

High Gas Prices and Urbanism

American urbanization was

based on cheap gas. What now?

THE PRICE OF crude oil has gone from a low of \$16 a barrel at the beginning of 1999, to \$50 in 2005, to more than \$145 in the summer of 2008. The chief reasons for this price run-up—to the extent that we understand them—are increased demand caused by the industrial boom in China and India (which subsidize gasoline prices to their consumers), uncertainty about future supplies, and the inability—or unwillingness—of suppliers and governments to increase production. Gas prices to American consumers are further increased as crude oil is priced in U.S. dollars, and the dollar is currently weak compared to other major currencies. Oil prices have spiked before—in the

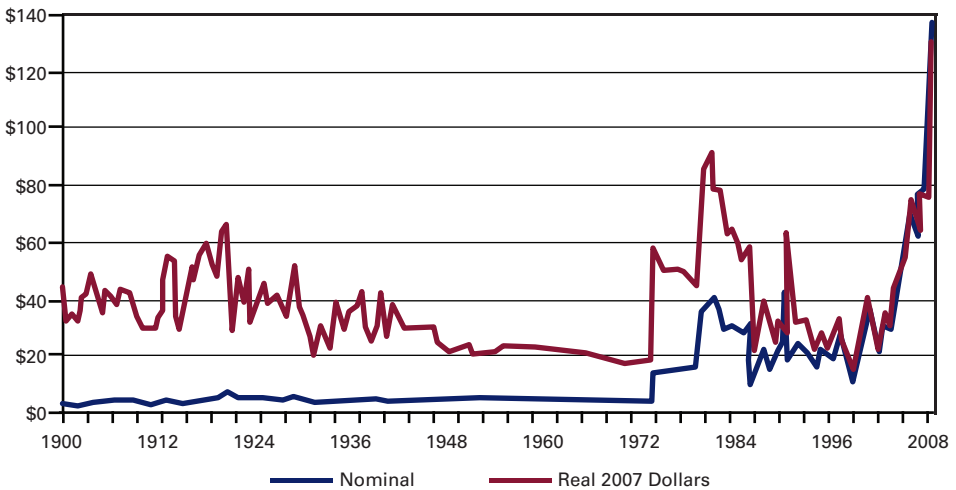
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1970s, when the petroleum-exporting countries imposed an embargo after the Arab-Israeli war, and in the 1980s, during the Iran-Iraq war (Figure 1). But some analysts believe that the current re-pricing will be longer-lasting.

The U.S. economy, which depends for energy primarily on oil (rather than on nuclear, hydroelectric, coal, or alternative sources), consumes a quarter of the world's oil. Higher crude oil prices mean not just higher prices at the pump, but also costlier diesel oil for trucks and trains, and more expensive fuel for jets, power plants, and home heating. Seventy percent of oil used in the United States goes for transportation. Historically, transportation has been one of the chief

factors influencing the way that cities and towns have grown. Pedestrian cities were compact; streetcars, railroads, and subways enabled the city to spread out, encouraging the growth of suburbs; the automobile further increased commuting distances and allowed exurban development to flourish; the airplane influenced the locations of cities by making relatively remote cities accessible, nationally and internationally. In addition, cheap fuel made air-conditioned cities in the Sunbelt possible. It seems likely if energy prices continue to rise, or even if they merely stay at high levels for an extended period of time and people travel less—or less far—by car and plane, then urbanization patterns will also be affected.

Figure 1: Historical crude oil price per barrel, 1900-2008



Source: Lehman Brothers, Markit Partners Table revised on December 13, 2007

CITIES

On the face of it, an extended period of high energy prices should benefit large cities. Many cities already have mass transit infrastructure in place, and although the cost of traveling by bus or subway will increase with higher oil prices, it will do so more slowly than the cost of operating a private automobile. There is already some evidence that mass-transit ridership rates have risen. According to the *New York Times*, ridership rates in 2007 went up 5 percent to 15 percent last year in traditionally transit-oriented cities such as New York, Boston, and San Francisco, and also in cities with new transit systems, such as Denver, Minneapolis, Seattle, and Dallas-Fort Worth. Bus and train lines in Houston, Nashville, Salt Lake City, and Charlotte, N.C. also reported increases. Second, because cities are more compact than suburbs, walking and bicycling are practicable; so is using a scooter, small motorcycle, or a micro-car. Third, because of their population density, large cities can offer a wide variety of stores, services, and cultural institutions within a relatively short distance, reducing the need for long-distance travel. As Samuel Johnson said of eighteenth-century London, “Why, Sir, you find no man, at all intellectual, who is willing to leave London. No, Sir, when a man is

tired of London, he is tired of life; for there is in London all that life can afford.” Lastly, housing, especially in older cities, tends to be closely packed—apartment buildings, flats, and row houses—hence heating and air-conditioning loads are lower than in individual freestanding dwellings.

But there is a major snag. What most cities currently do not have is a wide range of employment opportunities. The high-tech jobs in the San Francisco region, for example, tend to be in suburban Silicon Valley, similarly in Seattle. Although Microsoft, currently located in suburban Redmond, is rumored to be moving a large part of its operations to the city of Bellevue, that is an exception; most corporations long ago relocated to the suburbs, and it would take some time for them to make the reverse move. As far as prospective corporate employers are concerned, large cities currently have a number of fatal disincentives: faltering school systems, high tax burdens, unwieldy municipal bureaucracies, poor services, and unresponsive governments. Nevertheless, rising gas prices represent an opportunity for cities to regain a market share in employment. For the first time in a long time, size and density may be competitive advantages.

Higher energy costs are not all good news for cities, however. Part of the residential housing boom of the last two

decades has been fueled by reverse commuters, that is, people whose jobs are in the suburbs but who prefer an urban lifestyle. The easiest way for these people to save money is to reduce their commuting time by moving closer to their jobs—back to the suburbs. (There is some evidence that this occurred in 1981, the last time gas prices spiked.) There is one group, however, for whom lack of job opportunities is not an issue: retirees. While previous downtown multifamily housing has been targeted at high-income empty-nesters and investors, there may now be a demand for downtown living from middle-income suburban homeowners who are nervous about rising gas and heating oil prices. While it is unlikely that all lifelong suburbanites will suddenly become urban retirees, some suburbanites on fixed incomes will see city living as a hedge against rising prices.

Since oil hit \$60 a barrel, personal consumption expenditures on gasoline and related products has fallen slightly in real terms, showing how quickly consumers change their driving habits and substitute smaller for larger cars (in the first half of 2008, sales of large pick-up trucks and sport utility vehicles dropped 25 percent and 30 percent, respectively). In the long run, belt-tightening will become increasingly difficult, and increasing prices in energy-related areas (home heating, food, services) will lead to reductions in discre-

tionary spending. Two areas affected will be recreation and tourism, both economic mainstays of large cities. A reduction in the number of tourists, museum visitors, and theater-goers will hit most city economies hard—which is what happened in New York City when tourists stayed away after 9/11. Attendance at stadiums, arenas, and ballparks will be affected, too. Higher travel costs will affect cities such as Orlando, Miami, Las Vegas, and San Francisco, which depend on visitors coming from great distances. Lastly, with rising air travel costs, it is hard to imagine that there will not be a reduction in non-essential business travel such as annual meetings and conventions, which are both key urban industries. So whatever advantages are accrued to cities by new residents are likely to be offset by losses in tourism and conventions.

S U B U R B S

Higher oil prices have two immediate effects on suburban economies. Commuting and emergency travel aside, much suburban travel is discretionary—going to the mall, driving to a restaurant, visiting a ballpark. But since so much suburban car travel, such as commuting and weekly shopping, is non-discretionary, it seems likely that most suburban households will end up spending

more on gas, hence less on other things. The economic sectors that might be expected to be affected are entertainment (cultural, sports, leisure), apparel, and holiday travel. Over time, suburban drivers will make accommodations such as driving smaller and more efficient cars, using more car pools, and using mass transit where that is available. There will be demand for new bus routes, at least in denser suburbs. Transit-oriented communities will have an advantage, and there will be demand to raise densities in suburban town centers. Since most suburbs are built to a relatively low density, modest densification would go a long way to reduce car dependency, at least for local trips.

One might expect the demand for compact walkable communities to increase. This will help older suburbs (which tend to be denser) and new so-called traditional neighborhood developments. New housing—the vast majority of which is built in the suburbs—will have considerably higher insulation standards, which is one cost-effective way to reduce cooling and heating loads. The other way is to build smaller houses, and it will be interesting to see if higher heating costs will halt—or even reverse?—the consistent increase in new house sizes of the last six decades. American homebuyers have previously resisted smaller houses—now that may change.

Older, inner suburbs, which have seen deterioration of their housing stock and lower real estate values, may find a new life as higher gas prices cause homebuyers to factor considerations such as access to mass transit, density, and closeness to urban centers into their buying decisions. It is more difficult to be optimistic about the new exurbs that have recently sprung up at the extreme edges of metropolitan areas. These homebuyers originally made a trade-off between long commuting times and large lots and less-expensive housing; now that long commutes are more expensive, the economic trade-off may be less attractive. It is hard to imagine that many more of these far-flung communities will be built.

It is important not to overstate the effect of high gas prices on suburban living patterns. Since the majority of people live—and want to live—in the suburbs, the market will likely adjust to high gas prices not only by moving jobs and retail closer to suburban residents, but also by developing more efficient heating and air-conditioning systems and, of course, smaller, more efficient cars. Toyota recently announced that it has sold more than one million Prius hybrids, although hybrids and electric cars continue to consume gasoline, either directly or indirectly. But what about cars that do not use gas at all, such as vehicles powered by hydrogen or hydrogen cells? Honda recently

unveiled a hydrogen fuel-cell car, the FCX Clarity, that is said to be twice as energy-efficient as a gas-electric hybrid, and three times more efficient than a standard gasoline-powered car. While the FCX is still prohibitively expensive, the promise of alternative transportation is real enough. If automobile manufacturers are able to produce an affordable car that does not require gas, even the exurbs would get a new lease on life.

CONCLUSION

A hydrogen-powered car or some form of efficient hybrid would allow Americans to continue the highly decentralized lifestyle that most have chosen. However, assuming that gas prices stay high, it will not necessarily be business-as-usual. New forms of transportation will be based on expensive energy, and the cost of personal transportation seems destined to rise. Suburbanites will demand that suburban living be made more energy-efficient, with higher-density residential neighborhoods and mixed-use walkable town centers.

The FCX Clarity, which runs on hydrogen and electricity, emits only water and none of the gases believed to induce global warming. If there is a silver lining to the high-oil-price cloud, it is the fact that most energy-conserving or energy-substitution strategies—such as densification,

the greater use of mass transit, reduction in driving, more efficient house construction, and alternative transportation—are also strategies that will reduce carbon emissions and be good for the environment. The American public has already shown a willingness to consider “green” measures in a variety of fields. Sometimes, these measures have been more symbolic than real; rising gas prices have brought these concerns to the fore.