request.

Table 5. Net office rent increases resulting from growth cap (net change from base simulation in %).

Annual rate of construction (million ft ²)				
Year	0.5	0.75	1	1.5
1975	+ 4	— ^a	—	—
1976	+ 2	+ 1	—	—1
1977	+ 6	+ 3	+ 2	—2
1978	+12	+ 8	+ 4	—2
1979	+22	+15	+ 9	—1
1980	+30	+21	+13	—
1981	+39	+28	+19	+4
1982	+43	+32	+23	+7
1983	+45	+34	+25	+10
1984	+44	+34	+26	+12

Source: Kenneth T. Rosen and Ruth Shragowitz, 'The proposed growth limit on commercial construction for San Francisco', Working paper 85-94, Center for Real Estate and Urban Economics, University of California, Berkeley, 1985.

^a— indicates little or no change from base simulation.

relocate to the suburbs. Firms that absolutely do not need to be downtown would leave, and those that must be there would pay higher rents. Ultimately, the composition of the San Francisco's office-user establishments would change. In five to ten years, the city could be stripped of its back-office, labour intensive establishments and front-office facilities would predominate.

The key point is that a rationing programme exerts upward pressure on rents. With upward pressure on rents comes a restructuring of the types of tenants that can afford to maintain offices in the city.

Back-office operations are a distinct submarket

Office researchers around the world agree that there are two distinctly different types of office submarkets: front-office and back-office.²⁴ Table 6 illustrates the essential characteristics of front- and back-office submarkets. These different characteristics mean that front-office demand for space is less elastic than that of back-office in terms of a San Francisco location. Front offices must be in the downtown to conduct their business. Back offices do not need to be downtown and they are less willing to pay high CBD rents. With no San Francisco alternative, they will tend to move to suburban or lower rental areas when faced with a rent increase.

The Regional Plan Association of New York recently conducted a study that focused on back-office location decisions.²⁵ Like the Bay Area Council Study cited above, the Regional Plan Association study identified a hierarchy of decision criteria. These criteria are listed and ranked in Table 7. This illustrates that back-office users are principally concerned with cost of space, operating costs (such as electricity),

²⁴P.W. Daniels, ed, *Spatial Patterns of Office Growth and Location*, Wiley, New York, 1979.

²⁵*Op cit*, Ref 7.

Table 6. The office market: front offices and back offices.

Front offices

- * House headquarters of corporations, professional and technical firms
- * Rely on central business district location for external contacts and personal communication
- * Establishments tend towards smaller sizes generally under 500 employees
- * Require space with good image, small floorplate for high ratio of perimeter space, usually between 8 000 to 20 000 ft²

Back offices

- * House routine, frequently computer dependent, operations of headquarters that require a narrow range of moderately skilled jobs
- * Have limited need for face to face interaction with top management or external contacts
- * Production oriented and space needs are aimed at efficiency, especially low cost of facilities
- * Establishments tend to be large frequently employing over 500 workers
- * Need large floorplate building space, usually over 20 000 ft²

Source: Regina B. Armstrong and N. David Milder, 'Employment in the Manhattan CBD and back-office location decisions', *City Almanac*, Vol 18, Nos 1 and 2, 1984.

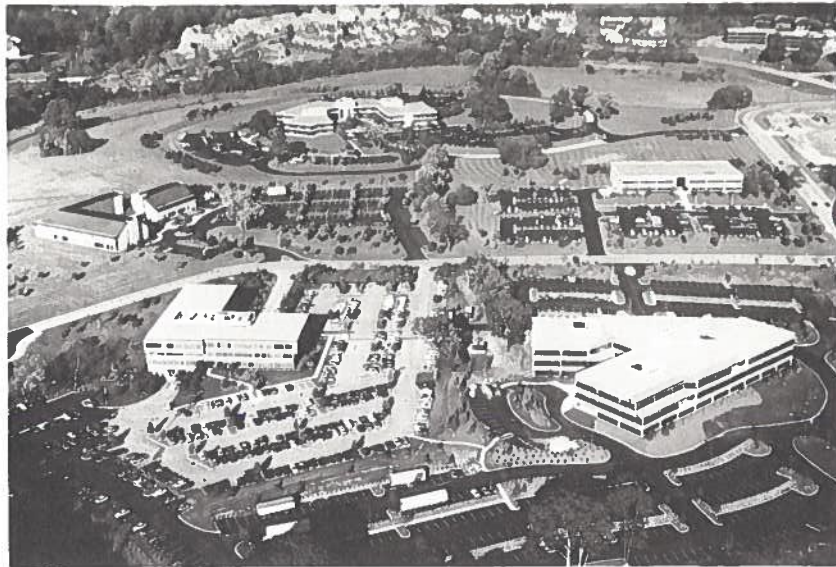


Figure 2. Typical back-office project in the East Bay suburbs.

Photo: Robert Cervero.

Effects of an office growth cap

If San Francisco imposes an annual limit on office growth, office rentals in the city will increase significantly. Without a cap, the office market can adjust to market pressures and demand as it did in San Francisco during the 1970s, as illustrated in Figure 3. In the office market, as in any market, prices will rise to ration the allocation of limited, controlled space. Thus, a recent study by researchers at the University of California, Berkeley estimated that, if an annual growth cap of 500 000 ft² had been imposed in 1975 and kept in force until 1984, office rents would have increased by 44% more than they actually did. Similarly, if an annual growth cap of 1 000 000 ft² had been imposed, office rents would be 26% more than they were in 1984. The results of the UC study can be seen in Table 5.

This accelerated increase in rents would increase the San Francisco-suburban office rent differential and put further pressure on firms to

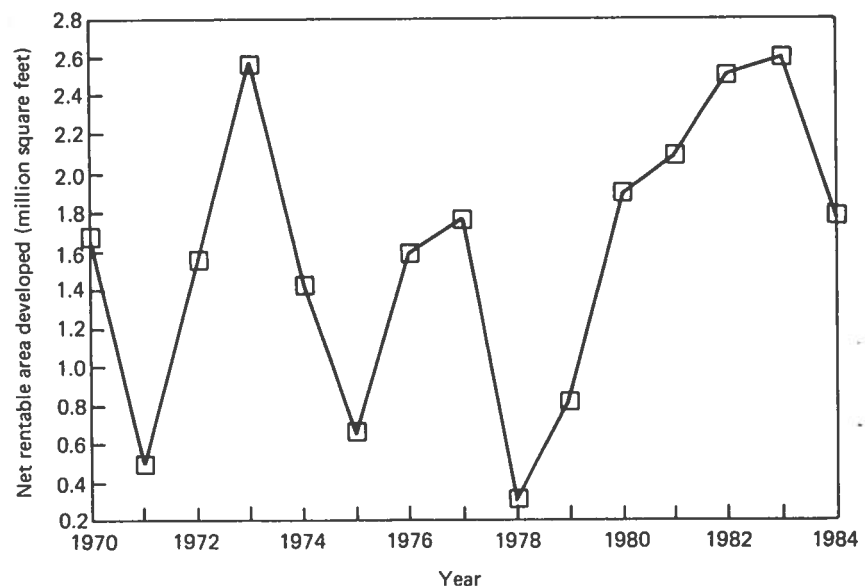


Figure 3. San Francisco CBD: Office development 1970-84.

Table 3. Central Business District construction is oriented toward front users.

Year	Average size of building floorplate of approved projects (ft ²)
1984	11 079
1983	11 494
1982	8 882
1981	11 023
1980	10 629

Source: City Planning tabulations.

have floorplates (the square feet of one floor of a building) exceeding 20 000 ft². With this amount of space, 'bullpen' clerical areas and computer networks can be more efficiently laid out than would be the case for multifloor installations. Back-office users are not concerned with window-oriented perimeter space, they want and need larger open floors.

In recent years, office space construction in San Francisco has increasingly been oriented towards the front-office user. Table 3 illustrates that the average floorplate of recently approved buildings in the city has been small, with a high ratio of perimeter space. This is the kind of office space typically demanded by smaller professional and technical establishments and corporate headquarters and is not well suited for the large back-office user. Back-office tenants have had difficulty finding architecturally suitable space at an appropriate cost in San Francisco.

The short supply of architecturally suitable back-office space in San Francisco, as well as high rental rates, has contributed to a major exodus from the city of back-office operations. There has been substantial press coverage of some of the most prominent firms: Chevron, Pac Bell and Bank of America. Lists of corporations moving out of San Francisco have been prepared by several concerned groups.²⁰ Data on actual jobs affected needs to be gathered. However, data on firms leaving San Francisco over the past six years (see Table 4) illustrates an alarming trend: not only is office relocation significant, it has increased dramatically in the past six years, and is comprised of large corporate moves – back-office users (Figure 2). This exodus is due to several other factors besides the short supply of architecturally suitable space.

First, rents in the city are among the highest in the nation, second only to New York.²¹ Second, during the past five years, substantial suburban office space has been added. Between 1975 and 1979 the Bay Area, excluding San Francisco, added 7.1 million ft² of office space. Between 1980 and 1982, a much shorter time period, the region (except San Francisco) added 10.7 ft² of office space. In the East Bay, the Interstate 680 corridor added 9 000 000 ft² of office space between 1967 and 1983.²² This tremendous expansion of suburban office space has continued during 1983–85 and is expected to continue for the next five years.²³ The abundant supply of suburban office space guarantees that rents will remain competitive. Third, there is a widespread perception that the City government has a negative attitude towards business and industry.

²⁰See for instance, a letter from Richard B. Morten, Associate Director of Planning, San Francisco Chamber of Commerce to the Honorable Carol Ruth Silver, Chair, Planning, Housing and Development Committee, Board of Supervisors, 28 March 1985.

²¹*Op cit*, Ref 16.

Cynthia Kroll, 'Employment growth and office space along the 680 Corridor: booming supply and potential demand', Working Paper 84-75, Center for Real Estate and Urban Economics, University of California, Berkeley, 1984.

²³Kristin L. Nelson, *Back Offices and Female Labor Markets: Office Suburbanization in the San Francisco-Bay Area*, PhD dissertation, University of California, Berkeley, 1984.

Table 4. Corporate relocations from San Francisco 1977–86 by square footage of relocation.

Size Category	1977	1978	1979	1980	1981	1982	1983	1984	1985	Cumulative 1977–85	Percent distribution
0–10 000		28 875	1 375	16 500	8 250	28 875	45 375	33 000	4 000	206 250	2.36
10 001–20 000		23 375	16 500	26 750	45 375	71 500	34 375	27 500	74 250	319 625	3.65
20 001–30 000				27 500	78 375	27 500	75 725	71 500	27 500	308 100	3.52
30 001–40 000				64 625	132 875	30 250		202 125	136 125	566 000	6.47
40 001–50 000				46 750	45 375	220 000		41 250	132 000	485 375	5.55
50 001–60 000				55 000		55 000	169 400	55 000		334 400	3.82
60 001–70 000					61 875			63 250		125 125	1.43
70 001–80 000	75 625	71 000							75 625	222 250	2.54
80 001–90 000							254 375			254 375	2.91
90 001–100 000						96 250				96 250	1.10
Over 100 000	137 500		495 000	165 000	792 000	1 210 000	1 042 250	446 875	1 546 875	5 835 500	66.67
Total	213 125	123 250	512 875	402 125	1 164 125	1 739 375	1 621 500	940 500	2 036 375	8 753 250	100.00

Source: Pacific Properties Group, 1985.

Fairfield County, CT, Princeton, NJ and King of Prussia, PA (Figure 1).

A study by the Urban Land Institute clearly illustrates this trend. During 1982, over 70% of all office space construction for metropolitan Atlanta, Boston, Houston, Los Angeles and Phoenix was located outside of the CBDs (Central Business Districts) of those cities. Metropolitan Denver, Minneapolis/St Paul and New York located between 60% and 70% of their office development outside CBDs. In the San Francisco metropolitan area, 56% of all new office space was built outside the CBD.¹⁷

Why firms relocate from San Francisco

The Bay Area Council and Gruen, Gruen and Associates recently conducted a study on corporate relocation decisions in the Bay Area. They canvassed major corporations who had moved or were planning to move all or a portion of their operations.¹⁸ Table 2 illustrates two types of factors found to influence the corporate decision to relocate. The first set of factors are termed 'attracting factors' – those that would attract a firm to a particular area. These are ranked in terms of their relative importance:

1. low cost and high suitability of land or building;
2. abundant supply of professional and skilled labour;
3. positive image and prestige of location;
4. good transport and short commuting time for workers; and
5. positive governmental attitudes towards business and industry.

Repelling factors were strong negative attributes making an area or location unacceptable to corporate decision makers and included in order of importance:

1. high cost and low suitability of land or building;
2. negative governmental attitudes towards business and industry;
3. high costs of housing;
4. high cost of labour; and
5. poor transport and long commuting time for workers.¹⁹

Occupancy costs soared as the highest rated factor for both attracting and repelling office relocations. This indicates the extreme importance corporate planners place on both the cost and suitability of office space. It is important to recognize that the cost was not the only element of concern – the actual suitability of the parcel or building was viewed as equally important. For back-office operations, the characteristics of the building itself are of prime importance.

Because back-office operations are predominantly clerical and frequently computer and information processing oriented, they need large expanses of floor area on one level. Most back-office facilities

¹⁷*Op cit*, Ref 15.

¹⁸Bay Area Council, *Bay Area Corporate Locational Survey*, San Francisco, 1984.

¹⁹*Ibid*.

Table 2. Factors most influencing decision to locate new sites within the Bay Area (1983–88).

1. Low cost/high suitability of land/space	1. High cost/low suitability of land/space
2. Availability of professional and skilled labour	2. Negative attitudes toward industry
3. Image and prestige of location	3. High housing costs
4. Low transport/commuting time	4. High cost of labour
5. Positive attitude toward industry	5. High transport/commuting time

Source: Bay Area Council, *Bay Area Corporate Locational Survey*, 1984.

Table 1. Average office space rental variation between CBD and suburban locations and annual cost differential per employee (1984).^a

Metropolitan area	CBD rental (\$)	Suburban rental (\$)	% suburban of CBD	Annual cost of differential per employee (\$)
Atlanta	17.74	14.50	81.7	891
Baltimore	19.50	14.50	74.4	1375
Boston	22.76	14.50	77.1	2272
Chicago	18.75	14.00	74.7	1306
Cleveland	17.50	14.50	82.9	825
Dallas	20.02	16.48	82.3	974
Denver	25.00	19.00	76.0	1650
Hartford	21.00	15.75	75.0	1444
Houston	24.00	18.02	75.1	1645
Kansas City	15.25	15.00	98.4	69
Los Angeles	28.50	20.00	70.2	2338
Miami	26.00	13.50	51.9	3438
New Orleans	19.00	16.50	86.8	963
New York	42.17	31.07	73.7	3053
Philadelphia	19.00	15.00	78.9	1100
Pittsburgh	18.98	12.87	67.8	1680
Sacramento	13.20	11.00	83.3	605
San Diego	21.60	19.20	88.9	660
San Francisco	34.00	20.00	58.8	3850
Washington, DC	26.20	15.40	58.8	2970
Average	22.51	16.69	74.1	1601

Source: Tabulations of Office Network data.

^aThe employment space factor used is 275 ft², which is based on a recent survey of office buildings by Building Owners and Managers Association and is consistent with San Francisco's Environmental Impact Report methodology.

As Table 1 illustrates, there was a substantial cost differential in 1984 between San Francisco and suburban office rents. By moving from San Francisco to the suburbs, employers could save \$3850 per worker per year on office occupancy costs.

These rising rents have prodded many firms and government agencies into reconsidering their office location and leasing strategies. Many firms and government agencies are exploring how occupancy costs can be lowered by shifting back-office operations to suburban locations. As illustrated in Table 1, in most metropolitan areas, suburban locations generally provide office space at rents between 60% and 80% of downtown locations.¹⁶ With a persistent discount for suburban office space and rapid advances in telecommunications technologies, more firms will relocate operations to the lower cost suburban areas such as Concord, Fremont and Pleasanton, as they have already done in

¹⁶The Office Network, Winter/Spring 84 Report, Houston, TX, 1984.

Figure 1. Recent office projects in Walnut Creek.

Photo: City of Walnut Creek.



back-office jobs, out of the city. San Francisco would lose its post-industrial bedrock employment base that other cities, such as New York, recognize as being a keystone to continued economic prosperity.⁷

A two-tiered approach to office growth management seems appropriate. First, the City could largely achieve its environmental objectives by controlling core area front-office development. Second, by explicitly recognizing the importance of back-office jobs and by exempting them from the controls, low intensity, back-office development should be encouraged.

The post-industrial society and the back office

San Francisco, like the rest of the nation, has been moving toward what some analysts call a 'post-industrial society'.

Movement toward this new economic and social structure has not been effortless or without difficulty. Plants have closed and jobs in manufacturing have been permanently lost. Between 1979 and 1983, California lost 157 600 basic manufacturing jobs.⁸ San Francisco lost 84 plants and 5524 jobs between January 1980 and June 1984. San Francisco ranks sixth in the state in terms of plant closures. The plant closures and attendant job losses mean that new jobs must be created if residents are to find replacements. Between 1979 and 1982 San Francisco lost nearly 2400 manufacturing jobs.⁹ The loss of manufacturing jobs means that the traditional blue collar work force is declining in size. At the same time, back-office production, low and moderately skilled, clerical and data entry jobs in the larger offices of major insurance, banking, financial and technical business and government institutions are growing in importance.¹⁰

While office employment greatly expanded during the 1960s and 1970s, growth in back-office employment was significantly greater. All office oriented occupations, including managerial, professional, technical and clerical work, increased by 17.3% between 1960 and 1970, and by 21.8% between 1970 and 1980. Yet clerical occupations increased even faster: 47.8% and 37.7% increases over the same respective periods.¹¹ During the 1970s, the number of computer specialists increased by 129.5%.¹² The rapid growth of all office occupations, back-office clerical, managerial, professional and technical, is expected to continue as research and development expands, competition forces firms to step up marketing efforts to maintain and expand market position, and the legal and business environment becomes increasingly complex.¹³

The trend toward relocation of offices in suburbia

The rapid expansion of the office sector, especially for corporations, has not been viewed by business as entirely positive. Increases in office staff without corresponding increases in office work productivity has pushed up overhead costs considerably. While white collar salary increases, which averaged 7% during the 1970s, have slowed to between 3% and 6% in 1983 and 1984,¹⁴ office rents have continued to increase dramatically. According to the Urban Land Institute, increases in office rents during the 1970s exceeded 200% in Boston, Denver, Miami and San Francisco. Nationally, rents have increased from \$10 per foot in 1977 to nearly \$17 per foot in 1984.¹⁵ Office rents now account for 10% of the total costs of office operation.

⁷Regina B. Armstrong and N. David Milder, 'Employment in the Manhattan CBD and back-office location decisions', *City Almanac*, Vol 18, Nos 1-2, 1984.

⁸Philip Shapira, 'California's smokestack industries: plant closures and job loss', Institute of Urban and Regional Development, University of California, Berkeley, 1984.

⁹*Ibid.*

¹⁰See Barbara Baran, 'Technological innovation and deregulation: the transformation of the labor process in the insurance industry', Berkeley Roundtable on the International Economy, University of California, 1985.

¹¹*Op cit*, Ref 2.

¹²*Ibid.*

¹³*Op cit*, Ref 6.

¹⁴US Department of Labor, Bureau of Labor Statistics, various years.

¹⁵The Urban Land Institute, *Development Review and Outlook*, Washington, DC, 1983.

Back offices and San Francisco's office development growth cap

David E. Dowall

This paper looks at the changing structure of the job market in San Francisco. Clerical, data entry, professional and technical jobs are replacing blue collar manufacturing. A new type of office market, the back office, has been created, comprising routine, computer dependent, information processing operations. These require large office spaces, which are expensive to rent in downtown locations. A cap on back-office growth would force these operations out of the city and penalize their predominantly female and minority labour force by forcing office rents upward. Back-office projects should therefore be exempted from a growth cap.

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¹For an interesting discussion of this trend see John H. Mollenkopf, *The Contested City*, Princeton University Press, Princeton, 1983.

²Barbara Baran, *The Transformation of the Office Industry: Impacts on the Workforce*, Master's thesis, University of California, Berkeley, 1982.

³*Ibid.*

⁴Employment Development Department, *Labor Market Information*, January 1985.

⁵During the 1970s, total clerical positions grew by nearly 40% and this pattern is likely to continue in the future as more and more information is produced. See *op cit*, Ref 2.

⁶See David Dowall and Marcia Salkin, 'Office automation and the implications for office development', Institute of Urban and Regional Development, University of California, Berkeley, Working Paper, forthcoming.

San Francisco, along with the rest of the nation, is moving into a post-industrial society.¹ One characteristic of this transformation is a change in the structure of the labour market. Jobs are moving from industries engaged in the mass manufacture of goods from raw materials to industries engaged in the mass processing of information. The production and utilization of information has become an extremely important product for corporations seeking to manage scarce resources, penetrate competitive markets and maintain market position and profits. Since 1940, business service employment, that is, banking, insurance, and legal, accounting and engineering services, have more than doubled their share of total national employment.² White collar jobs now account for over 50% of the nation's labour force, with clerical positions over 18 million of them, accounting for 18.6% of all US jobs.³

San Francisco, like other cities across the nation, has seen a dramatic change in the composition of its labour force. In 1982, over 30% of the city's employment was in office occupations, having more than doubled since 1940.⁴ As national and international economies change, so will San Francisco's.⁵ These clerical, data entry, professional and technical jobs are replacing the traditional blue collar manufacturing jobs once so predominant in the city. Back-office jobs are San Francisco's new bedrock employment base, replacing the production oriented jobs of the 1940s, 50s and 60s.

The increased dependence of office workers has spawned a new type of office market – the 'back office'. The back office, in contrast to the front office, houses routine, frequently computer dependent, information processing operations. It has limited need for face to face interaction with outsiders and is production oriented. Back-office jobs tend to be predominantly clerical and data entry and are frequently comprised of low paying, entry level positions filled by females and minorities. Back-office users need large floorplate buildings: offices with large expanses of space on each floor. The cost of maintaining back-office operations is substantial and with rising office rents, both private firms and government agencies have been exploring ways to cut costs.⁶

A citywide growth cap, by increasing office rents and slowing construction, would force back-office operations and, consequently,