

Jumpstarting Bicycle Transportation in the United States: The Carrot or the Stick?

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Summary

Many people believe that with proper incentives the bicycle could be a viable, mainstream transportation mode in the United States. Though some of those incentives have been put in place over the last decade, bicycle transportation does not appear to be growing much in most parts of the U.S. Given this reality, what, if anything, can be done to jumpstart bicycle transportation in America? Is it enough to focus on providing bicycle facilities? Is it a case of providing "too little, too late?" Are "carrots" effective without "sticks" that make driving much less appealing? Or are there fundamental reasons why utilitarian bicycling is fated to remain on the outskirts of America's transportation consciousness? This presentation will discuss and evaluate the various "carrots" and "sticks" that are currently being employed in the U.S. to increase utilitarian bicycling as well as examine the dilemmas inherent in more aggressive approaches to accomplishing that goal. This topic should be of relevance to policy makers and planners implementing programs whose goal is to increase the bicycle mode share.

1. Introduction

Many people believe that with proper incentives bicycling could become a mainstream transportation mode in the United States. Some of those incentives have been put in place over the last decade, made possible by federal expenditures on non-motorised infrastructure which increased from a trivial \$7 million in 1990 to a modest \$222 million in 1999. But in spite of these efforts, outside of a handful of locales, there is little evidence that bicycle transportation is growing much, if at all. Indeed, the bicycle mode split in the U.S. probably is still close to the meagre 0.7% reported in the 1990 census.¹ (By comparison, it is a respectable 5% for the fifteen EU nations).² Moreover, trends appear to be going in the wrong direction: according to the U.S. Department of Transportation, motor vehicle passenger miles grew by 25% just between 1990 and 1997! But it isn't that America dislikes the bicycle - most American households have several sitting in their garages and recreational cycling is perhaps more popular than ever. The problem is that Americans generally do not treat the bicycle as a transportation option.

Given this reality, what, if anything, can be done to jumpstart bicycle transportation in America? Is it enough to focus on providing bicycle facilities? Is it a case of providing "too little, too late?" Are "carrots" effective without "sticks" that make driving much less appealing? Or are there fundamental reasons why utilitarian bicycling remains on the outskirts of America's transportation consciousness?

There are many reasons individuals may choose not to bicycle. But these personal reasons (e.g., age, health, job requirements, etc) are true world-wide and do not explain why the bicycle mode

share is so much lower in the U.S. than in Europe or Japan. Consequently, this paper will focus exclusively on the public policies that drive aggregate levels of mode choice.

This paper is organised into three sections: 1) typical "carrots" (incentives) now employed to increase bicycling; 2) typical "sticks" (disincentives) meant to pull motorists out of their cars, and 3) why utilitarian bicycling is marginal in the U.S. At the end of each section one or more critical questions or dilemmas are identified to provoke discussion during the workshop.

2. Carrots: Incentives to Utilitarian Bicycling

2.1 Investment in Bikeway Systems

Bicycle facilities are better funded than ever before. Between 1990 and 1999 there was a thirty-fold increase in federal expenditures on non-motorised projects. Many cities have added miles of trails and bike lanes and have invested in countless "spot" improvements that help make the existing road system more amenable to bicycles. But there are no major American cities with a comprehensive, interconnected system of paths and bike lanes that provide the same level of access that automobiles have available to them.³

Impact

Research has shown that higher levels of bike commuting are associated with greater levels of bikeways per roadway mile.⁴ But the exact relationship between facilities and ridership is unclear. Some suspect that areas with more developed bikeway systems are serving a population already inclined toward bicycle transportation. In other words, it's possible that the facilities are not generating the bicyclists; rather, it may be the bicyclists generating the facilities.

Dilemma

A substantial portion of federal funds allocated to bicycle projects has been spent on trails. While trails undoubtedly appeal to the widest range of bicyclists, they are used for recreation at least as much as transportation and take an incredible amount of resources - money, time and energy - to develop. Would the time and energy poured into trail development be better spent on bike lanes and other enhancements to existing street networks in terms of increasing bicycle transportation?

2.2 Bike Parking

Public investment in bike parking facilities has also greatly increased. Typically, bike racks are installed in public rights of way, especially in commercial districts where potential demand is greatest. Many cities have installed upwards of 1000 of these in the last decade. There have also been significant investments in covered bike parking at transit terminals, including bike lockers.

Impact

This has proven a popular and cost-effective enhancement to the bicycling infrastructure. While it is unclear how much the availability bike parking influences the decision to bicycle, it is an important convenience and another of those incremental improvements that helps "normalize" bicycling.

2.3 Bikes on Transit

Federal funds also have been used for to install bike racks on buses in many jurisdictions. They have proven highly popular in cities like Seattle, where entire fleets are equipped with racks and where usage has exceeded expectations.

Impact

While it creates a convenient multi-modal option, it remains unknown whether transit users with bicycles represent new converts to utilitarian bicycling or whether they were already bicyclists who now have an extended travel range.

2.4 Parking Requirements for Private Development

Many jurisdictions now have regulations requiring that new developments provide bike parking facilities in their garages. Typically, the number of spaces is a set percentage of the number of automobile spaces but may vary depending on the nature of the development (i.e., residential, commercial or institutional).

Impact

This is another important step in institutionalising bicycling, but its impact on mode choice has not been documented.

2.5 Shower Requirements for Commercial Development

A small number of jurisdictions now require new office buildings to have showers as an encouragement to bicycle commute.

Impact

This probably generates a small number of bicycle commuters, but there is little indication that showers are as important as bikeways.

2.6 Summary

There is no question the bicycling infrastructure has been upgraded over the last decade in many cities and there is ample evidence that new facilities are getting substantial use, but it is not clear if overall bicycle use is rising because of these public investments.

2.7 Discussion Questions

Are there places that provide direct financial incentives (e.g., tax breaks) to encourage bicycle use?
Are there other direct incentives other than additional facilities that can generate bicycle trips?

3. Sticks

"Sticks" are policies that discourage automobile driving and indirectly encourage the use of the bicycle. In general, sticks have been used so sparingly in the U.S. that it's difficult to assess their effectiveness. Thus in some sense the following discussion of some of the sticks now receiving limited use is theoretical.

3.1 No New SOV Capacity

In most cities space for new roads or even road widening is limited, making the cost of new road width prohibitive and thus assuring that congestion remains the best disincentive for driving. In a sense, this could be called the "let congestion get bad enough and the bicyclists will come" policy.

Impact

How much bicycling this stimulates is questionable, since clogged roads are not an attraction to bicyclists.

3.2 Transit Priority

High occupancy vehicle (HOV) lanes, signal priority systems, transit only lanes, etc., not only create an incentive for motorists to switch to transit, but penalise SOVs. If buses are equipped with bike racks, this could stimulate more bike-transit trips while discouraging driving.

Impact

If travel times for motorists are lengthened, some mode shifts can be expected, but impact on bicycling is highly indirect.

3.3 Car-free zones

Some locales in Europe have permanently banned motorised vehicles from some residential neighbourhoods, but this is virtually unheard of in the U.S.

Impact

While some American downtown areas have "car-free" zones or malls that limit traffic to transit and non-motorised modes, the scope of these areas is not broad enough to affect mode choice. Obviously, eliminating cars from larger areas could substantially alter the transportation equation, but it does not appear this is going to happen any time soon in America.

3.4 Traffic Calming

Traffic calming devices have the dual function of slowing down motor vehicles while making residential street more attractive for non-motorised modes. However, some traffic calming devices such as speed bumps, chicanes, and diverters, if not properly designed, can become a hindrance, rather than an aid, to bicycling.

Impact

Traffic calming is almost exclusively employed on residential streets, but it is fear of bicycling on busy arterial streets that prevents many from even considering utilitarian bicycling. There is also little evidence that traffic calming measures actually reduce motor vehicle use, or result in mode shifts.

3.5 Re-Channelising Arterial Streets

It has become increasingly common to take a four-lane arterial and reduce it to three lanes - one in each direction plus a centre turn-lane and bike lanes. In theory, this could discourage driving by slowing down the traffic progression while simultaneously encouraging bicycle use.

Impact

In fact, these so-called "road diets" only reduce speed 1 to 3 mph. This reflects the political reality that this kind of re-channelisation is generally implemented on streets that can tolerate the loss of motor vehicle lanes without seriously affecting the traffic flow. That of course means while the new channelisation may be an incentive to bicycle, it may do nothing to slow traffic or prompt motorists to switch modes.

3.6 Reduced Parking Requirements for Developers

Some jurisdictions are adjusting off-street parking requirements in new developments. Portland, Oregon's zoning code calls for maximum parking ratios that decrease as transit availability increases. A natural, though radical, extension of this policy would be to similarly limit parking ratios if a community is well-served with bicycle facilities.

Impact

This could make car ownership somewhat more burdensome or expensive, but that depends on the supply of on-street parking. In any case, because this policy is directed toward new developments, the population targeted by this stick is relatively small.

3.7 Summary: The Sticks are Too Flimsy

In spite of surveys indicating American support for a diversified transportation system, reality is going in the opposite direction. Car ownership and use continues to climb even as complaints about congestion grow louder. Vehicle miles traveled (VMT) have been growing steadily in the U.S.; according to the U.S. Department of Transportation, passenger miles grew by 25% just between 1990 and 1997! In a study of 68 American cities, the Texas Transportation Institute (TTI) reported that between 1982 and 1997, delay grew by 235%, but population in these metro areas grew by only 22%. This can mean only one thing: people are driving more miles. Accordingly, TTI reports that the Americans each day are driving 70% more now than in 1982. Why are they driving more? U.S. Department of Transportation data reveals that about 69% of the increase in driving is due to three factors: longer average trips, less carpooling and less reliance on alternatives such as transit, carpooling, bicycling and walking.

4. Why is Utilitarian Bicycling so Low in the United States?

The previous sections focused on identifying the "carrots" and "sticks" currently employed in the U.S. to generate bicycle trips. Yet the bicycle remains a fringe mode of transportation in America. The reason involves a complex mix of factors, the most important of which are summarized below:

4.1 Lack of an integrated network of dedicated bicycle facilities

There are no major American cities with a comprehensive, integrated network of bike lanes or separated paths similar to the Netherlands. Those cities which have more elaborate bikeway networks and significant levels of bicycling are all small communities dominated by universities. Larger cities with more demographically diverse populations that have focused more resources on bicycle facilities tend to have somewhat higher levels of bicycling than comparable cities which don't, but the difference is not substantial.⁵ However, investments in bicycling infrastructure thus far largely have been piecemeal, so the impact of a comprehensive, integrated bikeway network in a major city has yet to be tested.

Dilemma

Is it even possible to build a comprehensive bikeway system without creating barriers to motor vehicle use in the very process of constructing it? The answer for most cities in America is "no." Few locales have enough surplus right of way - or the financial wherewithal to acquire enough of it - to add bicycle facilities without taking away road space for cars, either by removing parking or reducing the number of lanes for motor vehicles. Therefore, the most important incentive for generating more utilitarian bicycling likely will involve creating a strong disincentive to drive. While this may be desirable in terms of increasing the bicycling mode share, the political will to implement this is lacking.

4.2 Land use patterns

Many believe that urban sprawl, zoning laws, and the suburban street lay-out (e.g., the "superblock" concept), means that opportunities to bicycle for the almost 60% of Americans that now reside in suburbia are limited. This may be true, but does not account for the fact that bicycling is barely any higher in most inner cities where trips less than two miles account for at least 20% of all trips. Yet

today only a tiny fraction of these involve the use of a bicycle. This suggests that compact land use by itself is not enough to generate significant levels of bicycle transportation.

4.3 Low cost of driving

Many believe Americans preference for driving stems from the low cost of driving, especially fuel prices. It is surely no coincidence that since the stabilization of oil prices in the early 1980's miles driven per capita has increased steadily while nationally reliance on alternative modes has generally declined. In fact, until recently, the inflation-adjusted price of fuel in the U.S. was at a near-historic low. One only has to recall the uproar over the recent rise in gasoline prices to recognize the extent to which Americans are addicted to cheap gas. But even after recent price increases gasoline still costs less than half what it does in most of Europe! Not only is gasoline taxed at a relatively low rate, but other user fees such as toll roads are disappearing and with a few exceptions, parking taxes are not high enough to constitute a major disincentive to driving. In short, it is national policy in America to ignore the social costs of driving, which explains the relatively low tax on gasoline.

Dilemma

Gasoline taxes are probably the most powerful stick available for getting people to rethink their reliance on the car. Yet in America, there is more pressure to lower gas taxes than to raise them! How do we confront this contradiction?

4.4 Cultural Factors

First, it is important to remember that the bicycle lacks transportation roots in American society. During the bicycle's brief golden age in the 1890's, its use was almost exclusively recreational. The arrival of the mass produced automobile eliminated any potential for the bicycle early in the 20th century, as bicycles became viewed as a nuisance on the road to "progress." It was quickly relegated to the status of a toy for kids until a small revival began about twenty-five years ago. Meanwhile the automobile became the driving force behind the American economy as well as the pre-eminent status symbol. As land use patterns adapted to an ever-growing network of highways and with the cost of driving kept low, is it any wonder that over time the automobile has become an integral part of the "American way of life?" Indeed, driving is treated as a duty rather than a privilege while the car has become an almost sacred object to a significant segment of the population.

Dilemma

Culture is probably the most daunting barrier to increasing bicycle transportation in America. How can the culture be changed so that the transport potential of the bicycle is realized? Can this culture be weakened without political action that changes the economics of driving?

4.5 Lack of political support

While federal transportation expenditures indicate that bicycling has made some in-roads into mainstream transportation policy, political support for an aggressive pro-bicycle transportation policy is nowhere to be found.⁶ It is politically easier to sprinkle carrots around the nation than wield sticks to modify the behavior which may be the root of the problem in the first place. This reflects the general American dilemma with regard to transportation policy: there is a reluctance to enact governmental policies that place abstract social benefits ahead of concrete individual choice. Thus with a tiny handful of exceptions, government at all levels lacks the will to either implement comprehensive bicycling networks or wield sticks that would break the American addiction to driving for the sake of the greater good.

5. Conclusion

It is unlikely that "carrots" alone can induce a substantial mode shift to the bicycle in U.S. The current piecemeal provision of bicycle facilities may result in modest mode shifts, but without a massive effort to develop comprehensive bikeway networks, interest in bicycle transportation will remain limited. But even fully integrated bikeway systems may not break the automobile's hold on America's transportation consciousness. This suggests that the bicycle will not be treated as a serious transportation option until the automobile culture weakens. While sprawl, land use and automobile-oriented street grids have made many suburban areas unappealing to bicyclists, many cities do not suffer these conditions, yet low rates of bicycling persist. While culture remains the critical factor, it is buttressed by policies that keep fuel cheap and ignore the social costs of automobile dependence. This suggests that investments in bikeway networks must be accompanied by powerful "sticks" which discourage automobile use if those facilities are to achieve maximum use. At present, however, politicians are shying away from strong disincentives in deference to the dominant automobile culture.

Notes:

1. A clearer picture of the impacts of the bicycle expenditures will emerge when the 2000 Census Journey-to-Work data is released.
2. Source: European Union - Transport in Figures, <http://europa.eu.int/>
3. Davis, California and Corvallis, Oregon, both small college towns, come closest to completely integrated networks of bike lanes.
4. National Bicycling and Walking Study, Case Study #1, Federal Highway Administration, 1993.
5. Ibid
6. Total of non- motorized expenditures has never exceeded 1% of total federal transportation dollars, according to the Surface Transportation Policy Project.