



## MODELING LAND RENT AND TRANSPORTATION COSTS by H. William Batt, Ph.D., Albany, NY

(The following presentation was given at The Third Annual Global Conference on Environmental Taxation, April 12-13, 2002, Woodstock, VT)

### Introduction

From the standpoint of an economic geographer, and for some land economists, land rent is simply capitalized transportation cost. Land rent is the surplus generated by social activity on or in the vicinity of locational sites which accrues to titleholders of those parcels. Whether or not it is recaptured by public policy, rent is a natural factor deriving from the intensive use of natural capital. More intensive use of high value landsites leads to site configurations that are less dependent upon transportation services. People can access them easily even by walking. One must remember that transportation is not an end in itself but rather a means. This is something often forgotten even by urban planners, the distinction between accessibility and mobility. As explained well in a recent text, *The Geography of Urban Transportation*:

"Accessibility refers to the number of opportunities, also called activity sites, available within a certain distance or travel time. Mobility refers to the ability to move between different activity sites (e.g., from home to a grocery store)."

The result is that we do an awful lot of traveling to get what and where we want. We have paid enormously for mobility even at the expense of access. Subsidizing motor vehicle transportation makes the problem worse! Author Kirkpatrick Sale recognized this when he argued that:

"Cities are meant to stop traffic. That is their point. That is why they are there. That is why traders put outposts there, merchants put shops there, hostellers erect inns there. That is why factories locate there, why warehouses, assembly plants, and distribution centers are established there. That is why people settle and cultural institutions grow there. No one wants to operate in a place that people are just passing through; everyone wants to settle where people will stop, and rest, and look around, and talk, and buy, and share.

### Site Rent and Transportation Costs

Higher density development has all the economies of scale, savings in cost, reduction in externalities, dividends in community and political enhancement, and benefits to urban areas that we all say that we want. The greater the proximity to points of desirable accessibility, the lower are typically the transportation costs. Conversely, sites remote from the urban centers of greatest locational value will have higher transportation costs. When the fixed costs of transportation infrastructure and parcel site improvements are accounted for (which tend to be relatively the same regardless of location), one is left with the marginal costs of operations.

This relationship has been demonstrated more empirically in a recent study by the Urban Land Institute. The author concluded that, for Portland Oregon: "each additional mile [traveled] translated into slightly more than \$5,000 in housing costs; closer-in locations command a premium, those farther out save money. A ten-mile difference, all other things being equal, would amount to about \$56,000 in new home value."

For a household in which one worker drives downtown (or at least to a more central location) to work, that ten-mile difference may amount to 4,600 miles annually, assuming 230 days of commuting and a round-trip of 20 miles each day. Moreover, if non-work trips to the central area and elsewhere doubled that amount, the tradeoff would be about 9,000 miles annually, which could mean a higher/lower driving cost of \$3,000 annually, not counting the time saved/spent.

That's the savings for living closer to the urban center by ten miles. If the urban resident has to rely upon a car nonetheless, subtracting some \$3,000 annual travel expenses will still leave him paying again that much, and likely more, to own a car. James Kunstler put the true costs along with other experts at about \$6,100 annually seven years ago. The American Automobile Association calculated that a car driven 15,000 miles in 2001 cost 51 cents per mile or \$7,650. Even that figure reflects only direct costs to the driver, not those passed to society. One study calculated that the total costs of motor vehicle transportation to our society equal approximately a fourth of our Gross Domestic Product (GDP). Road user fees in 1991 totaled only about \$33 billion whereas the true costs to society were ten times that; (continued on page 11).