

## LAND USES AND WINDFALL GAINS

The supply of land is certainly fixed. The size of our planet has remained unchanged for billions of years. The movement of continents to their current position also required billions of years. Volcanic forces lifted deep sea beds above the surface of the ocean to create new islands. Changes in climate at times flooded dry land. At other times the seas retreated. This is the story of the natural forces of our planet at work.

Our species has endeavored from a very early period of our existence to understand and take advantage of the planet's natural forces. We did this by chance discovery and by experimentation (often by trial and error). We slowly and painstakingly became adept at tool making, using the tools we made to change in form what nature provided. We clothed and housed ourselves to protect us from the heat, the cold, the rain and the ice. Our technological advances resulted in ever-changing land uses, as we settled into permanent communities where specialization displaced self-sufficiency as the means of meeting our basic needs.

Settlement required rules for the allocation of space within the community. Each early stage of settlement likely allowed for a reasonable effort to achieve fairness, a balance between rights and responsibilities. Given enough time, however, and every settled group abandoned its equalitarian values. Hierarchy, power and privilege emerged as the basis for societal norms.

Think for a moment about the changes brought on by the introduction of gold as currency. Feudal knights returned from the crusades yearning for the exotic goods they found outside of their European manors. Merchants demanded hard money for their goods, and the interdependent relationships of the Feudal manors gave way to market economies. Feudal peasants were slowly forced from the land and migrated into the towns to work in the craft guilds. The commons were enclosed and gradually converted to the raising of sheep and cattle. Coal was discovered to be a useful fuel for factories, and industrial output skyrocketed over what had been possible with animal or water power. Cities grew as centers of production and commerce. Markets were linked together by the seas and other waterways, then by inland canals. Canals were abandoned with the arrival of the railroads. Railroads were overtaken by motor carriers able to pick up and deliver goods from producer to retailer or consumer. All of these technological innovations stimulated changing land uses - and shifting land values.

Technological advances have now brought us to the threshold of yet another major set of changing land uses and changing land values. However, from the perspective of those of us who call for the societal collection of the potential annual rental value of all locations and tracts of land, these changes will increase the number of people who - benefit by existing arrangements - will resist the urgent need for systemic change.

The move away from the use of fossil fuels is inevitable. Nuclear energy is proving to be a great threat to the planet's life support systems. Everywhere around the globe we see an expanded use of energy harnessed from the sun and winds. What is unique about these energy sources is the impact they have on land usage. Solar and wind farm technology turn marginal lands into hugely valuable locations. Land that for centuries has been farmed to produce crops can now yield rents paid by companies seeking to put up wind turbines or fields of solar panels. For many farmers this new source of income substantially reduces the financial risks associated with farming and the volatility of prices paid for their crops (perhaps justifying the removal of direct subsidies and tariffs on imported food crops). And yet, on principle, this rental income derived from the sun and the wind rightfully belongs to the community.

A similar public policy challenge is associated with the expanding use of solar panels on private homes and other buildings. Locations with the highest exposure to sunlight experience an increase in market value because of the potential to install solar panels and eliminate payments for electricity to a public utility. This increase in potential rental value should be captured by the community, should it not? At the same time, property owners should be encouraged to move to alternative, sustainable energy to provide electricity for their buildings. This is done in some countries by the use of tax credits to offset the cost of purchasing solar panels or constructing a wind turbine. Of course, such subsidies would be unnecessary if anything close to the rent of land was being collected and earned income was exempt from taxation. Cost is not the only consideration in the decision to leave the electrical grid, but when the financial advantages become significant more people will do so without government subsidies.

A more recent innovation in this market is the offer of companies to essentially lease the roofs of buildings from owners, install solar panels, and sell the property owners electricity to offset the leasing fee. Any electricity generated above this level the solar panel company can sell to the local utility. Now, in addition to providing shelter to a family or space to conduct a business, these locations make it possible to create a decentralized power generation system. The public policy issue (from the perspective of one who embraces Henry George's analysis) is how to determine the extent to which any increase in land value is dependent upon the property improvement (e.g., how the building is situated on the parcel of land, the slope of the roof) and the efficiency of the solar panels.

I wonder. Am I overthinking the situation? Is there a clear way to adjust the rental charge to the property owner? I would love to learn what others think about what to me is a rather complex set of changes in land use. ■