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"Efficiency - Equity - Clarity"

Transportation Market Distortions

A Survey

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7 March, 2006

Abstract

Properly functioning market efficiently allocate resources. Such markets must reflect certain principles, including consumer options, cost-based pricing, and economic neutrality. Transportation markets often violate these principles. This report examines these distortions and their implications for transport planning.

Transportation market distortions include various types of underpricing of motorized travel, planning practices that favor automobile travel over other modes, and land use development practices that create automobile-dependent communities. Although these distortions may individually appear modest and justified, their impacts are cumulative and synergistic, leading to economically-excessive motor vehicle use. These distortions exacerbate many problems, including traffic congestion, facility costs, accidents, reduced accessibility (particularly for non-drivers), consumer transportation costs, inefficient energy consumption, and excessive pollution. Market reforms that reduce these distortions would provide significant economic, social and environmental benefits. In a more efficient market, consumers would choose to drive less and rely more on alternative transport options, and be better off overall as a result.

Introduction

The French social critic Voltaire's 1759 comic masterpiece *Candide* ridiculed the *optimistic philosophy* (also called *metaphysical optimism*), which claims that "all is for the best in this best of all possible worlds." The book's hero tries to maintain the optimistic philosophy when faced with various problems and insults, but eventually realizes that the existing world is not really optimal. The optimistic philosophy can be harmful by discouraging critical thinking, innovation and reform.

The optimistic philosophy reappears occasionally in various guises. For example, some people claim that current transportation and land use patterns are optimal because they represent consumer preferences, and so efforts to change these patterns (called *mobility management* and *smart growth*) must be harmful (Dunn, 1998; Mills, 1999; "Evaluating Criticism of TDM," VTPI, 2005). There is much to be said for letting consumers make their own choices, but it is important to consider market conditions before concluding that the resulting consumption patterns are optimal. Love of markets must not be blind.

A properly functioning market is like a well-tuned machine: Consumers choose from various goods and make trade-offs between factors such as quantity, quality, price and location. Prices provide information about resource supply, production costs, and the value consumers place on goods. Profits give producers incentives to provide goods that consumers value, and competition encourages efficiency and innovation. The result tends to maximize societal benefits. But to be efficient markets must reflect certain principles:

- *Consumer options.* Consumers need viable options from which they can choose and make trade-offs between factors such as price, quantity, quality and location.
- *Cost-based pricing.* Prices (what consumers pay for a good) must reflect marginal costs (what it costs to produce that good).
- *Economic neutrality.* Public policies (investments, taxes, subsidies, and regulations) should not favor one good or group over others, unless specifically justified.

Consumption patterns cannot be considered optimal if markets violate these principles. For example, current transportation patterns are not necessarily optimal if they result from market distortions. Reforms that shift the market toward efficiency could result in different transport patterns that make people better off overall.

This paper investigates the degree to which current transportation markets reflect market principles, and the degree to which current transport activity is *socially optimal* and *economically efficient*. Travel activity that exceeds this optimum can be considered *economically excessive*, which is travel that consumers would choose to forego in a more efficient market. Because transportation is affected by the location of activities (housing, jobs, public services, etc.), this paper also investigates related land use market distortions.

Market Principles and Distortions

This section examines in detail individual market principles, the degree to which they are reflected in current transportation markets, and various types of market distortions.

Consumer Options

An efficient market offers consumers various options from which they can choose the combination that best suits their needs, and convenient information about available options.

Application to Transport Markets

An efficient transportation market offers various travel modes (walking, cycling, ridesharing, public transit, carsharing, delivery services, etc.), price and quality options (for example, being able to choose between cheap and basic public transport, and more expensive, premium services). Similarly, efficient markets offer consumers options regarding the location of activities such as housing and shopping. Consumers also need convenient and accurate information about their options. Even people who do not currently use a particular transport or location option can benefit from having them available for possible use in the future, which economists call *option value* (Litman, 2003). Improving non-automotive transport and location options tends to particularly benefit physically and economically disadvantaged people, and so increases equity.

Current Market Conditions

Although consumers have many options when purchasing motor vehicles and related services, they often have few options for non-automobile transport, and the options that do exist are often inconvenient, uncomfortable, expensive, stigmatized, and poorly integrated with other modes. Non-automotive transport generally has limited levels of service (for example, public transit users are seldom able to choose among various levels of service at different prices). Walking and cycling conditions are often poor, which can be a significant barrier since most public transit trips include nonmotorized links.

Similarly, there are often few options for housing and services in multi-modal locations; those that exist are often either undesirable (located in older, degraded areas) or expensive (since so few exist, those that have a high level of neighborhood quality often command a high price). As a result, many households choose more automobile-dependent locations than they actually prefer (NAR and NAHB, 2002; Litman, 2006). Anybody who doubts the inadequacy of current transport options should spend two weeks without using an automobile. With few exceptions, such as multi-modal neighborhoods in some cities and towns, non-drivers face significant problems meeting basic accessibility needs.

This is not to say that governments must provide unlimited transport services or housing options regardless of their economic viability, but it does indicate that policies which reduce transport and location options (discussed later in this paper) tend to harm consumers, and policies that improve these options, particularly affordable options suitable for use by physically and economically disadvantaged people, tend to benefit individual consumers and society overall.

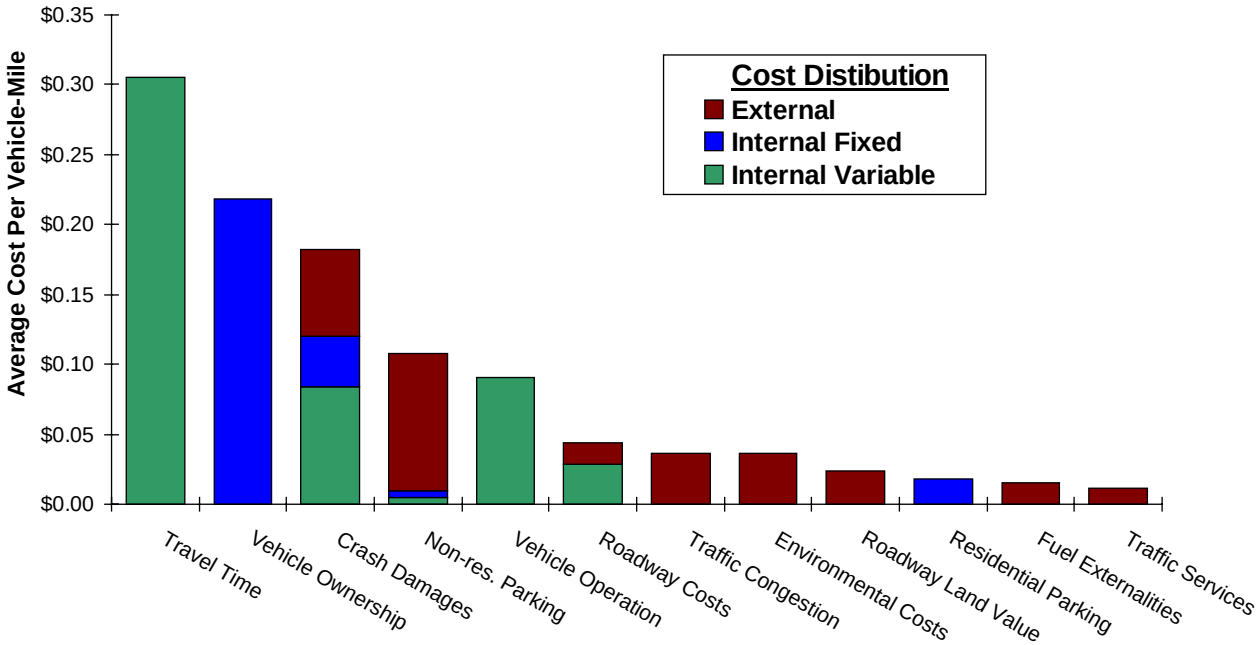
Pricing

Economic efficiency requires that *prices* (what users pay for a good) equal *marginal cost* (the cost of producing that good), unless a subsidy is specifically justified. Efficient pricing tests consumer demand. For example, it would be inefficient for society to pay $2.00 in road and parking facility costs to accommodate a vehicle trip that a motorist only values at $1.00. Charging motorists directly for the road and parking facility costs they impose eliminates lower-value trips while improving mobility for higher value trips.

Current Market Conditions

Motor vehicle travel imposes various costs, including vehicle ownership and operating expenses, roads and parking facility costs, traffic services, roadway land value, travel time, accident risk, congestion, and various environmental impacts (Delucchi, 1996; Litman, 2005). Figure 1 illustrates one estimate of these costs, including monetized estimates of non-market costs such as travel time, accident damages, and environmental impacts. These are categorized as *External* (imposed on other people), *Internal Fixed* (borne by the motorist as a fixed fee), and *Internal Variable* (borne by the motorist in proportion to how much they drive, which is equivalent to *price*).

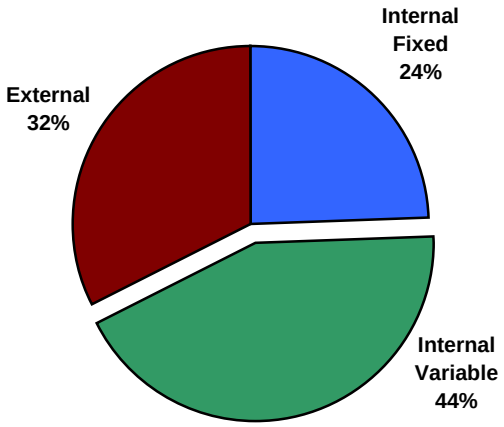
Figure 1 **Per-Mile Costs of Automobile Use** (VTPI, 2005)



This figure illustrates the estimated magnitude and distribution of automobile transportation costs.

In total, about a third of automobile costs are *external* and a quarter are internal-fixed, as illustrated in Figure 2. As a result, motorists perceive less than half the total costs imposed by their vehicle use when making individual trip decisions. Internal-fixed costs give motorists an incentive to maximize their vehicle travel in order to get their money's worth from their large fixed expenditures.

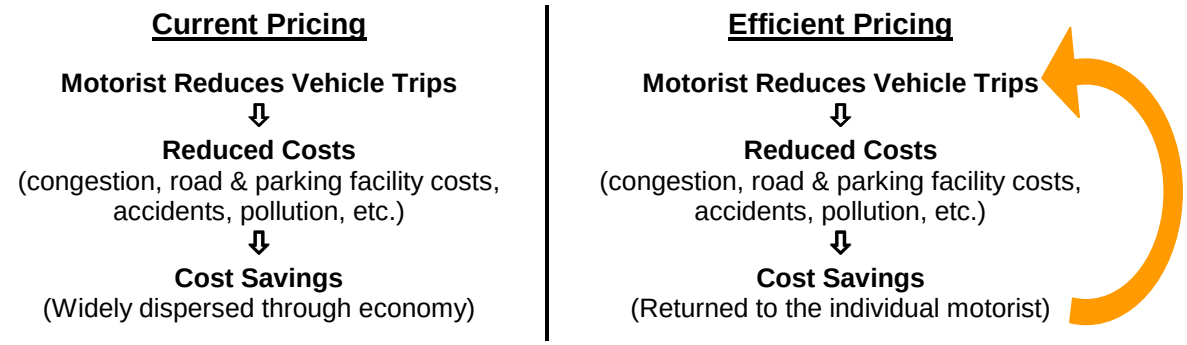
Figure 2 **Average Distribution of Automobile Costs** (VTPI, 2005)



Less than half of the total costs of automobile use (including vehicle expenses, travel time, accident risk, facility costs, and environmental impacts) are internal-variable.

Put differently, motorists only receive part of the savings that result when they drive less. An efficient transportation system gives drivers the full savings produced when they reduce their mileage, providing more efficient incentive, as illustrated below.

Figure 3 **Efficient Pricing Rewards Motorists for Reducing Costs**



With current pricing, savings from reduced driving are widely dispersed through the economy. With efficient pricing, savings are returned to individuals who reduce their mileage.

Specific types of transportation underpricing are described below (Litman, 2005).

Fixed Internal Costs

Most vehicle expenses are fixed, classified as *ownership* rather than *operating* costs. Vehicle depreciation is generally considered a fixed cost although increased mileage reduces resale value and increases repair frequency. Vehicle insurance and registration fees are fixed although the costs they represent (insurance claims and roadway expenses) increase with vehicle use. Residential parking is also an internal-fixed cost bundled with housing costs.

External Costs

Many costs motor vehicle costs are external. Although most people who bear these costs are themselves motorists (for example, most congestion delay and accident risk is borne by other road users), they are inefficient because individual consumers do not confront the costs they impose and so lack the incentive to reduce their impacts to optimal levels.

Parking subsidies are another significant external cost of driving averaging hundreds or thousands of dollars annually for per motor vehicle (Delucchi, 1996; Litman, 2005; Shoup, 2005). This cost is borne by governments and businesses, and therefore indirectly by consumers through higher taxes and retail prices, and lower wages.

A portion of roadway costs is external. Roadway user fees such as fuel taxes and tolls fund about 70% of roadway expenses, and less including traffic services such as traffic policing, street lights and emergency response (FHWA, 1997; DeCicco and Morris, 1998). Vehicle charges would need to increase 40-100% to fully fund roadways and traffic services (Litman, 2005). By convention, roadway users pay no rent or taxes for roadway land, although economic neutrality requires charging the same as on competing uses of the land. Failure to charge for roadway land underprices road transport relative to rail (which pays rent and taxes on rights-of-way), underprices transport relative to other goods (for example, housing and agriculture, both of which have high land costs), and results in overinvestment in roads (Lee, 1998; Litman, 2005).

Vehicle fuel production, importation and distribution impose various external economic and environmental costs. Motor vehicle air pollution costs are estimated to average 1-5¢ per vehicle mile, and more in certain areas (Delucchi, 1996; Litman, 2005). Automobile use also imposes external accident costs estimated to range from 2-18¢ per vehicle mile (Edlin and Mandic, 2001; Blincoe, et al., 2002).

Land Use Pricing

The costs of providing public services (utilities, roads, policing, schools, etc.), and environmental costs, tend to be lower in more compact, infill locations, but these savings are seldom reflected in utility rates, development fees or taxes (Litman, 2004). Efficient land use pricing would reward consumers who choose more accessible locations. Residents of such areas tend to own fewer motor vehicles and drive fewer annual miles than residents of more automobile-dependent locations.

Economic Neutrality

Economic neutrality means that public policies (planning, investments, taxes, regulations, etc.) are not arbitrarily biased to favor a particular good, activity or group.

Application to Transportation Markets

Neutrality requires that transport planning and investment practices allocate resources equally to comparable modes and users, unless special treatment is justified for specific reasons such as equity (e.g., discounts for disadvantaged people), economic development (e.g., airport development), or other planning objectives (e.g., emergency vehicle priority). Because governments provide most transport facilities, regulate travel activity, control prices and taxes, and influence land use, public policies significantly affect transport markets. Even modest bias can leverage significant travel shifts. For example, if employee parking is income tax exempt (an exemption worth about $300 annually per employee), employers tend to provide free parking (a benefit worth about $1,500 a year per employee), which typically increases automobile commuting by 15-25%, and creates more automobile-dependent transport systems and land use patterns.

Current Market Conditions

Current public policies tend to favor automobile use over other forms of accessibility in various ways described below.

Transport Planning

Current transport planning practices tend to favor automobile-oriented improvements, even when other solutions are more cost effective and beneficial overall ("Comprehensive Transport Planning," VTPI, 2005). For example:

Performance Indicators

Conventional transport planning tends to evaluate transport based on *mobility* rather than *accessibility*, and so often results in planning decisions that reduce alternative travel options and land use accessibility ("Measuring Transportation," VTPI, 2005). For example, conventional transport planning tends to measure transport system performance primarily in terms of motor vehicle travel conditions, using indicators such as Roadway Level-of-Service, average traffic speeds and congestion indices. Other modes are given less consideration. This skews planning decisions to favor automobile-oriented improvements, and undervalues walkability, multi-modalism, telework and land use reforms (e.g., more mixed development) as transportation improvements.

Defining "Travel Demand"

Conventional transport planning misdefines *travel demand*. In economics, *demand* refers to the relationship between price and consumption. It is a function. But transportation planning often calculates demand at zero price, that is, free roads and parking (see box below). This asks, "How much driving will people do if facilities are provided free?" This creates a self-fulfilling prophecy: roads and parking planning decisions are made to satisfy unpriced demand, and demand grows to fill the underpriced roads and parking.

Do users want additional capacity enough to pay for it?
The most accurate way to determine whether road capacity expansion is economically efficient is to price based on marginal costs: road user fees that cover all costs, with higher charges when roads are congested. Roadway capacity would be increased whenever capacity expansion costs could be recovered through peak-period tolls. This tests consumers' demand for additional capacity.

There are, however, technical and political barriers to this type of pricing. But even if tolls are infeasible, the theoretical modeling of such charges can help determine whether a capacity expansion project is justified. Rather than treating road demand as a point value based on zero price, it should be treated as a function. Projections should indicate the travel demanded at various price levels, and particularly at the incremental costs of increasing roadway capacity.

For example, rather than simply stating, "*Peak-period traffic is predicted to grow from 10,000 to 15,000 vehicles per day on this road in a decade*" planners could report, "*Peak-period traffic is predicted to grow from 10,000 to 15,000 vehicles with no user fees, 12,500 if users are charged a 10¢ per kilometer toll, and demand will not grow at all if users are charged a 20¢ per kilometer toll.*" Only if peak-period road users' willingness-to-pay exceeds project costs should a capacity expansion project be considered cost effective. This also encourages decision-makers to consider demand management options, including pricing, as alternatives to capacity expansion.

Generated Traffic

Conventional transport project evaluation often ignores the effects of generated traffic (additional traffic that occurs when roadway capacity is expanded), which tends to exaggerate the net benefits of roadway improvements and undervalue alternative congestion reduction strategies ("Rebound Effects," VTPI, 2005). One study found that transportation investment models that fail to consider generated traffic overvalued roadway capacity expansion benefits by 50% or more (Williams and Yamashita, 1992). This skews planning decisions toward roadway capacity expansion and away from alternative solutions to traffic problems.

Limited Range of Objectives and Impacts

Conventional transport project evaluation tends to focus on a limited set of planning objectives and impacts ("Comprehensive Transport Planning," VTPI, 2005). For example, when comparing highway and transit improvements conventional evaluation often overlooks the additional downstream congestion, parking costs, accidents, and pollution that result from expanded road capacity, and savings that result from shifts to alternative modes. Conventional evaluation often assumes that everybody (at least everybody who count) owns an automobile that would simply sit unused when they shift to alternative modes, and so ignores vehicle ownership savings from improved travel options. Similarly, conventional evaluation often ignores public health benefits of increased walking and cycling, community livability and walkability benefits from reduced automobile traffic, and benefits from reduced pavement. These omissions tend to skew transport planning decisions to favor automobile-oriented improvements over alternative modes and mobility management strategies.

Table 1 **Conventional Evaluation** ("Comprehensive Transport Planning," VTPI, 2005)

Usually Considered	Often Overlooked
Traffic congestion	Downstream congestion
Parking problems	Parking facility costs
Vehicle operating costs	Vehicle ownership costs
Per-mile accident rates	Mobility options for non-drivers
Per-mile pollution emission rates	Public fitness and health
	Per capita crash risk
	Per capita energy consumption
	Per capita pollution emissions
	Community livability
	Barrier effect
	Reduced impervious surface and associated stormwater management costs and heat island effects

Conventional transportation evaluation tends to overlook many costs of increased automobile travel and many benefits of improved transportation options.

Limited Range of Transportation Improvement Options

Conventional transport planning tends to focus on engineering solutions and gives less consideration to management solutions, particularly those that involve new approaches, institutional changes and complex partnerships, such as pricing reforms, marketing programs and multi-sector cooperation.

Undervaluing Nonmotorized Transportation

Nonmotorized travel tends to be undervalued in planning and investment decisions because most travel surveys ignore or undercount short trips, travel by children, off-peak travel, and nonmotorized links of motorized trips (for example, a *bike-bus-walk* trip is often coded simply as a bus trip, and an *auto-walk* trip is coded as an auto trip, even if the non-motorized link involves takes much time than the motorized link). Nonmotorized travel is actually two to six times more common than conventional data indicate ("Nonmotorized Evaluation," VTPI, 2005). Since most transit and rideshare trips involve walking links, this reduces the viability of these modes too.

Transport Investments

Current investment practices are biased in ways that favor automobile transport relative to alternative modes or management solutions, even when they are more cost effective and beneficial overall (Dittmar, 1998; Lee, 2000; Beimborn and Puentes, 2003). Although some transport funds are now flexible (they can be shifted from highway to transit and mobility management programs), a significant portion may only be used for roads (about half of all U.S. states have constitutional provisions that dedicate fuel taxes to roadways, and many Canadian provinces fund highways but not transit). Local matching rates are often lower for road project grants than for alternative modes. The availability of external roadway funding encourages transportation planners to expand highways and makes road pricing politically difficult to implement (Roth, 1996). Similarly, parking facilities often

have dedicated funding that cannot be used for management programs (such as including parking costs in building budgets). There also tends to be more funding for motorist safety than for pedestrians and cyclists safety (STPP, 1998).

Tax Policies

Many federal, state and local government tax policies are biased in favor of motor vehicle use. Fuel is exempt from general taxes in many jurisdictions, land devoted to public roads and parking facilities is exempt from rent and taxes, and petroleum producers are given significant tax exemptions and subsidies (Litman, 2005). Business and income tax policies tend to encourage companies to subsidize automobile parking as an employee benefit, since a parking space would cost a typical employee nearly twice as much in pre-tax income as what it costs their employer to provide. Mileage reimbursement and tax exemption rates are usually higher than marginal vehicle operating costs, so employees perceive financial incentives to maximize their business driving.

Company Cars

Business vehicle expenses tend to be undertaxed, which encourages businesses to subsidize automobile ownership and use as a "perk." (Moret, Ernst & Young, 1994). In some countries company cars represent more than a third of new vehicles and 10-20% of the total fleet (Luk and Richardson, 1997). Typically 15-20% of company car mileage is for personal use (Runzheimer, 1996). Mileage reimbursement and tax deduction rates are usually far higher than marginal vehicle operating costs, so employees perceive financial incentives to maximize their business driving.

Automobile-Oriented Land Use Development Policies

Many current zoning codes and development practices favor automobile-oriented land use patterns (Moore and Throsnes, 1994; "Smart Growth Reforms," VTPI, 2005). These include minimum parking requirements, density restrictions, single-use zoning, and automobile-oriented street designs. The result is a self-fulfilling prophecy: more automobile-oriented land use, reduced travel alternatives, leading to more driving.

Potential Market Reforms

Various reforms can help create more efficient transportation markets (VTPI, 2005).

Pricing Reforms

Various reforms can increase transport system efficiency by making prices more accurately reflect marginal cost (Litman, 2005):

Table 2 **Transportation Price Reforms**

Reform	Typical Fee	Travel Impacts
Convert currently fixed insurance and registration fees into distance-based fees.	5-10¢ per vehicle-mile.	10% mileage reduction per affected vehicle.
Charge motorists directly for using parking facilities.	$1-5 per trip, or 10-20¢ per vehicle-mile.	10-20% mileage reduction.
Charge motorists directly for all roadway costs, including rent and property taxes on roadway land.	5-10¢ per vehicle-mile.	10% mileage reduction.
Charge individual motorists for congested delays they cause other road users.	5-25¢ per vehicle-mile in congested conditions.	10% urban-peak, 2% total vehicle travel reduction.
Environmental fees (additional fees for air, noise and water pollution).	2-5¢ per vehicle-mile.	2-5% mileage reduction.
Fuel taxes (internalize currently extneral fuel production and distribution costs).	0.5-3¢ per vehicle-mile.	1-2% mileage reduction.

This table summarizes various reforms for cost-based transportation pricing.

Transportation Planning Reforms

Least-Cost Planning (or *Integrated Planning*) is an approach to resource planning that implements demand management solutions whenever they are more cost effective than capacity expansion, taking into account all significant impacts ("Least Cost Planning," VTPI, 2005). This tends to increase investment in alternative modes and mobility management strategies for addressing transportation problems such as congestion, accident risk and pollution emissions. Where these reforms are implemented they would probably reduce long-run per capita automobile travel by 5-10%.

Land Use Planning Reforms

Various *smart growth* land use reforms include reduced and more flexible parking requirements, support for more compact and mixed land use, public investment practices that favor infill over sprawled development, more accessible and walkable roadway design, location-based utility pricing and tax rates, and encouragement for urban infill development ("Smart Growth Reforms," VTPI, 2005). These reforms could probably shift about 20% of households and worksites to more accessible locations where per capita vehicle travel is 20% lower, resulting in a 4% reduction in total vehicle travel.

Summary

Table 3 summarizes the various categories of transportation market distortions.

Table 3 **Summary of Transportation Market Distortions**

	Description	Potential Reforms
Consumer options and information	Markets often offer limited alternatives to automobile transportation and automobile-oriented location.	Recognize the value of alternative modes and more accessible development in planning decisions.
Underpricing	Many motor vehicle costs are fixed or external.	As much as feasible, convert fixed costs to variable charges and charge motorists directly for the costs they impose.
Transport Planning Practices	Transportation planning and investment practices favor automobile oriented improvements, even when other solutions are more cost effective.	Apply least-cost planning so alternative modes and management strategies are funded if they are the most cost-effective way to improve transport.
Land Use Polices	Current land use planning policies encourage lower-density, automobile-oriented development.	Smart growth policy reforms that support more multi-modal, accessible land use development.

This table summarizes major categories of transportation market distortions and potential reforms.

These categories are not mutually exclusive. There is considerable interaction and overlap among them. For example, planning and funding biases that favor roadway investments lead to automobile underpricing (i.e., free roads and parking) and more automobile-oriented land use patterns, which reduce travel options. As a result, it is inappropriate to simply add up the effects of individual distortions or reforms.

It is not possible to predict exactly how travel would change under a more optimal market, but automobile travel would probably decline significantly. International comparisons indicate that transport market conditions significantly affect travel patterns. For example, compared with the U.S., per capita automobile travel is about 35% lower in wealthy European countries and 50% lower in Japan ("Transportation Statistics," VTPI, 2005), although some market distortions are still common in these countries, including fixed vehicle insurance and registration fees, free parking, and significant pollution and accident externalities. This indicates that a comprehensive set of market reforms could reduce per capita vehicle travel even in those countries.

Possible Justifications for Distortions

Various arguments that have been presented to justify the transport market distortions identified in this paper are discussed below (Dunn, 1998; Mills, 1999; "Evaluating TDM Criticism," VTPI, 2005).

Consumer Preferences

Some people argue that automobile-oriented policies and high levels of vehicle travel reflect consumer preferences. But true consumer preferences can only be determined in an efficient market. Excessive vehicle travel resulting from market distortions is inefficient and harms consumers overall. Skeptics may question whether market reforms that reduce vehicle travel make society better off overall. They may ask, "Since driving provides benefits, how can reforms that reduce vehicle travel increase benefits?" The answer is that reforms give consumers' more of the savings that result when they drive less. Consumers would only forego vehicle travel that they value less than these savings. Higher value vehicle trips would continue. The travel patterns that result from a less distorted market would reflect true consumer preferences.

External Benefits

Some people claim that external transportation costs are offset by external benefits, such as economic benefits from vehicle expenditures. But there is no reason to expect large external benefits since rational consumers and businesses try to internalize benefits and externalize costs. For example, businesses that provide jobs generally try to obtain concessions such as subsidies and tax discounts. Many claimed external benefits, such as jobs and tax revenues, are economic transfers rather than true economic benefits. As a result, it would be mistaken to expect external costs to be offset by external benefits.

Economic Development Benefits

People often claim that automobile-oriented policies support economic development, but most examples they cite reflect economic transfers (one group benefits at another's expense) rather than net productivity gains. When roadway, vehicle and petroleum industries were first developing (from 1900 until about 1950) underpricing may have helped achieve economies of scale (i.e., you benefited if your neighbors drive more because this reduces your costs), but such economies no longer exist; there are now diseconomies of scale, at least for urban-peak travel (you now benefit if your neighbors use alternative commute modes because this reduces your congestion costs). Mobility management tends to support economic development ("Economic Development Impacts," VTPI, 2005).

Cost Uncertainty

Critics of transport market reforms sometimes argue that motor vehicle costs (particularly non-market environmental impacts) are difficult to quantify and so it is impossible to determine optimal prices ("Criticism of Transportation Costing," Litman, 2005). However, many of the proposed reforms reflect well-studied economic costs (insurance, roads, parking, land values), and have been endorsed by professional organizations.

Transaction Costs

Some degree of underpricing is justified due to *transaction costs* (costs to governments and businesses of collecting fees and costs to motorists of paying fees). It may not be cost effective to charge motorists for small fees, or at dispersed destination, or to disaggregate fees into small increments. However, new electronic pricing systems can greatly reduce transaction costs and allow more precise and flexible fees (for example, rates that vary by time, location and vehicle type, with special need-based discounts).

Equity and Affordability

Motor vehicle underpricing is often justified to make driving affordable to lower income households. User fees such as road tolls, parking fees and higher fuel taxes are considered regressive. But the equity impacts of such charges actually depend on available travel options and how revenues are used. If consumers have good alternatives to driving and revenues benefit lower income households (they replace regressive taxes, fund services that benefit the poor, or provide cash rebates), higher user charges can be neutral or progressive overall ("Pricing Evaluation," VTPI, 2005). Transportation market distortions tend to be regressive because they reduce travel options for non-drivers and force people who drive less than average to subsidize others who drive more than average. For these reasons, distortions that favor automobile travel are inappropriate ways to increase equity.

Other Subsidies

Some people argue that automobile subsidies are justified to balance public transit subsidies (Cox, 2004). Although transit subsidies may appear large, a significant portion are justified on equity grounds (to provide basic mobility to disadvantaged people) and efficiency grounds (as a second-best solution to reducing problems such as traffic congestion, and to take advantaged of economies of scale). Because motorists travel more miles than non-drivers, and automobile transportation imposes so many costs, motorists tend to impose larger external costs than non-drivers when measured per capita. When properly evaluated there is little evidence that transit travel is subsidized more than automobile travel ("Transit Evaluation," VTPI, 2005).

These arguments do not appear to justify current transport market distortions. Although it may not be possible to create absolutely perfect transportation markets, it is possible to reform current markets to significantly increase efficiency. To the degree that efficient market reforms are not implemented and distortions continue, blunter strategies to control vehicle travel and reduce sprawl may be justified on second-best grounds. For example, without efficient pricing it may be appropriate to limit vehicle travel with regulations, to subsidize otherwise unjustified public transit services, and to impose urban growth boundaries.

Conclusions

Efficient markets create harmony between individuals and society. Such markets internalize costs so society is not harmed when consumers increase their motor vehicle travel. Market distortions spoil this harmony. Current transport and land use markets are distorted in various ways that lead to economically excessive vehicle travel, impose external costs, and create conflicts. Although motorists directly benefit from the additional mileage, it imposes indirect costs that makes most people worse off overall.

These impacts are cumulative and synergistic (total impacts are larger than the sum of individual impacts). For example, underpriced parking not only increases parking facility costs, it also increases traffic congestion and accident costs, while underpricing road space increases parking costs and pollution emissions. Transport market distortions reinforce a cycle of increased automobile dependency, reduced consumer options, increased sprawl, and increased total costs.

Market reforms can lead to more efficient transportation and land use patterns. Many transport problems are virtually unsolvable without reforms. Such reforms tend to be particularly beneficial to physically and economically disadvantaged people, who experience constrained options and high costs due to automobile-dependency.

Analyzing market distortions can be difficult and is somewhat subjective. Many distortions appear justified to individual decision-makers. Zoning laws, planning practices and tax structures were created to achieve certain social objectives. Pricing incurs transaction costs. It is not possible to provide all travel options everywhere. Whether a particular distortion is a “significant problem” depends on perspective and assumptions. As a result, it may be infeasible to eliminate all transport market distortions, but efficiency can improve significantly with certain reforms that convert currently fixed costs into variable charges, internalize currently external costs, apply least cost planning and investment practices, and create more multi-modal, accessible communities.

These reforms would not eliminate automobile travel. Much driving provides benefits that exceed costs and so would continue in an efficient market. But a significant portion of driving consists of lower-value vehicle travel that consumers would willingly forego if they were offered better transport options and demand were tested with prices. In a more efficient market, consumers would drive less, rely more on alternative modes, and be better off overall as a result.

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