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HOUSING ALLOCATION AND METROPOLITAN DEVELOPMENT

BY

JOHN M. QUIGLEY

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GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

HOUSING ALLOCATION AND METROPOLITAN DEVELOPMENT

by

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I. INTRODUCTION: THE THESIS

Traditional analyses of metropolitan development emphasize the role of basic industry in shaping the pattern and extent of long-run development within regions. Locational advantage in industrial production for export, or for entrepot activities, determines the spatial pattern of intra-metropolitan development. The demand for labor, arising from the needs of basic industry, attracts households from other regions, stimulating the demand for housing and infrastructure. Households engage in a locational calculus, trading off the cost and unpleasantness of commuting long distances for the cheaper housing available in more remote areas. Subsequently, the development of population-serving business and industry occurs. This secondary employment is located at nodes close to the residences of primary workers, as firms compete to make their products accessible to the households who are final consumers of local products. Finally, the employees in population-serving businesses locate, seeking the same balance between commuting costs and housing prices described above. The competition of households for sites and the competition of firms for advantage give rise to the spatial pattern of metropolitan development observed in Western cities.

With institutional variants, this "story" emphasizing the locational advantage of export industry can be made to fit the

facts of metropolitan development in Stockholm and Boston, in Birmingham and Birmingham, and in many continental cities. A variety of formal models have been developed by planners and economists, estimating the magnitude of the linkages across sectors and verifying these causal patterns¹ using detailed data within cities. Figure 1 presents a general schematic of the development structure.

In this essay I question the relevance of this widely accepted view of urbanization to the explanation of modern metropolitan development and to forecasts of future development. In particular, I argue that the driving forces in shaping metropolitan development will arise more frequently from the spatial pattern of household location and the housing opportunities within metropolitan areas than from the inherent locational advantages of sites for production. The analysis rests on a few propositions about technology, demographic change, and about the nature of demand for housing and urban amenities. In part, these conclusions are based upon my work analyzing the San Francisco Bay Area economy, and in part they are based upon a comparative analysis, undertaken jointly with

¹ The first of the formal economic models was presented and estimated by Ira S. Lowry. See **Model of a Metropolis**, Santa Monica, CA: The Rand Corporation, RM-4036-RC, 1964. A review of planning models developed in the United States according to these lines is found in H. James Brown, *et al*, **Empirical Models of Land Use**, New York, NY: National Bureau of Economic Research, 1972. See also: Alex Anas, **Residential Location Markets and Urban Transportation**, New York, NY: Academic Press, 1982.

Bjorn Harsman, studying housing markets and firm location in a variety of European cities.²

This analysis is not to question the relevance of the conventional view of urbanization in explaining the historical development of cities. It does, however, suggest a more important leading role for housing and for residential amenities in affecting the future of the metropolis.

Section II below considers changes in production technology during the past three decades and the effects of those changes upon the location incentives for those industries exporting goods and services to national or to world markets and which, for the regional economy, function as "basic industry." Section III notes secular trends in factors affecting housing demand and household location. Section IV puts together both the effects upon the spatial pattern of the demand for labor and upon the spatial pattern of labor supply. It considers how the local labor market is cleared. Section V stresses the implications for housing markets and urban amenities. Section VI uses the theoretical construct to indicate a couple of great successes and some utter failures

² See John A. Hird, *et al*, "Housing in San Francisco: Shelter in the Market Economy," Berkeley, CA: Center for Real Estate and Urban Economics, University of California, 1988; Bjorn Harsman and John M. Quigley, eds., **Housing Markets and Housing Institutions: An International Comparison**, Boston, MA: Kluwer Academic Publishers, forthcoming.

in policy. In this exercise, it uses the San Francisco metropolitan area as a laboratory.

II. TECHNICAL CHANGE IN PRODUCTION: LABOR DEMAND

During the post-war economic period, and especially since the decade of the 1960's, the character of the economic activity undertaken in advanced Western societies has changed.

First, as has been well documented, manufacturing has become less important, and business services have become more dominant in Western economies.³ This shift to a greater service intensity has arisen for those products produced by national and international firms. But also within multinational manufacturing firms, the manufacturing activities associated with the actual production of goods are increasingly undertaken in developing countries with lower wages. Thus, in high fashion as well as in computer technology, the creative oversight may remain in Paris, Stockholm or San Francisco, while the assembly of the apparel or the computer boards is rather commonly undertaken in South or Southeast Asia.

³ In the U.S., for example, between 1960 and 1987, personal and business services increased from 38.0 percent of Gross National Product (GNP) to 50.6 percent while the production of goods declined from 49.9 percent to 39.6 percent. See: **Economic Report of the President**, Washington, DC: U.S. Government Printing Office, 1989, Appendix B.

Second, technical progress has reduced the optimal scale for a great many types of economic activity.⁴ Even among steel fabricating plants, electric furnaces have given rise to "boutique" firms producing at high quality levels or else utilizing scrap input. More generally, the economies of scale in firm organization or in production are exhausted at relatively low levels of output, and within a broad range, unit costs are increasingly insensitive to output.

Third, advances in transportation, communication, and computation technology have eroded the locational advantages of particular sites within the metropolitan economy (and facilitated many of the reductions in optimal scale noted above). Fax machines and computer terminals, electronic mail and on-line accounting, have all made it possible for firms to remain in close contact with suppliers or with the purchasers of their output without direct and daily face-to-face contact. Even firms in hotly contested "fad" industries can "look over each other's shoulders" without necessarily locating in close geographical proximity.

Within larger firms, business activities can be fragmented into several establishments within a given metropolitan area or in several far-flung locations. This permits those portions of firms with specific locational

⁴ See Oliver E. Williamson, **Markets and Hierarchies: Analysis and Anti-Trust Implications**, New York, NY: The Free Press, 1975.

requirements to choose cost minimizing sites without constraining the rest of the firm to any particular location.

The confluence of these important trends in production technology has been to render alternative sites within the metropolitan economy far more substitutable in production. Stated another way, over time, differences in firm revenues or profits arising from the choice among business locations within metropolitan areas have become much less pronounced. These decreases in the sensitivity of profits to location have, in turn, enabled the firm to choose its site on the basis of other criteria.

III. DEMOGRAPHY AND HOUSING DEMAND: LABOR SUPPLY

The key factors affecting the residential choices of households in metropolitan areas are the time and money costs of commuting to work and the household demands for more spacious housing accommodations or for dwellings with higher levels of amenity. Here again, three factors, at work at least since the 1960's, have profoundly affected the location calculus of housing consumers who are also the suppliers of labor to the local economy.

First, the dramatic increase in female labor supply has also increased household transportation costs. Two worker

households are now the norm rather than the exception.⁵ Two worker households typically mean two commuter households. To the extent that destinations and worksites vary for the workers within a household, the pull of the core or central business district, arising from lengthy worktrips to downtown, is further diminished. The effects of transportation costs upon location are now more complex, but they are also less affected by the monetary costs of commuting to the urban center. Associated with the rise of multiworker households has been a modest reduction in the demand for space, at least according to North American data.⁶ This suggests that the pull to the urban periphery arising from cheaper land is also diminished.

Second, the reduction in transportation costs discussed above in the context of firms has had an analogous effect upon the location opportunities of households. Increased access has permitted households to consider more diverse locations, and to choose among a greater variety of housing accommodations at equivalent commuting costs.

5 For example, in the US between 1960 and 1987, the labor force participation rate of women increased from 37.7 to 56.0 percent and the ratio of female employees to female population increased correspondingly from 35.5 to 52.5 percent. See *Economic Report of the President, op cit*, Appendix B.

6 See Allan C. Goodman, "The Dynamics of Individual Housing Demand," *Regional Science and Urban Economics*, forthcoming.

Significantly, this reduction in transportation costs has also made it easier for households (and firms) to consider different towns or suburbs as they choose among locations. Since in most countries taxes vary by town -- either by property tax rates, as in North America, or by income tax rates, as in Scandinavia -- fiscal factors increasingly enter into the location calculus of households.

Third, the rapidly rising household incomes of the past quarter century have led to increases in housing demand. Housing demand appears to be at least moderately elastic with respect to income,⁷ and disposable personal incomes have increased by more than eighty percent in real terms since 1960, at least in the US. As noted above, however, the demand for housing size has not increased, probably due to the modest reductions in average household size observed during the period. The implication of this increase in housing demand, then, is a substantial increase in the demand for quality and amenity associated with housing, but not in the interior or exterior space associated with dwellings.

In sum, the metropolitan locations of households, who are the suppliers of labor to the local economy, have become less sensitive to the commuting costs to the core of the city and

⁷ See Edgar O. Olsen, "The Demand and Supply of Housing Services: A Critical Survey of the Empirical Literature," in *Handbook of Regional and Urban Economics*, Volume 2, Edwin S. Mills, editor, Amsterdam: North Holland, 1987.

far less sensitive to the commuting distance to the core. At the same time, the suppliers of labor have become more sensitive to variations in housing quality and housing amenity in choosing locations and have become more sensitive to variations in local fiscal conditions. Differentiation of households by location is simply far less related to distance from the core and is much more closely related to amenity factors.

IV. CLEARING THE LOCAL LABOR MARKET

Taken together, changes in the factors affecting intra-metropolitan labor demand and labor supply have already had a profound effect upon metropolitan development and the location of economic activity in urban areas. On the demand side, these three changes -- the decline of manufacturing relative to services, decreases in the optimal scale of production, and the advances in communications and computation technology -- have all made basic industry much more footloose.⁸ Firms which serve national or world markets can choose to locate virtually anywhere in the metropolitan area without affecting profitability, at least not very much.

On the labor supply side, the three major developments -- the increased fraction of two-worker households, the

⁸ See Roger W. Schmenner, *Making Business Location Decisions*, Englewood Cliffs, NJ: Prentice Hall, 1982, for a discussion of the practical issues in making location decisions in this environment.

reductions in transport costs, and the steadily increasing real incomes of households -- have combined to make location decisions less sensitive to any orientation towards the city core and more responsive to intra-metropolitan variation in housing opportunities and especially urban amenities.

In combination, these influences suggest that, in the competition for skilled workers, those industries exporting out of the region will increasingly choose to locate in close proximity to their potential labor force. This has implications for both inter- and intra-metropolitan competition among firms. Across metropolitan areas, it suggests that firms seeking to attract highly skilled or highly qualified workers will be much more likely to choose the metropolitan area that offers a higher quality housing stock, lower overall housing prices, or a higher level of housing amenity.⁹ Within metropolitan areas, it suggests that firms will be attracted to residential concentrations of households of various types. Firms seeking to employ highly qualified workers will be more likely to seek locations in close proximity to the residences of these workers.¹⁰ Larger businesses will be more likely to set up several

9 Rosen discusses this in the context of the California housing market. See Kenneth T. Rosen, "Housing Policies for California in the 1980's, *California Management Review*, Vol. 26, #4, Summer, 1984.

10 Schmenner, *op cit*, pp. 143-175, presents extensive survey evidence on this point, again from U.S. data.

establishments whose locations will be attractive to the kinds of local workers needed within each establishment.

This conclusion about the pre-eminence of housing (or, more generally, urban amenities) in shaping development is more or less the reverse of the traditional analysis of metropolitan development. Figure 2 compares this view with the traditional analysis in schematic form. In contrast to the historical analysis, the view outlined in this section emphasizes the common behavior of export industry and population-serving industry in their locational objectives.

Increasingly, the calculus of manufacturing or business services firms is similar to that of local retail establishments. The difference is that firms in the latter category locate close to households in order to be near their markets; firms in the former category locate close to households in order to be near their labor supplies.

V. IMPLICATIONS FOR HOUSING AND URBAN AMENITIES

This analysis implies that decisions about the level and diversity of the housing stock and the quality of the residential environment can be important tools in affecting the competitiveness of regions and the attractiveness of parts of the metropolitan area for business location. These tools can be particularly important in the location decisions of

FIGURE 1

Schematic of Traditional Models of Metropolitan Development

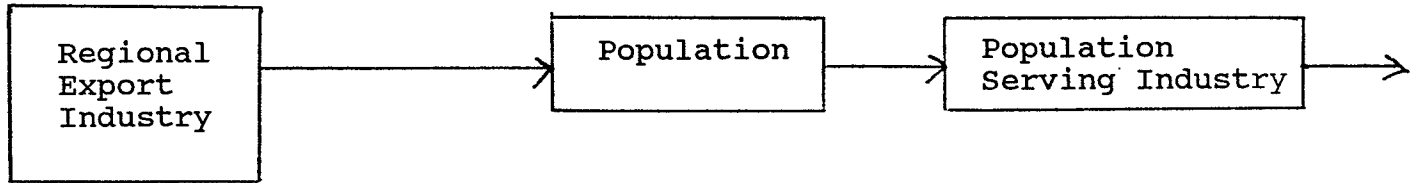
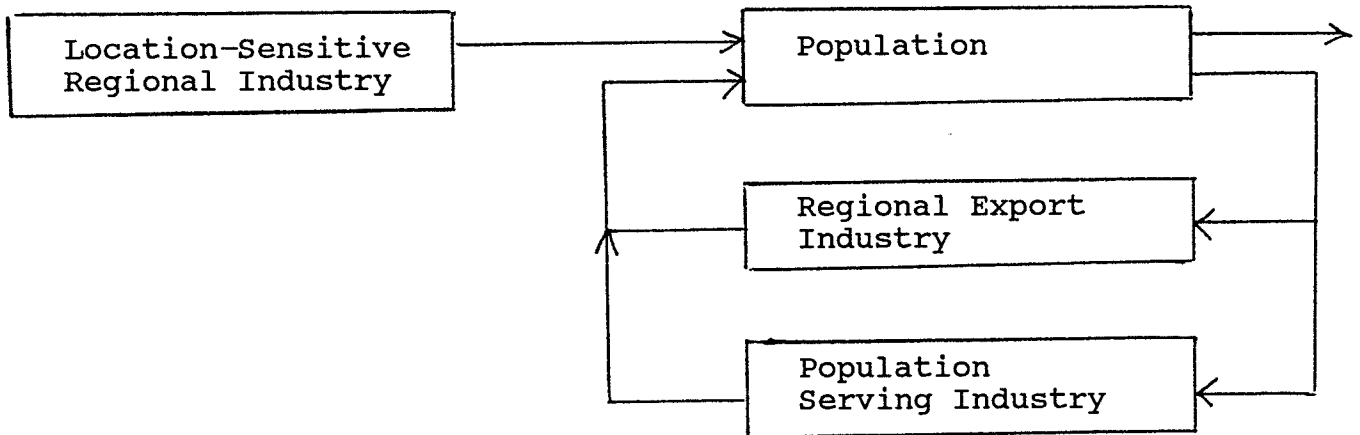


FIGURE 2

Schematic of Revised Models of Metropolitan Development



firms employing highly qualified or generally high income workers.

One implication is that regions, or parts of regions, with unusually desirable natural amenities -- perhaps visual beauty, climate, or access to the sea -- will probably experience continued competitive advantages in attracting firms employing highly qualified labor, at least as long as all these natural advantages are not fully reflected in competitive site prices.

A second implication is that areas in which highly qualified workers already reside are prime candidates for the location of new employment in business service industries, in high tech production, in back office activity, or in corporate headquarters.

A third implication, however, is that public resources devoted to improved environmental amenities may reap rewards over and above their initial impacts upon the well-being of residents. These investments, in pollution abatement, sanitation, public safety and improved access, may indirectly result in the retention or attraction of firms which would otherwise choose alternative sites.

A fourth implication of this analysis is the importance of tolerable housing prices, as well as the ability of citizens to make housing transactions, in metropolitan

development and in the competitive condition of urban areas. The attractiveness of the region to technical and professional workers and to the firms which employ them may be heavily dependent upon the carrying costs of owner occupied housing. The attractiveness of the region to moderate income workers and the firms which employ them may be closely related to the rents and the availability of flats and apartments to immigrating workers.

VI. TWO APPLICATIONS FROM THE SAN FRANCISCO BAY AREA

The alternative model sketched in this essay suggests that housing and urban amenities are becoming key factors in metropolitan development -- in locating economic activity within the region, and also in allocating economic activity among metropolitan areas. In this section we present two scraps of positive evidence from the San Francisco Bay Area about the truth of these claims, and also some evidence about the potential role for policy. In the first example, industry appears to have been attracted on the basis of available housing and local household demographics. In the second example, policy appears to be counter productive by making the San Francisco Area less attractive for new economic development relative to other regions in the US.

**a. Competition Within the Bay Area: Export Industry
in the Suburbs**

During the decade between 1970 and 1980, labor force participation among men in the San Francisco Bay Area declined minutely from 77.1 percent to 76.3 percent while the labor force participation rate among women increased by about 10.8 percentage points to 55.9 percent.¹¹

Among all cities in the East Bay region -- the area from the Bay Bridge, connecting San Francisco to Oakland, to the Eastern edge of the region -- female labor force participation rates increased fastest in the towns of Walnut Creek, San Ramon and Pleasanton. In 1980, the fraction of secondary school graduates among adults in these three towns was the highest in their respective counties. Of all towns in the East Bay, Walnut Creek, San Ramon, and Pleasanton were three of the four with the highest household incomes.

During the five year period between 1980 and 1985, along the corridor formed by these three towns, office space increased from about 5 million square feet to 15.6 million square feet. It is estimated that employment increased in Pleasanton by 4800 or 53 percent, in San Ramon by 4500 or 85 percent, and in Walnut Creek by 5000 or 13 percent. In

¹¹ These and other statistics are taken from unpublished data tabulated by Cynthia Kroll, "Suburban Squeeze II: Responses to Suburban Employment Growth," Berkeley CA: Center for Real Estate and Urban Economics, 1986.

comparison, the Bay Area as a whole increased in employment by about 5 percent during the period. Overall, the region surrounding this corridor, containing the highest income and best educated population east of San Francisco, increased employment by some 30,000 jobs.

Firms locating along this corridor include major export industries -- the Bank of America, Wells Fargo, Chevron Oil, as well as major law firms serving national client bases. A large number of the activities locating in the area have been either new establishments of existing firms conducting back office or else headquarters activity. Others were relocating single establishment firms in the service sector. Survey evidence analyzed by Berkeley's real estate center¹² indicates that three fourths of the firms locating in the area claim to serve more than the local clientele, and 54 percent of the firms serve national or international markets. About half of the establishments were branches of larger firms.

The same survey of locating firms along this corridor clearly demonstrates that a major reason for firms choices of these sites is a perceived labor force advantage.

Survey responses indicating reasons for selecting space in the study area reflect the mixture of firm types and

¹² Cynthia Kroll, "Employment Growth and Office Space along the 680 Corridor" Berkeley, CA: Center for Real Estate and Urban Economics, 1984.

locations. The most frequently mentioned reason for site selection was the proximity to the residences of key employees and managers. Two fifths of firms mentioned this factor, and another 15 percent were concerned with proximity to the workforce. About 20 percent of larger firms (with more than fifty employees) were concerned with proximity to the homes of key employees, while 40 percent were concerned with the location of the workforce. Transportation access and the cost of space concerned one-fourth of all firms, and were of somewhat greater importance to larger firms.

Further, interviews with tenants in newly constructed space indicate that firms seek greater labor force availability, either through reduced commutes or by capturing secondary earners, and they seek a more highly educated local work force. Significantly, interviews with many of the largest developers and builders of the facilities suggest that they had chosen these building sites for similar reasons in anticipation of the demand.

**b. Competition Between the Bay Area and Other Regions:
Housing Affordability**

The San Francisco Bay Area is well known for its natural resources and mild weather, its relatively low levels of pollution and congestion, and its striking architecture, making it one of the most desirable locations in the U.S. in which to work and live. Per capita income in the region is

sixty percent above the national average, and it has attracted the highest average educational level of any US local labor market.

Not surprisingly, housing prices are high. By August 1988, the median price of owner occupied housing in the region was \$216,000, and prices had increased by 71 percent in six years.¹³ In six years median housing prices increased from 1.8 times the national median to almost 2.5 times the median for the US as a whole. At current prices, only about one household in eight already living in the area could afford to purchase the median priced house, given widely accepted rules of thumb. In large part, of course, high housing prices are to be expected, given the desirability of the region. There are, however, strong indications that the regional price level for shelter has begun to act as a deterrent in the competition for new business activity.¹⁴

The question is whether governmental policies have acted to increase housing prices above competitive levels. Here the answer is almost certainly yes.

13 These and other background statistics are discussed in Hird, *et al*, *op cit*, and Kenneth T. Rosen and Susan Jordan, "The San Francisco Real Estate Market," Berkeley, CA: Center for Real Estate and Urban Economics, 1988.

14 For a recent example from the popular press, see *Fortune Magazine*, Oct 2, 1989.

Reduced local government support in the wake of Proposition 13 (limiting property tax rates in California) and the federal cutbacks in grants for local services have made it difficult to finance expansion of the infrastructure and public services necessary for housing development. Because communities can not increase property taxes enough to pay for local services needed by new residents (schools, sewers, etc.), fees are imposed on new housing development, increasing housing prices. Because local revenues are roughly proportional to housing values and the demands for services are roughly proportional to the number of households, local governments have strong incentives to adopt zoning regulations requiring large amounts of housing consumption. These regulations, so-called "fiscal zoning," are intended to require new residents to consume (and to pay property taxes on) more real estate than they would otherwise choose.

As a result, much of the new development excludes housing that could serve lower income persons. New rental construction approved at the local level tends to be small units that cater to older couples (who use relatively few local services); new housing for young families (who use many public services, particularly schools) is less widely available. The problems created by Proposition 13 are unresolved; in consequence, local governments continue to resist rapid development of housing.

In addition to these direct policy driven causes of high housing prices, there are a number of indirect market effects that arise from policy and which influence the local market. Important among these are bottlenecks and monopoly power.¹⁵ Bottlenecks occur when housing demand exceeds supply and either prices do not rise sufficiently to clear the market (e.g., the rent controls adopted in nine Bay Area cities) or local land-use controls do not permit expanding supply. The result is the low vacancy rates that exist in many Bay Area communities.

Monopoly power can be exercised by developers who benefit from restrictive land use regulation, which limits the amount of land available for development and makes controlling local land markets easier. Complex administrative procedures, lengthy application periods, and other measures that typify Bay Area local development policies can induce monopolistic control of local land markets. Credible studies of development have found that the excess profits were largely attributable to constrained housing supply and the lack of competition.¹⁶ In other suburban areas, the lack of developable land and high development fees have given dominant control of the housing market to a few large developers.

¹⁵ See David Dowall, **The Suburban Squeeze**, Berkeley CA: University of California Press, 1984.

¹⁶ See David Dowell, *op cit.*

These indirect effects may exert a powerful influence over local land use and development. Any policies hoping to improve the present housing conditions in the Bay Area must recognize these important, though subtle consequences of such policies. Environmentalism and local land regulations preventing rapid growth are supported by many Bay Area residents, especially since limitations on property tax rates have made it more difficult for existing residents to "profit" from additional housing development. Attempts to change this pattern are not likely to be initiated by local governments or their constituents.

The ultimate source of the problem is the balkanized pattern of building permit and land use regulation.