

Chicago Fed Letter

Should governments try to control suburban growth?

Many people believe that suburbanization, or urban sprawl, to use the pejorative term, is excessive in most U.S. metropolitan areas. This *Chicago Fed Letter* examines the reasons for this belief and concludes that it is misplaced. In my view, the issue is that governments have drastically mispriced metropolitan transportation facilities. Appropriate pricing would reduce driving, but would not have dramatic spatial effects.

The popular measure of suburbanization is increases in the percentages of metropolitan residents who live and work outside the central city, or cities, as the metropolitan population grows.^{1,2} Every large metropolitan area in the world for which data are available has suburbanized for at least half a century.³ The presently industrialized countries (members of the Organization for Economic Cooperation and Development) have suburbanized for a century or more. Since about 1950, U.S. metropolitan areas have suburbanized faster and farther than those in most countries. In 1950, some 57% of metropolitan population and 70% of employment were in central cities; in the mid-1990s, the percentages were about 30% to 35% and 40% to 45%.⁴ Economists and others have studied the reasons for suburbanization for about 40 years. There is widespread agreement as to the causes, but disagreement persists as to their relative importance.

First and most widely agreed upon is size. Large metropolitan areas are more suburbanized than small metropolitan areas the world over. It would be nearly impossible and prohibitively expensive to locate most of a large metropolitan area's employment in a contiguous central business district (CBD) and to

provide housing and transportation so that workers could commute between home and work at reasonable cost and time. As a consequence, small suburban centers typically develop within 5 miles to 25 miles of CBDs in large metropolitan areas to replicate the CBD on a smaller scale.

A second reason for suburbanization is high incomes. As incomes rise, residents' demands for housing (both size and quality) and, therefore, land rise almost proportionately. Thus, many residents, especially high-income residents, disperse to suburbs where land and, therefore, housing are relatively cheap. When residents suburbanize, businesses that serve them also suburbanize. Likewise, suburbanization of their employees induces employers to suburbanize. And, of course, suburbanization of employment induces workers to suburbanize to be near their jobs.

Manufacturing is a separate case. This sector suburbanized before most workers and other businesses, largely due to the shift of intercity and interregional goods movement from ships and trains to roads, especially after the development of large diesel engine trucks, refrigerated trucks, and high-quality interregional roadways.

Central city racial tensions, crime, and poor schools are not major causes of suburbanization, as evidenced by the fact that suburbanization pervades other countries where such problems are less persistent and that U.S. suburbanization started long before the massive migration of minorities from southern farms and abroad after World War II. U.S. metropolitan areas whose inner cities have large concentrations of poor minorities appear to be somewhat more suburbanized than those with smaller concentrations of inner city poor. Nevertheless, U.S. racial

problems have had a greater effect on *who* suburbanizes than on *how many* people suburbanize.

Achieving appropriate metropolitan densities

A large modern metropolitan economy consists of large numbers of specialized firms and workers. Specialization entails the movement of massive amounts of goods, labor, and information. Efficient exchanges require an elaborate transportation and communication infrastructure. The proximity of diverse businesses and workers is precisely the justification for large metropolitan areas. High land values throughout metropolitan areas, but especially in CBDs, are a precise measure of the value of proximate locations.

A fine road system must be the basis of an efficient metropolitan transportation system in most urban areas. There is no practical substitute for cars and trucks for most intrametropolitan goods movement (including retail purchases). Fixed rail commuter systems are justified in a few U.S. metropolitan areas, but no careful benefit-cost analysis has justified or approved any of the fixed rail commuter lines built in U.S. metropolitan areas during recent decades (for example, Baltimore, Atlanta, Dallas, and Los Angeles). In most U.S. metropolitan areas, the transportation system is and should be road based. Ninety percent of U.S. metropolitan workers commute by car and most of the remainder commute by bus. Nonwork trips are even more predominantly by private vehicles.

The main reasons for widespread use of cars in U.S. metropolitan areas include the reasons cited above for extensive suburbanization of residents and jobs—high incomes and related strong demand for housing and land and

cheap land because of its plentiful supply in the U.S.—as well as a fine road-based transportation system and inexpensive cars and fuel.

Basic results of welfare economics indicate that competitive markets lead to socially efficient resource allocation. In some cases, efficiency requires that governments price their services as competitive markets would. Private land and housing markets are highly competitive in U.S. metropolitan areas and no serious study has suggested otherwise. But governments have failed miserably in their pricing of urban transportation services.

Most objections to sprawl are really objections to “excessive” reliance on auto use, especially by suburban residents.⁵ Some observers complain that vehicular road use is free, whereas transit users must pay fares, resulting in distorted modal choice. The claim is largely false. Our present system of fuel taxes is an efficient charge for rationing or constraining vehicular road use. Fuel use is nearly proportionate to road space used. The rate must be higher for diesel vehicles since heavy vehicles place more stress on roads than do cars. Motor vehicle fuel taxes are by far the cheapest tax to collect and cannot be evaded. Of course, fuel taxes are not the most perfect instrument that can be imagined. Tax rates can be varied by time and place of fuel’s *sale*, but not by time and place of its *use*.

Public transit advocates regard the last fact as the deciding argument against the rationing of road use by fuel taxes. They claim that motor vehicles cause congestion and that fuel taxes cannot be levied at higher rates at congested times and places. The argument is correct, but not, in my view, persuasive.

Much attention has been paid by transportation economists and engineers to methods of charging congestion costs (the costs each vehicle imposes on other road users) to road users.⁶ The prominent proposal is electronic metering of time and place of road use by compatible electronic devices embedded in roadways and installed in vehicles. Such systems are expensive and entail risks of evasion, sabotage,

and wasteful driving to avoid devices. Also problematic would be costs of devices imposed on vehicle operators who make only occasional visits to the metropolitan area. Administering such a system would be more complex than any activity that state and/or local governments now conduct.

Congestion indicates undersupply of transportation infrastructure. If marginal social cost is rising with vehicle use, marginal cost exceeds average cost, so a price equal to marginal cost (the competitive price) indicates excess profits and undersupply of capacity. Increases in road capacity in many metropolitan areas would address the problem. Without massive and unjustified restructuring of suburban areas, suburban extensions of fixed rail systems are not justified. Corridor travel densities are much too low to permit efficient use of fixed rail transit vehicles. Bus systems are justified in some circumstances, but they are road-based.

While some new highways are justified in suburbs, it would be possible to increase roadway capacity in many central cities and some suburbs by improved operation of existing roads, for example, through careful design and operation of sequenced traffic lights, reverse direction streets and lanes, increased prices of on-street parking, and improved enforcement of traffic rules. Even in a large city like Chicago, such improvements could be made at a cost of only a few tens of millions of dollars, much less than the cost of new road or fixed rail transit construction.

However, those who complain about excessive car travel in U.S. metropolitan areas have a point: Car travel is underpriced. The right price for car travel, and the price that competitive owners of rights-of-way would charge is the opportunity cost of land used for roadways plus the replacement cost of improvements (roadways, bridges, tunnels, traffic controls, etc.) plus road operating costs (maintenance, policing, snow removal, etc.), all converted to a vehicle mile basis. A rough calculation⁷ indicates that the appropriate fuel tax would be about ten times average present U.S. levels, about \$2.00 per gallon or \$.10 per vehicle mile

instead of the present average of about \$.20 per gallon or \$.01 per vehicle mile. Present gasoline prices average about \$1.20 per gallon, including the \$.20 tax. The appropriate tax would raise the average retail price to about \$3.00, or 2.5 times its present level. \$3.00 per gallon is between \$.50 and \$1.00 less than gasoline prices in most industrialized countries.

Out-of-pocket driving costs would increase to less than 2.5 times their current level if some of the tax receipts were used to make the improvements suggested above. Traffic flow would improve not only because of the improvements but also because higher fuel prices would reduce driving.

Higher fuel prices would induce some drivers to walk, ride bicycles, or take buses or fixed rail transit vehicles. But I doubt that these effects would be large. Studies conducted after the massive gasoline price increases in 1973–74 and 1980–81 suggest that the price elasticity of demand for car travel is significant, but considerably less than one (i.e., greater than -1). Some people switch to smaller or more fuel-efficient vehicles, but more people simply reduce the number of relatively frivolous trips. I doubt that more compact suburban developments would be a substantial effect. Reduced cross-commuting (evidenced by nearly equally dense travel in both directions on urban expressways) would probably be the greatest effect. Millions of suburban residents are in the following situation: A lives in suburb 1 and works in suburb 2, whereas B lives in suburb 2 and works in 1. By no means are all suburbs equally desirable as residences or equally desirable as work places, but substantial numbers of suburb-to-suburb commuters would effectively swap residences. This would entail little new construction of roads or houses.

A rough estimate is that my proposed gasoline tax increase and my proposed improvements in traffic control would reduce metropolitan driving by 15% to 25% and remove congestion as a serious public issue. All my proposals could be carried out in a few years and would require almost no new

construction of travel facilities, dwellings, or employment centers.

What makes my proposals feasible is that, contrary to the beliefs of many who oppose automobile-based commuting in U.S. metropolitan areas, suburbanization does not necessarily increase commuting times or distances. Both jobs and residents have suburbanized in about equal proportions, with the result that most people who live and work in suburbs could live very near their work places. That would not be possible if most employment were in or near CBDs and residences were in surrounding areas. U.S. suburbanization has not shortened work trips because road use is underpriced. It is government's job to get the prices right and to modernize traffic control and road systems. That would solve the problem for the foreseeable future. Everyone knows that Americans are resistant to further tax increases. A fuel tax increase similar to my proposal would yield almost as much revenue as local property taxes. Property taxes are the worst administered and most odious taxes we have, and they inhibit real estate development. An educational program could persuade voters to favor replacing distortionary property taxes with motor fuel taxes that would improve resource allocation. The difficult requirement would be for government to persuade voters that the tax exchange would be permanent and that real estate taxes would not be resumed later.

Other objections to suburbanization can be dealt with more briefly. Some opponents of low density suburbanization fear that suburbs use land that will one day be needed to produce food for people. The argument is misconceived on every score. No responsible study in many years has concluded that the U.S. will have difficulty feeding itself in the foreseeable future.

Environmental issues are somewhat more serious. New cars now discharge only about 15% as much emissions per vehicle mile as the last uncontrolled cars at the end of the 1960s, but increased driving has just about offset improvements in emissions technology. Federal emissions standards could be

increased somewhat but the benefits would be modest. Cars more than five years old account for most discharges, mainly because states have not obeyed the federal mandate to require that older cars be held to high standards. Diesel engines are more serious sources of harmful emissions, but again the cause is failure to maintain reasonable standards. Further emissions reductions will come from technology improvements in the next decade or so: fuel cells, diesel engines, gas turbines, electric cars, dual engines.

Finally, those who oppose suburbanization often complain that it results in segregation of poor minorities in central cities. The claim needs many qualifications, but is basically correct, as is the belief that concentration of poor minorities in segregated neighborhoods impairs the ability of poor youth to escape the poverty and alienation of their neighborhoods. However, the solution is not to oppose suburbanization, but to open up suburbs to lower income minorities. Rapid suburbanization of middle class minorities since the early 1980s indicates that suburban discrimination is more against lower class people than against minorities. One part of the solution is better enforcement of laws against discrimination in housing. More important is for states to prevent local governments from zoning out the poor. A simple law that forbade controls, not closely related to safety, on multifamily housing would go far to solve the problem.

Growth controls: The road to avoid

Much higher motor vehicle fuel taxes would curtail frivolous driving and reduce commuting distances somewhat, and might even lead to somewhat more compact metropolitan areas in the long run, but I doubt that it would satisfy the severe critics of low density suburbs. Most such critics contrast low density U.S. suburbs with much more compact developments in many European and Asian metropolitan areas. Virtually all countries in Europe and Asia impose direct controls on metropolitan expansion.

The basic technique is to require national or provincial government permission to convert land from rural to urban use and to ration such permissions. In some countries, notably England and South Korea, more draconian controls in the form of greenbelts, where development is illegal on any terms, are employed. In this country, suburban jurisdictions have almost complete control over land use within their borders, while controls by higher levels of government are only sporadic.

There is no doubt that determined controls on land use conversion produce artificially compact metropolitan areas. However, they do so by driving land values to extremely high levels. World Bank research has shown that important differences in housing prices relative to incomes among countries are on the supply side.⁸ Supply differences include security of property rights, the adequacy of financial institutions, and construction capabilities, but the most important difference is the severity of restrictions on land use conversion. Canada and the U.S. provide a laboratory comparison. Both countries have plentiful land, similar income levels, and similar housing finance and construction sectors. Canada has severe controls on land use conversion around large metropolitan areas, especially

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Toronto and Vancouver, and the U.S. has almost no such controls. House prices are 50% greater relative to personal incomes in Canada than in the U.S. In the U.S., house prices are 2.5 to 3.5 times their owners' annual incomes, whereas in Canadian metropolitan areas, they exceed four times annual incomes. South Korea is another laboratory case. In about 1990, Seoul house prices were roughly nine times residents' incomes. About then, the government started a new policy to permit more housing development, and just before the Asian financial crises began in 1997, house prices were only about five times residents' incomes. In most northern European metropolitan areas, house prices are four to eight times annual incomes.

High house prices are the best documented effects of direct controls on metropolitan expansion, but they are not the only adverse effects. Business expansion is also limited, and business locations are distorted. I do not believe that advocates of growth controls have faced the implications of their proposals for housing costs.

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¹This article is based on Edwin Mills, 1998, "Suburbanization as a government policy issue," Northwestern University, mimeo.

²Provided that city boundaries are unchanged, the popular definition is satisfactory. The technical measure must be employed where city boundaries are moved outward as the metropolitan area expands, as occurs in some metropolitan areas in other countries.

³Data on suburbanization are reviewed in Peter Mieszkowski and Edwin Mills, 1993, "The causes of metropolitan suburbanization," *Journal of Economic Perspectives*, Vol. 7, No. 3, pp. 135-147, and Edwin Mills and Luan Sendé Lubuele, 1997, "Inner cities," *Journal of Economic Literature*, Vol. 35, No. 2, pp. 727-756. See also Edwin Mills and Ju Ping Tan, 1980, "A comparison of urban population density functions in developed and developing countries," *Urban Studies*, Vol. 17, pp. 313-321.

⁴Diedre Gaquin and Mark Littman, 1998, *County and City Extra*, Lambda, MD: Berman Press.

⁵For the anti-sprawl perspective, see Anthony Downs, 1994, *New Visions for Metropolitan America*, Washington: Brookings Institution, and Anthony Downs, 1998, "The big picture," *Brookings*

Review, Fall, pp. 8-11, Washington: Brookings Institution. Also, Hank Dittmar, 1995, "Putting a stop to sprawl," *Progress*, Vol. 5, No. 5, Washington: Surface Transportation Policy Project.

⁶See Kenneth Small, 1992, *Urban Transportation Economics*, Chum, Switzerland: Harwood Academic Publishers.

⁷Edwin Mills, 1998, "Excess commuting in U.S. metropolitan areas," in *Network Infrastructure and the Urban Environment*, Lars Lundquist, Lars-Goran Mattson, and Ischangho Kim (eds.), New York: Springer.

⁸See Steven Malpezzi and Stephen Mayo, 1997, "Housing and urban development indicators: A good idea whose time has returned," *Real Estate Economics*, Vol. 25, No. 1, pp. 1-11, and Shlomo Angel and Stephen Mayo, 1996, "Enabling policies and their effects on housing sector performance: A global comparison," World Bank, mimeo.

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