Financing Economic Climate Change

Bobby Dee Ticer

Preface

There has been great effort put forth in the struggle against climate change by science, government and the public. Solar panels have become less expansive. Wind turbines have been built aplenty. Bike paths have been built. Bicycles that were rarely seen now fill the streets at some universities. Bees for pollination of crops are now more protected against pesticides.

If not for such effort, the environment could very well be in a worse condition than it is now. There could very well have been a greater number and more ferocious results of hurricanes, tornadoes, flooding, fires, freezing ice storms and so forth.

There is still much more that could and should be done. This book merely joins the effort. It is about persuasion and understanding, as knowledge to pass on for the sake of argument. It is not necessarily new knowledge, and some of the proposed remedies could be controversial and out of reach, but it is nonetheless in support of what already has and is being done.

The theme here is about applying the condition of balance to nature and political economics in addition to sports, nutrition and so forth. A means of understanding this balance is in the context of the history of civilization and its economics. The history of economics, for instance, indicates investing in an environmental infrastructure can indeed be beneficial for greater prosperity, as some economists now do claim. Exactly how it is implemented is not all that well understood by all of us. More understanding of it is here attempted.

INTRODUCTION

Economics is self learned inasmuch as the acquisition of wealth provides freedom of choice on what to purchase, but it is politically controversial with one-sided extremism as a social science. Towards the far right, conservatives assert government regulation prohibits innovation for more production of economic wealth. To the contrary, towards the far left, liberals assert regulation is needed in order to provide social wealth of entitlements to offset negatives of economic competition. Somewhere in the middle are moderates seeking a balance between the two extremes.

Balance is a key to success. In the sport of football, for instance, balanced running and passing attacks are more difficult to defend than either a running or passing attack alone. In nutrition, not enough vitamin A (carotene) can result in baldness, blindness and even death; too much vitamin A can result in baldness, blindness and death. Natural conditions of balance also apply to economics. Populations, for instance, tend to emerge according to water supply. If the wise farmer rotates crops, the soil is more likely maintained for future productivity. Greedy innovation, however, for a more present accumulation of wealth, as by having too many cattle to feed on available grass, can deplete the soil of vital nutrients, resulting in desert soil instead. In such places as New Mexico, where the supply of water is limited, the livelihood of the community is thus more dependent on stricter regulations for more efficient use of water. Capitalistic innovation of the individual thus needs some control in order for it to serve the welfare of the community as well as the individual. Although too much control might stymie innovation for more economic wealth, too much freedom can also result in less economic wealth.

The political controversy entails conditions whereby individual freedom competes with community needs. Climate change is a prime example. The mining of coal provides energy for the production of economic wealth in accordance with individual competition. It is according to supply and demand economics. An economic negative, however, is the pollution of the atmosphere with too much carbon dioxide resulting in global warming. Clean air is a social concern in that breathing it is vital for us to live a healthy life. It becomes an economic negative inasmuch as its abundance renders it as relatively

free to breathe, whereby it can become a cost for producers of goods to maintain its purity. Regulation is again needed at the expense of individual freedom.

An economic argument in favor of regulation is that it is necessary for the overall prosperity of the economy. If maintaining clean air to breathe requires employment, it can result in more distribution of wealth, providing the conditions of it are favorable for success.

The economic conditions for success are now in political controversy. Individuals depending on coal for employment tend to be in denial of climate change being the result of human cause, whereas environmentalists tend to have more concern of future living conditions for communities at large.

By economic logic, as principle in the abstract, there is no correct answer. If conditions require less restriction, the restrictions can result in less innovation for the production of economic wealth; if they require more restriction, and are correctly perceived as such, they can result in more economic wealth. But what actually constitutes real wealth is in the eye of the beholder, being somewhat undefined. Whereas economic wealth can be measured in terms of Gross National Product (GNP), real wealth to some of us could entail National Parks and the air we breathe.

Science is not always correct. If theory is proven, then it is fact, not theory. However, scientific theory, as with climate change in particular, is estimated to be at least ninety-five percent correct in substance. It is internally consistent and simply understood in view of environmental balance. We breathe in air for oxygen, which can also be toxic if the air contains too much oxygen. We breathe out carbon monoxide, which is normally too toxic to breathe back into our lungs. The carbon monoxide soon absorbs more oxygen from the air for it to convert into carbon dioxide, which is far less toxic to breathe but has an adverse effect on the atmosphere. The atmosphere releases energy in converting carbon monoxide into carbon dioxide and then tends to reclaim the energy by absorbing radiation as a more potent source of heat energy. The carbon cycle is thus changed whereby the atmosphere becomes hotter on the average.

Our livelihoods depend on the carbon cycle. We need carbon for food among countless other things. We need oxygen to breathe. At the other end of this cycle is plant life, absorbing the carbon dioxide

from the atmosphere and releasing oxygen back into the atmosphere. Great bodies of water, as the oceans, are also a carbon sink. They provide sea life with food, but too much carbon dioxide absorbed by the water can also acidify it too much for sustaining life. As the oceans become warmer, they also contain and absorb less carbon dioxide.

The human cause of this climate change is attributed to mining more carbon reserve and hydrocarbon fuels from within the earth that needs to be counterbalanced by plant life, but which has been reduced by human caused deforestation. The remedy thus appears to be to create more plant life and to use more efficient energy to maintain a proper carbon-cycle-balance of less carbon dioxide in the atmosphere. However, a main obstacle to this remedy is political economics. Extreme conservatism tends to be in political denial of climate change as human caused.

How to counter extreme conservatism is to convince voters that counter measures to climate change can result in both real wealth and economic wealth. Voters thus not only need to be educated about climate change, they need to know how combating it will be financially beneficial to their own well being.

The difficulty of this approach is the science of economics itself. It is subjective and controversial. Knowledge of its history, as to the actual causes of countless periods of economic recessions, is entangled among countless theories. Nonetheless, learning lessons of the past can be vital to avoiding future mistakes. A historical approach is here used for understanding how a balanced system of free enterprise and government regulation can result in both economic prosperity and a more livable environment.

For government regulation to be more right than individual rights, it needs to be understood as such in the minds of the voter. More understanding of the actual effects of climate change and their solutions thus need to be understood, as attempted in the next chapter regarding simplification of the science, but the economic costs of climate change and its solutions, and how to finance them, need to be understood as well. The cost solutions are feasible, as can be shown in view of economic history.

Our approach to living is partly influenced by past tradition. Customs become a means of preferred behavior. Some of them have originated as far back as the beginning of civilization, which resulted

in both economic innovation and wars for the control of its wealth. Such different systems as laissez faire economics developed in France and mercantilism developed in England. The laissez faire wealth of France was based on agriculture. The mercantile wealth of England was based on gold and the manufacturing of wealth. In the United States, there was sort of a north and south division whereby southerners depending more on agriculture were more custom to the economics of France, whereas northerners tended more towards mercantile policies for controlling wealth. There are lessons to be learned from the positives and negatives of both policies for a more prosperous future of mankind in general.

Such history indicates that money is mainly a facilitator for investing in economic wealth. Money, as gold or whatever, has psychological value as facilitating freedom of choice, but the economic wealth itself is the product of choice rather than its freedom. The consequences of what we choose are thus the aim of this book for us to have a better understanding of its consequences.

EXPLAINING THE CLIMATE CHANGE

The science of climate change is technical. For more insight into its nature, as to suggest possible solutions, the second law of thermodynamics known as entropy is included in the analysis. Although it too is a scientific term often expressed with mathematical complexity, it has a simple explanation.

Entropy is dormant, latent or inactive energy. Total energy neither increases nor decreases as it changes from one form to another, but its entropy is according to particular conditions. For instance, two bricks of the same temperature of any magnitude are unable to use it to change the thermodynamic state of the other brick since they are in a state of thermal equilibrium. The amount of unusable heat energy they have for change is this entropy according to the second law of thermodynamics whereby the use of energy is spent for no possibility of a perpetual motion machine. However, the universe at large could very well be a perpetual motion machine. If the universe has an infinite amount of energy, total entropy could be conserved. (Actually, there only needs to be a recycling mechanism for conservation of entropy. Gravity, for instance, could be part of this mechanism in creating pressure from weight in contrast to the release of pressure by explosion. NASA, too, has been attempting to create a recycling system for future space travel.) Thus, when we take energy from within Earth and use it in polluting the atmosphere, supposedly the energy spent is increased entropy, as in the form of carbon dioxide, but this decrease in useful energy as increased entropy is still subject to other external influence, as to absorb infrared radiation as radiant heat that is then used for other change in effect.

Neither carbon dioxide (CO_2) nor water (H_2O) absorb and emit visible sunlight; they only reflect it for change in molecular motion as heat. Chemical composition and decomposition is thus dependent on a property of light known as frequency for further use of the spent energy as entropy. It is this abundance of infrared radiation, which both CO_2 and H_2O absorb, that is the main determining factor of global warming.

Further photosynthesis of sunlight allows plant life to absorb the carbon and release the oxygen back into the atmosphere. Although this natural carbon cycle of plants absorbing carbon and oxygen and

releasing oxygen back into the atmosphere maintains a state of equilibrium, an excessive use of carbon fuels creates a new equilibrium state. Colder liquid water in lakes and oceans absorbs more carbon, being sinks for CO_2, as molecular heat of the atmosphere seeking a colder path, but the oceans also obtain a new equilibrium state. The oceans become warmer on the average to hold less carbon and release more of it back into the atmosphere.

The Earth's gravity is also a contributing factor. As it rotates on its axis and revolves around the sun, states of equilibrium change in allowing the increased states of radiant energy of higher temperature to be released in the form of more powerful hurricanes, tornadoes and so forth. Generally the tropics near the equator are relatively constant, but hotter air absorbs more water. As a gas, water vapor is lighter than air, being that a hydrogen atom or molecule is the lightest of them all. The more humid air thus rises above the dryer air. The dryer air replacing the humid air comes from the directions of the north and south poles. The land in between the poles is thus caught in between in a battle of equilibrium. When the hot humid air above reaches areas of cooler temperature, the water vapor condenses into rain, snow and ice. Depending on the landscape allowing for the directions of winds, some areas tend to be colder and more humid while others tend to be drier and hotter, not having the same benefit the tropics have in humid, hotter air rising above the lower atmosphere.

In nature, there already exists cycles of change. In the far west continental states, for instance, there is about a twenty year cycle between drought and more rain. An extreme rainy period occurs in between the drought years. Such cycles that now occur are not new; what is new is the increase to the extreme for more severe effects. Along with successive drought and extreme flooding are more frequent and severe hurricanes and tornadoes, melting of glaciers, rising sea levels, ocean acidity, dust storms, more spread of such diseases associated with malaria fever and salmonella outbreaks, and a decrease in both marine and animal life, including more human deaths because of starvation and other effects due to climate change.

These results are the carbon footprint of the atmosphere from our excessive use of hydrocarbon fuels. There is more usable energy in the atmosphere, but it is more uncontrollable, as evident of the increase in more natural disasters related to climate change. To

counter this change, we can build sturdier structures to withstand it, pollute less, and clean up the mess we create, and we could find ways to control and use the atmospheric energy in less harmful ways.

The energy in the atmosphere can also be tapped. Besides wind and photoelectric cells for mechanical and electrical power, carbon and water can be recycled for commercial use, as they are vital parts of the food chain.

If we filled the atmosphere with giant blimps, as unmanned computerized drones electrically powered by the sun and wind, they could use the atmospheric energy for more productive instead of more hazardous effects. For instance, they could extract water and carbon from the atmosphere and transport it to where it is needed for agriculture and so forth. It would take an enormous amount of blimps to reverse global warming, but the effort could be rewarding both economically and environmentally. If located most efficiently, as to be able to abstract more from areas of greater humidity, as is the equator, and using the natural directions of the winds, the atmosphere could become controlled by commercial use instead of it remaining uncontrollable. Moreover, enough giant blimps in the sky might provide a superhighway for the travel above water for not increasing the sea level, and for a network of fishing, gaming and whatever.

Blimps are not a total solution to climate change, but they could still be part of the solution.

Other remedies could entail better use of material resources. As glaciers continue to melt, rising sea levels could be prevented by building reservoirs to hold more water. The rapid downstream flow of fresh water from the mountains to the oceans could be slowed for less water waste. Reservoirs along with storm forecasts could also regulate the flow of water in preventing flooding from too rapid change in the weather, as in the early melting of winter snow.

The bottom line is we need to use more energy from the atmosphere to increase its entropy in resisting a change in equilibrium state to a more hostile environment, as for a more favorable state of longevity instead, and we need to make better use of the water sources we already have.

The key word is balance. The balance now referred to is the carbon cycle. We need air to breathe in oxygen to combine with carbon for energy whereby carbon monoxide (CO) is formed. The CO is highly toxic. We breathe it out and it absorbs more oxygen to

become CO_2, which is not nearly as toxic to breathe, but too much CO_2 in the atmosphere leads to global warming. Even though too much oxygen in the atmosphere can also be toxic, and even though the earth itself breathes CO and CO_2, either from the decay of plant life or the burning of coal, an environment for our better health still depends on different equilibrium conditions of the elements. (Natural coal fires have existed for millennia, as in Wyoming and Western North Dakota. Once believed to be a volcano on the Australian Burning Mountain is now known to be a coal fire that has been burning for about 6,000 years)

Air normally contains on the average about 78.004% nitrogen, 21.966% oxygen, 0.934% argon, 0.004% CO_2, and far less neon, helium, methane and other elements. Different compositions determine how radiation is absorbed and emitted. Conversely, particular frequencies of light can more efficiently decompose chemical elements, as into oxygen, carbon, and hydrogen.

The most immediate element to human life, other than air to breathe, is water. Human populations tend to be limited according to water supply. East of the Cascades in Central Oregon, for instance, there is far less humid air arriving from the equator. There is underground water, but only enough to support a limited amount of wells for agricultural and other use. Moreover, expected as the result of climate change is that dryer regions will become dryer and more humid regions will become more humid.

These consequential predictions lead to the question: How can we supply arid environments with more water for reforestation to absorb more CO_2 from the atmosphere and maintain the healthier carbon cycle?

At NASA, there has been scientific effort to perfect a natural carbon cycle for future travel in space. As hydrocarbons, air and water are consumed and converted to CO_2 and methane gas of carbon and hydrogen, the latter need to be recycled back into the former. Indicated, as the most efficient means of this recycling, is the use of different light frequencies.

Here on Earth, the scientific conversion can be combined with solar and other natural resources. Solar wind and light can be used to separate water into hydrogen and oxygen. The hydrogen alone can be used as fuel with air to create energy with a byproduct of water. Computerized blimps, as giant drones, can transport the hydrogen

from the equator while decreasing the potential magnitude of hurricanes with the use of wind power along with sunlight energy. (Although the hydrogen can be explosive, it explodes mainly up instead of down because of it being the lightest of the elements.)

The means of accomplishment are there. They just need to be technically understood in the manner of beaver engineering. Beavers create dams and deeper reservoirs to maintain greater water supply. The climate change solution is similar; it is just a lot more technical and complex. It is more technical in the sense more scientific study is needed to determine the impact of feasible solutions and how they can be efficiently implemented. It is more complex in the sense different areas of impact are conditional to the nature of their terrains. Blimps following the Atlantic winds from the equator into the Gulf of Mexico can more easily serve the deserts of Mexico. Water can more easily be preserved in the coastal states of California and Oregon during increased rainfall times. Deeper reservoirs might be created in the mountains of California with the use of underground explosions of nuclear bombs, as has already been tested in Nevada. Excess snow and water in the Cascades of Oregon could be diverted to fill the countless wells that already exist east of the Cascades. Alcohol or hydrogen-oxygen fuel can be substituted for gasoline for water as a byproduct. Excess water from the Great Lakes could be channeled all the way to Arizona and New Mexico. These measures might even be needed in order to prevent future flooding conditions in preparing for a better future.

These remedies might seem expensive, but a review of economic history indicates the cost is more feasible than it might seem, and that the investment can result in greater economic prosperity.

RISE OF CIVILIZATION

The early rise of civilization is relevant insofar as it involves unity and conflict of people adapting to new forces of nature. It was influenced by natural climate change at the end of the last ice age when sea levels were about three hundred feet lower than what they are today. Floods followed along with the development of agriculture and new community living conditions.

As do other animals, we humans have a tendency to deceive, steal and kill for enhancing our lives, but as some other animals also do, we unite together in order to survive more overbearing hazards confronting us. Flooding plains became another challenge to survive, as to influence how we joined together to overcome a hazardous elements of nature in allowing us more freedom to develop our individual efforts to gain in economic prosperity. However, we humans are also inclined to become ruthless warriors, as to compete against ourselves in order to survive and prosper even more. Hunting behaviors of cavemen are thus part of our competitive behaviors of today.

At the peak of the last ice age, which occurred around 18,000 BC, the climate was generally cooler in the northern hemisphere. The warming that followed was gradual, but it brought about more rainfall along with melting of glaciers. Some valleys were either permanently flooded or frequently flooded. The Mesopotamian Valley north of the Persian Gulf, for instance, was not inhabitable on a permanent basis until about 5000 BC, even though agricultural settlements were established in the southern part of Asia before 8000 BC.

There was extensive development here and there. The oldest known grave site dates back to about 7000 BC at a location that is now Latvia bordering the Baltic Sea along with Sweden. About 7000 BC, settlements also occurred in the Zagros Mountains, where what is now southwestern Iran. Another ancient settlement about this time was Jericho located north of the Dead Sea (Sea of Salt), which borders between eastern Jordan and western Israel, and it is now about 800 feet below sea level.

Although no grave site has been found as evidence of a first permanent settlement at Jericho, there was a massive wall twelve feet high surrounding it, as for protection against flooding and/or against

an invasion from other people. The initial settlement lasted a few centuries before being invaded by people who ruled over the people of the initial settlement. Succeeding settlements declined as well. About twenty new settlements occurred.

Another site, Catal Huyuk, was located where what is now the western part of Turkey. Various sites of farming communities date farther back, as to about 8000 BC. They were located in the foothills of northern Mesopotamia beside the Zagros Mountains of Iran.

Indian archaeologists have claimed evidence of an early civilization having existed in the Indus Valley of where what is now parts of northwestern India, Pakistan and Afghanistan. Sonar scanning has detected large scale structures and the wood has been carbon dated farther back than the seventh millennium BC. The archaeologists also claim it is evident a civilization of people once existed about 7500 BC along the Gulf of Cambay, which is an inlet of the Arabian Sea at the west coast of India. The origin and destiny of these people are not yet established, but the civilization is believed to have been a victim of catastrophic flooding.

The origin and destiny of these people are not established, but the civilization is believed to have been a victim of catastrophic flooding and there is one theory proposing that some of the people survived as the origin of Sumerians in Southern Mesopotamia.

The origin of the Sumerians is also not established. A likely candidate, as proposed by Ashok Malhotra and other historians, is that they migrated from the Indus Valley. Evidence is claimed with regard to the similarities of skeletons of ancient tribes in the Indus Valley whereby ancient people farther southeast towards Australia, having a language similar to ancient Sumerian, could have migrated to Sumer. Otherwise, the original language of these earlier people is erased by centuries of dominant development of other languages in its place. Although the evidence for this theory is not proven, Sumerian literature did contain tales of catastrophic flooding along with knowledge of the seas, and the Indus Valley has also been prone to flooding, as still occurs of more than twelve percent of India.

In ancient times, melting glaciers in the Himalayas resulted in a greater amount of flooding. In any case, satellite images support Vedic claims that a gigantic river once existed. Moreover, the largest civilization during its time is believed to have existed in the Indus Valley of India and Pakistan where it is possible a southern sea

people survived an enormous flood to migrate along the coastline of the Arabian Sea into the Persian Gulf towards a drier land just west of the Mesopotamian valley, as from where they eventually migrated into Sumer when it finally became inhabitable on a permanent basis about 6500 BC. They first spoke an agglutinative language containing one-syllable words combining in ways that do not lose individual meaning. They further developed writing and pioneered the growing of grains from about 5500 BC. About 4800 BC, they began developing canals for the irrigation of agriculture.

People making eloquent pottery lived in foothills east of the Tigris River and Sumer where what is now southwestern Iran. The area was inhabited as early as 7000 BC, and about 4000 BC such city states as called Susa had emerged. According to their own language of the time, the people called themselves Haltamtu, but much later, as according to another language, they are identified as Elamites of Elam. They differ from the people of the other language, who were a later combination of Sumerians of different peoples in the southern part of Iraq, by means of Akkadians from northern Mesopotamia invading the Sumerians in the south.

There is also a possible reference to Susa as Shushan in the Hebrew Bible. It is noted that the Biblical Elam was the son of Shem and a grandson of Noah. However, Ancient names were also meaningful titles, as in contrast to surnames of today, and their origins are confusingly complex. According to the Semitic language of Akkadians, for instance, the land of Elam meant highland. Similarly, people living in the southern part of Mesopotamia that are historically known as Sumerians had also obtained their name from the Akkadians. The Sumerians, or Ubaidians as pre-Akkadians of the city-state of Ubaid, were described as having dark heads. People known as Aryans in northern Mesopotamia, which included the Akkadians, had lighter skin. However, even the Akkadian language, as a variant of the Semitic language, does not prevail in the same context of more modern literature. Mesopotamia itself is a Greek word Greeks had used to refer to the valley between the Euphrates and Tigris Rivers, and the name Greek itself was not originally part of the Greek language. The name Greek derives from the Latin name Graecia, as Romans naming of a tribe of Hellenic people living in Epirus. The Greeks referred to themselves as Hellenes. History, as in accordance with language, is thus more complex.

Farming communities began emerging about 6500 BC in the northern region of Mesopotamia as well as its southern region. It is believed people residing there generally spoke some form of language of Semitic origin, possibly as part of the more general groups of such later people becoming known as Subarians, Ammorites, Akkadians, Assyrians, and Hittites.

It is also evident a culture of people called Badarians settled along the eastern shore and southern part of the Nile River about 5000 BC to live on a diet of wheat, barley, lentils, tubers, fish and animals. Pits indicate the use of granaries. Smoking of fish is also indicated as a method of preservation. Large pottery too fragile to transport further indicates permanent but small settlements. Their tools included scrappers and axes, and domestication of animals that included cattle, sheep, goats and dogs. The latter are now believed to have evolved from wolves in Northeast China about 15,000 years ago, or longer. Because such wolf-like instincts were still among them as stalking of prey, they were excellent herders of sheep that bundled for self protection. Barking dogs also warned against the intrusion of strangers.

The Badarians were not isolated. They traded with surrounding people whereby elephant ivory most likely was acquired from farther south. From the north they obtained copper. However, peaceful trade is not indicative in all respects. Injuries of the people are evident from skeletons found at their grave sites, which is indicative of competitive conditions of survival, as from hazardous climate, confrontation among themselves, or confrontation with other people.

War most likely originated as a means of survival. People settled in the fertile valleys relatively had more wealth to such essentials means of survival as food. If they did not protect their wealth, they were subject to conquest by other people in need. With such advance of civilization, as had occurred during the upcoming Bronze Age, the spoils of war became more enticing. The means of war proliferated along with the advance of material wealth. If people did not share their wealth, a revolution by means of war seems more inevitable as an alternative means of survival. Those who competed against harsher conditions in order to survive were likely inclined towards a harsher nature, but leaders of the wealthy likely became ruthless to obtain their role of leadership and secure it against a coupe. People in

fear of change and conquest are also more likely to support a strong leader, no matter how ruthless.

Along with the development of nations, greater weaponry and economic wealth, competition among leaders likely escalated for the dominance of power and wealth. However, friendly trade among nations escalated as well.

Bronze was discovered in the Middle East about 3000 BC, but the tin from there contained arsenic. The alloying of tin with copper thus resulted in a toxic bronze. A non-toxic tin was thus needed in order for it to smelt with copper in producing a healthier bronze alloy. The non-toxic tin came later from European areas of Spain, England, France and Portugal about 2000 BC. Evidence from sunken ships found in the Mediterranean Sea indicates a trade route from those areas to Egypt and Mesopotamia.

The advanced civilizations of Mesopotamia and Egypt became central to trade. The name Egypt is also not originally from Egypt; it derives from a later time of Greek mythology whereby Aegyptus was the king of Arabia and Egypt. Ancient Egypt was previously known as the land of Kemet, meaning the land of dark soil. It might have received its name because of a flooding of the river Nile over the land to fertilize it with a soil silt rich in nutrients.

Along with trade were developments of communication, government, writing and so forth. Earliest writing in Egypt was pictographic. It developed independently here and there, as in China, Europe, Asia Minor, Egypt, the Indus Valley, Egypt, Crete, and southern and northern Mesopotamia. The Sumerians seem to have advanced it sooner prior to the Bronze Age. Their language was a cuneiform script. During the third millennium BC, the pictographs at Sumer developed into a symbolic script that continually became refined of less symbols with more general abstract meanings. However, they did not develop an alphabet. The first alphabet has been credited to the Phoenicians, who became very prosperous during the Bronze Age as a maritime civilization.

The Phoenicians called themselves Sidonians, as from the city known to them as Sidon. They might have also originated the name Phoenician in honor of a king named Phoenix. Another possibility is that Sidonians were called by the Greeks Phoenicians because they sold a purple dye made from oyster shells. They are associated with Canaanite peoples that inhabited the areas of Lebanon, Israel,

Palestine, West Jordan and southwest Syria. Canaan also had a Hurrian-Semitic meaning similar to that of the Greek meaning of Phoenicia referring to people who produced and exported purple cloth, which could have become the naming of a city selling it, and the Phoenician maritime empire of cities centered along the Mediterranean Coast near Lebanon and Syria. Phoenicians, no matter what was the origin of their name, thus became the primary instruments of trade and commerce by means of the seas.

The rise of civilization brought about both prosperity and conflict. As an analogical example, consider the nature of penguins on the continent of Antarctica. In the freezing cold of their winter, they are socially cooperative in bundling together. Because the penguins near center become too warm, they go outside to cool off while the rest of them close inward for more warmth, thus creating a natural cycle for preservation of the group. In their springtime, when the females lay their eggs, the males and females are also cooperative in taking turns protecting the eggs while the other mate goes to the ocean for food. However, some of the penguins cheat on their mates in causing confrontations. When the eggs hatch into young penguins, they are cared for by their parents, but when the young ones finally begin to explore on their own, they are harassed by older penguins protecting their territories to sometimes even kill the intruders.

We are also animals. Our animal nature is just more complex. We group together for protection and build walls among ourselves. We devise rules of conduct in order to live in harmony. We compete for both survival and leadership. In early times, our leaders were priests claiming to be messengers of gods, or even being gods, in supporting customs that pleased the gods controlling such forces of the world as weather. Some priests also became astrologers in claiming to know how to predict the weather. However, the names of gods became divine in themselves. Because names differed according to language, and the customs of worship differed among different tribes, conflict was virtually inevitable for people set in their ways resisting change.

Human sacrifice became a ritual practiced on both sides of the Atlantic Ocean, and it is also typical of war. As the wealth and commerce increased among nations, the zest for power and control became more the means of this human sacrifice than the ritual itself. Ancient Mesopotamia, along with most other people of the time,

believed each person had a god protector (as a guardian angel). Each city-state, too, had its protector god, as supposedly there is a spiritual entity for everything and every concept. As communities became city-states, favorite gods became more powerful. Assur of Assyria, for instance, who was associated with Mount Epic in being a sacred place of worship, became considered as the father of all gods and the creator of the universe, but Babylonians regarded Marduk instead as most high.

As Sumer itself evolved into city states, each having their own temple of a deity, they began warring among themselves, and then with Elamites, who thus united together as well. The trend merely escalated.

With the Babylonian conquest of Sumer (whereby an empire became religiously named in connotation to the tower of Babel), Marduk is given more than fifty titles, including the god of life and light. Similar to Enlil, who he replaced, he ruled the air as a god of thunder and lightning. He eventually became creator god of all mankind and the world.

To the Canaanites, El was a word for god whereby name and title were synonymous in meaning. Furthermore, as patriarchal god of the Canaanites, El held such titles as *El Shaddai*, meaning lord of the mountains; as *El Roc*; meaning visionary; as *El Elyon* (*Elohim*), meaning most high; and as *El Olam*, meaning eternity for everlasting life hereafter. There is thus god considered most high, a god of a mountain (as for ascension), a god of everlasting life, and so forth. Such attributes can be regarded as spiritual in their own right, which leads to opposing possibilities: 1) these attributes became titles of the polytheistic worship; or 2) they became known as gods, spirits, angels, or to whatever they served for the ultimate good of the one true God. However, to opposing nations, differing in customs, they became an excuse for war instead of a means of relating to another form of spiritual essence.

For the sake of economic wealth and its security, imperialism became a common objective. A Babylonian Empire was an early leader of this quest. Babylon was a city of the Akkadian Empire established about 2300 BC. In 1792 BC, Hammurabi became the ruler and established a law code mostly in the context of an eye for an eye. For instance, a man was sentenced, as an alternative to death, to compensate the owner of an orchard for the tree cut down without

permission, one-half mina (unit of weight) of silver. If a son was killed, the father was given the right to kill a son of the man that did the original killing. If a physician failed to save the life of a slave of a freeman, the physician was required to replace the slave with another one.

The Babylonian Empire entailed the conquest of the southern part of Mesopotamia before conquering all of it. It continued with the conquest of the Elamites, Guitians and Kassites to the east, Semitic States (Syria) to the west, and part Asia Minor (Turkey). After the death of Hammurabi, in 1750 BC, the empire crumbled due to internal conflict for power and control.

The Persian Empire ruled by Cyrus the Great dominated about 550 BC. It originated in the northern part of Iran and extended to the southern part of Iran, into Anatolia (Turkey) and Egypt, and into northern India and Central Asia. It weakened with its attempt to conquer what is now Greece, which later became dominate under the rule of Alexander the Great.

Later empires of significance were the Roman, Napoleonic and British. A later failure was the attempt of Adolf Hitler of Germany. The subsequent dominance of the Soviet Union and the United States of America came to a standstill with the nuclear threat of each capable of destroying the other as well as civilization on Earth as we know it.

It is now evident that mankind is now its own worst enemy, such that political economics needs to evolve as a more peaceful means to cooperate amongst ourselves than by war. A threat of a nuclear holocaust causing the destruction of human civilization has most likely deterred the motive of war between major powers. The threat of climate change could perhaps further provide more incentive for a common purpose that could, in turn, promote world peace by means of a fairer distribution of economic wealth and more prosperity for us all.

POLITICAL ECONOMIC HISTORY OF EUROPE

Helpful to improving our present economic situation is to understand how it came to be what it is. A history of economics, as from ancient times to Adam Smith, is thus in order. Although Adam Smith is considered the founder of modern economics, substantial contributions to its development included many political economists prior to him.

Economics associates with trade, which could simply have begun from the making of Stone Age tools to trade with hunters for food, such as from obsidian in Anatolia as early as 12,000 BC. With development of agriculture as a more complex societal development, a more convenient means of barter for cattle and other commodities was grain, as more available conditions to produce it rendered it more dependable for the survival of the community. However, it required an intelligible means of record keeping. In Sumer, for instance, a token was impressed on a ball of clay, as bulla, containing other tokens inside the ball. The outer token became a seal of identity and it further ensured that it had not been tampered with. This means of record keeping was popular up until the Bronze Age when metal became the more convenient means of exchange.

Codes of Menes, who established the first dynasty of Egypt, stated that the values of gold and silver are two and a half parts of silver for every part of gold. Coinage eventually followed, as in China where copper coins were in use from 206 BC to 220 AD by the Han Dynasty, and they have been reported to have been found in tombs that date as far back as the eleventh century BC. More to the west, gold as money was used as early as 643 BC in Lydia, as what is now in present day Turkey, where the smelting of gold from silver into gold produced gold coins by 560 BC. Gold subsequently became common as the most preferred means of exchange. However, it has not always been preferred. A fiat currency in the form of a tally stick was authorized by King Henry I, even for the use of paying taxes, due to a gold shortage in England around 1100. Not until 1819 was a gold standard legalized in England and not until 1900 was the US dollar redefined to consist of 25.8 grains of gold, as 1.6 grams, although there had been an 1873 Congressional Act in the USA legislature that had omitted defining the dollar by weight of a silver dollar.

A form of money was printed on animal skin in China during the reign of Wu Ti, as just before the birth of Christ. Its use in China increased with the invention of the printing press. The Tang Dynasty from 618 to 907 AD printed, around 800 AD, what was called "flying money" that was easily lost to the wind from customers transporting goods by ships at sea. The printed cash tended to remain local, as where it could be reimbursed for coin, salt or liquor from the government.

Succeeding dynasties improved the quality of paper money for a more convenient use of it by citizens in general, and its usage in China was discovered by Marco Polo in the thirteenth century. However, paper money was not officially issued by a government in Europe until by Sweden in 1601.

As for a means of regulating money, banking had occurred in ancient Egypt and Mesopotamia with the storage of grain. The process evolved for people to be able to deposit anything from grain to a precious metal for sale or trade. However, although the grain was valued for consumption, a metal soon became favored as the preferred means of exchange. Grain spoils for one disadvantage and its quality and taste are subjective to the preference of the consumer, whereas metal is more durable and convenient for transport here and there. In particular, the rare metal of gold with its light weight and shiny attractiveness would become more favorable, as typical of supply and demand economics.

Economics as part of political policy was philosophized in early times. Plato, for instance, advocated a “Credit Theory of Money" as a unit of credit or debt. Aristotle theorized property owners need to be allowed to attend to their own business in order to produce common needs of the people. He also warned that monopolization by owners could be contrary to the common interest of the people, and that interest charged on a loan is unfair in that money itself has no real value other than as an instrument of exchange.

It is also evident early banking had acquired an unfavorable reputation. Charging interest, as usury, was forbidden by the Catholic Church and by Islam. However, exceptions occurred.

Accused of usury were members of the Knights Templar. They became exempt from taxation and from most local laws. Although they were also forbidden to charge interest, or a fee for holding money to safeguard, they charged rent as a loophole of the law.

The Knights Templar originated as military protectors of nobles who were often attacked and killed while on their pilgrimage to the Holy Land. The original Knights Templar consisted of only two brothers and five other relatives of Hugues de Payens. He was able to solicit permission from King Baldwin of Jerusalem for the Order that became headquartered over what is believed to have been Solomon's Temple. As they became more and more popular, they were approved around 1129 AD by the Catholic Church that granted them freedom to pass through borders. Nobles graciously donated to their cause, as when they were granted charity status among countries of Europe. They were also exempt from taxation and local laws by an order of the pope. This last condition was influenced by Saint Bernard of Chairvaux, who was the nephew of Andre de Montbard, who became Knights Templar grandmaster from 1154 to 1156 AD.

As a charity organization, the Knights Templar members were sworn to poverty, but they still accumulated great wealth and power. Their success came from recruits donating wealth for their cause, but the Knights Templar members eventually converted from military protectors to bankers by safekeeping gold in order to minimize the risk of travel. Wealthy nobles were given receipts for their gold so that they could redeem it from other Knights Templar members who located here and there.

Although the charging of interest was a forbidden act by order of the Catholic Church, the Knights Templar members engaged in many transactions, as to collect rent instead of interest for held mortgages. However, their collection of revenue competed with that of the church. Their demise finally came in 1312 AD at the insistence of King Phillip of France, who confiscated their wealth in order to finance his war with England. They became outlaws in all western countries of Europe except Portugal, which historically is the most profitable country whose bulk of population was to migrate to places in the new world, as about one-half of it relocated to Brazil.

An exception to the law forbidding usury was with regard to the Jews. According to interpretation of scripture, it was forbidden for them to charge interest to other Jews, but they could charge it to non Jews.

Jews, as from Portugal, Spain and elsewhere, were also to become early bankers, as to fulfill a need caused by the religious restrictions that had been placed on Christians. In 1396, Jews were

permitted banking practice in Florence, which did not become part of Italy until 1861. By the bribing of Pope Martin V in 1428, they became official bankers in 1437.

A main reason the Jews were accepted as bankers is that they had been granted less rights and were thus easier to control. They had been relegated to ghetto status and used as a middleman. As the Germanic Stein was required as part of their surnames to single them out from normal citizenship, they would loan and collect for debt for the so-called European nobles, but they adapted and profited just the same to gain favor of rich merchants.

Not until the sixteenth century, when Protestantism became influential, after Martin Luther led his revolt against the Catholic Church, in contesting such assertions that God's forgiveness can be bought in order not to be hell bound, was banking officially accepted as a legitimate profession of the general population.

The economics of the time was also conditional to slavery. Expansion of colonies in the new world provided more means of obtaining economic wealth plus more competition for it.

Ancient Roman grapes and olives had developed into large estates that provided a source for trade, but Rome resorted to the conquest of Egypt, Sicily and Tunisia when import of grain became less obtainable. Along with such conquest was the import of slaves, which increased its agricultural yield. In this tradition, France, Spain and Portugal also developed, whereas England became more dependent of their merchants trading of manufactured products from natural resources.

Spain had led the way across the seas, but France and England became challengers to the stronghold on trade in the sixteenth century.

In England, Queen Elizabeth warned that importing more goods for gold and silver than exporting would lead to poverty of its nation while enriching the foreigners of trade. Political writers were encouraged to propagandize a policy now referred to as mercantilism. It generally included high tariffs, colonization, restricting the export of gold and silver by the colonies, and forbidding colonies to trade with the use of foreign ships. Low labor wage was also encouraged for the sake of profiting from foreign trade.

Labor itself was a primary means of obtaining economic wealth. An import of natural resources could be manufactured into finished product to be exported as trade for more gold and silver. This accumulation of gold and silver was considered ideal to compensate for an increase in the population along with funding a military and more industrial development.

Mercantilism was mainly about collecting gold and silver for the wealth of the nation. Requiring a large fleet for protection against pirates, its effect coincided with a vigorous competition for economic wealth among nations, which further led to more conflict and outright war between them, and also revolt from colonies opposing harsh restrictions imposed on them.

In contrast to mercantilism was an economics developed in France during the eighteenth century with agriculture as its base of wealth instead of gold. An agricultural base of wealth is reasonable in that food is essential to life. An abundance of it by means of farming fertile land enabled the rise of modern day civilization.

Even though gold is more convenient for trade, as it is more long-lasting than food, it is still a non-essential of life. In order to survive the long journey through a desert, a canteen of water is worth more than a ton of gold. Although a means of exchange is still needed for a more general free enterprise system, it is only the acceptability of gold and silver that renders them useful for trade. Egypt once used stored grain as a means of exchange. American Indians and colonial settlers traded with the use of beaver fur, fish, corn and wampum (beads of shell) as their means of trade.

In contrast to the mercantilist was thus the Physiocrat, who advocated that income from trade needs to be circular with the production of agriculture as its base value instead of merely accumulating gold and silver to finance the state of its imperial superiority. For this circular flow of money, laissez-faire economics was proposed whereby minimal intervention of the government allows freedom of interaction between economic participants. There should thus be no tariffs, as the funding of government need only be implemented by a single tax on the income of land owners, providing them with incentive to produce food. This movement merely paved a way for an enterprise system more free from government intervention.

A more general form of free enterprise developed in England whereby the import of natural resources had been considered needed for a creation of manufactured goods by manual labor to export for more wealth. Because the more general form of free enterprise included all products as economic wealth apart from merely agriculture as the principle form of wealth, it became a more general form of laissez faire economics.

The transition from mercantilism to laissez faire was a step by step process. John Locke (1632-1704) of England agreed with a supply and demand theory of price and value, and he supported individual property rights, but he also agreed with the mercantile policy of obtaining a favorable balance of trade as a competitive means of increasing wealth. Charles Davenant (1656-1714), who published an essay on trade that seemingly understood merits of competition and consumer demand, also noted that a favorable balance of exports could finance war. On the other hand, a disagreement of the policy was offered by Dudley North (1641-1691) arguing that free trade promotes wealth for both sides in allowing a division of labor as specialization. David Hume (1711-1776) pointed out that imports of gold and silver from exports increases the money supply and inflates the price of commodities such as to render exports more expensive for the other nations to purchase, thus preventing a restoration in balance of trade. To the contrary, a principle, which is now referred to as Comparative Advantage, was proposed, after the publication of The Wealth of Nations by Adam Smith, by David Ricardo (1772-1823) whereby free trade can benefit both sides if each nation has a more efficient means of producing the product it exports.

Bernard de Mandeville developed a poetic satire that he first published in 1705. It became known as The Fable of the Bees. Honeybees robbing the flowers of their pollen and nectar support the hive in a social manner. Their pollination is essential for plants to bear fruit, but an emotional connotation for poetic drama referred to this act as individual vice, which generated criticism along with the popularization of the theme. Vice is thus individual action resulting in economic prosperity. It is an "invisible hand" that unknowingly benefits the economy, which was a phrase Adam Smith used in the religious context of a godlike intent, as opposed to vice, to prevail of individual action.

Smith acknowledged greed could have negative effects on the general welfare of society. However, the resulting negative consequence could very well be an integral part of the nature of laissez faire economics. A particular person who smokes cigarettes along with an unhealthy diet is supportive to the employment of doctors and so forth for the distribution of wealth and a prosperous economy of ample opportunity to succeed in life. In contrast, a person who eats healthy and exercises, and rides a bicycle instead of relying on an automobile for daily travel, contributes less to the economy and more to the self. There is thus a general trend of merchants to welcome people having more money to spend on merchandise. Wealth becomes status. The person with the more expensive watch is viewed as a more successful individual. Having a greener lawn than the neighbors is desirable. Economic wealth thus tends to be in the eye of the beholder.

James Steurat Denham (1713-1789) published a comprehensive work in 1768 defending principles of mercantilism with the title: An Inquiry into the Principles of Political Economy. It was countered by his fellow Scottish writer Adam Smith (1723-1790), who was to publish his Wealth of Nations in 1776, the same year the United States of America declared its Declaration of Independence from England. Smith's book is considered by most economic historians as establishing the foundation of modern economics.

Smith classified economics as "political inquiry into the nature of what determines the wealth of a nation's economy to provide revenue for public service". Does this classification indicate financing government is needed to determine the wealth of its people to some extent? It could be so interpreted by some of us, but Smith further advocated the concept of an invisible hand whereby a minimum amount of government allows innovation of individuals to have positive effect on the economy as a whole. However, whatever constitutes the minimum amount of government for economic welfare is controversial. Some political economists argue government only needs to provide security, as to enforce law of the land and to protect its borders. Others economists advocate that government has a vital role in determining such social aspects of the economy as social security and environmental concerns.

Labor had generally been viewed, even by Adam Smith, as the means of creating wealth. For a competitive advantage, a means to

minimize labor cost was preferred, whether it involved the use of such animals as an ox for plowing fields, slave labor, or taking advantage of competitive conditions of the poor seeking employment. Adam Smith further warned that corporations might take advantage of monopolization. Discontent is indeed evident with regard to such remedies to an unfair distribution of wealth as later proposed by Marx and Engels of their Communist Manifesto.

Although labor has and still does create wealth, it is not necessary itself the controlling factor of wealth. Such energies as petroleum and electricity either help produce more product or decrease the need of manual labor. If computerized robots replace the need of human labor, then the controlling factor of wealth becomes ownership rather than labor. Ownership is further typical of economic wealth in that owners of property have more credit by means of their property as collateral. Credit becomes money. By ownership of more money, as to lend for profit, money is a self means to acquire more of it. If one competitor of free enterprise wins out, then the free enterprise system is won over by monopolization of the money supply. The mercantile hording of gold or storing paper money underneath a mattress can result in deflating prices of products in increasing the economic wealth of the people with more money at hand. Inflation, with regard to an increase in wages and profits, and with regard to a fixed rate of interest on a loan, tends to benefit the borrower with an increased wage for more easily paying back the loan, whereas deflation tends to benefit the lender. Borrowing for the purchase of a house is thus a risk with regard to deflation, bankruptcy, lower wage and an inability to pay back the loan. However, lenders can also become victims of deflation as well. Besides the risk of loaning with no return, less production can result in poorer living conditions of the economy as a negative in rendering a more insecure society at large, unless replaced by computerized robots.

Money earns money, as by some risk, but economic wealth should be a measure of product instead of money. Besides, economic wealth is not necessarily true, real or actual wealth.

BANKING FOR AMERICA

An influential factor of the American Revolution from English rule was interpretations of republicanism for the formation of a government. Both Plato and Aristotle independently philosophized in ancient Greece that democracy, aristocracy and monarchy combine to form a republic. Later ideas stressed the duty to enforce the law of the land by means of liberty and democracy overcoming the corruption of government. England had become viewed corrupt, as such, by colonists. However, during the American Revolution itself, the only official means of unifying the colonies was Continental Congress that had no authority to tax or regulates trade. Payment to soldiers was thus dependent on each state to authorize its contribution. An urging for a central bank for the financing of military and other obligations of government would later be included in a newly formed constitution whereby the Republic formed was contained with a President, Court, Congress and Senate. The inclusion of the Senate was a compromise whereby a number of Congress representatives are according to the population of each state, whereas each state has the same number of Senate representatives.

The virtues of republicanism were recognized within the colonies, such that rule for and by the people was favored. Republicanism, democracy and liberalism were thus uniquely intertwined in a popular way that could have enabled Thomas Jefferson to succeed George Washington as President, as a Democratic-Republican Party, popular in name, had been founded by James Madison and Jefferson. However, the authoritative nature of the new nation as a republic remained controversial. Thomas Jefferson, Thomas Paine and Benjamin Franklin asserted representative democracy as a preferred element essential to republicanism; John Adams and Alexander Hamilton preferred more governmental control by leaders more knowledgeable of government instead of by the common people with less understanding of it.

Contributing factors of unionism began farther back in history. In 1664, the British Navy invaded New Amsterdam, what is now New York, in applying the mercantilist policy of enriching itself at the expense of colonialism. As England declined to furnish its colonies with coinage, and it even forbid them from minting their

own coins, colonists were dependent on barbaric methods to barter for commodities and services. Their exports were accepted by English merchants, but they received goods and services as trade without exchange of money in return. A method of trade amongst themselves resorted to such items as tobacco and rice as money in southern colonies. Included as various forms of money for colonies more in general were animal skins, livestock and so forth, but their impermanent nature and variance in value, according to supply and demand economics, were qualities of inconvenience.

Dutchmen in the area of New York trading with Indians introduced, in 1627, wampum (shell beads) to New Englanders as a method of trade. Ten years later, wampum became legal tender for paying taxes in Massachusetts. However, it became illegal twenty-four years later, most likely because of it being too fragile for practicality, and its productive potential could have been too uncontrollable as well, as were amounts of gold and silver in later years.

In 1652, in violation of English law, there was an attempt to establish a mint in the Massachusetts Bay Colony in Boston. It failed mainly because of its simple design being easily counterfeited. In 1684, attempts to mint coin were further thwarted with the closure of the mint by order of the King of England, Charles II, in revoking a 55 year old charter of self management. Colony members consisted mostly of Puritans detested by the royal order for their attempt to purify the Catholic Church, and Charles II accused them of insubordination.

Colonists were still dependent on a currency for community services. A likely candidate available to them was paper money. Paper at the time was not as durable as it is now, but it could have been a more convenient means of exchange for circumstances at hand. The Massachusetts Bay Colony thus printed, in 1690, the first paper money in North America. The practice was soon followed by other colonies. However, if the paper money was not then backed by specie of either gold or silver, it would be worthless against the purchase of commodities from Europe. The paper money thus became notes of credit with the condition they were redeemable for gold and silver. However, even though owned land could have also been considered as collateral for paper credit, the notes rapidly

depreciated in value because of not enough gold and silver available for redemption.

Land banks were created in the following century for the transactions of mortgages, some of which were by government agencies. A few commercial banks briefly existed. Some of them were fraudulent; others were closed for being in violation of English law, as was one established in Philadelphia by Thomas Willing and Robert Morris.

Still, such circumstances as war created a need for paper money, as was issued by the Continental Congress of so-called Continentals between 1775 and 1779 in order to help finance the Revolutionary War of Independence from 1775 to 1783. As a means of credit, a Continental dollar equated with the Spanish dollar, but too many Continentals became issued than could be redeemed for gold and silver, and by 1779 they were decreased ninety-nine percent in value. The slogan "not worth a Continental" persisted even after the colonies became victorious, whereby Continental Congress enacted in 1786 a constitutional law that forbid any state or federal chartered bank to issue paper money.

The constitution did allow the borrowing of money. For the purchase of such needs as bullets and guns, the war effort had depended on financial support from patriotic and gracious donors or lenders of gold and silver, as about $11.7 million had been mostly borrowed from Dutch bankers and the French government, and about $42 million from wealthy merchants located within the colonies.

Merchants opposing English policy aided the revolt. Robert Morris Jr. was one particular merchant in the Philadelphia Bay Colony. As part owner of a shipping and trade company, having international connections, he used it to spy on the movement of British troops. His firm helped sell the spoils of war obtained from English ships by privateers. His own navy eventually was sacrificed for the cause. In addition, he personally paid 10,000 English pounds to pay continental troops under General Washington, and then by way of "Morris Notes" of his own funds, he funded more than half the cost of bullets and other governmental expenses. However, he later invested his remaining fortune in land. He went bankrupt in 1798 after the Bank of England suspended specie payments in 1797, and he served time in debtor's prison until 1801, being freed after the passage of a bankruptcy act.

A close associate to Robert Morris was Alexander Hamilton, who was an early volunteer in the revolt against English rule. Hamilton joined a New York volunteer unit in New York, received the rank of Lieutenant, and was later elected captain. He became General Washington's top staff aide with the rank of lieutenant colonial. He requested an active role in the field of battle. Washington, with reluctance to sacrifice the communication talent of his top aide, finally consented, giving Hamilton the command of an infantry battalion from New York that forced a critical surrender of the British army at Yorktown, Virginia. President Washington, on September 11, 1789, then appointed Hamilton as the first Secretary of Treasury.

Although the colonies revolted against English rule, the merchants did not oppose the English banking system. They were practitioners of it, as in need of a system of credit whereby those with wealth could invest in those unable to create wealth because of not having enough of it at hand. Up until 1781, the local means of credit relied of such individual transactions as that of an owner of land using it as collateral to obtain a loan from an individual or company. Land owners included government as well as individuals.

To help finance the war, Philadelphia merchants established the Bank of Pennsylvania in 1780, but it was not a real bank in the ordinary sense. It resulted in rampant inflation partly due to an issue of $240 million credit in banknotes by the Continental Congress that were to be redeemed for gold and/or silver, partly because the states chartered their own banknotes, and partly because the British counterfeited the banknotes. Such factors resulted in not enough silver or gold available for all individuals to redeem notes on demand. The states and the federal government thus remained in debt after the war. However, inflationary aspects of monetary policy were internalized, whereby banks in Europe deemed the credit rating of the colonies was higher than that of England. Robert Morris, for instance, was able to obtain a sizable loan from France to establish the Bank of North America, which he also invested in. (The vast amount of open land in the new world was also an attractive investment opportunity.)

Hamilton had proposed, in 1870, to Superintendent of Finance, Robert Morris, the need for a national bank to help finance the war. Morris agreed by submitting to Confederation Congress a request to

officially charter the bank. It did in 1781, as the Bank of North America. It was the first privately owned bank of the United States and it was partly financed by selling shares to the public. Morris himself was personally a prime financier of the war and of government, and the Bank of North America was partly financed by his ability of obtaining a loan from France. However, more debt kept piling up.

In response to the Bank of Pennsylvania's failed attempt to finance the war, Morris did attempt to solidify the Bank of North America with specie. However, the bank was accused of being a monopoly. The monopolization practice of the bank was actually endorsed by its backers as necessary in order to survive during the time of war, but the wartime privilege allowed discrimination of loaning practice to whomever board members of the bank preferred to loan to. More banks became more desirable for fair play.

The first constitution of the United States was an agreement called the Articles of Confederation and Perpetual Union. It was ratified in 1781, and it forbade taxation by the federal government, which could then only borrow money from the states. Congress also lacked authority to regulate the trade of states between either themselves or with foreign countries. States of the Union thus had independent control of their own trade policies. However, when the federal government failed to obtain its needs from the states, this original constitution was replaced with a new one, ratified in 1789, whereby the Secretary of Finance, Alexander Hamilton, founded a national banking system similar to one already existing in England.

Hamilton studied such economic theory as authored by David Ricardo (1772-1823) advocating that government has a significant role in economic development. England had used public debt for building its military empire, but that does not mean the banking system was the cause of it being such a dominant force. The greed for more gold as economic wealth was more likely the controlling factor. With the unifying aspect of government in mind, Hamilton successfully proposed to Congress that it charter a national bank similar to the Bank of England. The Bank of the United States was thus chartered in 1791 for a twenty year period.

BANK AMERICA

A main difference between national banks of England and the US was only that shareholders of the US Bank had more votes for more shares, whereas the Bank of England allowed only one vote for each share holder. Another difference was that the US Bank Charter restricted the amount of loans offered according to the amount of gold and silver in reserve, whereas the Bank of England Charter placed no such restriction. Moreover, whereas the US government was a share holder with twenty percent ownership, the Bank of England, for the record, was strictly privately owned.

Critics of Hamilton have labeled him as a mercantilist, as in association with Ricardo. Adam Smith had also suggested the United States of America should remain an agrarian type society instead of attempting to become an industrial one of manufacturing products. However, Hamilton was more in tune as a businessman in realizing the critical need for a financial institution for paying of debt and financing, as he had previously organized the Bank of New York in 1784.

The accusation that Hamilton was a mercantilist is rejected by some of his supporters who claim he simply realized free enterprise also requires the protection and support of government. During his time as Secretary of the Treasury, there was a national debt of more than $5 million and total debts of states of about $25 million. Hamilton realized a consolidation of the state debts into a national debt could help unify the states in support of a central government. To pay for the national debt, he thus proposed the creation of a national central bank for establishing the means for credit and investment, as financed partly by a tariff on imports, partly by taxing distilled liquor, and partly by selling bank shares to citizens and foreigners for the promotion of such infrastructure as roads for the growth of an industrial economy as well as the financing of military and government. The selling of debt, as stock, is unique inasmuch as there is no redemption required of the sell. If it fails, the investor suffers the loss. For it to become an attractive investment, taxation provided a means of securing it for future dividends. Investors of it would also be more inclined to support a financed institution of the people.

The proposal was a difficult sell, particularly to the southern states that were comprised by conservative members of the Republic, which included President George Washington. Thomas Jefferson, as the Secretary of State, favored the agrarian nature of wealth, feared a national bank would become an unfair monopoly in its competition with state banks, and he doubted the constitutional legality of the national bank. James Madison, a Representative of the House for Virginia, also objected to the proposed twenty year charter of the bank as too long of a temporary operation. Nonetheless, in 1791, the bill for authorization passed both in the House and Senate, and Hamilton persuaded President Washington to sign it into law. Thus, First Bank of the United States was chartered for a period of twenty years between December 12, 1791 and March 3, 1811. It was headquartered in Philadelphia where it branched out into other major cities from New York to New Orleans.

The seed capital of the bank was set at $10 million, and it was financed as a stock of paper notes to be distributed among the economy as currency. The government was the major stock holder at $2 million. It thus shared in the profits, but it had no direct control of its operations. The national bank also competed with state banks, but the government attempted to control availability of credit and to even regulate the issue of notes by state banks for the purpose of national security.

The first few years of the charter were unstable. Initially, government scripts were sold as down payments for shares of the Bank. A competition for the scripts fueled speculation and up and down periods of investments followed. However, the printing of notes were backed with the minting of coins and the situation stabilized after a few years. Perhaps a gold discovery in North Carolina aided the cause. The US Mint only reported, in 1793, that gold was being produced in the state. A large nugget found in 1799 by a young man, Conrad Reed, was used as a doorstep for three years until a jeweler revealed to the family it was gold.

Up until the national bank was established, all currency was foreign, as from a circulation of coins minted in Mexico and Europe. An official mint by Act of Congress enacted in 1792 became operational in 1793. Most coins contained a percentage of silver. A nickel, for instance, was half the silver of a dime. Some coins also contained gold for a monetary range in value from $2.50 to $20. The

official value of a one dollar federal banknote was about 371.25 grains (214.056 grams) of silver, but both silver and gold would vary according to its supply and demand as well as supply and demand of other product.

The first twenty year charter seemed successful for the most part, but its renewal rested on Vice President Clinton for his tie breaking vote, which was against renewal. In the following year the US got into a military conflict with England for two and a half years that resulted in a period of inflation. Not until 1816 did President Madison sign into law the second twenty year charter, but its renewal in 1836 was to be vetoed by President Jackson, who favored presidential authority for unity of government, but he also regarded the Central Bank as a threat to monopolize banking rights of states.

By 1811, about 70 percent of the Bank stock was foreign owned, thus aiding the depletion of its specie reserves of gold and silver. Moreover, the agriculturists, mostly in the South, complained the Bank provided an unfair advantage in favoring the development of industry over agriculture. In turn, industrialists, located mostly in the North, complained the southerners had an unfair advantage with the usage of slavery. The debate would eventually result in the Civil War from 1861 to 1865.

A favorable argument for renewing the charter for a central bank was that about $5 million in paper currency accounted for about twenty percent of the money supply in circulation. However, the bank notes issued by the National Bank were not discounted, as revenue by the federal government was obtained by such other means as taxation, whereas a state bank's profit dependent on a discount whereby redemption of notes could be anywhere from zero to one-hundred percent less than their initial value. The National Bank thus had a competitive advantage in offering full redemption of all its notes. After the failure to renew the National Bank Charter, the number of state banks increased considerably from only 712.

After the war of 1812, industrialists in northern states began lobbying for tariffs on imports, which partly neutralized the wealth of southern states obtained from the export of such agricultural products as cotton that were produced by means of slave labor. The tariffs rendered imports as relatively more expensive for the benefit of financing the federal government, as for the purpose of industrial investment. When President John Quincy Adams signed the Tariff of

1828 into law, the state of South Carolina threatened to secede from the Union. President Andrew Jackson, who was inaugurated in 1829, was a Jeffersonian in favor of such state freedoms as banking, but he also considered a strong Union as beneficial to the security of its people. He thus countered the South Carolina rebellion with a show of military force. A compromise was reached whereby the duty fee on Tariffs was lowered.

Still favoring Free State banking, Jackson vetoed, in 1832, the renewal of the National Bank charter due in 1836. In 1833, he further used an executive order to not fund the National Bank, and in 1836 he used another executive order that required the purchase of government land be paid only by either gold or silver coins. Jackson himself owned hundreds of slaves, but he was a recognized hero of the war of 1812, and he favored unity of states without monopolization of federal government. He helped form a Democratic party whereby its members became referred to as Jacksonian Democrats.

In 1935, for the first and only time in US history, the national debt was completely paid off. The US economy had been prospering when Jackson became President, mainly due to export from farming, tariffs and the sale of public lands obtained from territorial expansion. Exports further provided an abundance of silver from China and Mexico. However, such a means of prosperity resulted in an inflation bubble and the Panic of 1937 along with about a seven year recession.

The main cause of economic recession is inflation factors reversed by deflation factors. As products lower in price, those in debt become more in debt. One factor of deflation was a sharp decline of England's gold reserve due to more import than export, possibly due to less harvest of its wheat.

A counter to the effect of deflation was raising the interest rate to discourage borrowing in decreasing money circulation for less import purchase, depending on what consumers prefer to purchase. In this sense, a raise in interest rate is a natural result of supply and demand economics whereby less money in circulation tends to increase the need for credit and to increase its rate. Although the people still needed such food as wheat, other imports less critical to survival would decline.

(Printing more money, as credit, could have worked as well. More paper dollars per amount of gold does cheapen the dollar, and a cheaper dollar does render foreign products relatively more expensive. Nowadays the Fed interest rate is lowered to increase credit and money supply in circulation during periods of recession. However, banks are less willing to loan, partly because of more risk of default and probably because they can lose out to eventual inflation with their long term loans at lower interest with more future demand to borrow it.)

The US recession related to England's change in economic policy. The yield of cotton export declined. Moreover, US banks had relied on English Bank loans to fund such projects as industrial expansion to the west. With a stiffer price of these loans, and with gold and silver as a stiffer requirement for the purchase of government land, the result was also less loans and less competition for the purchase of land, resulting in deflation of prices as well as bank failures, less production and higher unemployment.

After a couple years or more, a recovery from the recession began. Part of this recovery can be attributed to the liberal banking policy that had been initiated by Jackson whereby a free banking period was in effect from 1837 to 1862. During this period, states chartered banks without the oversight of federal regulation. Although banks were required to issue bank notes in lieu of silver and gold coins, the reserve requirements and the interest rates for loans and deposits were determined according to particular state policies. A Michigan Act of 1837, for instance, allowed banks an automatic chartering with no need of consent from state legislature. As other states, in general, adopted similar policy, loans became more liberal along with bank failures, as about one-half of them within five years occurred, mostly because of their inability to redeem their notes.

Gold was also discovered in the hills of California in 1848, which was unlike the previous one in North Carolina in 1798 in that the California one attracted a large increase in population of immigrants mostly from Asia and South America, as with more than 25,000 from China alone. However, very few prospectors became rich. The gold itself became an inflationary factor, which a population increase could counter, but business capitalized more by taking advantage of the increased population in catering to it in becoming a surer means of obtaining economic wealth.

Some economic analysts suggest too lenient restrictions of state banks attributed to their failures; other analysts, such as Daniel Sanches, have correlated the bank failures to an inadequate restriction of free banking whereby smaller banks were at a disadvantage. To charter a bank, states generally required a condition of collateral for notes of credit to be backed by specie or such securities as government bonds to refund the notes on demand. However, the actual value of the state bonds was subject to the stock market, which differed from their required purchase price that maintained intact as their collateral requirement. When market value of bonds lowered, and runs on banks occurred to redeem notes for specie, smaller banks tended not to have the collateral they needed to comply.

SLAVERY CONTROVERSY AND CIVIL WAR

An influential factor in the development of Colonial America was the mercantile policy of Europe along with slavery. As European nations competed for natural resources to develop and trade for monetary wealth, as by exporting finished product for gold and silver, they resorted to low wage labor that trickled down to slavery. English law forbade the enslaving of Christians. Native American Indians were not easily controlled, and initially they were exported to be sold as commodities. Later, slaves were imported from Africa by way of Spain, France and Portugal for agrarian and mining production. Indentured servants, indentured for reimbursing their cost of transport to the new world, were another option. After serving their time, they could become free to acquire land and so forth. Even some Africans became free citizens after they were baptized. However, stringent rules along with high taxes that England imposed on its colonies contributed to revolts. A contributing factor for unification instead of revolt would be a central banking system.

John Locke (1632-1704) is considered by some historians as the founder of Classical Liberalism. He also invested in the Royal African Company for the trade of slaves and drafted Constitutions of Carolina in establishing a feudal aristocracy allowing slave owners full mastery over their slaves. He believed atheism should not be tolerated. At the time, only slavery of other Christians was outlawed. His opposing aristocracy and slavery in his writings must thus have referred to the elite who in some circumstances are obligated to revolt against corruption. He also believed government should be divided into separate authorities.

South Carolina became the main advocate of slavery. Although it was legal in all 13 colonies in 1776, all states except South Carolina outlawed the importation of slaves in 1808. However, the invention of the cotton gin was instrumental in providing a lucrative cotton export from plantation owners in the South using slave labor. The North countered with Tariffs. Whereas the South favored independence of the states, the North favored economic unity by means of a central banking system.

Southerners obtained wealth in agriculture by means of slave labor, but manufacturing of product was the main objective of northerners. Slaves gave the South an advantage. The counters for

the North were government tariffs imposed on imports. The North favored more expensive tariffs; the South favored free trade. Southern Democrats were more persuasive for a gradual lowering of the price, but conflict maintained with regard to slavery itself. After the US gained control over northern Mexico and California in 1948, the South aimed at expanding slavery into the newly controlled lands of the US, and there was some contention of expanding its control to Cuba and into Central America. This expansion was perceived as a disadvantage to the North. Compromise of an equal number of Slave States to Free States had previously been in effect from 1803 to 1854, but Free States had begun to outnumber Slave States. Southerners, considering this outnumbering as a threat to their practice of slavery, decided to declare their independence from the Union.

As it were, authority of government was a controversial issue with regard to state rights versus federal rights as well as individual rights versus federal rights. Should states have their own right to own, buy and sell slaves? There was to be a civil war. Moreover, some merchants felt the need of a central bank for a stronger union; others feared the central bank could become a monopoly with an unfair advantage in competing against state chartered banks.

The Civil War began in 1861 and ended in 1865 with a military victory of the North over the South and the abolition of slavery. However, neither the North nor the South had been financially prepared for war. The South typified a farming community whereas the North was inclined to specialize in banking, manufacturing and such transportation as shipping.

In order to finance the war, a revenue source was required. Being taxed was unpopular in both the North and the South, but the North did favor an import tax, as was the main source of government revenue in the nineteenth century, and northerners were inclined to welcome it as protection of their livelihood from less expensive imports of cheaper labor abroad.

Although cheap labor of slaves also existed in the South, the South was vulnerable to the shipping control of the North. When the South rebelled, the North responded with a blockade of southern exports, which delivered a tactical blow to the South with regard to its lucrative source of southern revenue as export trade.

The tactic favored the north even though southern exports were interconnected with northern businesses as well as with European commerce. European manufacturing was able to obtain its import needs from Egypt, India and Brazil for no need to become involved in an internal conflict of American states. Although northern states had also been affected, as they benefited from the shipping of the southern exports, and even though northern banks held bonds as their securities that had been purchased by southern states, a shortage of wheat in England further gave northern investors an alternative as they turned to the Midwest in investing in wheat and such other commodities as the railroad.

Economic circumstances thus favored the North. However, the initial conditions still were critically challenging.

At the beginning of the war, the north was direly in need of finance in order to pay its soldiers, purchase ammunition, and so on. The interest rate from state chartered banks ranged from about 24 to 36 percent, which did not appear affordable at the time according to certain government officials. A reconstruction of the banking system was thus sought for the purpose of financing the war, such as a security matter for the Union to prevail against opposition to its existence.

The financial situation of government, as to its lack of funding, seems contrary to the economics of the time. The free banking period from 1837 to 1862 had experienced growing pains, but it was structurally coherent for the issue of credit for the general public. There was cheating, such as counterfeiting and so forth, and booms and busts periods occurred from time to time for various reasons, such that some of the people suffered while other people were able to take advantage of the situation, but the system was feasible with the ability of the people to overcome such diversity with enough successful practice of accounting for their own individual concerns, even if adverse to national security.

During the free banking period, state chartered banks were allowed by anyone meeting the requirements of the state charter. A strict requirement was a financial reserve to ensure bank notes could be redeemed for silver or gold on demand. A penalty was accessed for failure of this requirement, but liability deposits for the issue of notes could include government bonds that were issued either by a state or the Federal Government. As long as they remained

operational, they had a reliable source of collateral as long as the government itself did not become bankrupt, which the Union nearly did in 1860. The success of both government and banking was thus still interdependent even during the free banking era.

The reason for this lack of government funding was another situation in itself. The California gold rush in the late 1840s had helped enable prosperity in the 1850s that included a construction of twenty thousand miles of railroad tract by sales of stocks, government bonds and land grants, whereby the US Government even obtained a surplus. Lower tariff duties were thus enacted in 1857. However, a Panic of 1857 followed a moderate recession to the economic boom. Part of this panic is attributable to the embezzlement of a branch of an Ohio Life Insurance and Trust Company in New York City. It did not help that, in September, thirty thousand pounds of gold was sunk at sea by means of a hurricane. In response to the panic, President Buchanan, with the hint that he might have to persuade Congress to pass a forfeit law to cancel any bank charter that suspended its specie payments, suggested to the bankers they hold one dollar in specie as security for every three dollars issued as paper credit. In compliance with his suggestion, credit did tighten, as to result in reversing inflation to deflation. Foreclosures and bankruptcies of such companies as railroads and even banks soon occurred along with an increase in unemployment. Tax revenue, either tariff or domestic, was thus reduced.

Such events of the recession hardly affected the southern states, as to render them a relatively enhanced means of bargaining. President Buchanan being a Pennsylvanian Democrat was inclined to compromise with the issue concerning tariffs, as to appease both northern merchants and his southern Democrats. US tariffs, which were lowered in 1857, had become lower than most every other competing country. A fellow Pennsylvanian, Justin Smith Morrill organized the Morrill Tariff of 1861 that Buchanan signed into law on March 2, 1861 just before Lincoln took office and seven southern states had succeeded from the union and elected Jefferson Davis president of the Confederacy.

When Abraham Lincoln was elected president November 6, 1860 as a member of the new Republican Party opposing slavery, South Carolina led seven southern states to declare their succession from the Union. President Buchanan and President-elect Lincoln

both declared the succession illegal. Lincoln, who was a member of a newly formed Republican party that had replaced the Whig party, opposed slavery and favored tariffs. After he was inaugurated President on March 4, 1861, South Carolina forced the Union army to vacate Fort Sumter in that state on April 12, 1861.

When Lincoln took office, the US Treasury had less than a half million dollars in specie and was millions of dollars in debt. Financing for the Civil War was a difficult challenge. At that time, the constitutional law stipulated Federal Government could only receive coin from banks or individuals, and banks were only willing to make loans to the government by charging it between 24 to 36 percent interest. Rather than choose from a thousand of different bank notes of countless banks charging such high interest, the US Government of the North chose to finance the war against the Confederate South by resorting to taxes on imports, income, property and so forth. Still, however, taxes in themselves were not an immediate solution; lack of specie required some form of credit to pay daily expenses at a future date.

Acts by Congress permitted the government to both sell Government Bonds bearing interest and to issue Demand Notes redeemable in specie on demand, but bearing no interest. However, Demand Notes were a difficult sell, and banks only purchased them at a discount, and then loaned them to the public for additional interest. Moreover, a decrease in gold specie of both bank and government reserves occurred due to such factors as hoarding by the public and the redemption by the Stock Market of American Securities held by foreign investors. After December 31, 1861, the government of the Union and banks both terminated their redeeming of specie.

As a means to pay the salaries of soldiers and other military expenses, Colonel Dick Taylor suggested to President Lincoln that patriotic soldiers would accept paper notes of credit not backed by specie on immediate request. On the following February, Congress authorized, by a Legal Tender Act, an issue of $150 million in Legal Tender Notes for the replacement of the previous Demand Notes. These new greenbacks, known for green ink printed on their backsides, were legal tender, as fiat money, except that holders of the notes could not use them for paying import duties, and government could not use them to pay interest on its bonds. They were issued as

a temporary wartime measure with the assumption that specie obtained by customs duties would eventually become available to buy them out of circulation. The legal tender notes were also similar to interest paying bonds Because the treasury did not have enough specie to redeem Demand Notes, the US Treasury was authorized by the Legal Tender Act to pay up to twenty percent interest for the redemption of the Legal Tender Notes at a later date.

Rather than flood the economy with fiat currency, the Legal Tender Notes, known as greenbacks along with the Demand Notes, were helpful in allowing citizens to use them for purchasing bonds. Secretary of the Treasury, Salmon P. Chase, hired Jay Cooke, a private owner of a banking house of the name Jay Cooke & Company in Philadelphia, to sell $500 million in bonds. Cooke was paid 0.5% interest for the first $10 million and 0.375% thereafter. With the use of newspapers for advertising, citizens were persuaded that it was a patriotic duty to support their government. A low cost of bonds relative to the affordability of buyers had also affected the sale, as providing the public with more opportunity to invest in the government for six percent return of interest payable in gold after six years. The campaign was paid for as part of Cooke's commission, and it exceeded the $500 million by $11 million.

Further remedies were needed to stabilize monetary supply. National Bank Acts were enacted in 1863 and 1864 with the intent to establish a national banking system of national banks with a Comptroller of the Currency as part of the US Treasury. In 1865, non-national banks were required to pay a ten percent tax on their notes, as to withdraw them out of circulation in favor of a national currency. There was also an attempt to buy back the green backs with gold, but in being popularly declared "good as gold", they became preferable as the common means of circulation.

Although a national banking system was established similar to modern times, a particularly notable aspect critical to winning the war was bypassing banks in selling affordable bonds directly to the public in providing it with the opportunity to directly invest in its government. Especially essential to the potential of this investment is a government source of revenue. During and soon after Civil War times, the essential source of revenue equated to a tax and security of funding in relation to specie, which differs from modern times whereby specie has been replaced with fiat currency. This fiat money

of today is worth only what it can purchase. If there is product aplenty, for a dollar, then a dollar is worth an aplenty amount of product. Money thus becomes useful as a convenient means of exchange of various products, and as credit for a means of investment allowed by a money supply for more opportunistic means of creating economic wealth. Therefore, economic wealth becomes dependent on the allocation of public debt.

CHANGE AND ADJUSTMENT ECONOMICS

Proponents of a gold standard argue it limits inflation inasmuch as the gold supply is relatively more constant compared to an unlimited amount of paper money that can more easily be printed. Although gold rushes have inflated economies, the periods of inflation have been relatively short and mild to allow natural adjustment by members of society affected by it. However, a gold standard counterargument is with regard to a lack of gold in circulation, either of gold coins or paper credit secured by a gold reserve. It is argued that the lack of gold benefits the rich by them hoarding it, decreasing the distribution of monetary capital in circulation, allowing deflation to result from supply and demand economics whereby the same gold purchases more of the same product due to the product selling at lower prices. Those of us poor in debt with high interest loans become losers if increase in cost of interest and loss of income is greater than the decrease in cost of product.

Banking policy itself, with or without a gold standard in place, can further be at odds with total economic adjustment. Inelastic currency after the Civil War, for instance, resulted in liquidity problems as unfavorable circumstances for farmers to finance their planting and harvesting of crops. At planting time, farmers needed loans in order to purchase seed and equipment. After harvesting and selling their crops, farmers tended to deposit much of their profits in member banks of the national banking system. The money supply of national banks thus fluctuated. The reserve requirement restricting how much banks can loan required banks to either sell bonds or stocks, or call in loans. Without enough credit to plant and harvest, farmers became bankrupt in surrendering their mortgages to banks. Financial crises occurred in 1873, 1884, 1893, and 1907, the latter being the worst in the US before the Great Depression of the 1930s.

In the latter half of the nineteenth century, developed nations tended to comply with a gold standard as a common currency for a simpler means of comparing the values of other local currencies between nations. In 1873, the US followed this trend in redefining the dollar in terms of gold instead of silver, and it adopted the gold standard outright in 1900. The crises of 1907 further led to the creation of a Federal Reserve System according to the Federal

Reserve Act of 1913. It provided a system of stringent rules whereby banks could borrow and loan out Federal Reserve Notes.

The Federal Reserve was created to stabilize currency and gold values in compliance with an international gold standard, but such costs of World War I from 1914 to 1918 to fund military action persuaded many European nations to detach themselves from the gold standard. They gradually would recommit to it after the war during a time of prosperity in the US until the Great Depression occurred in the 1930s.

As to why the Great Depression prolonged as long as it did in the US, such monetarists as Milton Friedman and Anna J. Schwartz argued its main cause was a 35 percent monetary contraction resulting in deflation of prices, bankruptcies, and unemployment and so on. Ben Bernanke, as Federal Reserve Chairman in 2002, agreed, and the British economist John Maynard Keynes similarly argued recessions occur because of a lack of public spending. The primary difference between the economists is their solutions. Friedman and Schwartz argued for a constant but gradual increase in the money supply to maintain a healthy inflation rate, whereas Keynes advocated an assistance of government for a healthy distribution of wealth, such as to employ workers on involuntary unemployment and to impose a temporary redo of contracts resulting in too much debt. A postponement of mortgage payments during a recession to collect rent instead of payment on the principle, for instance, could prevent a great number of bankruptcies instead of banks having to foreclose on devalued property that is further vacated and devalued because of a lack of upkeep. Banks, potential buyers and renters could all benefit from such a change in banking policy.

Whether Keynesian or Monetarist policies were, or would have been, the more applicable or more detrimental to the recovery is conditional to the situation at hand. An analysis is here given for more understanding with regard to circumstances relating to supply and demand economics and the economic policies in play after WWI and during the economic boom of the roaring twenties. However, it is first noted that actual experiences of the Great Depression transcend the abstract analyses of economic policies.

It is not difficult for economists to examine abstract indications, as to therefore claim the initial recession would have been self corrected in a fair amount of time, but the actual hardship

experienced by countless victims of the depression was an economic tragedy to them. There is much testimony to such hardship: more than twenty thousand suicides; the homeless living in rusted-out cars or on park benches while using discarded newspapers for blankets in order to endure the cold; children skipping school in helping the family out with meager paying jobs; one and a half million wives striving to make ends meet with low paying jobs after they were abandoned by jobless husbands; more than 400,000 farms lost to bankruptcy, with other farmers burying their corn and wheat and dumping milk on roads rather than to sell them at a lower price; soup kitchens and long bread lines; illegally deported Latino citizens born in the US; last hired and first fired minority workers; a couple WWI military veterans killed for protesting with many others a veto by President Hoover of an early payment of a bonus promised according to a WWI Compensation Act of 1924. (The latter was also vetoed by FDR. Congress overcame it to finally grant a nine year early payment in 1936.) Although not all American citizens experienced a lot of hardship, those that did were not simply lazy or incompetent; they instead were victims of the monetary circumstances of the time.

One particular circumstance was how the gold standard influenced the economy after WWI. From WWI until 1929 the US exports acquired from Europe provided a surplus of gold. By August 1929 the Federal Banks' gold reserves about doubled what the Federal Reserve Act of 1913 had required, as the US accumulated about forty percent of the monetary gold of nations on the gold standard. The US continued this hoarding trend of gold on into the depression whereby the US and France had accumulated about sixty percent of monetary gold supply. However, they both endured more of the depression. Such nations as China and Spain that were not on the gold standard experienced less depression. England and Scandinavian nations that abandoned the gold standard sooner recovered sooner from the depression. The policy of the gold standard act with regard to its implementation thus seems to have been flawed.

The founding of the Federal Reserve System in 1914 resulted from the Reserve Act of 1913. A main purpose of the system was to control money supply in circulation in order to prevent such banking panics as occurred in 1907. The primary means of control was in establishing an elastic currency in circulation that can be either

increased or decreased to counter negative effects of price inflation and deflation of the general economy. The Federal Reserve was established having authority to issue Discount Notes to Federal Reserve Banks to re-discount them to commercial banks and other financial institutions. A Reserve Bank was required to maintain at least a 40 percent gold reserve for outstanding public loans. To control dire inflation effects, as by authority of the Federal Reserve Controller, discount rates, as interest rates, were supposed to be increased to discourage public borrowing. With higher bank interest rates also paid to depositors' saving accounts, deposits would also compete against stock investments to also decrease the amount of money in circulation. The lowering of interest rates was supposed to apply with regard to adverse effects of deflation.

A criticism of the policy is that it was too restrictive to properly work during some dire situations. It only had temporary loan control, as lender of last resort, over member banks, but the number of state chartered banks as members of the federal system was only ten percent in December of 1929. The 90 percent of non member banks held about 25 percent of all deposits to all national and state chartered banks. The non member banks and other investment banking institutions were also allowed to speculate in stocks.

An error of judgment also occurred. In August of 1929, the Federal Board responded in finally approving a request by the Federal Reserve Bank of New York to raise interest rates. In response, foreign central banks raised their interest rates. Commercial banks of New York City became strained with a rise in reserve requirement as the stock market capital transferred into banks. There was a Stock Market crash on October 29, 1929. The Federal Reserve then responded by lowering interest rates to successfully reverse the recession. This occurrence provided an indication of how banking policy could affect the world economy along with other events of a tragic nature, whoever or whatever was at fault. However, other conditions emerging from the past were to have even more negative effect.

While maintaining the gold standard while European nations departed from it during WWI, US benefited from its financing European war needs and its recovery after the war. After a minor recession occurred in the early twenties, the roaring twenties emerged as a period of prosperity. A Rich and Middle Class

emerged. High wages were encouraged for the distribution of capital promoting spending and investment. A government budget became a surplus, and President Hoover successfully proposed in 1930 a reduction of taxes by one percent, but he subsequently proposed a large tax increase in 1931 in order to counter a budget deficit.

Although a Middle Class emerged in the 1920s, distribution of wealth was not proportionate. Average wages did not keep pace with profit, which resulted in less demand for products produced in 1929. In compliance with lower wages, farmers competed against each other, resulting in an increased supply and decreased price of harvest and livestock. As the price of farming equipment rose, farmers struggled evermore. A worldwide surplus of food seemed to emerge to challenge the price of farming produce resulting from more efficient farming methods and new technology of modernized nations inclined to produce more for less. However, even though the data indicates there was food aplenty, the analysis is abstract, as applying only to whoever could have afforded the market value of the food. If true, then a counter to this deflationary trend could have been food stamps issued to the needy, as a temporary means to counter deflation and facilitate distribution of wealth, but other deflationary tactics were employed instead.

Farmers had also depleted nutrients of fertile topsoil that had taken more than a thousand years for nature to create. It swiftly became depleted by drought and strong winds in the summer of 1931. The Dust Bowl thus occurred in New Mexico, Oklahoma, Texas, Colorado and Kansas. With a lack of harvest to feed cattle in the fall of 1934, the government purchased and destroyed thousands of livestock in an attempt to stabilize stock prices. Total deflation, as including lower wages and so forth, could have been the natural means of adjustment, except loans for mortgages and so forth favor the loaner, not the borrower. The rich who hoard their wealth also become richer with regard to deflated prices, whereas investment becomes the trend in order to counter inflation. Destroying of cattle to counter deflation likely contributed to the inability of the poor to afford the purchase of food instead.

Although a Middle Class emerged in the 1920s, distribution of wealth was not proportionate. Average wages did not keep pace with profit, which resulted in less demand for products produced in 1929. In compliance with lower wages, farmers competed against each

other, resulting in an increased supply and decreased price of harvest and livestock. As the price of farming equipment rose, farmers struggled evermore. The Dust Bowl was somewhat of a relief to some farmers while it was devastation to many others.

Investment banks also speculated in the stock market. When the value of stocks declined, some banks did not have enough funds to legally operate in an effective manner. The largest financial institution of the southern states, for instance, was Caldwell and Company. In providing banking, brokerage and insurance coverage, it also invested to lose a great amount of its capital reserve in stock investment. Following it, the Bank of New York ceased its operation. Credit became difficult to obtain. Hoarding was more preferred. Prices of commodities declined. Many companies, including banks, closed. The poor became poorer because of higher levels of unemployment.

Hoover became President in March 1929. He proclaimed, in a 1930 State of the Union Address, "Prosperity cannot be restored by raids upon public Treasury". His Union Address statement is consistent with his commitment to a balanced budget. He vetoed several bills intending to provide relief for Americans in need of it, but he also proposed such projects as construction of the Hoover Dam. To pay for them, he approved tax increases and signed into law a record tariff, as the Smoot-Hawley Tariff in name. A balanced budget was achieved in 1931 along with a plummeting economy of about a twenty five percent unemployment rate. Although prices deflated, wages did not, as for support of the remaining work force with the aid of unions.

In a limited way, Hoover initiated the New Deal President Franklin D. Roosevelt proposed before he took office in 1933. Under Hoover, included in the budget was additional revenue for national parks and forests along with the creation of the Veterans Administration, adding to the number of veteran hospital facilities. He signed the Davis-Bacon Act mandating that all federal funded construction projects pay an above average union wage to all employees. He further pleaded to business leaders to pay fair wages for increasing spending and preserving the overall health of the economy.

The remedies of Hoover were modest and restricted by law, leading to contraction of the money supply and a worst and more

lasting depression. By 1933, the unemployment rate had risen above twenty five percent in the industrial and mining regions of the economy. Farming income had become less than half of what it had been in 1929, and there was a closure of more than 40 percent of 11,000 national banks.

Bank runs were rapid. As FDR took office in March 1933, state governors had declared bank holidays in order to postpone the runs. The most immediate concern of the president was thus the banking crises. On March 5, he declared a four day holiday to prevent further withdrawals and closures.

On March 9, Congress passed an Emergency Banking Act allowing a President to intervene during banking crises, as to reorganize banks, close insolvent ones, and to allow the twelve Federal Reserve Banks to issue additional currency as needed. With a plea by the President for citizens to deposit their savings in the banks, three fourths of the banks reopened by the end of the month. Bank security was further enhanced by a June 16 enactment of a Banking Act of 1933 for the establishment of the Federal Deposit Insurance Corporation. In addition, a Securities Act of 1933 was enacted as a means to help prevent stock market crashes. On April 19, 1933, by executive order, FDR temporarily removed the US from the gold standard.

An Emergency Relief Administration that Hoover had created in 1932 was revised as the Federal Emergency Relief Administration, and it eventually became the Works Progress Administration in 1935. It along with a Civilian Conservation Corps allowed Federal loans to states and cities for employing unskilled workers in conservation and development of natural resources in rural lands owned by states, cities or the federal government. Development of a national infrastructure was also included as part of the New Deal with regard to the building of roads and hydroelectric dams and so on. Farmers suffering from too low prices of harvest and livestock were provided relief by means of being paid for not producing. A Home Owner's Loan Act was also enacted. Congress amended Prohibition of Alcohol to allow brewing of a beer industry, and a National Recovery Act guaranteed workers the right to organize as a union to bargain for fair wages and working conditions. A national labor board was established by executive order along with the Civil Works Administration to provide work for about four million

unemployed workers during the winter months of 1933 and 1934. On June 28, 1934, the National Housing Act (FHA) allowed the Housing Administration to insure loans for construction or repair of homes. FDR, on August 14, 1935, signed the Social Security Act that guaranteed pensions to retirees 65 years of age, and provided financial aid to dependent children and the blind, establishing unemployment insurance as well.

FDR, as was Hoover, was a proponent of a balanced budget. Some of the New Deal reforms were intended as temporary measures. Because of an improvement of the banking system towards 1935, the early bonus payment bill to WWI veterans was vetoed, but the Congress, Senate and key advisers of the administration that FDR had fortunately inherited were more willing to enact reform. Congress overrode the veto.

Those who favored New Deal Reforms became referred to as liberals. Those who opposed them were known as conservatives. The liberals had dominated, but conservatives were favored in mid elections between 1933 and 1935 due to such controversies as with regard to unionization.

The economy improved towards 1937, but another recession occurred. Meanwhile, FDR concentrated on preparing for war. Congress had passed Neutrality Acts in 1935 and 1936 prohibiting exports for military war needs and the extension of credit to any nation considered inclined to war, but FDR was more in tune with an upcoming threat of world war imposed by Germany.

Germany's economy and military, second only to the US in 1914, were devastated by 1918 due to WWI. By treaty, Germany was obligated to pay victims reparations for its war damages. It could not, whereby France and Belgium invaded and stripped Germany of goods and raw materials in 1921. During 1923, Germany experienced hyperinflation by printing fiat money in order to pay striking workers. However, Germany became extremely prosperous and peaceful from 1924 to 1929 due to the gracious credit of the US. However, in the final two months of 1929, gold reserves of the US were in decline, and the US requested Germany pay off its debt owed to the US. Perhaps this reverse policy, in part, aided an Adolf Hitler political platform of hate.

In 1937 and 1938, the US economy was in decline, but it stabilized in 1939 and began to soar in 1940 with an export of

European war needs. The US gold supply that began increasing in 1938 increased more rapidly in 1940 with a German invasion into France. The increased US money supply was countered by investing in rearmament. Lower priced bonds were sold that rendered more public investment. Taxes were increased, but mandatory rationing aided with the issuance of coupons that countered the threat of rapid inflation is testimony the cost of public service can benefit the overall economy besides what the money is used to produce.

A Lend-Lease program of the US also supplied allied nations, along with a French resistance force against Germany, with food, oil and other material needs. Subsequently, leaders of nations gathered in Bretton Woods, New Hampshire of the US, in 1945, to establish the Bretton Wood (International Monetary Fund) policy whereby individual countries are to maintain a one percent exchange rate variance of the gold standard in promoting monetary cooperation and financial stability to facilitate international trade, promote employment and sustain economic growth, and reduce poverty. A Marshall Plan was later implemented in the US to help finance the recovery of Europe.

A foreign aid policy followed. US charity dollars provided incentive for importing US products, as to increase employment and positive distribution of wealth among US citizens. Give and receive was the outcome. To cut off all that aid would more likely have resulted in a grave outcome of economic disruption.

During the war, the US experienced some budget deficits, but overall there was a positive result in the redistribution of wealth. After the war, the rate of inflation was modest for decades with low interest rates encouraging such investment as in housing among a Middle Class enjoying the American Dream. In the latter half of the century, the distribution of wealth tended to once again benefit the wealthiest, as again lead to a fragile economy that was prone to a recession in the twenty first century.

By 1960 the US held $19.4 billion in gold reserves, which included $1.6 billion in an International Monetary Fund, to render it with $18.7 billion to cover foreign dollars outstanding. However, as the US economy prospered, Americans bought more imported goods, paying in US dollars. A balance of payment deficit worried foreign governments that the US would no longer back up the dollar in gold. By 1970, the US held $14.5 billion of its gold reserve against its

foreign dollar holdings of $15.7 billion. On August 15, 1971, by order of President Nixon, the gold ratio to the dollar was changed from $35 to $38 per ounce, and the Federal Reserve was no longer allowed to redeem dollars with gold. The US raised gold to $42 per ounce in 1973, and decoupled from the value of gold altogether in 1976.

The monetary value of the dollar is now simply whatever it can purchase. Although gold can still be used to compare values of different currencies among nations, it is not needed as such. Consider marbles instead as representative of various products in general. In accordance with domestic demand, if US producers produce ten marbles at a dollar cost to sell for ten dollars, and producers in France produce ten marbles at a cost of ten francs that sell for one hundred francs, then ten francs equates to the value of a dollar. The comparison is relatively the same whether marbles or gold. Moreover, if France doubles its printed amount of money in circulation, then 20 francs become worth a US dollar. Providing population and productive capacity both remain the same for both France and the US, and providing the US is capable of adjusting to the change in value of the franc, a fiat money standard allows nations more flexibility to adjust to their domestic situations than does a limited amount of gold reserve.

THE LOVE OF MONEY FOR PLAYING THE GAME OF LIFE

What is the real value of money?

One particular value is the freedom to purchase goods and services. If a loaf of bread costs a dollar, then the value of the dollar equates to whatever value that particular loaf of bread is to the customer. However, money not only permits us to choose what particular brand of bread to buy, or to choose something other than bread, it also entails a sense of freedom. There is thus a more extensive value of money in that it empowers us with more ability for choosing what to purchase, as for living our own lives instead of needing others to live it for us However, once our earned money is spent, so too is part of our freedom, becoming in need of earning more money. Conformity is thus a counterpart of our financial freedom. Even if we can choose who to marry, the success of our proposals generally depend on how we conform to conditions more favorable to the lifestyles with which we prefer to live.

Money has value in itself as a convenient means of exchanging goods and services. In a psychological sense, it empowers us with the freedom to choose what goods and services to purchase. Even though it is possible to exchange an apple for a loaf of bread, the convenience of the dollar empowers us with more ability to live our lives according to our preferences. However, contained in the game of life is another element called competition. Having more money to spend does not further empower us if everyone else has more money available to spend as well, unless there are more products available to purchase. Freedom to spend also depends on the available amount of product we can purchase with our money. Otherwise, inflation deflates the more money we have to spend because of relatively higher prices of products absorbing the increased money supply. Conversely, an increase in population and/or more products to purchase with the same or less amount of money tend to lower the average price per product.

What guarantee does money have as an acceptable means of exchange for goods and services?

Money was originally a note of promise for a redeemable asset, such as gold. The notes then became traded as money with the gold as its collateral, which has been presumed to have a value according

to the amount of labor required to discover and produce it as equal to the cost of labor of whatever gold can be exchanged for. However, when gold was hoarded, or circulated out of the country, less money rendered a period of deflation that rendered the hoarders of gold more economically wealthy, except for a decrease in productivity also rendering a relatively more overall poverty to offset the individual increase in economic wealth to particular individuals.

Money today is fiat. Instead of it being backed by gold, it is issued and regulated according to Federal Reserve policy as constitutive of governmental authority. However, even though a gold standard has by many of us been considered more of a guarantee, its value is still only relative. To someone in the desert needing water to survive, a canteen of water is more essential than a ton of gold. Similarly, the air we breathe is more critical to sustaining our lives, even though it has no economic value except for a negative one if industries are required to clean up their air pollution.

Even though money has a convenience value, as fiat or otherwise, it is still determined by whatever it can be exchanged for. For products aplenty the dollar is worth more than if products are scarcer. If food becomes scarce, then the value of food increases along with its price, as according to the economic law known as supply and demand whereby a generous supply of product with lesser demand is priced lower compared to a scarce product of relatively more demand, providing production and selling costs allow profits. (If electric utilities, for instance, have fewer customers to pay for labor costs, then higher electric rates could be required to maintain their service.) However, this value of money is only economic, as subjective to the cost of living. In contrast, the air we breathe has more real social value than economic value. The real value of air is taken for granted whereas economic value only constitutes the desire to exercise our freedom to spend money on whatever empowers the money in determining the state of the economy.

The value of money is also speculative, but we are gamblers by nature. The risk of losing money in a poker game excites us similar to how a more dangerous and challenging life seems to render our lives more meaningful. The self risk of life, such as to climb the tallest mountain, is a challenge for bragging rights. However, freedom often becomes too much of a challenge. In the old Wild

West free of law and order, for instance, James Butler (Wild Bill) Hickok (1837-1876) was shot in the back by a disgruntled poker loser. The known killer, as alleged, was tried and found innocent by the jury in the lawless town of Deadwood, but he was later retried and found guilty of murder by a jury in a more lawful town nearby. This result is a typical societal trend. Even though many of us still yearn for a freer and challenging way of life, more law and order seem preferred for a more orderly and safer community.

Conformity and commitment is the flip side of freedom. When danger becomes too great to overcome by single individuals, we are more inclined to join together to agree on rules of conduct, as to partner among ourselves a more favorable game of life to combat forces beyond individual control. However, this tendency escalates on up to more government, as among nations having nuclear capability to destroy life here on Earth as we know it.

What rules do we choose to play by?

Whatever the rules, ideally they are acceptable to all of us. However, rules in the real world are only preferred if they allow participation in the game of life. To agree on outlawing the proliferation of nuclear weapons is acceptable inasmuch as the threat of a holocaust is a self deterrent, but it is generally taken for granted insofar as the general public has no real vote on the policy. If life is destroyed, so be it; we live our lives accordingly.

In this world we compete to survive. In general, survival consists of a twofold strategy. We compete individually by means of self determination, but we unite as an organized community in order to survive more difficult obstacles, which require cooperation and trust among us. The latter strategy more often than not requires enforceable rules of conduct, as our individual needs and preferences are often contrary to the needs of society at large.

What matters most in a Democracy by the people for the people is the participation of the people for the determination of a most acceptable game of life to play. The participation is competitive due to the differences in the needs and preferences of the people. In result, we have only a partial say in the outcome. It could be a mere vote for a representative of our preference or it could include a financial contribution for the purpose of persuading a favorable outcome. Economics is thus a political factor.

Economics as a social science is only an abstract means to relate, and it is unsocial to most of us, whereas politics with its controversial debates on public policy more easily attracts our attention. However, spending money is still a means of economic participation. What we choose to purchase is a vote on a favorable product that producers compete to sell. The circulation of money further inspires productivity. People with money are usually more welcomed than people without it, as spending creates incentive to produce and sell more product, which further creates jobs and economic wealth with enough innovation to succeed.

Even though the game of life includes economics, an economic role of government is politically controversial. Political conservatives advocate the private sector of free enterprise needs to be allowed to prosper with a least amount of governmental influence, but progressives advocate instead there is a useful role of government in promoting a healthy economy. The point of issue is with regard to what constitutes the least amount of governmental influence in favor of the most preferable game of life.

In physics, conservation means remaining the same. Total energy, for instance, is conserved because it is neither created nor destroyed but merely changed from one form to another. Staying the same as the connotation of political conservatism is with regard to favorable established traditions. Too much change is often disastrous for us. With free information on the World Wide Web, for instance, self education could eventually render universities and professors obsolete. Although change is often necessary, it is generally more favorable if it is gradual, as to leave its victims ample time to adjust.

Change often threatens the establishment. If the change is due to free and fair competition, it generally becomes more acceptable. However, if the change is due to government policy, there is generally more resistance to it, even if it provides more benefits to the general population at large. In past, when there were relatively few law officers in Eastern Oregon to enforce the law, it was common for ranchers to kill deer for no other reason than to prevent them from consuming grass needed for cattle to graze on. Nowadays, the enforcement of law threatens those accustomed to the freedom to kill deer as they please.

There is stubborn resistance to government action. Cigarette smokers became upset with ads revealing cancerous effects of

smoking. The pleasure of smoking, no matter the risk, was individual choice, even if such choice ended in early death from painful cancer, and expensive medical care at the expense of taxpayers as a Democratic choice of the majority to live accordingly.

The economic establishment nowadays upheld by conservatives is the private sector of the economy thrives by competition that promotes success from innovation for producing more desirable and affordable products, as government entitlements only lead to a welfare state with little incentive to help create a prosperous economy. Conservatives further argue taxation for social welfare raises cost of production, as for more expensive exports that are more difficult to sell, such that the cheaper labor abroad results for less employment within local borders. In this sense, they argue that the cost of too many entitlements will leave our grandchildren in debt.

A counterargument is that producers primarily have their own interests at stake, which can but need not benefit the interests of the general public. Sometimes worthwhile products are produced increasing economic wealth of society as a whole; sometimes the self interest of producers leads to less total wealth of society. Cattle ranchers, for instance, can lessen productivity of land for decades if they selfishly overgraze their cattle on it, which could potentially, even if unknowingly, lead to starvation of future generations of people. For the benefit of the whole of society it is beneficial to impose restrictions on individual land use with regard to particular conditions. For instance, tight water restrictions in New Mexico render a limited number of wells drilled in order to preserve more water for the general public.

Who decides what constitutes the economic game of life?

We have elected officials. Supposedly they serve the interest of voters. If a majority of voters is in favor of a law requiring more secure containers of cold remedies lest some spiteful individuals buy, poison and then put back on store shelves, then the wise politician in office favors the enacting of a law for concealing containers in making them more difficult to tamper with. A game of life thus tends to be planned according to majority rule of the people. However, majority rule often conflicts with individual freedom, as it sometimes miscalculates what constitutes a more prosperous future.

A critical factor in what constitutes the economic game of life is simply knowledge. Knowing better how to play cards might have

enabled Wild Bill a winner, although it eventually led to his death. Knowing how to property use land to preserve its future yield can render more opportunity for future wealth. However, knowledge also has a competitive edge. A secret food recipe could render the producer of it a very fortunate income. Knowing stock market tendencies more thoroughly could provide valuable insight for achieving financial wealth. However, for the usefulness of more general distribution of knowledge, more qualified officials could be elected to office if voters are more aware of the appropriate skills of the candidates.

Such early leaders as Thomas Jefferson were aware of the dependence of knowledge in promoting the welfare of our nation. They thus advocated that public education can be beneficial to both individuals and the whole of society. However, there are gaps among us in our levels of knowledge. As a secret recipe provides an advantage of one individual to be more successful, it is a superior knowledge of certain political leaders that enable them with a more successful means of becoming elected to office. However, knowledge can also include the ability to fool the general public. If the general public is easily fooled, then it elects inferior leaders. It is thus not merely our duty to vote; it is our duty to vote wisely. In this regard, knowledgeable economics by voters and the potential threat of global warming becomes essential for direction of a preferable game of life.

We sometimes fear what we do not know. Some of us fear not climate change as much as government interference in our daily lives. However, the understanding of climate change and how applicable remedies can enhance both our living conditions for more prosperity and freedom could become more of an acceptable and conforming goal of life. There is already effort in place for this understanding. The effort here is merely to build on it because of the tremendous effort that is still needed for all of us to contribute. Here, the effort continues with a historical understanding of social and economic development of civilization, as to better learn from our past mistakes in way of a World Bank proposal for financing remedies for climate change along with the creation of prosperity and world peace.

True Economics and Real Wealth

A fundamental theme of capitalism is competition of fair opportunity for each competitor to determine their own economic wealth. Competitors more capable and willing to produce more are more likely to receive more for their efforts. It translates as motivation for ingenuity for the growth of prosperity by competition.

The economic means of fair competition is money. It provides freedom to choose what to purchase, which translates as a vote for a particular product according to supply and demand. There is thus motivation to produce more of what is more in demand.

In general, there are exceptions to the rule. Such exceptions include competition by individual freedom is not always best for the community at large. An individual could enjoy the freedom to listen to loud music, but neighbors needing sleep and quiet could suffer the cost of that particular individual freedom. If individual freedom restricts the freedom of others, then total overall freedom is relatively less. However, the individual freedom to create music could also produce economic wealth for many who might enjoy listening to it. Controversy is thus an integral part of our competitive nature.

There are individual needs and there are social needs. Which one of them is better is often controversial, but individual needs can sometimes be served along with the needs of the community at large. An army to protect the nation against invasion and a police force to protect individuals can also allow individuals more freedom to live their lives in social harmony with other individuals.

More controversial is the monetary cost of this social harmony. It generally involves taxation as shared cost. However, the actual cost is not necessarily monetary; it is what restricts other individuals from producing economic wealth.

What is money as economic wealth?

Money is only economic wealth in the since it provides freedom and a sense of power for someone to live their life as they choose to live it. Otherwise, it has only real economic value for what it is able to purchase. If a dollar can buy a loaf of bread, then a dollar is worth a loaf of bread.

Real economic wealth is product, but real economic wealth or otherwise is subject to individual preference. Being happy for living by a river and fishing for food could be as much or even more wealth to one individual as living in a mansion and being cared for by servants is to a millionaire.

Economic wealth is generally measured according to monetary cost, but cost too is relative. The value of money relates to the cost of product, but the price of bread tends to double if buyers have twice the amount of money to pay for it. Money itself is primary a convenient means of exchange for the cost of goods and services. The actual cost could be labor, as for money to exchange for goods produced by other labor. However, goods are also produced by other means than simply by labor, as by electricity and fuel that decrease the amount of labor needed to produce product. Theoretically, labor itself can be replaced by computerized robots. Economic wealth would then be the result of ownership. However, for purpose of living, individuals entertain and serve other individuals, as to employ their labor for the creation of more economic wealth. Besides, there are also natural calamities to prepare for, as tornadoes, hurricanes, floods, volcanoes and so forth, which tend to demand conformity instead of the freedom to create new economic wealth as preferred.

There could be enough food and shelter for the whole population to share with an ample distribution of wealth. However, how this ample distribution of wealth can manifest as such is a challenge in itself. Competition of free enterprise does not appear to maintain it. Economic history reveals that the wealth tends to collect among the few. Once wealthy, the monetary value of wealth can increase by simply loaning money and receiving interest for the loan. Although there is risk to loaning money, there is still advantage to having it to loan. In the 1950s, for instance, independent gasoline providers were not able to compete against such larger oil companies as Shell that could lower the price of gasoline to drive out smaller independents of large producers.

The American Dream is still that opportunity to compete and become rich by doing it. A computer student devises a system of social media and becomes rich. Young men compete in sports in hope of success and a larger paycheck, even with tremendous odds against it, but end up in failure if they do not have an alternative for

their college education. Still, there is purpose in life to compete and exceed, and to even become rich if so desired.

On the other side of the coin, there is simply need of certain essentials to fairly compete and survive. Being given what is needed to survive need not diminish competition to succeed. Providing more means to success could actually increase the competitiveness in the game of life. Such evidence in this assumption is public education. The political system is apt to be more successful if voters are more knowledgeable of their true needs and what they are actually voting for. Such knowledge is aided by education that also applies science for the innovation of new technology and invention. Michael Faraday, who discovered the law of electrical induction for the invention of electric generators and motors, received a minimal part, if any, of the great economic wealth that has occurred from it.

Given an ample distribution of wealth, mankind could create a society of harmony within itself and the environment at large. It only needs the willingness to do it. The means of doing it already exist.

The key words are opportunity and credit. Money itself is only a facilitator. If the farmer has credit to purchase what is needed, then there is opportunity for the farmer to become wealthy by creating product for the community at large. However, if there is more harvest than needed, then the competition is stiff. What is then needed is more opportunity elsewhere.

What if credit could be extended to include all the unemployed to employ them in a worthwhile mission such as combating the hazardous effects of climate change? The argument against it is too much government inhibits the innovation of free enterprise. However, much economic wealth has been achieved by means of credit afforded by the government. The financing of highways has allowed the harvest of food to reach the market place before it spoils. After FDR decided to extend credit for the construction of the Grand Coulee Dam in the state of Washington, a desert area of Central Washington became empowered with electricity from hydroelectric power and enough water for a prosperous farming community. The otherwise unemployed were given credit and opportunity for the creation of more wealth than was not obtainable at the time by free enterprise.

The key words are now balance and condition. What conditions are needed for credit and how much credit is too much or not enough?

Answers to these questions further relate to taxation and the printing of money as government credit.

Economic wealth is still product rather than the money used to purchase the product, but there are still complications to consider regarding the distribution of economic wealth as product. If consumers have half the money to purchase twice as much product, then they have twice as much economic wealth. Printing money does not itself increase economic wealth, but increased production of products only increases the potential for more economic wealth; the consumer still needs the ability to purchase the product. Without it, the incentive to produce product decreases.

Money is credit as a facilitator for the creation of wealth, but the functionality of it depends on how it is implemented. If money is simply printed to finance a project, then more money is generally needed to purchase the same amount of product. However, if the amount of product also increases along with the amount of money in circulation, then there is no economic tendency for inflation to occur.

Inflation and deflation interrelate with supply and demand. Demand is further determined according to ability to purchase. Thus, if money was printed to credit the unemployed for them to employ solutions to climate change in manner of increasing the economic wealth of society as a whole, then it would be a contributing factor of that economic wealth and of a more livable environment as well.

Since climate change is a worldwide concern, nations need to be in agreement with how to finance its solutions. If the USA doubled its monetary supply per citizen, then the purchasing power of its dollar is halved in relation to a foreign dollar. If all nations doubled their money supply, then the purchasing power of the dollar is halved per product. However, if the amount of product is also doubled, then there is no cause for inflation to occur; economic wealth is doubled instead.

Such economic reason suggests an increase in money supply could provide a means of credit for implementation by such a worldwide organization as the World Bank of the United Nations. If they credit remedies of climate change in a manner of a favorable distribution of wealth, then prosperity could be served by it. However, the implementation will still be controversial, as it should be.

The World Bank could finance a solution to reforestation in Mexico for its prosperity along with the implementation of cleaner energy, but it could still be considered to be unfair by Virginians becoming unemployed and economically poorer from a lack of demand of their mining of coal. With more use of cleaner fuel, supply of oil exceeds its demand to lower its monetary value, whereby oil stocks and their dividends decrease in value.

A store owner can become bankrupt because of a construction of a new highway that diverts traffic way from the store, even though the highway benefits the more general public by preventing traffic jams and allowing a greater flow of commerce. Changes that affect a larger community at large are more challenging for maintaining a prosperous economy. In this sense, then, an alternative is needed in place of a carbon tax. Instead of having a cap and trade policy, whereby oil producers are allowed to produce by purchasing credits for cleaner energy, it would be better that they were compensated for the loss of demand for their product instead. For instance, they could be given investment credit for more innovative means of using coal without it polluting the atmosphere. Thus, the credit given to Mexico should be matched with enough credit to coal producers and oil companies for their loss of demand. A principle here to be applied would be investment in more efficient means of using fossil fuels in a manner the CO_2 complies with the natural Carbon Cycle. It is a win-win policy for both sides.

CLIMATE CHANGE SOLUTIONS FOR PEACE AND PROSPERITY

Climate change economics has both positive and negative effects. The positive effects include a longer growing season at latitudes farther from the equator. In the high altitude of Central Oregon, for instance, summer frost restricts the growth of trees unless they are able to withdraw from budding out in the spring to allow them to last through shorter summer warmth. A warmer climate without summer frost could thus benefit plant growth and increase food supply. The melting of arctic glaciers could also open up passage ways to oil and other natural resources. Warmer winters in northern climates would also require less heating energy.

As for negative effects of climate change, melting of glaciers raises sea levels to reduce the amount of land for living space. Increases in wildfires destroy forests. More hazardous weather conditions, such as frequency of more ferocious hurricanes and tornadoes, results in deaths and economic destruction of buildings and homes. More drought and flooding conditions could disrupt farming. Acidity of the oceans absorbing excess carbon dioxide could also decrease food supply. More heat strokes could occur from hotter summers nearer to the equator. Losers of climate change are likely to revolt against winners of climate change, thus adding their negatives to the positives.

There are thus winners and losers of climate change. The winners tend to be nations more industrially developed and the losers tend to be the undeveloped nations nearer to the equator. In consequence, as the rich get richer at the expense of poverty for others, the poor revolt and become more military inclined, as also do such powerful nations as US and Russia competing for natural resources opened up by melting of arctic glaciers. There is thus a choice: ignore climate change for individual wealth or socially unite against it for a more peaceful world with an economic distribution of wealth along with a healthy environment. Some of us are naturally inclined to choose the former and some of us are naturally inclined to choose the latter.

WWII benefited many citizens with regard to redistribution of wealth, but a tremendous amount of soldier lives were sacrificed in the process. A similar benefit of war against climate change can be

accomplished in saving lives instead of sacrificing them, especially if economic prosperity is created for all of us by means of the process.

Winning strategies need adequate understanding. Some problems are easily identified, but their solutions could have adverse side effects. The solution of being carbon neutral, for instance, is preferable over time, but it is restricted by environmental concerns. Farmers burn their fields after harvest in order to prepare for next year's crops. The burning replenishes the soil with carbon nutrients, and the process is carbon neutral in that next year's crops absorb the CO_2 from the burning, but the process is not carbon neutral for the people breathing a heavy concentration of air pollutants during the time of burning. Field burning thus needs regulation. A climate change war is thus limited by environmental concerns.

Still, man-made causes of climate change have been identified as oil and coal used for fuel in manner of releasing excessive amounts of CO_2 into the atmosphere relative to a more compatible amount of it released by plant life. Proposed remedies include reforestation in place of deforestation, solar energy for fuel in place of such fossil fuels as oil and coal, and the use of technology to capture the CO_2 before it enters into the atmosphere. Is there enough understanding for these remedies to succeed?

A more functional question here to consider pertains to the neutrality issue of plant life. If plant life is simply neutral with regard to the carbon cycle, how can it reverse climate for global cooling in place of global warming? Simply doubling the amount of plant life to double the amount of its absorption of CO_2 does not cool the atmosphere if it eventually doubles the same amount of CO_2 released back into the atmosphere.

The actual process is more complex. Plants have a root system seeking water and nitrogen. Tree roots, in particular, store biomass energy deep into the ground where they eventually decay and somehow become other forms of energy, such as coal or oil. Plant life is thus, in essence, a solar battery in storing the carbon of CO_2 while releasing oxygen back into the atmosphere. Moreover, the content of air is about 99 percent oxygen and nitrogen. The latter, in a particular form, is a vital nutrient of soil for the growth of plants, somehow being part of the carbon cycle, as is maintaining an ozone layer of O_3 in the upper stratosphere for shielding earth from ultraviolet light that is more energetic and harmful to animal life.

Plant life is essentially analogous to a solar battery in storing the carbon of CO_2 and releasing oxygen back into the atmosphere by means of photosynthesis. However, the reverse process of releasing carbon back into the air needs to be decreased for an effective reverse of climate change. Reforestation is only part of the solution.

Oceans are also a natural sink for CO_2, but by becoming warmer they become acidified and tend to hold less CO_2 in releasing more of it back into the atmosphere. Reversing climate change is thus even more difficult.

Effectively increasing stored carbon from atmospheric CO_2 now needs to be even greater than the reverse process of recombining the carbon with oxygen by decay and combustion. For instance, converting biomass into treated lumber for constructing buildings can be a worthwhile means of storage. However, some means of storage are not as promising as they might at first seem.

Solar energy is also limited by circumstance. Windmills produce only if there is a sufficient amount of wind available to turn the rotors. Solar panels only produce efficiently with enough sunlight during the day. Limitations as such become economic issues of concern.

War on climate change is now at odds with economic policy. There are countless participants and solutions in play that could benefit the welfare of human civilization, but they are restricted by economic consequences of our time. If half the US population suddenly decided to ride bicycles instead of driving automobiles, for instance, it could induce an economic contraction, recession or even another depression. Public utilities have been encouraged to buy electricity from homes producing it by means of solar panels, but the results are dependent on higher cost of electricity for customers in support of the utility. Even if reforestation and advanced technology could likely be more consistent with the present economy, both private and public funding appears needed for them to be effective enough on a larger scale.

As a positive incentive, state legislatures have encouraged transition to solar energy. A Honolulu utility, for example, purchases electricity produced on rooftops by means of solar panels. The policy provides incentive for the owners of hotels to invest in solar energy. However, a continual addition of solar panels on rooftops is less profitable for the utility unless the solar cost purchase is less than the

cost of electricity produced by such other means as petroleum or natural gas. If not, then utility rates of average consumers are increased, providing more incentive for investment in solar energy, but also reducing the profit of the utility with less customers to purchase it. The utility purchase of solar panels for electricity thus has an economic restriction.

Similarly, the small town Talent in southwestern Oregon achieved a ninety percent conversion to solar energy by means of tax incentives and a "cap and trade" enactment by legislature. It is testimonial to the influence of policies, but only on a small scale in becoming independent of the electrical grid of larger communities. Larger companies reducing their tax burdens by trading for solar credits could suffer if profitability of their use of non-solar energy becomes too expensive to maintain. The conversion to solar energy would be more acceptable if it became less expensive for competing on the larger worldwide scale.

Companies refining drilled oil into gasoline are difficult competitors to overcome. Gasoline is the most convenient source of energy for the use in automobiles and similar vehicles, as to provide transportation and promote the economy with production of goods and services from employment for distribution of economic wealth. However, combustible energy of gasoline for the operation of combustible engines is generally about five percent of its actual energy because of a tremendous amount of heat energy lost in the process. It was once suggested the excess heat produced by the engine could be used for vaporizing the gasoline into more efficient gas combustion, but that would increase the probability of an explosion. However, the efficiency principle could perhaps apply in producing such other product as mining aluminum during daylight hours, which, in effect, is a mechanism for storing energy.

Gasoline is still a convenient source of energy for automobiles. Even if a more efficient source of energy is invented, reduction in price of gasoline is likely reduced as well, as because of less demand for it with such solar energy alternatives as electric automobiles and bio diesels. As the gasoline price lowers, solar energy use becomes an overall economic threat to the economy unless it can satisfy the lifestyles of people more accustomed to the convenience gasoline powered vehicles have provided them. Besides, there is a great many

of Wall Street investors who have purchased oil stocks. Environmental concerns become a threat to their livelihood.

Still, incentives have worked for the creative use of solar energy. Solar panels and wind turbines are increasing in number. However, there needs to be more opportunity for a large scale operation.

Global warming has become a social problem inasmuch as it affects a world population. Air is free to breathe, but industrial polluters of it should be accountable for adverse effects on civilization. However, they need not be criminally treated for earning a living. A tax should only be an incentive to invest in a cleaner energy source more environmentally compatible. The "Cap-and-trade" policy is one incentive that has worked on a smaller scale. A "carbon fee and dividend" as lobbied by CCL is another that could more effectively apply on the federal level in maintaining a present balance of the federal budget. However, on an international level there is still conflict with regard to international trade. Taxing industry could render imports relatively cheaper to increase the domestic unemployment rate and a tariff on imports for a fairer playing field is difficult to pass in Congress, as it is generally countered by foreign nations as well.

There is a solution to the international trade problem. Its framework is already in place: the World Bank of the United Nations. One of its primary functions is the reduction of world poverty or increase in world prosperity. It is already funded, but financing a war on climate change would require a lot more capital. All nations could proportionally contribute by printing fiat money to increase the money supply. Inflating all currencies by one percent or more, as by printing it, could provide monetary credit from each individual contributor without an internal effect except for a mild inflation promoting more investment incentive for individuals of the economies.

Modest inflation itself is a means of promoting wealth. Inflation encourages investment and spending in order not to lose the spending value of money. Moreover, to maintain a monetary standard of wealth, more money in circulation is required for more products in support of a growing population and increase in production in order for there not to be a relative contraction of the economy.

Since more money in circulation can either be inflationary or allow for a more abundance of products sold in the market place, a

World Bank providing credit for the creation of product can facilitate the creation of overall wealth, such as for the storing of lumber and the countless uses of coal in ways they do not increase CO_2 in the atmosphere. World Bank financing could also be used for providing more water and other natural resources for the promotion of forestry and construction of beneficial living conditions more favorable for both economic and social wealth, and for world peace. Exactly what these living conditions are is in dispute, but there are now experts aplenty on the use of solar wind and sun.

Such principles as beaver engineering to increase the supply of water during times of drought are a matter of consideration. They only need to be aided with financial credit. In this respect, the unemployed only need to be employed, as by the World Bank.

But the World Bank financing solution is only a part solution. Global warming effects need to be addressed from all possible angles, as combining into a more effective overall solution with less acute change in specific situations. The Tax and Dividend solution, for instance, can be effective on a federal level in maintaining a balanced budget. The tax can further provide incentive for companies to accept the World Bank financing for creation and implementation of new technology to capture greenhouse gases before entering the atmosphere. In turn, the World Bank use of printed credit nullifies the argument of foreign investment in order to avoid federal tax.