Natural Resource Taxation

Blithering Genius

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1 Prices

Markets are an excellent mechanism for organizing production and distribution, but they aren't magic. They don't generate prices *ex nihilo*.

Market prices are circular. The price of a product depends on the prices of the inputs to its production. The price also depends on the supply and demand for the product, given the prices of other products. How is this circularity bootstrapped?

In modern societies, prices are bootstrapped in an ad hoc way, without any design or plan. This makes market prices somewhat random. They depend on external conditions in ways that are unclear and unchosen.

Prices are information. They control the physical economy, which consists of the physical production and distribution of products. Prices determine what is produced, in what quantity it is produced, and how it is produced. A product is produced if it can be sold at a price above the cost of production. The greater the profit (difference between the market price and the cost of production), the greater the incentive to produce the product. This creates an incentive to produce what people want. It also creates an incentive to produce things efficiently, in terms of the monetary cost of production. Prices also determine how products are distributed. People try to get the most value for their money.

So, prices are very important. Correct prices produce good economic outcomes. Incorrect prices produce bad economic outcomes.

2 Markets

A market is a mechanism for continuously optimizing a collection of prices relative to one another. The price of any product depends on the prices of the inputs to its production, as well as the prices of competing products, and the current supply and demand. So, prices depend on prices. This circularity must be bootstrapped for markets to work.

The market mechanism does not guarantee that prices are correct. Just because a price is determined by a market, that does not mean it is the correct price. To correctly optimize the price of a product, the market requires correct prices for other products. The correctness of one price depends on the correctness of other prices.

To judge the correctness of market prices, we must know how they are bootstrapped. To make market prices correct, we must control how they are bootstrapped.

3 The Physical Inputs to the Economy

The physical economy is not circular. Raw materials are the input to the physical economy. Products (goods and services) are the output. It's not always clear what products constitute the output of the economy, because almost any product can be an input to the production of some other product. The physical inputs to the economy are easier to identify. They include land, sunlight, plants and animals (such as trees and fish) that are harvested directly from nature, minerals (such as iron and coal), air and water. Air and water are not only used as materials in production processes, they are also used to dump wastes. Clean air and water are turned into dirty air and water by production processes. Land is also used to dump wastes, in a more circumscribed way.

Let's call the physical inputs to the economy "natural resources". How are natural resources priced? In various ad hoc ways.

4 The Price of Natural Resources

Land is typically priced by the market, but those prices do not just reflect the value of the land. They also reflect produced capital, such as buildings, and the infrastructure in the area, such as roads and utilities. Land ownership is also typically taxed in ad hoc ways. Governments usually charge ad hoc fees for the extraction of biological and geological resources. For example, a logging company might pay a fee per board foot of timber cut on public land. To extract fish from the sea, a fisherman typically requires a license. A mining company might pay a fee for extracting minerals, but not always. Some natural resources are taxed at the point of final consumption, rather than extraction. (Taxes on fuel are an example.) Usage of air and water is sometimes free and sometimes taxed. There are normally restrictions on pollution, but not fees for pollution.

The ad hoc prices of natural resources bootstrap market prices. All prices ultimately depend on the prices of natural resources, and the prices of natural resources are not entirely determined by the market. To some extent, they are set by government fiat, but in an ad hoc way. They cannot be set by the market, because they are not produced by the economy. They are provided by nature.

I propose that prices for natural resources be defined in a principled way, based on their utility, scarcity and downstream effects (such as pollution). Natural resource taxation should be applied at the point of use, extraction or degradation.

Land should be taxed based on the potential uses of the land and the state-provided infrastructure in the region. Biological resources, such as lumber and fish, should be taxed based on sustainability and balancing other uses. (Forests are not just a source of lumber. They also provide wildlife habitat, watershed management, recreation, etc.) Geological resources, such as iron and coal, should be taxed based on their scarcity, long-term value and downstream effects, such as pollution. The use of water (other than rain) should be taxed. Land taxation would take the value of rainfall into account. Air and water pollution should be taxed.

5 Further Rationale

Libertarians might complain that natural resource taxation would require price-setting by government bureaucrats, which is an opportunity for corruption. That is true, but prices have to be bootstrapped somehow. Markets aren't magic. Implicit, ad hoc pricing creates more opportunities for corruption and evasion. If we don't price natural resources, then markets are not bootstrapped, and we have a tragedy of the commons. Currently, we have a mixture of ad hoc pricing and no pricing.

Natural resource taxation would place markets on a rational (explicit and chosen) foundation. It would create incentives to use natural resources efficiently and reduce pollution. Unlike most other types of taxation, it would not punish productivity.

Most existing forms of taxation punish productivity. For example, property tax is based on the value of buildings, not just the value of the land. If you improve the buildings on your property, you will pay more property tax. This punishes productivity. Similarly, income tax is based on income earned by labor or investment. If you work hard and well, or invest wisely, you will pay more income tax. Again, this punishes productivity. Consumption taxes also punish productivity, although not directly. All income is eventually used for consumption of some kind. So, a tax on consumption is a tax on income, and thus a tax on production.

There are only two forms of taxation that do not punish productivity: a head tax, which is a fixed amount per person, and natural resource taxation. An ideal society would rely exclusively on those two forms of taxation.

Most existing forms of taxation are complex, ad hoc and create opportunities for corruption and tax evasion. Property tax requires that government bureaucrats assess the market value of your property every year. This is ad hoc, it can become corrupt, and it creates uncertainty about future taxation. Income tax requires individuals and companies to be accountants and keep track of financial minutia — or lie about them. A simple flat tax would be relatively easy to assess, but in most countries the income tax is very complex, with many loopholes and subsidies. Sales tax requires businesses to record every sale, and it incentivizes them to not record every sale. Value-added tax is even more complicated, because it requires a full accounting of revenue and the costs of production. Sales and value-added taxes are often ad hoc, and vary from one jurisdiction to another.

Although natural resource taxation has some complexity, it is much simpler than existing forms of taxation. There are a relatively small number of physical inputs to production, and they are relatively easy to audit and control. Natural resource taxation would be much simpler and fairer than applying taxes to every economic transaction, which is how the current system works.

To summarize, natural resource taxation would have the following benefits for society:

- It would place market prices on a rational foundation.
- It would incentivize the efficient use of natural resources and the reduction of pollution.
- Unlike current forms of taxation, it would not punish productivity.
- It would be simpler than current forms of taxation, and thus create fewer opportunities for corruption and tax evasion.