SUFFICIENT AFFLUENCE/SUSTAINABLE ECONOMY: ECONOMICS FOR EVERYONE (PART FOUR)

By John F. Sase, Ph.D.

"In the final analysis, the questions of why bad things happen to good people transmutes itself into some very different questions, no longer asking why something happened, but asking how we will respond, what we intend to do now that it happened."

— Pierre Teilhard de Chardin, Twentieth-Century French Philosopher, Paleontologist, Geologist, Cosmologist, and Evolutionary Theorist

In last month's column, we continued to lay out the basics of rebuilding the economy of Detroit, an approach that includes everyone in the metropolitan area. We also started an extended sub-series on the basics of Economics—Economics for Everyone from the nose-bleed balconies to the brawling orchestra pit, though not always simultaneously. We learned this lesson from William Shakespeare who runs this gamut from the profound to the bawdy.

As we began our foray as strangers in this strange land, we addressed the scarcity of all resources in terms of time and space. Next, we delineated resources by describing them as either human or non-human. With a focus on our needs and wants, we continued to delineate these two categories of resources and to define them as factors (inputs) that we use to produce goods and services in order to satisfy our requirements and desires. Hopefully, this evolving series will help attorneys who think at a rarified and even esoteric level to aid the public at large. In addition, this in-depth approach to the subject may provide a background for attorneys to develop their own primers to share with their staffs and with jurors in cases involving economic issues. Ultimately, we hope that this primer will help to redirect the negative energy that is being focused on Detroit by educating our readership on how the Principles of Economics work in reality. In doing so, we hope to foster a spirit of positivity regarding the City of Detroit.

Meta-Background Theory

Before we delve into Production Theory, one of the tersest topics in the field of Economics, we need to begin at a very lofty level to develop a theoretical model anew. Only then will we have the tools to conquer the matter at hand. From there, we can begin our descent from the esoteric to the mundane. In respect to all of the resources that we may discuss, we turn to the work of two twentieth-century polymaths. The pair includes Pierre Teilhard de Chardin, S.J., French philosopher and scientist, and Vladimir Ivanovich Vernadsky, a Ukrainian mineralogist as well as one of the founders of Geochemistry, Biogeochemistry, and Radiogeology. These figures have influenced most fields of science, including the social science of Economics, during the past half-century.

De Chardin, in his *The Phenomenon of Man* (1955) (Harper Perennial, 1976), and Verdansky in his essays of the 1920s (*Essays on Geochemistry & the Biosphere,* trans. Olga Barash, Synergetic Press, 2006) continue to influence new generations of thinkers in the areas of Applied Complexity Theory. De Chardin and Verdansky draw upon concepts

introduced by the nineteenth-century Austrian geologist Eduard Seuss in order to develop the concept of the "Noosphere." Thinking like economists, we can express the concept of the Noosphere in terms of a three-phase model that parallels but transcends our traditional model of human and non-human resources. Briefly, this approach considers the development of Earth and the Cosmos in a succession of three phases. First, we view the development of the Geosphere. This sphere includes all inanimate matter, a major portion of what we term non-human resources. Second, we turn our attention to the development of the Biosphere, the phase that includes all biological life—non-human and proto-human. We find that the emergence of life in the form of the Biosphere fundamentally transformed the Geosphere. Third, we view the development of the overarching Noosphere of transformative human cognition. Emergent human cognition fundamentally continues to transform the Biosphere that, in turn, continues to transform the Geosphere. In effect, the Noosphere has emerged at the time when humankind has begun to create resources through the transmutation of elements and through the mastery of nuclear and sub-nuclear processes.

De Chardin explains that the Noosphere is constituted by and emerges through the interaction of human minds. As such, the Noosphere has developed synchronously with the economic, political, and social organization of human beings as we continue to populate the Earth and to reach beyond its limits into the Cosmos. As our economic/political/social networks grow in complexity, the higher the level that the Noosphere expands in awareness. Furthermore, this concept extends the Law of Complexity/Consciousness put forth by de Chardin to one that may describe the nature of evolution throughout the Cosmos. He argues that the Noosphere continues to progress toward greater integration and unification, eventually culminating in the Omega Point, which he describes as the apex of thought/consciousness and as the goal of history.

However, in present time and place, we recognize that the inanimate matter of the Geosphere, along with part of the biological life of the Biosphere, constitutes Non-Human Resources. The remainder of biological life, coupled with the transformative human cognition of the Noosphere, constitutes Human Resources. This concept is divided into five factors of production: Labor, Land, Capital, Technology (aka Intellectual Property), and Entrepreneurship. We define Labor as biological life transformed by human cognition under the direction of other biological life also possessing this cognition; Land, along with its bounty, as inanimate matter combined with the non-human part of biological life; Capital as inanimate matter worked upon previously by human cognition through biological life in order to make it a useful tool; Technology (aka Intellectual Property) as human cognition itself, which can be transferred via inanimate matter as a useful tool or can provide a way to improve existing useful tools; and Entrepreneurship as human biological life transformed by human cognition, which stands among other resources and combines and directs them in order to produce goods and services. Through this Noospheric process, we continue to create and to use resources in order to produce goods and services to "satisfice" our needs and wants. Satisfice is a term used in Economics that implies behavior that achieves maximum satisfaction but is subject to specific rational constraints. For example, a corporation has the primary fiduciary responsibility to maximize profits for its

stockholders. However, short-term profit maximization may endanger long-term stability of growth and overall risk to the company. Therefore, economists often define the concept of Profit Satisfication as the maximizing of profit, subject to maximizing long-term stability while minimizing risk.

Descending to Earth or "(Knock-Knock-Knock) 'Penny?' (Knock-Knock-Knock) 'Penny?' (Knock-Knock-Knock) 'Penny?'" (Thanks to Sheldon Cooper, Jim Parsons on *The Big Bang Theory,* CBS Television)

Württemberg-born theoretical physicist Albert Einstein developed the General Theory of Relativity. The general theory, along with Quantum Mechanics, forms the two pillars of modern Physics. Moving beyond eighteenth-century Newtonian Mechanics, Einstein gave the world what may be the most famous equation ever: Energy equals mass times the speed of light squared ($E = mc^2$). Borrowing this equation and rearranging its terms gives us a model and a constraint for the allocation of resources and their subsequent use in the production of goods and services that satisfice our needs and wants, that is, to satisfy them in an optimally constrained manner.

Setting aside debatable theories of the Variable Speed of Light (VSL), Einstein explains that "c" in his famous equation is a parameter defined as the speed of light that travels at a constant rate through the Cosmos. Therefore, through mathematical transformation, c-squared (c^2) also must be constant. If we rearrange the equation by dividing both sides by mass (m), it follows that the speed of light squared, a constant, must be equal to the ratio of energy to mass (E/m), also a constant. The point of this review is that, though energy can be changed into different forms of itself, it cannot be destroyed. However, energy can be transformed into matter and vis-a-vis.

What does all of this mean to economists in respect to the allocation of resources and production? It means that, if Einstein is correct, then whenever some amount of energy is converted into matter, a corresponding amount of matter must transform into energy simultaneously lest the entire balance of the universe goes out of whack! Furthermore, that concept, which is referred to as the Mass-Energy Equivalent, means that removing energy is removing mass as well.

A Simple Example

On a cold winter day, we place a log on the fireplace grate and start a fire in the hearth. As the log burns, heat radiates from the fireplace as the log disintegrates slowly into various components of smoke and ash. A portion of the released energy circulates around the room in the form of heat while other portions carry particles from the mass of the burning log upward through the chimney. The unconsumed mass of the log rests on the grate or falls to the floor of the fireplace as ash. Are we converting energy into mass or mass into energy? Maybe we are changing one form of energy into another while rearranging the molecules in the mass of the log. On this point, I (Dr. Sase) give you, our reader, referrals to Professor Proton (Bob Newhart on *The Big Bang Theory*), Bill Nye the Science Guy, or Dr. Science (Dan Coffey of Duck's Breath Mystery Theatre on

National Public Radio; note: Dr. Science is not a real doctor. He has a Master's Degree in science).

Resources for Production

In order to further our discussion of the economics of resource allocation for the production of goods and services, let us return to the Noosphere model. In this model, human cognition transforms biological life, which in turn continues to transform all inanimate matter. In other words, this model helps us to sort out the interaction of all scarce resources in the process of production while providing a language for defining the limitations of the production that is achievable or not achievable through the application of Labor, Land, Capital, Technology, and Entrepreneurship. Thus far, we have defined and considered these five factors of production. However, how many different combinations exist among these five groups of factors? Among them, there are ten principal relationships. Visually, one can recognize these relationships by plotting five equidistant points on a piece of paper and connecting them one to the other in a pattern that results in a pentangle within a pentagon. There are ten lines, but many more combinations.

Cookie Time

In discussing the matter of combinations, we will consider a more tactile example. Let us gather together a block of salted butter, a bag of white sugar, a carton of eggs, a bag of white baking flour, and a can of baking powder in order to make cookies for a party. Yum! The type and quantity of cookies that we can make depends on the total quantity of each of the ingredients that we have. However, there are different ways in which to combine each pair of ingredients. As children, we may have been happy with a mixture containing only butter and sugar. Others may have preferred cookies with very small amounts of sugar but with a relatively large amount of baking powder. When we consider the vast range of combinations that we could obtain by using various amounts of five ingredients, we find that the number of recipe variations approaches or exceeds googolplex (a term coined by nine-year-old Milton Sirotta as "one, followed by writing zeroes until you get tired" in 1938).

Nevertheless, the feasible set of recipe combinations shrinks to a much smaller number of possibilities if we impose the constraint upon ourselves that we must use all of the five ingredients available in order to satisfice the want for cookies of the greatest number of party guests. Some recipes will be impractical because one or more ingredients remain in short supply. For example, crispy flat pizzelles require mostly eggs, sugar, and butter whereas shortbreads require a lot of butter and sugar but no eggs. With a little ingenuity, a baker can come up with a short list of three recipes that will absorb all of the available ingredients. This combination of recipes represents our logical optimal combination for production.

If we choose, we could make less of each type of cookie and have ingredients left over. This is feasible. However, we would not attain our goal of utilizing all of our ingredients. On the other hand, if we desired to make an extra quantity of each of the three types of cookies on our list, we would be disappointed because we would lack the sufficient

proportional amounts of necessary ingredients. Producing that total amount of cookies would not be feasible.

What could we do if a friend brought an additional carton of eggs and another bag of sugar to us? Our inventory of inputs definitely increases in that circumstance. With some adjustment to the number of the three different types of cookies produced, we may be able to make many more pizzelles and increase our total output of cookies. However, without extra butter, we would not be able to increase our output of shortbreads. Furthermore, additional eggs would be meaningless to a recipe that does not call for eggs.

Don't Ask, Don't Tell?

A potential downside in this cookie-making venture may transpire. What outcome would occur if the bag of sugar tipped over and a third of the contents fell onto the kitchen floor, to the delight of the family pets? While we attempt to clean up the mess on the floor, our cat jumps onto the counter and begins to lick the butter voraciously. What would you do? Though some bakers may borrow the logic of the former U.S. military policy, most of us would make fewer cookies because our inventory levels of raw materials has fallen.

The variations in our cookie example address the basic scenarios found in most discussions of the concept of Production Possibilities. We have considered the sum of possibilities that fully employ all of our resources. However, we have gravitated to a feasible possibility that fulfills our second condition of maximizing our output. In addition, we explored the likely results of not depleting all of our inputs and well as considering the infeasibility of producing greater quantities of output than are possible with our present inventory of resources. Finally, we explored the potential results when a disproportional increase of inputs occurs. The gain in production of one good does not find a complement in the production of another, necessarily. In larger economic situations, this imbalance often occurs when the skills of available workers do not match the skills required for available jobs. Fortunately, we human beings have the ability to retrain or reeducate ourselves in order to overcome this dilemma, known as Structural Unemployment, which is long-term.

In summary, let us move full circle, back to our initial goal of satisfying or satisficing our needs and wants. In order to meet our requirements as well as our desires, we must produce a variety, quantity, and quality of goods and services. These possibilities include products that we both need and enjoy. All of us have needs and wants that we seek to satisfice. This is simple. However, understanding the immense complexity of the interplay of the elements from the Geosphere, Biosphere, and Noosphere that emerge as scarce human and non-human resources used in production consistently remains one of the most quicksilver topics in the field of Economics.

It's a Wrap

The preceding sections have focused on the interworking of all of the elements that are needed to increase production. Now, let us put theory into practice. In order to solve the issue of bankruptcy in Detroit, the City needs to increase its tax revenues. The items of major expense, such as police and fire protection, are not readily negotiable in terms of

public safety. In other words, we must have them. Detroit can reduce its expenditures to some degree, but this is not the solution. The answer is to increase revenue, which comes primarily from taxes—income, property, and fees for city services that are provided to the suburban ring, such as water, museums, and the zoo. This will help a bit, but you can't get blood from a turnip (insert your favorite aphorism here).
What can we do? We can tax productive people and give their dollars to others in Metro Detroit. Also, we can learn new skills, apply them, and trade with each other. This will generate income that can be taxed. Due to an increased demand for urban real estate, the property values within the City will rise, surpassing their present tax-valuation levels (note: present tax-valuation levels reflect property values from 2005 to 2007—in other words, Before the Fall).

The other alternative is for all of us to abandon Metropolitan Detroit and to sell the land to waiting Chinese real-estate investors, who are already buying up these bargains. In order to achieve the goal of "sufficient affluence in a sustainable economy" (the title of our series), barriers—both real and artificial—need to come down. The water works, museums, zoo, etc. need to be reorganized and managed on a metropolitan basis in order to address all of the sub-communities that they serve. However, this must be done without robbing Peter (the City) to pay Paul (the suburbs). In order to achieve this goal, we need to look at the models that exist in other cities. For example, New York has the Metropolitan Museum of Art, the Metropolitan Opera, and the Metropolitan Transportation Authority. St. Louis has its Metropolitan Zoological Park and Museum District. In our education we may do well by going international—for example, study the Metropolitan Waterworks Authority in Bangkok, Thailand.

Next month, we will delve into the economics of marketplaces as we explore the principles of exchange, equilibrium, and other related topics. This month, we celebrate our fifteenth year in the *Legal News.* We hope to be around for at least another fifteen! As we begin this New Year, we hope that our readership of attorneys and other professionals have enjoyed their preferred holidays in the month of winter solstice. We wish a healthy and prosperous 2014 to all.

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