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The Global Context of Metropolitan Growth: Houston and the Oil Industry¹

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This paper examines in empirical detail the growth and development of Houston, the “capital of the Sunbelt,” against the background of the changes in its economic and social base since the late 1800s. Houston’s century-long sustained growth, unique centrality in Sunbelt expansion and in the world oil market, and commitment to an accentuated free enterprise philosophy make it an important urban case study in assessing the explanatory utility of mainstream and power-conflict theories of urban development, particularly those theories aimed at explaining the rise of Sunbelt cities. The global context of urban growth is accented in this analysis.

Recent analysis of city development has been characterized by a paradigmatic clash between a “mainstream” (order-market) approach and a “critical” (power-conflict) approach. The mainstream approach emphasizes demographic patterns of growth such as migration, metropolitan deconcentration, and descriptions of ecological distribution. Much current ecological research describes urban growth demographically, with little emphasis on interpretation. When conventional analyses move beyond description, they tend to accent migration and technological theories of urban growth. In contrast, a power-conflict approach is emerging from the work of scholars working in the neo-Weberian and neo-Marxist traditions. This approach emphasizes the broader politico-economic context of urban growth, structure, and decline. It is concerned with linking spatial growth to historical shifts in the capitalistic mode of production, with investments by the key economic interests that canalize growth, and with

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how the state cooperates with economic interests to shape settlement patterns (see Gottdiener 1983; McAdams 1980).

I will first specify the features of these paradigmatic approaches as they relate to Sunbelt growth and then examine their usefulness for evaluating the sociohistorical development of Houston, a city often described as the “capital of the Sunbelt” and the “oil capital of the United States.” Houston’s politico-economic development provides an important example of city growth, a major case that will enable me not only to evaluate the utility of the dominant paradigms but also to develop additional suggestive ideas about city growth in national and international contexts. In the 1920s and 1930s the Chicago school of urban sociology pioneered in the case-study methodological approach, an approach that develops and explores conceptions of cities by examining a particularly important case in great depth. As the major U.S. city least studied by social scientists, Houston, now the nation’s fourth largest, would seem worth a thorough examination on the basis of its size alone. But its central role in the Sunbelt, its position in the global (oil-gas) market system, the accentuated free enterprise philosophy of its leaders, and its 13 decades of uninterrupted, rapid growth make it a particularly valuable case for analysis.

THE PATTERN OF HOUSTON’S GROWTH

Population data (table 1) reveal that in every decade since 1850 the city of Houston’s population has grown by at least 29%. Since the 19th century the growth rate has been high, in comparison with all other U.S. cities. In 1890 the city limits contained 27,557 people, making Houston the 112th largest city. By 1980 Houston had 1.6 million people and by 1983 had surpassed Philadelphia to become the fourth largest city in the nation. Natural increase, migration, and annexation have contributed to this growth. Population growth has been accompanied by massive expansion of land area and of the built environment. Moreover, the incorporated city expanded by means of annexation from nine square miles in 1900 to 556 square miles in 1980.

Numerous analysts have emphasized Houston’s rapid growth in the 1960s and 1970s; the city gained about 30% in population in each of these decades. Yet to my knowledge no analyst has noted that the most rapid growth in the city’s history occurred in the years 1920–30, during which period the city grew by more than 111%, from 138,000 to 292,000 people. The surprisingly dramatic growth in this distant decade is just one of the tantalizing demographic facts about Houston that begs for sociological explanation.

TABLE 1
HOUSTON'S POPULATION GROWTH: 1850-1990

YEAR	CITY (Incorporated Area)			METROPOLITAN AREA		
	Population	Numerical Growth	% Growth	Population	Numerical Growth	% Growth
1850	2,396	2,449	102.0	18,632	16,809	90.2
1860.	4,845	4,537	93.6	35,441	13,545	38.2
1870.	9,382	7,131	76.0	48,986	22,330	45.6
1880.	16,513	11,044	67.0	71,316	14,908	20.9
1890.	27,557	17,076	61.9	86,224	48,376	56.1
1900.	44,633	34,167	76.5	134,600	51,054	37.9
1910.	78,800	59,476	75.5	185,654	86,821	46.8
1920.	138,276	154,076	111.4	272,475	204,095	74.9
1930.	292,352	92,162	31.5	456,570	190,299	41.7
1940.	384,514	211,649	55.0	646,869	300,631	46.5
1950.	596,163	342,056	57.4	947,500	482,894	51.0
1960.	938,219	295,286	31.5	1,430,394	568,922	39.8
1970.	1,233,505	360,581	29.2	1,999,316	906,034	45.3
1980.	1,594,086	294,016	18.4	2,905,350	1,040,050	35.7
1990.	1,888,102			3,945,400		

SOURCE.—U S. Bureau of the Census; Houston Chamber of Commerce, "Houston Data Sketch," 1981
NOTE —Metropolitan data prior to 1950 and all data for 1990 are estimates.

CONVERGENCE THEORIES OF URBAN GROWTH

In the literature on the growth of Sunbelt and Frostbelt cities, mainstream theories of development frequently are called “convergence” theories, whereas critical power-conflict theories are often termed “uneven development” theories.

Convergence Perspectives

Convergence theories often emphasize that Sunbelt cities are “catching up” economically with northern cities and that this convergence is part of an equilibrating tendency in U.S. society. Williamson, for example, has developed a thoroughgoing convergence theory; in his view a sharp and “increasing North-South dualism is typical of early development stages, while regional convergence is typical of the more mature stages of national growth and development” (1965, p. 44). Similarly, Rostow views Sunbelt cities as latecomers catching up with those that developed earlier, with regional disparities during the early stages and convergence later as the regions mature; the Sunbelt has prospered because it had “a larger backlog of technologies to bring to bear” (1977, p. 84).

Transportation technologies are accented as independent variables in mainstream urban ecology, which emphasizes regional equilibration as well. In a 1980 article, Kasarda views the rapid growth of Sunbelt cities substantially in terms of new technological developments such as highway systems, as well as in terms of the better business climate. In *Urban Society*, prominent ecologist Amos Hawley, in regarding the relocation of industry from the industrial heartland to the hinterland, explains decentralization substantially in terms of technological changes in transport and communication (1981, pp. 174–77).

Key terms such as “filtering” and “trickle down” have been used by urban ecologists (e.g., Berry and Kasarda 1977, pp. 279–80) to describe the diffusion of urban growth from one region to another. A key aspect involves labor markets, with the costlier markets in cities higher up in the urban hierarchy. This leads firms to migrate to cheaper markets in cities in other regions. The imagery is one of economic change being “transmitted in order from higher to lower centers in the urban hierarchy” (Berry and Kasarda 1977, p. 280). Following Thompson (1968), Berry and Kasarda discuss this heartland-hinterland filtering on a national scale and suggest that a threshold population of about 1 million is necessary for cities in peripheral regions to grow on their own, to be “self-generated metropolitan areas” (1977, p. 282).

Government

Mainstream analysts have given limited attention to government. Berry and Kasarda note that in market-directed societies such as the United States the role of the state has been primarily “limited to combating crises that threaten the societal mainstream,” that state involvement tends to be incremental, and that government actions often follow rather than lead private enterprise (1977, p. 402). State actions aimed at dealing with the “social consequences of laissez-faire urbanization” are assessed as “ineffective in most cases” (Berry and Kasarda 1977, p. 353; cf. Berry 1973). Indeed, the “good business climate” of the Sunbelt (see Kasarda 1980) includes weak government intervention in the forms of low taxes and ineffectual regulation. Government usually is not an important subject to mainstream urban ecologists, as can be seen by the few pages Berry and Kasarda devote to the subject in *Contemporary Urban Ecology*. In his revised edition of *Urban Society*, Hawley pays little attention to the state (1981, pp. 228–29, 262–63). Largely dismissing the growth coalition literature, he argues that power is decentralized in families, churches, and industries and that the interplay of power in communities “approaches an equilibrium” (Hawley 1981, p. 225). In Hawley’s view, power structure research has not demonstrated that business elites have dominant influence over urban development. A recent analysis of urban and regional trends by urban and other ecologists (Guest 1984; Poston 1984) includes little discussion of the role of government in urban development.

I should note that some mainstream theorists (e.g., Kasarda 1980) do allude briefly not only to the “good business climate” of Sunbelt cities but also to the “bad business climate” of Frostbelt cities. Discussions of bad climates encompass the idea that state intervention—particularly in the form of high-quality services and tax programs—has had negative consequences for the health of Frostbelt cities. Moreover, because the good business climate in Houston has often been cited by order-market analysts as an example of the prosperity that can be accomplished in the absence of state intervention, it is important to examine the Houston case in detail.

THE UNEVEN DEVELOPMENT PERSPECTIVE

Critical, power-conflict theorists have stressed uneven development as a normal aspect of cities embedded in a capitalistic system. Development in one set of cities comes at the expense of cities in other regions. For example, Hill (1977) has probed this uneven development conception and suggested its utility in explaining simultaneous growth and decay in Sunbelt and Frostbelt cities, respectively. Analysts Perry and Watkins take

issue with convergence theories, arguing that “cities on disparate growth trajectories are not headed toward some common point but, on the contrary, are moving further away from each other” (1977, p. 22). They add that new corporate investment is not dispersed throughout the nation by an underlying equilibrating mechanism.

Perry and Watkins argue that Sunbelt cities have not prospered by a filtering process, by seducing low-wage industries from the North, but that the most rapid growth in the Sunbelt has been in certain relatively high-wage industries (1977, pp. 45–48). Together with Sale (1976, pp. 20–45), they assert that major “leading-edge” industries, including electronics, defense, and oil, have bypassed the North and located in the South. Northern cities have failed to capture these industries because of the commitment of investors to established industries, as well as because of other economic and social barriers.

Uneven development theorists have given more attention to the politico-economic context of technological development than have convergence theorists. Mainstream ecological analysis tends to view technological development as a broad, independent variable that shapes regional and urban development rather than as a dependent variable. Uneven development theorists have emphasized the dependent character of the technological developments, such as the role of General Motors in sabotaging mass transit technologies and that of the private highway lobby in federal government decisions about highway technology (Snell 1979; Feagin 1983a).

Government

This development perspective also places much more emphasis on the role of government than does the mainstream view (Castells 1984; Fainstein and Fainstein 1983), and its proponents have been more attentive to the character and impact of governmental intervention. Perry and Watkins, for example, note that in the 1930s private investment in cities sank to new lows, and massive federal New Deal expenditures for infrastructure projects stimulated a new round of capital investment and thus of related urbanization in the Sunbelt (1977, pp. 46–48). The federally subsidized infrastructure of the Sunbelt featured the automobile and the highway, but corporate executives (inside and outside of government) made the key decisions directing the development of these technologies. Moreover, after 1939 federal expenditures for defense facilities in the region generated the spin-off electronics technologies and industries.

In addition, the localized aspect of the relationships among governments, private capital, and cities has been emphasized by Harvey Molotch (1976) and G. William Domhoff (1983). Molotch has analyzed

growth coalitions, that is, land-interested business leaders who operate through local government to foster growth (1976, pp. 309–15). There is also an important linkage between land-interested capitalists operating at the local level and those operating at the top of national and international corporations, because the local business elite desires outside investment (Domhoff 1983, pp. 160–87).

CITIES IN A GLOBAL CONTEXT

The key ideas in the convergence and uneven development theories provide useful frameworks for analyzing Houston's development, but each has certain distinctive weaknesses that will become apparent. One major weakness of both is an insufficient concern with the world context. Analyzing Sunbelt cities primarily against a backdrop of declining Frostbelt cities, which has been the focus of considerable debate between convergence and uneven development theorists, is not enough. One must go beyond the regional and national context to examine the international setting. Wallerstein (1979) has elaborated the conception of a capitalist world economy integrated by a global market of differentiated national economies, but world-economy analysis is just beginning to focus on the critical city nodes that anchor the global market network (see Chase-Dunn 1984).

This examination of Houston illustrates the central importance of studying the world contexts of U.S. cities in order to understand better the causes, character, and significance of urbanization. Historical data are critical to this task, because such empirical materials enable us to examine the changing character of economic bases and translocal ties over time and the ways in which earlier stages of urban economic and political growth become building blocks for later stages of growth or decline. Tracing the translocal linkages of Houston through several differentiated periods of development, I will show how this city's economic rhythm becomes ever more closely tied to events in the global (oil) market system than to national economic cycles. In-depth analysis of Houston highlights the following general arguments about the nature of cities:

1. The causes, character, and significance of city development can be understood best by analyzing cities in terms of their translocal linkages, especially their capitalistic world-economy context.
2. Evolving through historical stages of economic growth, with one stage often shaping the next, major cities in the world economy tend to specialize in particular aspects of raw materials, production, distribution, marketing, and finance activities.
3. Major cities, as the places where this politico-economic specializa-

tion is grounded physically, are the cotter pins holding the capitalistic world-economy system together.

THE ECONOMIC BASE AND HOUSTON'S DEVELOPMENT

Houston's development can be divided into four major periods:

1. a stage of commercial capitalism (1840–1900), in which agricultural marketing dominates;
2. a stage of competitive-industrial capitalism (1901–15), in which localized oil-related companies are characteristic;
3. a stage of oligopoly-industrial capitalism (1916–31), during which major oil companies come to dominate the area; and
4. a stage of state-assisted oligopoly capitalism (1932–present), in which the state plays an ever more substantial role in development.

Commercial Capitalism (1840–1900)

Houston began in a Gulf Coast swamp in the 1830s as a speculative real estate venture by two northern capitalists. In a few decades it had emerged as a regional marketing city dominated by a healthy commerce in agricultural products. Lumber, grain, and especially cotton generated an important commercial center of railroads, warehouses, cotton gins, and banks servicing the Texas agricultural economy. Houston was home for large cotton-brokerage companies; by 1901, with its base of agricultural commerce, it had become a major railroad center in the area west of New Orleans. By the end of this period Houston had grown to 44,633 people, and, including nearby counties, its population exceeded 130,000 (McComb 1981).

Competitive-Industrial Capitalism (1901–15)

The discovery of oil 90 miles east of Houston in 1901 and subsequent discoveries closer to the city from 1905 to 1919 set the stage for the city to become a major oil and gas production center. Three-quarters of Gulf Coast oil came from these fields. Houston's urban competitors in the region at the time, Galveston and Beaumont, confronted physical and infrastructural barriers to development. The devastation of Galveston's larger population and port by a hurricane in 1900 caused executives in oil-related companies to become concerned about its exposed coastal location. Beaumont, although closer to some oil fields, did not have the railroad and banking infrastructure that Houston had developed as an important agricultural commerce center (Pratt 1980, pp. 53–56). Contrary to growth theories that see Sunbelt cities as bypassed by economic

growth until postwar decades, by 1900 Houston had emerged as an important agricultural marketing center. Its basic commercial infrastructure laid the basis for subsequent dominance as an oil-industrial center from the 1930s to the present.

Soon after 1901 several oil companies that organized production in the Texas oil fields located in the greater Houston area. The new Texas Company (later Texaco) arrived in 1908. In 1916 the Gulf company, newly created in Houston-area oil fields, moved to Houston; the fact that this Texas firm was controlled by Mellon (Pittsburgh) interests signaled the rise of East Coast dominance. For a brief period many of the companies organizing production in the Texas oil fields were local, but the Gulf Coast oil industry moved quickly through this stage of competitive-industrial capitalism to that of oligopoly capitalism dominated by major companies.

In this 1901–15 period Houston's growth coalition played an important role in facilitating corporate location decisions. In spite of their professed free enterprise philosophy, local bankers, real estate investors, and other leaders pressed for governmental subsidies to improve Houston's port facilities. In 1902, under pressure from the local business coalition, the U.S. Congress appropriated about \$1 million in public investment capital for port development. A few years later merchant capitalists met in the mayor's office to devise a plan for further aid. They proposed that a special navigation district be created to issue bonds, with the federal government matching local funding. Because the city had no authority to issue bonds for projects outside its city limits, Houston attorneys were sent to lobby the Texas legislature (successfully) to permit the new navigation districts (Sibley 1968, pp. 133–35; McComb 1981, pp. 65–67). Both the city lobbying effort and the new state form, the navigation district, were unprecedented in Texas (perhaps in the nation). The navigation district could issue taxpayer-backed bonds to pay for port expansion, but Congress had to be lobbied for matching funds. In 1910 Congress approved \$1.25 million for deepening the Houston Ship Channel, the largest grant for local government purposes made by the federal government up until that time. From 1902 on, government played a crucial facilitating role in the rise of this "free enterprise" city; neither mainstream ecological theories nor extant uneven development theories prepare us for this early, essential state aid in a "lagging" region. The role of the local elite in securing federal aid is also significant in this example.

Oligopoly Capitalism (1916–31)

By 1916 the larger oil corporations were beginning to dominate many sectors of the Texas oil industry; over the next decade they consolidated

their control. Events in Detroit, an industrial city more than a thousand miles away, spurred investment by major oil companies and helped transform Houston into an oil capital. This long-distance intercity relationship was not one of filtering growth down an urban hierarchy but rather of oscillating corporate investment (often drawn from outside both cities) linked by a manufacturing need for processed raw materials. The events in Detroit in the decade prior to Houston's major boom in the 1920s involved Henry Ford and his engineers, who perfected the mass production of the automobile.

Until auto production began in earnest in the period 1908–25, crude oil had been used for kerosene, fuel oil, and lubricants. In 1914 there were 1.8 million cars and trucks registered in the United States; a decade later the number had grown to 18 million. Fuel usage increased from 2.7 billion gallons in 1919 to 15.7 billion gallons in 1930 (U.S. Bureau of the Census 1961, p. 462). Coal had fueled the rise of U.S. industry in the 19th century, but by the 1910s and 1920s oil was beginning to replace it. Growing gasoline and oil sales generated much of the capital that corporations invested in Houston facilities. The raw materials factors emphasized by classical location theorists such as Lösch (1954) became important. In the 1916–31 period numerous refineries and other oil-related facilities were built in the Houston area for a number of reasons, including closeness to raw materials and to the state-subsidized port facilities. Jobs in the oil-related plants and offices attracted workers, stimulating the population explosion seen in table 1.

Executives in the headquarters buildings of major oil companies and allied bank executives—mostly in northern cities—frequently made the broad, strategic decisions about putting capital into the oil industry, often basing these on the advice of operations' executives in Texas. In the oil industry the number of top decision makers in Texas declined as the industry became more centralized. Even though Standard Oil (now Exxon) had been split up in 1911, by the 1920s the former Standard companies, together with a handful of newer companies, dominated the oil-gas industry. By the late 1920s fully 70% of Texas production was in the hands of 20 companies, although there were 14,000 oil companies in the United States (Williamson et al. 1963, p. 330). Major companies expanded horizontally by buying other companies, moving into new fields, and driving smaller companies out of business; they expanded vertically by adding subsidiaries dealing with all aspects of the business from research to marketing. Broad strategic control over the Texas industry was often in the hands of East Coast companies and financial institutions (James 1953, pp. 60–73).

Standard Oil began to expand horizontally into the Texas fields in 1918, when it began courting a Houston-based company. The web of ties

among eastern finance capital, the major oil companies, and Houston's growth as an oil center can be seen in the trajectory of Houston's Humble Oil and Refining Company, which was formed by Texas oil men in 1917. Cash poor, these entrepreneurs needed capital, because their assets consisted of leases and equipment. They secured loans from local banks but soon sought out New York banks as well (Larson and Porter 1959, p. 72). Humble's independence—and its capital problems—did not last long. In 1919 Standard Oil bought a controlling share of Humble Oil. To circumvent Texas laws restricting its activities, Standard allowed Humble's board of directors to be mostly independent. Yet Standard executives controlled much of the flow of new capital to Humble and thus exerted influence over development. Between 1918 and 1929 the fixed assets of Humble increased from \$13 million to \$233 million, with much outside capital assistance. Soon the Humble Oil subsidiary became the largest producer of crude oil in the country (Larson and Porter 1959, pp. 75–104).

The expansion of Standard and other major companies generated investment in allied oil companies. By the late 1920s oil services and manufactured products essential to the oil industry were being provided increasingly by local firms. Oil tools, well equipment, and services companies were financed substantially by Texas capital; most support companies had not been taken over by northern oil-gas corporations (McComb 1981, pp. 80–81).

By 1930 the Houston area was a growing manufacturing center with 475 manufacturing plants, most of them oil related (Love, n.d., p. 19). Still, manufacturing was not as dominant there as in other industrial cities. In this period Houston had a large cohort of clerical, managerial, and professional workers working in a growing number of major oil company subsidiaries and allied support firms (e.g., law and accounting).

State-assisted Oligopoly Capitalism: The 1930s and 1940s

New oil fields.—The huge East Texas oil field was developed in the early 1930s; by 1939 it had 26,000 wells. At first, 80% of the field was in the hands of the smaller oil companies, with just 20% in the hands of major ones. By 1940 these proportions were reversed. Much of the decision making about newly discovered oil fields was made by oil companies with major subsidiaries in Houston. In 1935 just under half of all Texas oil was shipped through the Port of Houston (McComb 1981, p. 127). Houston had more than 1,200 oil companies and supply houses; oil facilities, from refineries to office skyscrapers, were the concrete embodiments of a continuing oil boom. A *Fortune* magazine feature article noted, "Without oil Houston would have been just another cotton town. Oil has

transformed it into a concrete column soaring grotesquely from a productive substratum. . . . Take oil away and Houston's skyscrapers would be tenanted by ghosts" (1939, pp. 81–85). At that time the oil industry accounted for over half the jobs in the area.

From the 1920s to the 1940s a series of much-sought-after technological innovations in refining (e.g., catalytic cracking) facilitated an increase in the quantity and quality of gasoline extracted from crude oil. By 1941 the Gulf Coast (Texas and Louisiana) was the dominant refining region, with more than one-third of the U.S. capacity. Pipelines carried oil and gas from Texas, Oklahoma, and Louisiana oil fields to Gulf Coast refineries and to tankers at the Port of Houston (Pratt 1980, pp. 66–67). By the 1930s Houston was the nation's third largest port in terms of exports and a major Sunbelt trading and shipping center. Cotton, lumber, and oil accounted for the rise in tonnage shipped from 1.3 million tons in 1919 to 27 million in 1941. Houston soon surpassed New Orleans as the dominant Gulf Coast port and southern metropolis. Population growth continued during the Great Depression, rising an unusual 32% over that troubled decade.

The role of government.—The distinctive character of government intervention in Houston becomes clear when one considers the prevailing antistate, free enterprise viewpoint advocated and advertised by the city's growth coalition since 1900. One observer has noted this traditional stance of Houston's leadership: "For many years, Houston politicians boasted that their city's growing economy allowed it to refuse federal aid while other cities pleaded for more and more help" (MacManus 1983, p. 1). Federal government grants for most urban uses have long been publicly cited as "socialistic" by local business groups and political candidates. An advertisement in *Fortune* by the growth coalition emphasized the business climate and lack of government interference that have been proclaimed since 1900: "Houston, by virtue of being in Texas, reaps the benefits of a state that has one of the best business climates in the nation. It is not just lukewarm to business, it is pro-business. It welcomes new ideas and people. There's little in the way of red tape. Free enterprise is still the gospel" (1980, p. 49). This advertisement goes on to portray Houston as having little government interference and the lowest tax per capita among large cities. Since the 1930s, the city's growth coalition has also waged a successful battle against local government interference with land use. The fact that Houston, unique among U.S. cities, has no city zoning laws is often cited as illustrating the predominance of the free enterprise ideology.

The accentuated enterprise ideology might lead to predictions that Houston would have received little, if any, direct federal aid. Yet we have already seen that the growth coalition contradicted its professed

ideology in seeking aid for port expansion in the early 1900s. The infrastructure of Houston, moreover, was expanded during the 1930s with substantial federal assistance. The provision of large-scale aid was facilitated by close ties between the growth coalition in Houston (and Texas) and the federal government. Houstonian Jesse Jones, a banker in the Houston growth coalition, became head of the Reconstruction Finance Corporation (RFC) and later served as Roosevelt's secretary of commerce. Money from the RFC, the National Recovery Administration (NRA), the Public Works Administration (PWA), and the Works Progress Administration (WPA) rebuilt Houston businesses and built major public buildings, roads, and utilities. For example, in 1934 the PWA gave Harris County \$653,000 for road and sewer projects and the Post Office Department announced a major post office project for the city. Several million dollars were provided for improvements to the ship channel. From 1932 to 1941 a substantial infrastructure, its development guided by the growth coalition, was built, in part with the use of millions in federal funds (Writers' Project 1942, p. 120).

Oil companies demand intervention.—Significant government intervention occurred in the East Texas oil fields, whose rapid development had brought Houston oil companies into vigorous competition with those based elsewhere. Oil prices dropped to extremely low levels; a considerable amount of oil was pumped out at illegal rates. Oil executives were urging federal officials to enforce pumping quotas in the East Texas fields. In 1933 President Roosevelt issued an order banning the shipment of oil pumped in violation of prorationing laws. Federal agents were sent to help the Texas Railroad Commission (the Texas oil agency) enforce order. This intervention, and continuing federal support for prorationing of oil pumping among big and little companies, operated from the 1930s to the 1970s to protect the petroleum industry. Houston-based companies prospered and Houston grew, protected from competition (Prindle 1981, pp. 36–187).

Capitalizing petrochemicals.—In the 1940s the federal government became a primary source of capital for oil-related development. Hundreds of millions of dollars were poured into private and joint private-public, oil-related enterprises in the Gulf Coast area. Federal capital flowed to Houston's petrochemical industry; aviation fuel and synthetic rubber were important to the war effort (Pratt 1980, p. 94). Five oil companies (Mobil, ARCO, Gulf, Texaco, and Pure Oil) with refineries in southeastern Texas created a joint, nonprofit corporation to generate butylene for synthetic rubber. The corporation ran the plant, but the federal government paid for it, providing major capital for petrochemical research and development. This facilitated dramatic postwar growth in the petrochem-

ical industry (James 1953, p. 78) as it began to produce commercial products.

Investment by the federal government also aided oil and gas distribution. In the early 1940s the Roosevelt administration built two major oil pipelines, called the “Big Inch” and the “Little Inch,” to carry oil products from Texas to the East Coast, at a government cost of \$142 million (James 1953, p. 77; Larson and Porter 1959, pp. 566–87).

The range of federal government aid for development in a city dominated by a free enterprise and anti-federal-government ideology has been remarkably broad, from aid for infrastructure projects, to capital for the petrochemical and oil pipeline companies, to regulation of oil field competition. A recognition of the extent, character, and significance of state aid in the Sunbelt is missing from mainstream urban ecological analysis; uneven development theorists have been more on the mark. As Mollenkopf’s analysis has made clear, federal aid to recapitalize U.S. industry during World War II was massive and focused disproportionately on selected cities, with midsize Houston (population 384,514) ranking sixth nationally and first regionally in federal plant investment (1983, p. 106). Those federal capital decisions were made, or influenced greatly, by top corporate (e.g., auto and oil) executives in American industry, working through the federal war production agencies. These federal investments were by no means the only factor, for massive private capital flowed into Houston’s oil and petrochemical industries in this period, but they were nonetheless critical.

State-assisted Oligopoly Capitalism: Houston since 1950

An expanding economy.—After World War II Houston began a long boom based on the rising demand for oil products such as asphalt and plastics. State aid for the oil and petrochemical companies during the 1930s and 1940s helped place them in advantageous positions. A growing number of truck, pipeline, and shipping companies had grown up around greater Houston’s oil and petrochemical complexes. There was continued growth in oil tools and services, metal, and construction companies. In the 1950s the city’s population increased by 57% to nearly 1 million.

More state aid.—The profitability of oil companies concentrating on U.S. production was enhanced by further state action. In 1959 President Eisenhower set quotas for imported oil, limiting imports to 12% of domestic production, a decision justified by the argument of national defense. This action raised prices, costing U.S. consumers an estimated \$50 billion in the next decade. Oil and gas price increases have had a regular stimulating effect on the Houston economy since the 1950s (Cramer 1972,

p. 575; Nash 1968, pp. 201–8). In the period 1960–80 there were other important examples of federal intervention. The National Aeronautics and Space Administration (NASA) complex came to Houston in the 1960s. Federal intervention into Houston's economy was won in major competition with other cities by Houston's growth coalition, which included prominent local business leaders (e.g., the head of Brown & Root) and politicians. Land for the NASA complex had been donated by Humble Oil (Exxon), whose nearby real estate projects increased in value.

Houston's government in the 1970s.—Prior to 1970 the operating budget of Houston's city government was not tied to federal monetary assistance. The local growth coalition has been receptive to federal capital projects for many decades, but its members, who viewed aid for operating budget and social service programs as illegitimate, had kept local government operating expenditures relatively low, permitting a low tax rate. By the mid-1970s some of the city's leaders were partially abandoning their public antifederal position. During the 1970s city officials increased federal spending substantially. Various pressures forced local business leaders to seek more aid. The social costs of many decades of rapid growth under a "good business climate" became so critical that they could no longer be neglected. For example, half of Houston's wastewater plants violated state discharge standards, and a sewer hookup (and construction) moratorium covered three-quarters of prime development areas. **Flooding had become a serious problem, because of unrestrained real estate development.** Water pumping and development had created a subsidence problem; some central city areas had subsided three to five feet since World War II. Air pollution and toxic waste seepage into water systems had become extremely serious. Traffic had become notorious. These and other social costs of rapid capitalistic development (see Feagin 1983*b*) are neglected in mainstream urban ecological theories, which typically do not assess the negative consequences of "good business climates."

During the mid-1970s a new mayor and council were elected with the help of empowered minorities; for the first time in the 20th century, city government became more desirous of federal support for people-oriented programs such as job training and youth employment. But because of the continuing power of Houston's business leaders these new social (tagged "minority") programs were intentionally segregated from other city departments (MacManus 1983, p. 45).

Recentralization.—In the late 1960s and early 1970s, the top oil companies shifted subsidiaries to or buttressed existing operations in Houston. Shell Oil located its U.S. administrative headquarters there; Exxon concentrated more administrative and research operations; Gulf, Texaco, and Conoco located or expanded major national subsidiaries. As a result of shifts in the world oil system, dispersed company operations around

the United States were closed and consolidated in larger offices in a few key cities, including Houston.

Of the 35 largest oil companies, 34 have located major office and plant facilities in the Houston area. In addition, the city contains 400 major oil and gas companies, together with hundreds of geological firms, drilling contractors, supply companies, law firms, and other oil-related companies (Taylor 1983). Although so many top oil companies now have important domestic subsidiaries in Houston, most of these subsidiaries are dependent on northern headquarters' strategic investment and management decisions at the highest level. Concentration of control in the oil industry has persisted. In the late 1970s there were about 5,000 crude oil production companies in Texas; yet six large companies produced 37% of the oil. Most production was still in the hands of the top 15 companies. The refineries of eight major companies processed two-thirds of the crude oil in Texas (Lamare 1981, pp. 15–16).

Housing the oil industry.—The expansion of Houston's oil industry since the 1960s has been obvious in the growth of its population—of people and of office buildings. Houston's population grew from just under 1 million in 1960 to an estimated 1.7 million in the early 1980s. Between 1970 and 1981 a total of 361 large (more than 100,000 square feet of floor space each) office buildings, more than 80% of all such existing buildings, were erected in the area (Houston Chamber of Commerce 1981*a*, pp. 32–37).

Some oil-related operations are predominantly white collar and housed in office towers; others, housed in refineries and petrochemical plants, have large blue-collar work forces. In 1978 Houston was ranked the fourth largest manufacturing center in the United States, behind Chicago, Detroit, and Los Angeles, but it was first in new capital expenditures in manufacturing (Houston Chamber of Commerce 1981*b*; Donahue et al. 1973, pp. 48–50). Yet in 1980 about 57% of the Houston metropolitan work force was employed in white-collar jobs (managerial, professional, clerical, and sales), very close to the proportion of such workers in Philadelphia (58%) and above that in Pittsburgh (54%).

Houston and the world economy.—By the 1960s and 1970s Houston had evolved into the oil-technology distribution center for the world's oil industries. After the discovery of major Middle Eastern oil fields in the 1960s, advanced oil technologies were needed there. By 1980 nearly \$7 billion in engineering and related contracts were in effect between U.S. oil-support companies in Houston and elsewhere and Middle Eastern oil fields. Houston companies have been important in the development of other oil fields from the North Sea to Malaysia and Indonesia. By the late 1970s about 100 Houston companies were employed in the North Sea oil fields; by the early 1980s there were at least 100 Houston companies in the

Malaysia-Indonesia oil fields (Taylor 1983). When the major oil companies began to develop international operations in the 1920s and 1930s, the city developed ties *outside* the U.S. economy. By the 1960s and 1970s, Houston had become an international city whose economic base was as much affected by international as by national events.

The relationship between Houston's prosperity and economic shifts in the larger world economy can be seen in the history of OPEC. In 1973 the OPEC countries gained control over their oil, and the once-dominant U.S. companies became primarily suppliers of technology and marketing agents for OPEC oil. U.S. company profits from Middle Eastern oil fell, but the sharp rise in world prices brought great increases in profits from oil controlled by U.S. companies elsewhere. Between 1973 and the early 1980s, the value of the oil and gas in Texas fields grew at the rate of 500%, although the amount produced declined 28% (Plaut 1982, p. 203). As a result, in the 1973–75 recession, employment in goods-producing industries dropped 6% in such cities as Dallas but grew by 18% in Houston, because its manufacturing firms produce for the oil world's industry. The rise in OPEC oil prices in 1973–74 gave a boost to oil exploration and drilling, thus stimulating the Houston economy during a national recession. Between 1968 and 1980 the percentage of Houston employment in oil exploration, drilling, and machinery increased (Brock 1981, pp. 1–4).

The oil price rise had a major negative impact on one dimension of the Houston economy. Prior to the 1973–74 price rise there was a trend toward economic diversification, with growing investment in nonoil projects. With the sharp price rise, oil companies and allied bankers moved away from diversification to a heavier emphasis on investments in oil projects. In the late 1970s, yet another rise in the oil price further stimulated companies to overinvest and overproduce in oil.

The close ties between Houston and cities in Latin America, the Middle East, and the Far East can be seen in the substantial international trade passing through Houston. In 1981 more than \$26 billion in exports and imports flowed through its customs district. By the 1980s Houston ranked as the nation's second port in total cargo tonnage and in foreign trade. The city's top foreign trading partners have been Mexico, Saudi Arabia, Japan, and West Germany. Crude oil is by far the number one commodity in dollar value that is imported at the Port of Houston; the next two major imports are steel products and automobiles. The primary recipient countries of exports from the Port of Houston are Mexico, Brazil, Saudi Arabia, and Venezuela. The number one export in dollar value is construction/mining/oil field machinery, although unmilled grain and organic chemicals also rank high (Texas Commerce Bancshares 1982, pp. 24–25).

Houston and the world-market system: the 1980s.—Houston's oil-gas

economy buoyed the city during the Great Depression and most postwar recessions, but the 1980s were different. In 1982–83 economic activity declined and unemployment rose significantly there. The city's industrial production declined more rapidly than the national average. The downturn in oil prices caught companies with large inventories; for example, tool companies had overproduced such items as drilling bits. The recession of the 1980s resulted in oil companies' laying off people to cut costs and improve cash flow. The unemployment rate grew more rapidly in Houston than in the nation as a whole, hitting 9.7% in 1983, up sharply from 1981 (Plaut 1983, p. 16). Refinery use in Texas declined from 91% of capacity in the late 1970s to less than 70% in 1983 (Wright 1982).

Until 1975 the growth in U.S. energy demand was similar to the growth in GNP. Since that time, in part because of higher oil prices, the growth in demand has been less than real GNP growth (Wright 1982). Gulf Coast oil and petrochemical industries have faced declining oil production as Texas oil reserves are being gradually exhausted; oil production peaked in the 1960s. By the early 1980s the 50 Texas refineries imported a third of the oil feedstocks they processed, a proportion that had been as high as 46% in the late 1970s. The comparable figure was 2% in 1972 (Wright 1982).

As a leading center for the operation, production, and technological diffusion of the U.S. and world oil industry, Houston is probably the largest metropolitan area directly and massively affected by investment and production shifts in the world oil-market system. The movement of major oil company operations to Houston in the late 1960s and early 1970s came at a time when oil production was beginning to decline. One oil expert has suggested that the recentralization and increased investment of oil companies in Houston would not have taken place if the Texas oil economy had been as troubled in the early 1970s as it has been in the 1980s (Taylor 1983). This suggests how critical any shift in the economic context can be for urban development—and how quickly the fortunes of a city tied to the capitalistic world-market system can change.

Houston and the world-market system: the future.—Plaut (1983) forecasts Texas economic growth for up to the year 2000. His low-oil-price scenario, which assumes an oil glut and a lower price per barrel of \$22, shows economic output increasing at 4.2% annually and population growth rising at only 1.7%. His high-oil-price scenario shows a growth rate of 5.3% and a population growth of 3.2%. By either scenario, the periodic oil-boom years of the 1920–80 period would be over. Moreover, because of the shifting price of oil, declining Texas oil reserves, and current excess capacity, many industry experts expect no new refinery construction in the Houston–Gulf Coast area.

The petrochemical industry faces similar problems. Third World coun-

tries such as Saudi Arabia, Mexico, and Nigeria are expanding their oil refining and petrochemical facilities in order to produce value-added products from their raw materials. Since the 1970s, large capacity refineries have been started in these regions; much less capacity is being added in the United States. A large petrochemical complex is being built in Saudi Arabia that would sell products to Europe, reducing the market for Gulf Coast petrochemical products. The health of significant sectors of the U.S. oil economy depends currently on plastics and other petrochemical exports to numerous countries; yet some of these countries, including Mexico, are trying to decrease such imports and build up their own petrochemical industries (Hoffman 1983). These industry trends threaten Houston's growth and prosperity.

REASSESSING THEORIES OF URBAN GROWTH

Mainstream Theories

Convergence theorists seem to be off the mark in their emphasis on the filtering down of urban growth from dominant northern cities to the Sunbelt hinterland cities. Cities such as Houston are not part of some inevitable catching-up process. Understanding Houston is not a question of discovering a recently developed urban economy with a primitive-economy past. It has had a developed economy since its days as a regional commercial (cotton) center in about 1900. The city does fit a growth-pole theory that emphasizes a distinctive export base attracting growth (see Thompson 1965), because development of the first oil companies and refineries in the area did attract much additional growth. But these mainstream theorists tend to believe that Sunbelt growth-pole areas emerge in regions bypassed by earlier urban growth. In Houston's case this is not accurate; even before the discovery of oil, it had not been bypassed by economic growth (Pratt 1980, p. 506). The discovery of oil and the expansion of the oil industry accelerated growth in a city already experiencing economic advance. Houston's oil economy did not suddenly emerge in the 1960s; it began on a large scale in the 1920s. This point underscores the tendency of much mainstream analysis to isolate urban dynamics from the long-term historical context.

Houston's economic history also suggests that theories of urban growth should specify carefully how earlier stages link to later ones. Urban social scientists need to modify theories to emphasize such historical linkages. Houston's development shows a linked series in which one epoch (cotton/railroad) builds a foundation for the next (competitive/oligopoly) oil epochs, which in turn link to the next (state-supported oligopoly) epoch. Most urban analysts have not dealt adequately with the cumulative character of development in the economic base of cities. Although stages

in the history of cities have been delineated (see Gordon 1977), few analyses of cities have assessed systematically the linked character of a city's developmental stages. This building-block development can be seen not only in Houston but also in cities as diverse as Pittsburgh (Lubove 1969) and Cairo (Abu-Lughod 1971). Moreover, Houston's case suggests the extent to which initial site advantages, such as location near oil fields and an agricultural-commercial infrastructure, are utilized to attract additional economic developments that are partially dependent on those site advantages. The petrochemical industry is an example. Later, these cumulative advantages attract additional economic activities (e.g., NASA and a new medical-industrial complex), which are much less dependent on these site advantages but would not have developed without the economic and political networks of the historical base.

Mainline theories are weak in their treatment of the role of technology in the emergence of Sunbelt cities. The transportation and communication technologies emphasized by Hawley, Kasarda, and Berry have shaped the spatial layout of cities such as Houston, but these technologies did not drop as "sky hooks." The implementation and impact of auto-centered technologies (instead of, for example, a mixed system including much more mass transit) in such cities resulted from a decision-making process involving top corporate (auto/oil) executives and local business coalitions working outside and through the state. Moreover, mainstream theories seem to suggest that technological innovation with industrial implications filters down the urban hierarchy. Early on, in the case of the oil-gas industry, major technological innovations in the sphere of production "filtered up" from the oil refineries, research centers, and petrochemical complexes in the greater Houston area to oil complexes in the North and around the globe.

Mainline theories are underdeveloped in their view of the state, which they tend to see as either limited (in the case of Sunbelt growth) or as the villain in the bad business climates (in northern cities). We can see this issue more clearly if we look at key arguments made by uneven development theorists.

Uneven Development

Uneven development theories are frequently more useful than mainstream theories for understanding growth in a Sunbelt city such as Houston. Of particular importance is their conceptual emphasis on investment decisions by corporate actors who follow the accumulation logic and on the resultant oscillating waves of investment. The first important wave of oil-related corporate investments came to Houston in the period 1908–29 and gradually built up the city's oil-economy base. These investments

came later than comparable investments in the iron-steel industries of Pittsburgh or the many industries of New York. Yet major oil-related investments were in place long before 1950–80, the period emphasized by most mainstream and uneven development analysts of Sunbelt cities.

The expansion of private investment in auto-centered Detroit helped to spur investment in the greater Houston area in the 1920s. The mainstream concept of an urban hierarchy within or between regions does not capture the relationship between Houston and Detroit. This linkage is not primarily a relationship of filtering but a functional one wherein economic development in the auto industry in Detroit fuels raw materials and industrial development a thousand miles away (development in Houston has a feedback effect on Detroit). Nor does this idea of hierarchy, of “lower” and “higher” centers, capture the empirical portrait of two cities that are world capitals in their own industries yet have had an interdependent development.

Houston also is firmly linked to New York City. Corporate investment decisions in the New York headquarters of international oil-gas companies and international banks have been central to Houston’s growth for many decades. This dependence on New York for finance capital is not unusual in the U.S. urban system, but the point is missed by some analysts. Uneven development theorists such as Sale (1976) and Perry and Watkins (1977) portray the Sunbelt as prospering and as considerably independent from northern capital. Since the early 20th century, however, much decision making about finance capital investment and top-level oil company strategies in the Sunbelt area has been made in the greater New York City area.

Urban analysts of both theoretical traditions portray northern cities as failing to capture the new post–World War II industries that lie at the heart of Sunbelt dynamism. This failure is attributed by convergence analysts to poor business climates and by uneven development analysts to the inertia of northern capitalists locked into existing investments. Yet Houston’s dynamic oil and gas industry is not a new leading-edge industry of the postwar period. Oil and gas production and refining formed the industrial base of Houston at an early point in the 20th century. Neither New York nor Pittsburgh nor any northern city had a chance to secure this important segment of the oil/petrochemical industry. One related problem with many explanations of Sunbelt growth is excessive attention to certain manufacturing industries, particularly the defense-related electronics and newer high-tech industries located in a few Sunbelt cities. Older high-tech industries, such as oil refining and petrochemicals, are slighted.

Uneven development theories encourage us to look for the central role of the government in Sunbelt development. Vital throughout Houston’s

“free market” history has been the role of the federal government in fostering economic growth. At a remarkably early point, major federal subsidies facilitating capital accumulation went into making the ship channel a key transportation artery, whereas in the 1930s millions were spent to build government buildings, roads, and sewers. Much discussion of the state in cities (e.g., O'Connor 1973) neglects its regulatory function. It was in the East Texas oil fields that Houston-linked corporations learned the hard lesson that competition in oil capitalism can be irrational. The extent of state intervention in the Houston area since 1902 is important not only because these public investments built infrastructures and whole new industries, but also because this took place in the most “free enterprise”—oriented of American cities.

Houston's development illustrates empirically the role of local growth coalitions in development. The city has long had a successful growth coalition, which has included capitalist actors from real estate, oil, and other businesses, as well as top governmental officials. Often coordinated through the Chamber of Commerce, the coalition has worked effectively at all levels of government to bring public investment capital to Houston. Many uneven development theorists have targeted the role of the federal state. But they have neglected to specify its interrelated linkage to the local decision makers and the role of the growth coalition in shaping (as well as being shaped by) that federal role. Particularly in the cases of the Houston ship channel, the New Deal infrastructure, and intervention in the NASA decision, Houston's growth coalition utilized its business networks well and emphasized preexisting site advantages to attract federal involvement. Uneven development theories need to absorb the insights of Molotch (1976), Domhoff (1983), and Dear and Clark (1981) about the role of local government in urban decision making.

CONCLUSION: HOUSTON AND THE WORLD ECONOMY

In the Houston case, a major weakness in both theoretical frameworks is graphically highlighted: the neglect of the world-economy context. Few studies of U.S. cities pay serious attention to their larger world context. Exceptions include the work of Hill (1977, 1984) and the recent project of Chase-Dunn (1984). Hill has emphasized the importance of the global economy in shaping Detroit's decline. One key aspect of this is auto company investment in global “sourcing” (dispersed auto production). The global sourcing strategy of automobile multinationals threatens Detroit with further disinvestment and unemployment. Hill (1984) links the internationalization of production to crises facing cities around the globe. Thus other international cities deserve similar contextual analysis. New York's economic base and labor shifts have been examined in detail

(Tabb 1982; Sassen-Koeb 1984), but no one has published a systematic, in-depth analysis of their urban development against the larger international context. Soja, Morales, and Wolff (1983) have assessed the contemporary restructuring of Los Angeles and its rise as an international banking center. Implicit in their research is the suggestion that a U.S. city's economic and demographic growth or decline hinges far more than ever before on investment decisions made by top executives in multinational corporations who are regarding a global, spatial economy (see Tabb and Sawers 1984).

From 1900 to 1980 Houston went through several economic and population growth phases. In the first two, Houston's most important economic context was the southwestern United States, but by the 1920s the relevance of the national economy to Houston's growth was conspicuous. National oil companies moving into international operations began to dominate the city. World-market events had a major impact in the 1930s and the 1940s. The war with Japan, resulting in a cutoff of important raw materials from the Pacific basin, helped generate state aid for new petrochemical industries, which developed synthetic rubber and aviation fuel technologies critical to postwar petrochemical industry growth. It was also during the late 1930s and the 1940s that ties to Latin America became close and strong, with the establishment of major trading linkages to Mexico and South America and the beginnings of a flow of (often undocumented) labor from Latin America that provided cheap labor for local builders and other entrepreneurs.

Since the 1950s, billions of dollars' worth of oil tool, engineering, and other oil-gas service contracts have been made between Houston oil companies and oil fields from Malaysia and Saudi Arabia to the North Sea. Most large oil fields opened within the global economy have brought new growth to Houston. In addition, price-raising actions by OPEC nations affect the profits and investments of Houston companies; in 1973–74 the OPEC price increase brought rises in profits of oil companies and in exploration, boosting Houston's base. New world-economy conditions, such as the emergence of OPEC, have "forced multinational [oil] firms to shift investment from certain initial stage processes to final stage refining, and in many cases, to make the more controllable final stages greater centers for profit than before" (Cohen 1981, p. 289). Houston's refining and petrochemical plants have benefited from this shift. In the 1970s OPEC's actions brought an economic boom to Houston, part of which, the expansion in real estate, used illegal Mexican aliens drawn from the world labor market, yet another linkage to the global economy. Changes in the world's oil economy have had negative effects as well. Economic diversification in Houston that had begun in the late 1960s was aborted by the rise in oil prices. The decline in oil prices in the early 1980s, by

bringing the first major recession in recent memory to Houston, increased the growth coalition's concern with economic diversification.

In the past decade, Third World countries have not only taken back control over economic decisions once made only in U.S. multinational headquarters offices, but also have begun to progress from selling raw materials to developing value-added production facilities. Saudi Arabia, Mexico, and other countries are in the process of expanding petrochemical plants and oil refineries, often with the cooperation of U.S. oil companies. This global sourcing of the oil industry is likely to affect Houston's economic base and demographic growth significantly.

The research on Detroit and Los Angeles cited previously, together with this on Houston, points to the idea of city specialization in the capitalistic world-market system. In core countries, cities such as Houston and Detroit often specialize as centers for distinctive production, whereas other cities (e.g., New York) are centers for financial capital and multinational investment decision making. Cities such as Houston and Detroit are distinctive in that they specialize in particular types of industrial activity such as oil and automobiles. These cities have markets in both core countries and Third World countries, and they have a special industrial niche in the capitalistic world system. Specialization means more than a convenient location near raw materials; it is the outgrowth of capitalistic relational conditions that hold major cities, even countries, together. Cities, as places where specialization is grounded physically, are the cotter pins fastening the parts of the capitalistic world system.

Although uneven development theory seems to be useful in describing the development of cities such as Houston and Detroit, it, like mainstream theories, is unspecified regarding the world-economy context of urban development. In the future, substantial expansion of existing urban theories will require a much more careful examination of the international economy in relation to the growth, specialization, and decline of cities too long regarded only as national phenomena.

REFERENCES

- Abu-Lughod, Janet. 1971. *Cairo: One Thousand-One Years of the City Victorious*. Princeton, N.J.: Princeton University Press.
- Berry, Brian J. L. 1973. *Growth Centers in the American Urban System*. Vol. 1. Cambridge, Mass.: Ballinger.
- Berry, Brian J. L., and John D. Kasarda. 1977. *Contemporary Urban Ecology*. New York: Macmillan.
- Brock, Bronwyn. 1981. "Houston Less Vulnerable Than Dallas-Ft. Worth to Impact of the Recession." *Voice* (Dallas Federal Reserve Bank) (October), pp. 1-5.
- Castells, Manuel. 1984. "Class and Power in American Cities." *Contemporary Sociology* 13:270-73.

- Chase-Dunn, Christopher. 1984. "Urbanization in the World-System." Pp. 111–22 in *Cities in Transformation*, edited by Michael P. Smith. Beverly Hills, Calif.: Sage.
- Cohen, Robert. 1981. "The New International Division of Labor, Multinational Corporations and Urban Hierarchy." Pp. 287–318 in *Urbanization and Urban Planning in Capitalist Society*, edited by Michael Dear and Allen J. Scott. London: Methuen.
- Cramer, Clarence H. 1972. *American Enterprise*. Boston: Little, Brown.
- Dear, Michael, and G. L. Clark. 1981. "Dimensions of Local State Economy." *Environment and Planning A* 13:1277–94.
- Domhoff, G. William. 1983. *Who Rules America Now?* Englewood Cliffs, N.J.: Prentice-Hall.
- Donahue, Jack, et al. 1973. *Big Town, Big Money*. Houston: Cordovan.
- Fainstein, Susan S., and Norman S. Fainstein. 1983. "Economic Change, National Policy and the System of Cities." Pp. 1–26 in *Restructuring the City*, by Susan S. Fainstein, Norman I. Fainstein, Richard Child Hill, D. Judd, and Michael P. Smith. New York: Longman.
- Feagin, Joe R. 1983a. *The Urban Real Estate Game*. Englewood Cliffs, N.J.: Prentice-Hall.
- . 1983b. "The Costs of Growth: Houston Reexamined." Paper presented at the Fifth Annual Conference of Urban Design, Washington, D.C., October.
- Fortune editors. 1939. "Texas." *Fortune* 20 (December): 85–91, 162.
- . 1980. "Houston: The International City." *Fortune* 61 (July): 38–58.
- Gordon, David M. 1977. "Class Struggle and the Stages of American Urban Development." Pp. 55–82 in *The Rise of the Sunbelt Cities*, edited by David C. Perry and Alfred J. Watkins. Beverly Hills, Calif.: Sage.
- Gottdiener, Mark. 1983. "Understanding Metropolitan Deconcentration: A Clash of Paradigms." *Social Science Quarterly* 64:227–45.
- Guest, Avery M. 1984. "The City." Pp. 277–322 in *Sociological Human Ecology*, edited by M. Micklin and H. M. Choldin. Boulder, Colo.: Westview.
- Hawley, Amos. 1981. *Urban Society: An Ecological Approach*. 2d. ed. New York: Wiley.
- Hill, Richard Child. 1977. "Capital Accumulation and Urbanization in the United States." *Comparative Urban Research* 4:39–60.
- . 1984. "Urban Political Economy." Pp. 123–38 in *Cities in Transformation*, edited by Michael P. Smith. Beverly Hills, Calif.: Sage.
- Hoffman, William. 1983. Personal Interview. Texas Department of Water Resources, Planning and Development Division.
- Houston Chamber of Commerce. 1981a. "Buildings of 100,000 Square Feet or More." *Houston* 52 (February): 32–37.
- . 1981b. "Houston Data Sketch." Pamphlet.
- James, Marquis. 1953. *The Texaco Story*. New York: Texas Co.
- Kasarda, John D. 1980. "The Implications of Contemporary Redistribution Trends for National Urban Policy." *Social Science Quarterly* 61:373–400.
- Lamare, James W. 1981. *Texas Politics: Economics, Power, and Policy*. St. Paul, Minn.: West.
- Larson, Henrietta M., and Kenneth W. Porter. 1959. *History of Humble Oil and Refining Company*. New York: Harper & Row.
- Lösch, August. 1954. *The Economics of Location*. New Haven, Conn.: Yale University Press.
- Love, Ben F. N.d. *People and Profits: A Bank Case Study*. Booklet published in the 1970s. Houston: Texas Commerce Bank.
- Lubove, Roy. 1969. *Twentieth Century Pittsburgh: Government, Business and Environmental Change*. New York: Wiley.
- McAdams, D. Claire. 1980. "A Power-Conflict Approach to Urban Land Use." *Urban Anthropology* 9:295–318.

- McComb, David. 1981. *Houston: A History*. Austin: University of Texas Press.
- MacManus, Susan A. 1983. *Federal Aid to Houston*. Washington, D.C.: Brookings.
- Mollenkopf, John. 1983. *The Contested City*. Princeton, N.J.: Princeton University Press.
- Molotch, Harvey. 1976. "The City as a Growth Machine: Toward a Political Economy of Place." *American Journal of Sociology* 82:309–33.
- Nash, Gerald D. 1968. *United States Oil Policy 1890–1964*. Pittsburgh: University of Pittsburgh Press.
- O'Connor, James. 1973. *The Fiscal Crisis of the State*. New York: St. Martin's.
- Perry, David C., and Alfred J. Watkins. 1977. "Regional Change and the Impact of Uneven Urban Development." Pp. 19–54 in *The Rise of the Sunbelt Cities*, edited by David C. Perry and Alfred J. Watkins. Beverly Hills, Calif.: Sage.
- Plaut, Thomas. 1982. "Energy and the Texas Economy: Past, Present, and Future." Research Report. Mimeographed. Austin: University of Texas, Bureau of Business Research.
- . 1983. "The Texas Economy: Current Status and Short-Term Outlook." *Texas Business Review* (January–February), pp. 15–20.
- Poston, Dudley L. 1984. "Regional Ecology." Pp. 323–82 in *Sociological Human Ecology*, edited by M. Micklin and H. M. Choldin. Boulder, Colo.: Westview.
- Pratt, Joseph A. 1980. *The Growth of a Refining Region*. Greenwich, Conn.: JAI.
- Prindle, David. 1981. *Petroleum Politics and the Texas Railroad Commission*. Austin: University of Texas Press.
- Rostow, Walt W. 1977. "Regional Change in the Fifth Kondratieff Upswing." Pp. 83–103 in *The Rise of the Sunbelt Cities*, edited by David C. Perry and Alfred J. Watkins. Beverly Hills, Calif.: Sage.
- Sale, Kirkpatrick. 1976. *Power Shift*. New York: Random House.
- Sassen-Koeb, Saskia. 1984. "The New Labor Demand in Global Cities." Pp. 139–72 in *Cities in Transformation*, edited by Michael P. Smith. Beverly Hills, Calif.: Sage.
- Sibley, Marilyn McAdams. 1968. *The Port of Houston*. Austin: University of Texas Press.
- Snell, Bradford. 1979. "American Ground Transport." Pp. 241–66 in *The Urban Scene*, edited by Joe R. Feagin. New York: Random House.
- Soja, Edward, Rebecca Morales, and Goetz Wolff. In press. "Urban Restructuring of Social and Spatial Change in Los Angeles." *Economic Geography*.
- Tabb, William K. 1982. *The Long Default*. New York: Monthly Review Press.
- Tabb, William K., and Larry Sawers, eds. 1984. *Sunbelt/Snowbelt: Urban Development and Regional Restructuring*. New York: Oxford.
- Taylor, J. L. 1983. Personal interview. Economic development officer, Houston Chamber of Commerce, July.
- Texas Commerce Bancshares. 1982. "Texas Facts and Figures." Houston: Economics Division, Texas Commerce Bancshares.
- Thompson, Wilbur R. 1965. *A Preface to Urban Economics*. Baltimore: Johns Hopkins Press.
- . 1968. "Internal and External Factors in the Development of Urban Economics." Pp. 43–62 in *Issues in Urban Economics*, edited by H. S. Perloff and L. Wingo. Baltimore: Johns Hopkins Press.
- U.S. Bureau of the Census. 1961. *Historical Statistics of the United States*. Washington, D.C.: Government Printing Office.
- Wallerstein, Immanuel. 1979. *The Capitalist World-Economy*. Cambridge: Cambridge University Press.
- Williamson, Harold F., Ralph Andreano, Arnold Daum, and Gilbert Klose. 1963. *The American Petroleum Industry: The Age of Energy 1899–1950*. Evanston, Ill.: Northwestern University Press.

American Journal of Sociology

- Williamson, J. G. 1965. "Regional Inequality and the Process of National Development: A Description of the Patterns." *Economic Development and Cultural Change* 13 (4): 3-84.
- Wright, Mickey. 1982. "Texas Industrial Wateruse Long-Term Projection." Draft Report. Photocopied. Austin: Texas Department of Water Resources.
- Writers' Project, Works Progress Administration. 1942. *Houston: A History and Guide*. Houston: Anson Jones.