

## Conference proceedings

# Secular Stagnation and the Failed Growth Economy

Kent Klitgaard

Professor of Economics and Patti McGill Peterson Professor of  
Social Science Wells College Aurora, New York

*kentk@wells.edu*

**2nd Conference  
on Economic  
Degrowth  
For Ecological Sustainability  
and Social Equity**

**BARCELONA  
26th-29th March 2010**



## **Abstract**

---

The purpose of this paper is to synthesize the literature on internal limits found in the investment process with the emerging literature on biophysical limits. Mainstream economics is incapable of analyzing adequately the historical conjuncture of the internal and biophysical limits. The newly emerging discipline of ecological economics has made great strides in placing the human economy within a finite and non-growing biophysical system. However, at this point, ecological economics lacks a sophisticated understanding of the underlying dynamics of capitalism as a system. The fundamental purpose of this paper is to augment traditional understandings of the economy as an engine of growth with the lessons from political economy and institutional economics in order to develop a more sophisticated understanding of the underlying limits to growth. The paper surveys prior theories of the internal limits to economic growth and synthesizes them with future potential limits imposed by climate change and peak oil.

## **Keywords**

---

Secular stagnation, internal limits, biophysical limits

# 1 Introduction

---

Economic Growth is the Holy Grail of mainstream macroeconomic theory. Although a focus on accumulation has existed since the inception of economics as a discipline, the current emphasis on growth was developed in the years following the Great Depression of the 1930s. Growth developed as an explicit strategy to meet the social need for employment and an increase in material standards of living without confronting the politically unpopular (at least in the United States) strategy of income redistribution from the wealthy to the poor. Unfortunately the growth economy is subject to three sets of limits, and there is increasing evidence that human economies are presently facing these limits. The first set of limits are internal and are found in the dynamics of capital accumulation, specifically as regards investment. When these limits are reached the economy stagnates, either cyclically or over the long term (secularly). A second set of biophysical limits exist, manifest on the supply side as peak oil and on the sustainability or assimilation side as human induced climate change. In addition a host of other adverse growth-generated phenomena such as mass extinction, acidification of the oceans, and an ecological footprint that exceeds biocapacity are appearing on a world scale. A final set of limits exists in the political process. The post World War II years in the United States witnessed the construction of a series of growth coalitions, whose political agendas of acquiring more for their constituents required economic growth to maintain their legitimacy. As the capacity for growth declines so too does the ability to grow one's way out of social dilemmas. The inability to grow compromises business-as-usual politics as well as economics.

## 1.1 Purpose

The purpose of this paper is to synthesize the literature on internal limits found in the investment process with the emerging literature on biophysical limits. In this essay the political limits will be treated peripherally and as context. Neither the neoclassical nor Keynesian varieties of mainstream economics are capable of analyzing adequately the historical conjuncture of the internal and biophysical limits. The newly emerging discipline of ecological economics has made great strides in placing the human economy within a finite and non-growing biophysical system and subjecting income distribution to the standard of justice rather than allocative efficiency. However, at this point, ecological economics lacks a sophisticated understanding of the underlying dynamics of capitalism as a system. Rather it relies on the implicitly neoclassical framework of market efficiency by means of price competition. The fundamental purpose of this paper is to augment traditional understandings of the economy as an engine of growth with the lessons from political economy and institutional economics in order to develop a more sophisticated understanding of the underlying limits to growth. Only then can we create a new set of theories consistent with the needs for a smaller economy.

## 1.2 The Inadequacies of Growth-Dominated Economics

Mainstream economics cannot address the fundamental needs for degrowth. There are at least five ways mainstream economics fails to understand and come to grips with the notion of limits to growth, let alone the need to achieve a smaller economy with less adverse environmental and social impact.

Traditionally the economy is modelled as separate from the natural environment, as self contained and self-regulating, and as a perpetual cycle of value and material circulation between firms and households. But from a scientific point of view this is not possible because the representation of the economy as a circular flow is the depiction of an isolated system where neither energy nor matter are exchanged with the system's surroundings. But entropy always increases in an isolated system according to the second law of thermodynamics. One could neither assume away waste in an actual production process that uses heat to transform matter, nor assume the absence of material waste in extraction, production, packaging,

etc. However, in the absence of these assumptions, the sum of factor prices could never equal the value of the social output, as is required for the system to achieve equilibrium. For a theory to be scientific it must be consistent with the known laws of science. But the basic conceptual model of mainstream economics exhibits clearly just this inconsistency.

Secondly, mainstream economics is grounded in a theory of rational self-regarding individual behaviour. Neoclassical behavioural postulates assume that an increase in material consumption increases happiness. An increase in material consumption is rational as long as the additional utility from consuming the product exceeds the marginal disutility of parting with the money. But looked at biophysically ever-escalating levels of consumption are clearly irrational if one considers the availability of cheap energy to run the mass production economy and the capacity for our sinks (the land, the ocean, the atmosphere) to absorb increasing levels of waste. But since a decrease in consumption reduces aggregate demand and sparks a recession an environmentally rational decision to live within the planet's limits is clearly irrational from the growth-dominated perspective.

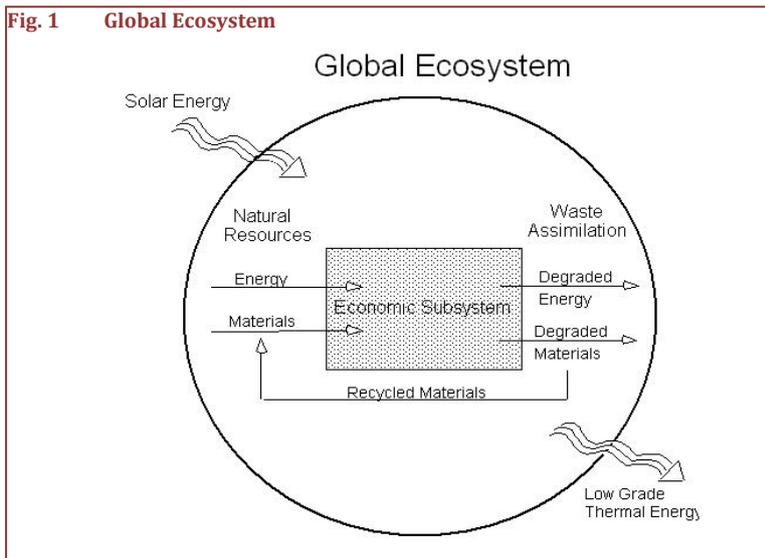
Mainstream economics solves this dilemma by ignoring the very idea of biophysical limits and bifurcating the study of the economy into microeconomics and macroeconomics. Microeconomics focuses on individual acquisitive behaviour constrained only by limited money income and is fundamentally a static analysis. The so-called theory of production is merely the logic of consumption applied to production. It is more alchemy than theory as physical inputs are magically transformed into money without the inconvenience of having to analyze the physical process of work. Powerless but perfectly informed consumers meet infinitesimally small firms willing to accept no economic profit in the marketplace. Consumers and firms alike respond to small changes in price, and competition drives price down to marginal cost. Markets are both allocatively efficient and self-equilibrating as long as individual maximizers behave rationally (Gowdy et al. 2010).

Macroeconomics studies aggregate behaviour and the process of accumulation. Here is found the fascination with economic growth as the primary means of achieving laudable social goals such as full employment and the reduction of poverty. Debates between Keynesian liberals and neoliberals (also known as conservatives in the United States) revolve around the best method to achieve growth, not the question of growth itself. The primary debate between neoliberals and Keynesian liberals is one of whether the system can create internally a sufficient level of aggregate demand to provide stable levels of investment in productive capacity, given the uncertainty of the investment process. The uncertainty surrounding existence of long-lived fixed capital provides a further dilemma. If competition drives prices down to the cost of producing one additional unit of output (the necessary condition for allocative efficiency), a firm cannot generate the revenue to pay back the loans required to obtain the productive capacity (Perelman 2006). This was one of the great insights of John Maynard Keynes. Aggregate economies are unstable because of uncertainty. Systems of banking and finance arise to compensate for this uncertainty in productive investment, but financial systems themselves can become unstable. From the Keynesian liberal perspective intervention of the State enables market processes and should be relied upon to provide the needed demand when the private sector cannot do so.

Neither Keynesian liberalism nor neoliberalism is grounded within a set of biophysical constraints. Rather, these models are inconsistent with both common sense and the laws of science, as seen previously. The idea that a material economy could grow forever in a finite and non-growing biophysical system is absurd. Many scientific indicators show that the human economy is exceeding the biocapacity of the planet to provide resources and absorb wastes. But if a system is in overshoot already that system cannot grow its way into steady-state equilibrium. But a reduction in growth plunges the economy into recession. One cannot grow and shrink at the same time. Rational behavior on the individual level is irrational at the systemic level, just as rational behavior on ecological level is irrational on the economic level. This dilemma simply cannot be solved in the business-as-usual framework of economic growth. It is time for a new set of theories appropriate to a world of rapidly approaching biophysical constraints.

### 1.3 Ecological Economics and Its Inadequacies

Beginning in the 1980s a new approach developed called ecological economics. The fundamental breakthrough was the idea that the human economy is embedded in a finite and non-growing biophysical system. The economic subsystem must obey the laws of the primary system as regards the flow of energy (first and second laws of thermodynamics) and its growth is necessarily limited by the boundaries of the primary system. Moreover, the resilience of natural systems depends upon certain redundancies and biodiversity to function properly in their own rights. This further limits human ability to appropriate the whole of net primary productivity for economic uses (see Figure 1).



This is a vast improvement over mainstream theory. A great deal of excellent work has been accomplished by economists and ecologists in the past fifteen years estimating how big the economy may grow relative to the limits of the supporting biophysical systems. In the 1980s and 1990s a number of studies focused upon the carrying capacity of the planet (Vitousek, et al.1986, Daily and Ehrlich, 1992, Postel, 1984, Rees and Wackernagel, 1992), while others sought to improve the accuracy of the income and product accounts as regards assessing the impact of humanity upon the finite and non-growing biophysical system (Daly and Cobb 1989, Cobb and Cobb 1994, Costanza, et al. 2004). Numerous articles have filled the pages of the journal *Ecological Economics* assessing the rates of depletion of the stocks of natural assets and flows of ecosystem services, estimating the money costs of this depletion, and attempting to find the optimal pricing structure to conserve the remaining stocks of natural capital.

Unfortunately less work has been done assessing the nature of the economy, its inner dynamics, and how it operates as a system. The idea of the growing economy is so taken for granted that few ecological economic analyses have been devoted to understanding the patterns of growth, the relevant economic variables, or structural and institutional changes over time. The acceptance of the growing economy is fundamental to the conceptual framework of ecological economics. However, the acceptance of this idea without serious empirical investigation into the patterns of growth and accumulation may actually hinder a broader and more comprehensive understanding of a mature market economy as a system. An economic system is not simply the aggregate of myriad efficiently functioning individual markets. It has more complicated dynamics. Consequently the empirical record shows many periods of economic decline, not just periods of growth. We are witnessing just the latest in a long series of such economic declines. I believe it is crucial to understand more fully the internal dynamics and limits to the economic system if we are to understand the interaction between economic and biophysical systems.

The history of political economy is comprised of just this focus on the dynamics of accumulation, distribution and institutional change, rather than merely upon price formation and aggregate equilibrium.

This tradition has been carried on by institutional economics and is found in the post-World War II theories of growth (Harrod, Domar, Hansen), and by the Monthly Review School (Baran and Sweezy, Magdoff and Sweezy, Foster and Magdoff ). The focus of these theories has been upon internal limits to growth. Rarely were external, biophysical, limits integrated into the discussion of economic growth and decline upon workers and social structures. This paper hopes to synthesize these theoretical perspectives.

#### 1.4 The Nature of Limits

As previously mentioned the growth of a mature industrially-based economy is constrained by three sets of limits. To begin with there is a set of biophysical limits imposed by the laws of the finite and non-growing primary system in the second half of the age of hydrocarbons. These limits take the form of a declining resource base, for example peak oil, and myriad problems of the expansion of the human economy beyond the capacity of the finite biophysical system to assimilate that activity, such as the accumulation of heat trapping gases in the atmosphere. In addition the economy faces a set of internal limits posed by the disproportional expansion of the stock of productive capital and the ability to find sufficient spending outlets for the growing economic surplus created by real investment. Cost reductions accomplished by means of technological change, increased productivity and efficiency must find comparable outlets in rising aggregate demand if they are to result in profitability rather than chronic unemployment and excess capacity. Finally the final impediment to fundamental change is a set of political limits. Rational solutions to structural dilemmas are often simply not considered in the political system of the United States because to do so would threaten property rights to expected profits generated by the existing system. When long-term strategies for growth succumb to internal or biophysical limits they do not immediately give way to superior strategies. Instead the nation often becomes mired in a period of political impasse. The twentieth century in the United States was dominated by periods of impasse. The accepted vision of the self-regulating economy was dashed by the severity of the great depression, and after nearly half a decade a new vision emerged in the form of the New Deal. This vision of a managed economy and a positive state survived until the limits of effectiveness were reached in the early 1970s. The liberal growth agenda, driven by increasing household incomes, could not survive the peak of US oil production, the beginning of the decline of US political power, and the onset of stagflation. A long period of impasse followed, only broken in the early 1980s with the election of Ronald Reagan to the presidency and the implementation of a conservative (neoliberal) growth agenda grounded in the reduction of production costs and the expansion of unregulated financial markets. We are currently witnessing another such period of political impasse. Unregulated financial markets collapsed in a global financial meltdown in 2008. However providers of financial services are not yet ready to abandon business as usual. A restructuring of global rules languishes as the pressure on economies of the Eurozone to reduce debt threatens, once again, the stability of the world economy.

The result of the historical conjuncture of these limits results in The Failed Growth Economy: an economy that must produce growth in order to provide for profits and employment yet at the same time simply cannot produce this requisite growth. Since the 1970s in the United States the failed growth economy creates a fundamental dilemma. Growth rates of the real economy have not been sufficiently high to provide for full employment, while at the same time aggregate growth has been too high to provide for sustainability within finite and non-growing biophysical limits. We grow too much and too little at the same time.

Historically these periods of economic crisis and political impasse were transcended by transforming nature to meet human needs. In other words society could push back the biophysical limits in order to transcend the political and economic limits. The denuding of European forests was supplanted by the expanded use of coal. By the early 20th century the coal age gave way to the oil age. But can the process continue unabated? We are most probably entering a historically unprecedented era, one for which no models exist. As we approach the era of globally peaking oil and the limits of atmospheric assimilation of heat-trapping gases we may no longer have the ability to ignore the consequences of reaching biophysical

limits. Instead we must learn to live within these limits: to draw our energy from renewable solar flow rather than limited terrestrial stocks subject to depletion. We must maintain or improve human welfare while simultaneously reducing the flow of matter and energy through a finite and non-growing system. In short we must not only cease growing, we must actually reduce the magnitude of the economy itself. But to accomplish this, without perpetuating the worst aspects of the failed growth economy: chronic unemployment and lack of opportunity, is a difficult endeavour. It must begin with an understanding of the dynamics of the growth economy itself.

## **2 Materials and Methods**

---

The materials used in this study consist of secondary sources of tabular and graphical data and theories found in peer-evaluated journals and scholarly books. The paper will survey briefly the literatures on monopoly concentration, theories of long-term economic stagnation in the macroeconomics, and financialization of the economy in the late 20th and early 21st centuries. Since the theory of secular stagnation depends upon the existence of a concentrated, or monopolized, economy the paper will present data on monopoly concentration, macroeconomic performance, and financial trends. These data will be drawn from secondary sources and arrayed graphically in the appendices. The perspective developed in this essay is that we are at or near peak oil, and the limits are already imposing themselves on the world's economy. But the degree of effect will become greater as the gap between the availability of fossil hydrocarbons and the demand for their use becomes greater under a regime of economic growth.

## **3 Results**

---

This section will survey and review the literature and empirical evidence concerning the limits to growth. The first section will focus on internal limits to growth found in the investment process and culminate with the enunciation of the stagnation thesis. The second section will synthesize these two sets of limits to develop the rudimentary questions needed to develop a model that transcends the inadequacies of the growth economy itself.

### **3.1 Internal Limits to Growth and the Possibilities of Stagnation**

An emphasis on economic growth in the United States emerged only in the latter stages of the Great Depression and the New Deal. The early New Deal was about rescuing a failed growth economy and a collapsing financial sector. The strategy, however, was limited by US President Franklin Roosevelt's fiscal orthodoxy. Initially every spending program was matched by a tax increase in order to balance the budget. FDR's commitment to a balanced budget did not free sufficient funds to "spend one's way out of the depression." But during the second depression of the great depression (1937-39) the American Keynesian Alvin Hansen enunciated a theory of secular stagnation. Hansen's theory was based in vanishing investment opportunities. Hansen argued that adequate investment outlays are needed to sustain full employment and adequate income levels. Because these investment outlets are difficult to find in a mature economy deficit spending by the government would become a permanent feature of the economy.

Mature economies exhibit slower rates of population growth because of a demographic transition. In earlier periods population was the driving force behind investments in residential building, territorial expansion, mass consumption, and the expansion of railroads and public utilities. Hansen contended that

there were neither new rich lands to be occupied, nor new innovations on par with those of the immature and rapidly growing 19th century economy. This earlier century gave birth to the industrial revolution and the corresponding increase in investments in plant and equipment. Then came a period of “readjustment and relative stagnation” (Hansen 1939: 314). This period of stagnation was followed by the great expenditures of the railroad age, which themselves reached saturation. This was followed by the ages of electrification and the automobile that provided a whole host of opportunities for investment in related industries as well.

Hansen saw the 19th century as a period of capital deepening (an increase in the capital-output ratio), but predicted that new innovations to come would use far less capital per unit of output. After adjusting for new products and processes, as well as technological change, Hansen concluded that new opportunities sufficient to utilize fully the flow of savings would be difficult to find in the mature economy. Hence the dilemma was one of long-term (or secular) stagnation and the very stability of the growth-based economy, not just cyclical downturn and a periodic decline in living standards. Hansen advocated that the government become essentially an investment banker rather than simply a lender of last resort or a short-term pump primer.

Hansen’s argument was supplemented in the late 1940s by the work of Evesy Domar in the “golden age” of growth theory. In 1947 Domar published his classic “Expansion and Employment” in *The American Economic Review*. In this article he posited that the percentage of the labour force employed depends upon the ratio of national income and productive capacity. His key insight was to point out what he called “the dual nature of investment.” Investment creates income and employment, while simultaneously creating productive capacity that must be utilized to maintain employment. After formalizing the role of investment in the creation of national income, Domar turns to the determinants of investment.

(1)  $Y = \Delta I (1/\alpha)$  where  $1/\alpha$  is the multiplier. Furthermore:

(2)  $\Delta I (1/\alpha) = I\sigma$  where  $\sigma$  represents the potential social average productivity of investment as a measure of the change in productive capacity.  $Y$  symbolizes national income and  $\Delta I$  stands for the change in productive investment.

The left hand side of the equation stands for the annual incremental change in income (the demand side or the multiplier side), while the right hand side represents the annual increase in productive capacity (the supply side.) The dual nature of investment manifests itself as the appearance of investment on both sides of the equation. In other words investment generates an increase in income through a multiplier effect but also generates an increase in productive capacity that must be employed. If income and employment are to rise a growing level of expenditures must be targeted towards investment. But this additional investment must be absorbed through ever increasing expenditures. This is the essence of the failed growth economy. If final demand (consumption + investment) grows at a slower rate than in previous time periods investment growth will actually decline. The decline in investment plunges the economy into depression, thereby reducing final demand. The reduction in demand further exacerbates the decline in investment. The growth economy can only transcend its internal limits by accelerating growth in investment. This is not possible, given that the investment must be matched by increased spending. However the increase in the propensity to save needed to generate the funds for investment entails a reduction in the propensity to consume. The lower propensity to consumer creates a smaller multiplier effect and slower growth in final demand.

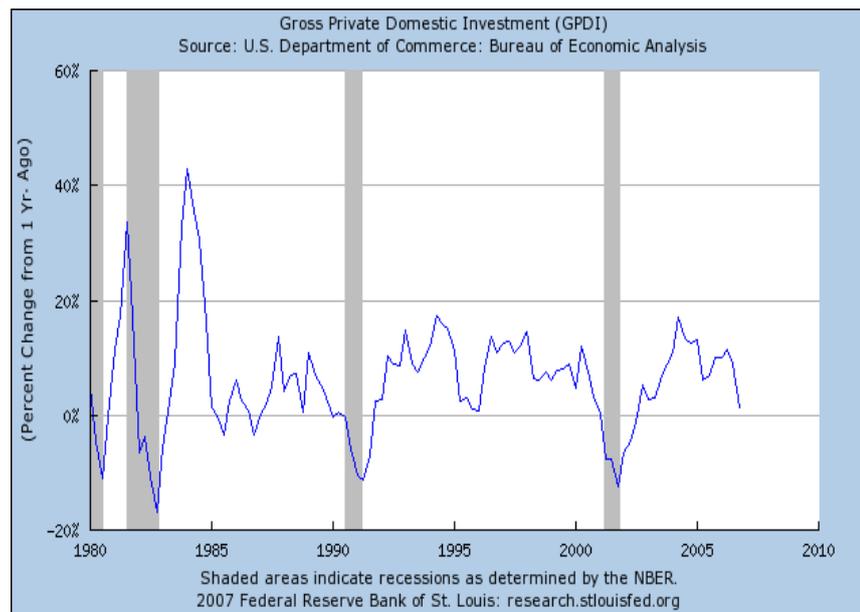
Indeed, it is difficult enough to keep investment at some reasonably high level year after year, but the requirement that it always be rising is not likely to be met for any considerable length of time (Domar 1947:47).

Investment adds to productive capacity. If the increased productive capacity does not produce sufficient income the demand for investment falls in the future. In the interim, the unused capital goods appear as excess capacity and the existence of this unused capacity provides a further limit to new investment and economic growth. The degree to which excess capacity affects investment depends upon the structure of industry. A competitive economy that is changing rapidly in terms of technology shows little positive

correlation between capacity utilization and new investment. However unused capacity presents a serious threat to new investment in industries that are monopolized and financially connected. Insufficient investment today creates unemployment today. If more is invested today even a greater amount will be needed tomorrow to maintain full employment. It is likely that the increase in income will more than compensate for the increase in capacity. However the increase in income is temporary while the increase in capacity is longer lived. Consequently, the empirical evidence on investment shows volatile fluctuations in the rate of change in investment over time, rather than steady growth (See Figure 2). As the ability to absorb the additional productive capacity created by investment is limited by the income growth needed to do so, new investment stagnates and the failed growth economy emerges in the subsequent recession.

**Fig. 2** Gross private Domestic Investment (GDI)

Source: U.S. Department of Commerce: Bureau of Economic Analysis



### 3.2 The Stagnation Thesis Synthesized

In the years leading up to their publication of *Monopoly Capital* in 1966 Paul Baran and Paul Sweezy surveyed and synthesized a great deal of literature, from classical Marxism to Keynesian growth theory, including the works of Hansen and Domar, to arrive at the most complete modern statement of what has come to be called “the stagnation thesis.” They began their essay with the proposition that the economy had become dominated by the giant corporation commonly known as oligopolies. Oligopolies compete corespectively by means of cutting costs and increasing market share, not by means of reducing prices.

Historically in the United States, that consolidation of the oligopoly was achieved by two sets of merger movements. The depressions of the 1870s and the 1890s were characterized by falling prices. When prices fell faster than costs profits declined and price competition proved ruinous to companies, especially those such as railroads and basic industries that made large investments in long-lived fixed capital. The only solution was to eliminate price competition. The late 1870s and the 1880s were dominated by the horizontal merger, or buying one’s competitors in order to limit price competition. This “merger movement” largely came to an end with the passage of the Sherman Anti-Trust Act in 1890, and by the beginnings of the depression of 1894. Merger activity follows a historical pattern of escalating exponentially in the immediate aftermath of an economic downturn, then crashing at the onset of the next crisis. A second wave of mergers occurred in the later years of the nineteenth century, following the end of the depression in 1897. This wave came to an end with the financial panics of the early 1900s, the collapse of oil prices in the newly exploited Permian Basin fields, and with the Supreme Court decision to enforce the Sherman Anti-Trust Act of 1890 and force divestment of the Standard Oil Trust.

The second merger wave peaked in the period 1919 to 1929. In this period mergers were dominated by vertical integration, or the purchase of suppliers and retailers by a manufacturing company. These mergers, which occurred throughout basic industry, utilities, and energy production was an attempt to increase stability by controlling cost. This second merger movement came to an end with the stock market crash of 1929 and subsequent decade-long depression of the 1930s. A third wave of mergers occurred in the 1960s in the form of the conglomerate merger. Here conglomerates acquired the shares of seemingly unrelated companies in the hopes of diversification. These mergers were in response to a change in the legal environment (the Celler Kefauver Act) and to the growing economy. This movement began to decline when stocks crashed in the recession of 1969-1970 and the dreams of synergy went unrealized. The movement came to a full stop in the “Great Recession” of 1974-1975.

The fourth wave of mergers dominated the 1980s. This was the time of leveraged buy-outs, hostile takeovers, and the emergence of junk bonds. This movement was a response to a time of high interest rates and low corporate profits. It became cheaper to acquire an entire company than to borrow money to build one from the ground up. This movement came to an end with the stock market crash of 1987. The fifth merger wave was the era of the 1990s mega deal. The energy industry was as important in the 1990s as it was in the 1890s. Five of the seven largest mergers involved energy companies, along with finance (Citibank merged with Traveler’s Insurance to form Citigroup) transportation (Boeing acquired McDonnell-Douglas and Daimler-Benz purchased Chrysler) and telecommunication (AOL merged with Time Warner). Acquisitions literally exploded in this time frame. 1992 saw \$342 billion worth of merger activity. By the recession of 2000 (the dot.com bust) merger activity peaked at \$3.3 trillion.

The sixth merger wave has not yet ended. We are currently witnessing a rise in cross-border mergers in response to globalization and the concentration in financial assets in the few remaining money-center banks after the financial collapse of 2008. Subsequent energy merger and acquisition phenomena were not limited to conventional sources of energy such as the merger of Exxon and Mobil, but extended into alternative sources of energy. The green economy was no more immune to monopoly concentration than was industry in general (See figure 3). Price competition driven by the proliferation of low-cost air transportation is driving a new series of airline mergers (Delta-Northwestern and United-Continental).

Fig. 3 No Title  
Source: no source



Baran and Sweezy enunciated the hypothesis that monopoly capitalism exhibited a rising economic surplus, where surplus is defined as the difference in the value of the output (GNP) and the cost of producing it. The source of the rising surplus is found in the nature of oligopoly competition. Technological changes and improvements in efficiency reduce cost and increases potential output, while agreements not to cut prices combine to increase the economic surplus. The fundamental economic problem in the era of monopoly capitalism is the inability to absorb, or find adequate spending outlets for, the rising economic surplus. In other words, surplus that is not absorbed [today] is not produced [tomorrow]. This rising surplus leaves its statistical trace as excess capacity and unemployment. Baran and Sweezy then go on to explain the internal mechanisms by which surplus can be absorbed. Surplus can

be invested, but here they utilize Domar's theory of the dual nature of investment, and the greater impact of excess capacity upon new investment in a monopolized economy. In the end private investment alone proves inadequate to the task of fully absorbing surplus. Surplus can be consumed, but even with the development of the sales effort in the 1950s--from planned obsolescence to the explosion of advertising--consumption cannot adequately absorb a rising surplus either. The ability of civilian government to consume adequately the surplus is constrained by the impasse of the political process. Government projects such as hospitals that compete effectively with the private sector are discouraged, and the development of alternatives to the fossil-fuel driven economy are deemed unaffordable. The final option is to simply waste the surplus. Baran and Sweezy focused mainly on the military but in today's climate one must also consider the United States' fossil fuel based transportation system, our approach to health care and our crumbling yet expensive system of public schools. In the end the internal mechanisms are incapable of sustaining the absorption of economic surplus. Therefore the economy stagnates. In their sense of the term stagnation does not mean lack of production. Rather the macroeconomy generates actual income levels that are beneath potential income levels. This results in chronic excess capacity and unemployment. Consequently the tendency of a mature, monopoly capitalist economy is towards stagnation, not growth.

The theoretical task then becomes one of explaining periods of economic growth, not periodic downturns. This they do by relying on Hansen's and Joseph Schumpeter's notions of the epoch-making innovation. Such innovations not only absorb tremendous amounts of investment capital themselves but fundamentally transform the structure of industry by creating myriad ancillary industries to absorb more investment capital themselves. They develop further the three innovations cited in Hansen (1938): the steam engine; the railroad; and the automobile. From a biophysical point of view all these innovations transformed the structure of industry and society by requiring, and stimulating the search for, cheap fossil energy. The automobile helped create the demand for suburban housing, drive-ins, repair shops, the interstate highway system, and shopping malls. It influenced the popular music, not to mention the sexual freedom, of the 1960s absorbing sufficient economic surplus to provide for a prolonged period of prosperity. The rise of the automobile utterly transformed the oil industry. Before the rise of mass production of autos gasoline was a dangerous waste product of kerosene disposed of at pennies per gallon as a solvent. After the introduction of the gasoline powered internal combustion engine the oil industry, along with transportation and even the conduct of military operations fundamentally changed. The second factor that absorbed sufficient surplus was war and its aftermath. The Second World War was the largest public works program in American history. Unemployment, which stood at 17.9% in 1939, fell to 1% by 1944 (Baran and Sweezy 1966). The aftermath of the war led to the Bretton Woods Accords, the Marshall Plan and a long period of U.S. hegemony. The end of this hegemony, along with the decline in hegemony and the collapse of the Bretton Woods Accords in the 1970 signaled the end of the growth economy, as well as the liberal strategies to achieve growth.

### **3.3 The Rise of the Financial Economy**

Throughout the 1980s Paul Sweezy and Harry Magdoff began to raise consistently the issue that Baran and Sweezy treated peripherally in *Monopoly Capital*: the rise of finance relative to production in the real economy. Moreover they treated the explosion of the financial economy as a symptom of the overall secular stagnation of the real economy. Instead of being a parasitical usurper of funds that would naturally lead to productivity increases when invested in productive capacity, Magdoff and Sweezy assert that the rise of the financial services sector has been the primary means by which the stagnation of the real economy has been kept at bay. In addition they asserted that the financial system has not simply grown, but has fundamentally transformed the economy. In traditional theory banks play the role of a benign vehicle by which the deposits of households and firms are transferred to investors by means of loans. Banking was reasonably safe, reasonably profitable, and downright boring. In the transformed state, termed "Monopoly Finance Capitalism" the expanded, and increasingly independent, financial services

sector has come to claim the dominant share of the systems profits, increase the offering of increasingly complex securities, and has become the nation's largest debt-holding sector. The financial sector exists to create ever more complex derivative securities in order to seek out potential opportunities for growth and profit, as well as attempting to reduce systemic risk. However, the rise of the financial economy is subject to its own limits, and in the end cannot overcome the inherent stagnationist tendency of mature capitalism.

As the real economy has stagnated, financial activity and the expansion of debt have come to represent a growing share of total profits and a rising percent of the components of income. Moreover capacity utilization has fallen. It will help to recall that profit-making strategies in the monopoly capitalist era include cost reduction and the expansion of market share. But cost reduction has entailed the reduction in wage growth, as well as the reduction of materials cost. But more output can only be sold to a population with declining incomes by means of the expansion of debt. But at some point the limited income will also limit the expansion of debt, as will the rising inequality in the distribution of those incomes. This was manifest, over the course of the last year, especially in the housing sector.

### **3.4 External Biophysical Limits and the Stagnant Economy**

What productivity increases as have occurred in manufacturing have largely been the result of utilizing increasing quantities of cheap oil. The advent of peak oil will raise these input prices with two potentially adverse results. On the supply side rising oil prices (and consequently rising prices for food, chemicals, transportation, etc) will eventually lead to the re-emergence of cost-push inflation. It is very difficult to fight cost-push inflation by means of Contractionary monetary policy, as interest charges are themselves components of costs. To the degree that oligopolies price by means of marking up prime costs, tight money can actually feed cost push inflation rather than remediate it (Wachtel and Adelsheim 1977). Furthermore, oil is denominated in dollars and any structural weakening of the US economy, say by means of cost-push inflation, can further exacerbate the increase in oil prices.

However, the increase in oil prices can have demand-side effects as well. As oil prices rise the stocks of petrodollars found in sovereign wealth funds will need to find an outlet. If the country follows an accommodating monetary policy, these funds will look for higher rates of returns than can be found in Treasury Bonds. Either the giant global pool of money insatiably seeks out riskier but higher returns, for example mortgage backed securities and collateralized debt obligations or moves the money to financial systems promising higher rates of return on their securities (e.g. Iceland with its 11.5% rate of return). When these funds began to exit Iceland during the financial panic the country itself was near bankruptcy. Within the past month the citizens of Iceland voted overwhelmingly to reject the terms of paying back other European banks, risking their access to loans from the International Monetary Fund in the process. So the coming of peak oil may have the same type of dual effect that Domar posed as a problem as regards investment. If a country adapts an easy money policy the risk of system-wide financial collapse increases as does the marketing of increasing quantities of lower quality securities spreads. If the nation runs a contractionary monetary policy the risk of stagflation becomes more probable. Furthermore, especially in the United States, peak oil threatens the demand side of the equation by reducing discretionary income. Using a set of forcing function Hall, Powers and Schoenberg interpolate that merely paying for the same quantity of energy at higher prices will exhaust discretionary income. Unfortunately oil expenditures have competitors for the declining real wages of U.S. workers. Debt service occupies a rising proportion of consumer expenditures. In 1975 the ratio of debt to disposable income in the United States was 62%. Thirty years later the ratio stood at 127.2%. Moreover debt service is highly dependent upon one's standing in the income distribution. In 2004 those occupying the lowest income quintile in the U.S. paid 18.2 percent of their incomes to service debt. Those in the middle quintile paid 19.4. In contrast those at the top of the income distribution (the upper fifth) paid only 9.3% (Foster and Magdoff 2009). Finally wars and bank bail-outs will need to be paid for eventually, either in the form of increased taxes or rising prices. Clearly the intersection of internal and biophysical limits will impact not only the growth

possibilities of the system but also adversely affect the lives of everyday citizens, especially the most vulnerable.

Climate change presents an entirely different set of biophysical limits. In absolute terms real per-capita GDP has increased, nearly exponentially since the middle of the 20th century. So too, has consumption, with the slope of the increase flattening, but the general exponential trend increasing despite the recurring recessions of this time period. It is this increase in consumption, bigger cars, more gasoline, and more energy-intensive appliances that drives the increase in carbon emissions. An increase in carbon emissions rise leads to an increase in carbon dioxide concentrations. James Hansen of NASA Goddard Space Center, perhaps the nation's most prominent scientific voice concerning climate change estimates that the theoretical "tipping point" at which irreversible damage will occur at concentrations of 350 parts per million. The "Business as Usual" strategy may produce atmospheric CO<sub>2</sub> concentrations in the range of 1200-1400 ppm by 2100 (Gowdy 2007). The Intergovernmental Panel on Climate Change use these data to predict a sea-level increase in the range of 18-59 centimetres, with a very likely (confidence interval > 90%) of increase warm spell, heat waves, and heaving rains. In addition they predict the likely (CI > 66%) increase of droughts, tropical cyclones, and extreme high tide (IPCC 2009). If we already exceed the tipping point by nearly 30 parts per million and data-based projections indicate possible CO<sub>2</sub> concentrations that are four times the tipping point by the end of the century the indication is that we simply cannot grow our way into environmental sustainability. Unless you discount the validity of the scientific evidence, or believe we can instantaneously convert to a carbon free source of energy without fundamentally disrupting financial markets, then climate change appears as an external limit to the potential for economic growth. Moreover, the advent of peak oil may likely occur in the same time frame (from now until mid-century) as do the impacts of climate change. In essence the next generation will have both problems to deal with at the same time with little discretionary income with which to do so.

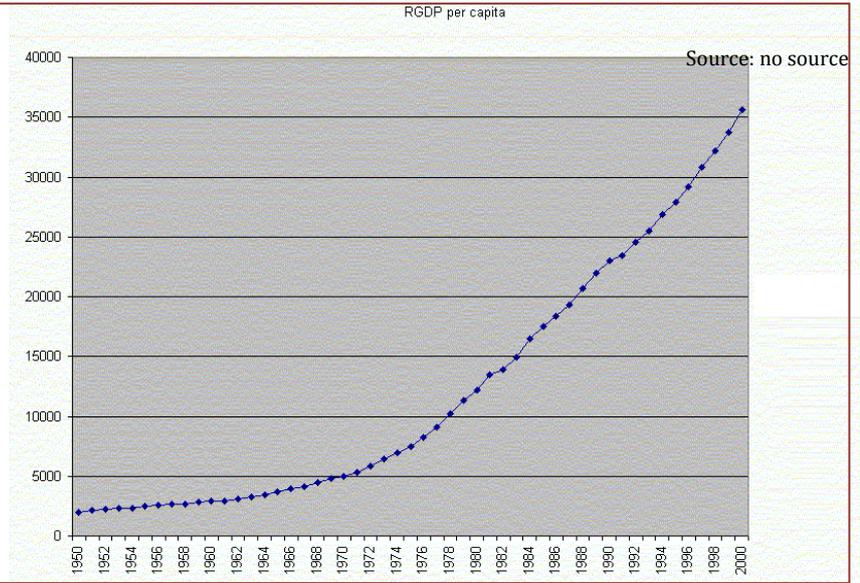
## **4 Discussion**

---

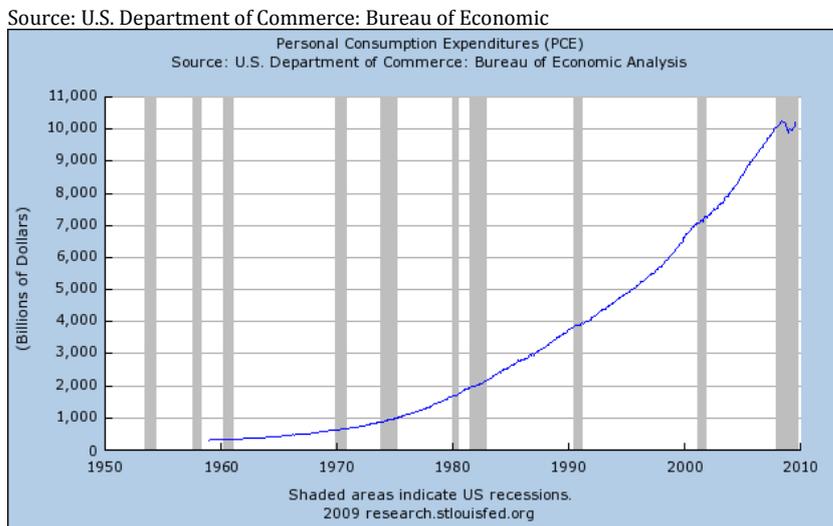
### **4.1 Degrowth and the Need for Institutional Change**

Within the neoliberal framework sustainability as defined as living within nature's limits, will be difficult, if not impossible to achieve. The neoliberal vision mandates that increases in productivity will be captured by capital as wages fall, and the resulting increases in money income can be invested in regulation-free financial markets. Unfortunately recent events do not corroborate this vision and even the International Monetary Fund, once the bastion of free market ideology, realizes that those countries which reduced barriers to money capital flows fared the worst when financial markets collapse. Their new approach is one of "pragmatism instead of dogmatism" (Gjelten, 2010). However the degree of reform of neoliberal institutions does not ameliorate the fundamental contradiction of growth. The growth that affects the environment is cumulative growth. At the same time, following Domar and others writing in the tradition of the "Acceleration Principle," final demand needs to increase at an increasing rate in order to bring forth further increases in investment. Investment, after all, is the engine that drives the macroeconomy. The fundamental dilemma of the failed growth economy is to be found in the empirical evidence. Cumulative growth in carbon dioxide emissions, Gross Domestic Product and Consumption, which affects adversely the earth's assimilative capacity, have increased exponentially, thereby pressuring the finite and non-growing biophysical limits. See Figures 4-5). At the same time percentage change and investment is extremely volatile and exhibits, along with the percentage change in Real GDP, a downward trend. (see Table 1)

**Fig. 4** RGDP per capita



**Fig. 5** Personal Consumption Expenditures (PCE)



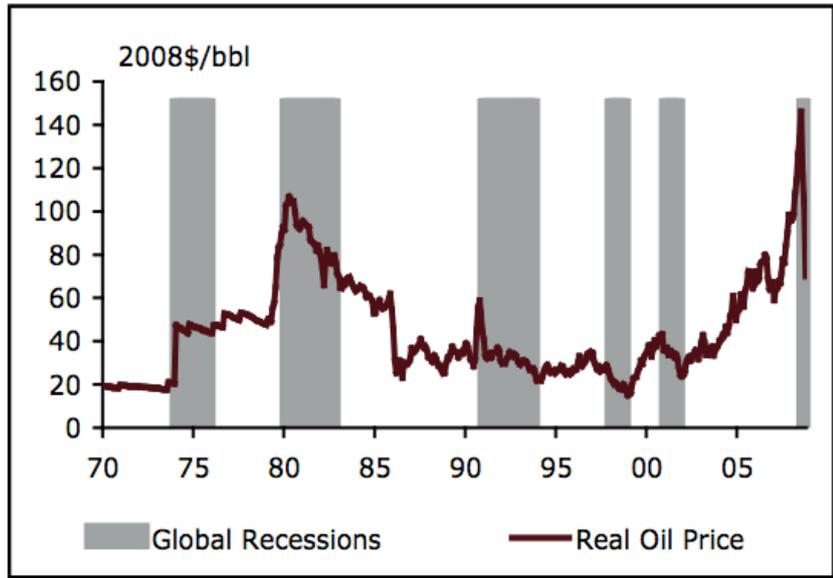
**Table 1**

Decade	Average Annual % Growth RDGP
1960s	4.4%
1970s	3.3%
1980s	3.0%
1990s	3.2%
2000s	2.4%

The present situation can only be exacerbated by the inevitable increase in oil prices that accompany the post-peak declines in the Energy Return on Investment. Recent history shows a close correlation between oil price spikes and the lagged onset of recession (see figure 6). This phenomenon appeared in the data when oil price increases were essentially cyclical and political. But the advent of peak oil means the causes will become more secular and geological.

### Past Recessions and Oil Spikes

Fig. 1 Past recessions and Oil Spikes



These events of the near future will only exacerbate the already-existing tendency towards stagnation found in the internal dynamics of the monopolized economy. Neither Keynesian liberal nor neoliberal governments have much choice other than to pursue growth policies in order to counter the rising unemployment which is the “statistical trace” of stagnation. Yet there will come a time when all the traditional tools, from expansionary fiscal and monetary policy to outright bailout will no longer work. In the prescient words of Paul Sweezy and Harry Magdoff:

But, you may ask, won't the powers that be step into the breach again and abort the crisis before it gets a chance to run its course? Yes, certainly. That, by now, is standard operating procedure, and it cannot be excluded that it will succeed in the same ambiguous sense that it did after the 1987 stock market crash. If so, we will have the whole process to go through again on a more elevated and more precarious level. But sooner or later, next time or further down the road, it will not succeed (Magdoff and Sweezy, 1988: 76).

## 5 Conclusion

The time is coming when we must begin to transcend the mere critique of mainstream economics, and concentrate on building anew. The fundamental dilemma of the failed growth economy: that growth is simultaneously too fast and too slow, cannot be addressed adequately in the context of a set of institutional arrangements that rely on economic growth to meet basic human needs of employment and freedom from poverty. We must find theories that are consistent with the basic laws of science and do not sacrifice human dignity to a failed system in which a reduction in economic growth translates into stagnation and unemployment. One can find a hope for a sustainable future only in degrowth economics.

## Acknowledgements

---

I would like to thank Deborah York, Lisi Krall, and Charles A.S. Hall for their helpful comments and support.

---

## References

---

- Baran, P. & Sweezy, P. 1966. Monopoly capital. New York: Monthly Review Press.
- Bowles, S., Gordon, D& Weisskopf, T 1990. After the Wasteland. Armonk, New York: M.E. Sharpe.
- Cleveland, C., Costanza, R., Hall, C.A.S., and Kaufmann, R. 1984. Energy and the U.S. economy: A biophysical approach. *Science* 211: 576-579.
- Cobb, C, & Cobb, J. 1994. The Green National Product. Landham, MD: University Press of America.
- Costanza, R., d'Arge, R., deGroot, R., Farber, S., Grasso, M., Hannon, B., Limburg, K., Naeem, S., O'Neill, R., Paruelo, J., Raskin, R., Sutton, P., & van den Belt, . 1997. The value of ecosystem services and natural capital." *Nature* 387: 253-260.
- Daily, G, C. & Ehrlich, P.R. 1992. Population, sustainability, and the earth's carrying capacity." *BioScience* 42(10): 761-771.
- Daly, H., & Cobb, J 1989. For the Common Good. Boston: Beacon Press.
- Domar, E. 1947. Expansion and employment. *American Economic Review*. 37(1): 34-55.
- Foster, J. B. & Magdoff, F. 2009. The Great Financial Crisis. New York: Monthly Review Press.
- Gjeltén, T. 2010, March 18. Global reality challenges IMF free market gospel." Morning Edition. Washington, D.C.: National Public Radio
- Gowdy, J., Hall, C.A.S., Klitgaard, K., and Krall, L. 2010. The end of faith-based economics." *The Corporate Examiner*. (In Press)
- Hansen, A. 1938. Full Recovery or Stagnation? New York: W.W. Norton and Company.
- Magdoff, H., & Sweezy P. 1988. The Irreversible Crisis.  
New York: Monthly Review Press.
- Perelman, M. 2006. Railroading Economics. New York: Monthly Review Press.
- Postel, Sandra. 1994. Carrying capacity: The earth's bottom line. In *State of the World*. Brown, L. Ed. 3-21. New York. W.W. Norton and Company.
- Rees, W. & Wackernagel, M. 1992. Ecological footprint. In *Investing in Natural Capital*. Jansson, A.M. Ed. St. Lucie, Florida: Island Press.
- Vitousek, P., Ehrlich, P.R., Ehrlich, A.H. & Matson, P.A. 1986. Human appropriation of the products of photosynthesis." *BioScience*. 36(6): 368-373.
- Wachtel, H. & Adelsheim, P. 1977. How recession feeds inflation: Price mark-ups in a concentrated economy. *Challenge* 20 (4): 6-13.



INICIATIVA INTERUNIVERSITARIA DE INVESTIGACIÓN EN ECONOMÍA



[www.degrowth.eu](http://www.degrowth.eu)