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Why the Generation Wave Has Supplanted the Kondratieff Wave...for Now

Technology cycles that bring clusters of radical new technologies that change our communication, transportation and energy infrastructures—and ultimately bring new business models and consumer lifestyles—have been the key driver of rising standards of living throughout history along with broader rises in population and demographic trends. These technology cycles increasingly have been influenced and driven by rising demographic cycles of more affluent citizens with much greater impacts on the economy than in feudal eras of the past when a few garnered most of the gains. New generations of younger, more innovative new workers and entrepreneurs first bring new technologies as they first enter the workforce and then move into their peak income and spending cycles wherein they progressively adopt such new technologies into the mainstream economy. We covered this topic in Chapter 2 of our new book, *The Great Depression Ahead*, but will elaborate more in this special report.

A major change in economic cycles has occurred over the last century, as the mass production revolution of the early 1900s has shifted the power of income, spending, and innovation to much broader segments of our society and economy, especially from the 1940s onward. The massive baby boom since the mid-1930s and the industrialization increasingly of billions of people in Asia have created an accelerated economic trend of inflation, growth, technological progress, and globalization — as occurred in past population surges in history. Demographics have driven the

economy into hyper growth and hyper innovation. Hence, the technology and inflation cycle we are now in will continue to be more dramatic and extended than the cycles economists have studied over the last 200 years. This cycle of hyper growth will peak in most of the Western world by 2010 and globally by around 2065 by demographic projections based on falling birth rates and rising life expectancies around the world, as we covered in Chapter 6 of the new book.

New, mass-affluent generations now are having a much greater impact on innovation, technology adoption cycles, economic booms, and inflation than in the past. That situation changes economic forecasting in a big way, making long-term cycles more predictable, even in a faster changing and more complex economy. The biggest insight is that the New Economy Cycle has been stretched from 58 to 60 years to around 80 years since the Great Depression. This seems to occur with larger and more powerful generations in a Revolutionary Cycle about every 250 years. The last such cycle occurred around the American and Industrial Revolutions in the mid to late 1700s. The previous one occurred in the early 1500s with the Protestant and Capitalist Revolutions.

Economic cycles have been shifting dramatically in the last century from a 58- to 60-year basic innovation or technology cycle, The Kondratieff Wave, to a more dominant 80- to 84-year Generation Wave Cycle. This shift has greatly

altered the patterns of our economy both in spending and innovation trends, and is the greatest reason why so many respected forecasters were wrong about their prediction for a great depression for the 1990s, while we were correct in predicting the opposite: one of the greatest booms in history. But after 2009, this Generation Wave-based New Economy Cycle is set to peak in its Growth Boom Season and finally move into the Shakeout Season or deflationary depression in the 2010s.

Basic Cycles in Technology Innovation — Historically Every 60 Years or So

Very broad innovations in technologies that change our infrastructures in energy, transportation, and communication have emerged nearly every 60 years since we could more accurately measure them back to the late 1700s (**Chart 1**). Out of this cycle came the Kondratieff Wave (K-wave) theory of new technology emergence, which clearly dominated in the 1800s and early 1900s, and is very likely to have dominated for a long time before that. Inflation cycles in a more commod-

ity dominated economy largely have been shown to follow and even define these technology cycles and the stages or seasons they proceed through due to rising and falling investment, consumption, and productivity rates.

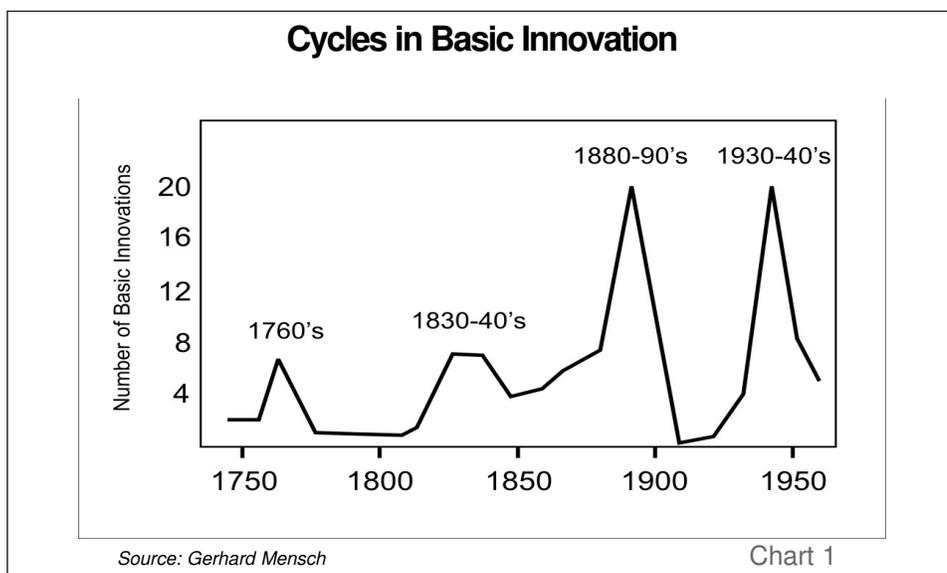
But as broadly accurate as that cycle was until the early 1900s, we are going to show that we have been in the process of shifting to the increasing dominance of a new Generation Wave (G-wave) Cycle. Every other generation (or about every 80 to 84 years) new individualistic generations bring radical, broader-based consumer industries and lifestyles that drive new industries and new work/business models. These models create new economies, which generate rising productivity and standards of living for decades to come—just as the K-wave did in the past. The next, more conformist generation refines those technologies, industries, and business models and moves them fully mainstream as we will cover more at the end of this Appendix.

This shift has occurred as broader levels of consumers and workers have advanced to much higher levels of income and influence in the new mass production and now

information-driven economy that has emerged powerfully in the last century, driven by accelerated population growth and urbanization. This new impact began initially with the immigrant-driven Henry Ford Generation in the early 1900s in the US, but emerged more fully with the first mass, middle-class society of the Bob Hope Generation which dominated our economy with their rising spending and productivity wave from 1942 to 1968.

However, the stages of both the older K-wave Cycle and the new G-wave Cycle follow the same four-stage life-cycle progression of productivity and inflation trends, two booms, and two busts, as do all product and technology life cycles throughout history, which makes them both more predictable. Demographic cycles of earning, spending, borrowing, and investment in many areas of our economy create even greater levels of forecasting and cycle changes. Despite the increasing dominance of the new G-wave Cycles in technology, spending and productivity, the old K-wave Cycle is still in effect, so we need to understand both to predict future trends more accurately – especially as they happen to move more in alignment again in the decades ahead.

Basic technological industries and commodity prices like oil follow the K-wave Cycles to a greater degree in modulations of approximate 30- to 60-year cycles. Other major, more consumer-oriented technology applications, such as automobiles, electrical appliances, radio, TV, and now the Internet, home PCs/portable computers, wireless, and broadband, follow both the K-wave and the 40- to 80-year G-wave cycles that revolve around new generations and new economies. Broader new consumer industries and leaders, from Wal-Mart to Starbucks to Dell to Charles Schwab, clearly follow the G-wave Cycles.



We are trying to explain why a theory, the Kondratieff Wave, that worked well for more than a century suddenly fell out of favor and gave wrong forecasts from the 1990s on in the economy. This happened not because the theory was wrong or invalid but because our economy and lives have changed so much in the last century and an equally valid Generation Cycle started to dominate. This shift coincides with our 250-year Revolutionary Cycle, wherein larger new generations stretch the New Economy Cycle due to their stronger demographic force and longer 40-year cycles.

Best-selling authors and economists that have been following the Kondratieff Wave Cycle, from Ravi Bhatra to James Dale Davidson to Robert Prechter, have made premature forecasts—especially since the late 1980s, during which they expected the U.S. to enter a long-term deflationary bear market, or “winter” season. But these forecasters understand long term economic cycles much better than most economists who have no clue of clock-like longer term cycles that are so critical to our economy. The reason that those forecasts have been so off is that such technology cycles have increasingly “stretched” into an approximate 80-year G-wave Cycle driven more by the radical innovation, spending, and adoption cycles of new individualistic generations that come every 80 to 84 years. This generation cycle has been documented in great academic and historical depth by Neil Howe and William Strauss in many books, starting with *Generations* in 1984, as well as in our books, starting with *The Great Boom Ahead* in 1992.

The Apparent Failure of the K-Wave: A Bubble Boom Instead of a Deflationary Bust in the 1990s

I first started analyzing economic cycles, focusing on the Kondratieff Wave, in my studies at college and graduate school in the mid to late 1970s. The K-wave was the best explanation for economic cycles I could find since Joseph Schumpeter’s breakthrough insights about cycles of “creative destruction,” wherein radical new technologies replace older technologies and create new long-term productivity cycles that drive higher standards of living throughout history. The K-Wave Cycle would have predicted that inflation rates and price levels would peak in the mid- to late 1970s and lead to a disinflation cycle. That cycle would show a final boom in the 1980s that would lead to a brutal downturn and depression/deflation cycle from the 1990s into the early 2000s—just as Ravi Bhatra, Robert Prechter, James Dale Davidson, and many others were predicting in the late 1980s.

Our new research into generation cycles of spending, innovation, and productivity in the mid to late 1980s suggested strongly that this boom was going to accelerate dramatically and that we were not going to enter a deflationary phase and depression in the 1990s, despite the milder slowdown in the early 1990s, which we also predicted and which seemed to corroborate the K-wave Cycle at first.

Our predictions in the late 1980s and early 1990s were that we were about to continue into the greatest boom in history, with further declines in inflation rather than

deflation, and that the huge U.S. government deficits of the early 1990s would disappear into surpluses between 1998 and 2000, while Japan continued to decline against worldwide trends. That situation would be good for the stock market and economy in the 1990s and into this decade, as Baby Boomers continued to spend more and the next technology revolution moved mainstream! After the crash of 2000-2002, most economists and investors naturally assumed that the great boom was over, just as many did after the crash in 1987. However, our research suggested another bubble ahead before an overall long-term peak around 2009.

How do we reconcile these two predictable cycles, which follow similar phases in innovation, growth boom, shake-out, and maturity boom—and then plateau and decline while the next technological or economic cycle is emerging?

The Kondratieff Wave Explained in Simple Terms

We have to start with The Kondratieff Wave Cycle and its history, as that was the best predictive cycle prior to the 1940s in Chart A.1. This K-Wave theory was originated by Nikolai Kondratieff, who was born in Russia in 1892 and died in 1938. He studied inflation and technological cycles, which he increasingly documented from the late 1700s forward. He found cycles of inflation and price levels that proceeded through four stages: spring, summer, autumn and winter. These stages ultimately were driven by basic innovations in new technologies, which eventually brought higher productivity and lower prices as they moved into critical mass and higher pene-

tration into the economy but brought inflation and shortages in their earlier stages.

Like Isaac Newton, Kondratieff observed a rather clock-like cycle, in which wholesale and commodity prices of goods rose for a period of time—when old technologies were maturing and slowing in productivity—and when new technologies were first emerging rapidly. Prices fell with higher productivity rates and rising supply, as the new technologies increasingly became affordable to the mainstream and dominant. Eventually, the new technologies would over expand in a bubble boom, creating excess supply and resulting in deflation in prices. This occurrence ushered in a long cycle of consolidation within older industries, during which new technologies were first innovated and would begin to emerge again, slowly at first and extending older industries before creating large new ones for decades to come. **Chart 2** shows this Kondratieff Wave Cycle in its most basic outline, around rising and falling price levels or inflationary cycles.

The 58- to 60-year Kondratieff Wave Cycle can more simply be seen as two 29- to 30-year Commodity Cycles, the first more recessive and the second more dominant. The first represents a secondary or more minor peak in inflation that follows a deflationary “winter” season and occurs into a “spring” boom. The second represents a primary or “summer” peak and leads to a more bubble-like autumn boom due to falling inflation and interest rates that leverage asset values just as the new technologies first become dominant and ubiquitous. The bursting of that bubble leads to a deflationary “winter” cycle and bubble bust again. Primary commodity and inflation peaks include 1864, 1920, and 1980. Secondary peaks include 1834, 1891, and 1951, and another secondary peak is predicted for late 2009/early 2010. The next primary peak should occur around 2039/2040.

The Spring Season

To understand this cycle, compare inflation to temperatures in sea-

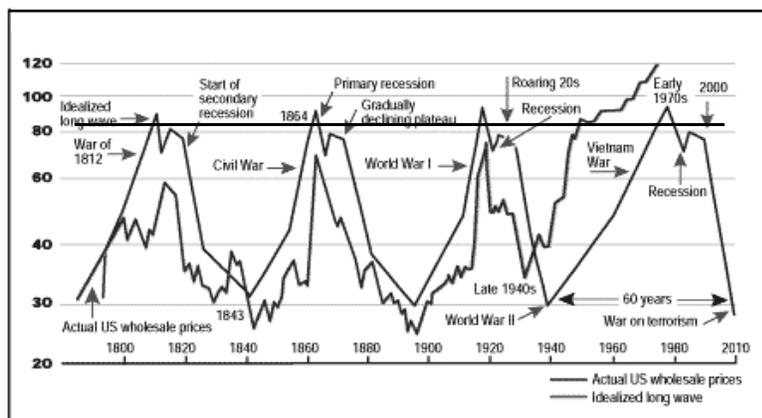
sonal/climatic cycles. When inflation is first rising after a falling winter or deflation cycle, things are heating up again. New technologies are emerging into the economy, or “blossoming” after their invention or incubation stage in the last winter season that occurs following the decline, or broad shake-out, of the last technological growth cycle. Growth and demand are rising from the new technology cycle, which first and foremost extends the applications of older, maturing technologies.

Supply lags behind growing demand at first, as it takes time and investments to ramp up the new technologies and industries. Furthermore, waning productivity from the larger, older industries trumps the rising productivity of the smaller, new emerging industries. Hence, a new boom appears from the ashes of the last great bust and depression or winter. That is spring and corresponds to the Maturity Boom Season of our 80-Year New Economy Cycle or G-wave. Inflation rises more substantially initially, and the first commodity cycle (secondary peak) tops out early on in this boom as the productivity of the new technologies as they emerge initially into the mainstream (on an S-curve pattern, as we showed in Chapter 2) lowers commodity prices and inflation rates. That is the trend in this season—a boom with modestly rising inflation. The new industries of the future are just emerging, while the older industries are fully maturing.

The Summer Season

Truly radical offshoots of the new technologies emerge in this stage and require massive investment for expansion by many new growth

**The Basic Kondratieff Cycle
1800-1975**



Source: *The Media General Financial Weekly*, August 1972

Chart 2

businesses that enter these exponentially growing new markets. Here we see the highest exponential growth rates in new industries while old industries decline in growth and productivity creating a stagflation economy. Given that the older industries are still dominant, their low productivity leads to peak inflation rates and growing recessions. Rising prices encourage expanding investments in supply and capacity, which eventually lead to overexpansion and falling rates of commodity prices and inflation in the stage to follow. That is the summer stage which is the Innovation Season in our G-wave Cycle. Rapid inflation and on and off recessions are the trends in this season, and there are scarcities in commodities and raw materials as well as in production capacity. The second commodity cycle (primary peak) occurs near the end of this phase.

Major wars typically emerge over scarce resources, as does a battle between rising new countries or regions and declining older ones. These wars, like the Civil War, World War I, and the Cold War, further contribute to rising inflation with the costs of fighting and tend to mark the very peak in inflation and commodity prices. In fact, major wars tend to cause the peak to occur often a bit off cycle. However, wars also strongly encourage the expansion of the new technologies and regions as the regions with the new technologies tend predictably to win. In this season, rapidly rising inflation rates work against profit margins, along with recessions that occur off and on due to the inflation shocks. Stock prices and valuations also are affected negatively by rising inflation rates, so that the mood and perception in the economy is that again of “stagflation”: growth leads to inflation, slower

growth, then rapid growth, and then inflation again.

The Autumn Season

When temperatures and growth first start to cool, inflation rates drop dramatically at first and a brief recession and shakeout from overexpansion occurs due to slowing growth rates. That situation is followed by the final and most dramatic boom into the maturity stage, which sees the first full penetration of the new technologies into society and the economy. Productivity rates, incomes, and wealth accumulation are at their highest once new technologies begin to become ubiquitous. That is autumn which corresponds to the Growth Boom Season in our G-wave Cycle. Growth rates or temperatures and inflation tend to plateau, with a declining bias in this period at lower levels than peak or summer inflation rates. Disinflation and the strongest booms are the trend in this season, with the emergence of new technologies and industries into full mainstream dominance for the first time. That combination creates the best environment for stock prices and valuation of most investment assets, including real estate. This is where you see bubbles in the stock market due to irrational exuberance around the potential of the new technologies.

The Winter Season

Businesses get the most optimistic in that final boom and over expand to an even greater degree just when the markets are finally near saturation on an S-curve progression, which finally reaches 90% of the potential markets and then slows down dramatically.

Productivity or supply from the new technologies is also at its highest at this point. That leads to a fall in prices, or deflation—and profit margins plummet dramatically. Only the strongest leaders survive this more massive shakeout or “depression” to fully dominate these slowing but increasingly large industries well into the future. The many growth companies and competitors in the spring continue to narrow down increasingly in the winter to the few dominant leaders, starting with the first brief shakeout at the beginning of the autumn season.

Meanwhile, the next new technologies are in their invention and incubation stage, motivated by the saturation and decline of the old technologies. That is winter, with the seeds planted for the next spring season. This corresponds to the Shakeout Season in our G-wave Cycle. The worst downturns in the economy with stock and real estate collapses occur in a deflationary environment in which almost all assets and commodity prices decline in value and unemployment is at its highest. This is obviously the worst stage for households, investors, businesses, and the government.

The Kondratieff Wave and Stock Cycles

From the early 1800s through the early 1900s, this K-wave Cycle revolving around basic innovation cycles seemed to dominate our economy with its four-season cycle, despite substantial variances in the degree and length of the seasons. Every 50 to 60 years, we saw peaks in inflation or inflation rates—as in 1814, 1864, 1920, and 1980—followed by the most dramatic economic and stock

booms and bubbles into the autumn season, which lead to the worst periods of deflation, contraction, shakeouts, and consolidations in business and the economy in the winter season. Then, new technologies and growth industries emerge again and create the next rising inflation and expansion cycle, which follows in four stages of alternating booms and busts, in phases of mild inflation (spring boom), rapid inflation (mild summer bust), disinflation (strongest autumn boom), and deflation (greatest winter bust).

Chart 3 shows how the stock market has correlated with past Kondratieff and inflation cycles into the early 1900s. Note that the stock market tends to boom when price levels are more stable or when supply and demand are more in balance and that stronger inflation and deflation periods lead to downturns and stock declines. Major inflation peaks occurred in 1814, 1864, 1920 and 1980, with wars ending just before or at the peaks. The War of 1812 was a minor war and likely caused that first cycle to peak late as the peak of inflation would have been more expected around 1804. Otherwise,

these peaks come very close to every 58 – 60 years. The worst declines come in the winter or deflationary cycles. The strongest stock booms and bubbles occur in the autumn season following the summer, after the first secondary recession or brief shakeout, and during the time that new technologies first move fully into the mainstream economy. These autumn booms, like 1816-1835, 1864-1873, and 1921-1929, see disinflation or falling interest rates, which leverage stock and real estate values. Strong productivity from the new technologies moving mainstream also creates these “bubble booms,” with strongly rising earnings, productivity, and economic growth.

We are in the most extended autumn or bubble boom in modern history, according to the Kondratieff Wave, from 1983 to around 2009, following the most extended spring boom from 1942 to 1968. That autumn season needs some major explaining, and only the new G-wave Cycle can explain it, by means of extended Spending Wave Cycles for the last two mass affluent generations!

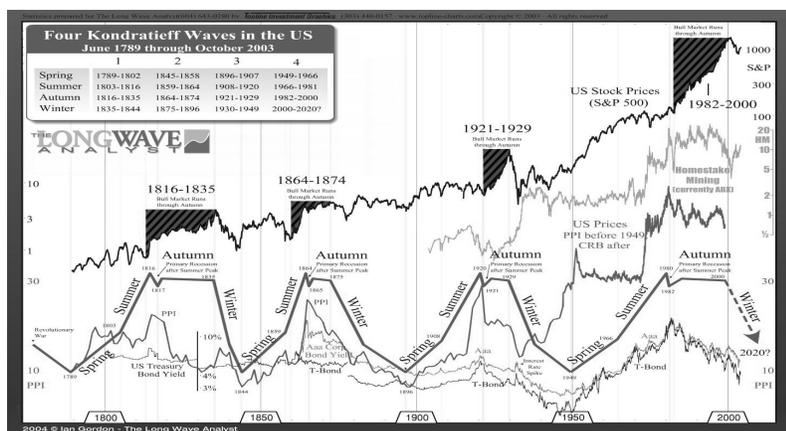
Note that, starting in 1949, Chart A.3 uses commodity prices instead of the broader Producer Price or Wholesale Price Index. Furthermore, since then, commodity prices have continued to peak in near 30-year cycles with more primary peaks in near 60-year cycles. The secondary peak after the primary peak in 1920 occurred in 1951 (31 years later), and the next primary peak was in 1980 (29 years later). However the broader Producer Price (PPI) and Consumer Price (CPI) indices have kept going up from 1933 to the present, and it will likely be 2010 before prices decline into the next deflationary cycle, which we are predicting to be between 2010 and 2023 or so, given declining Baby Boom spending and dramatic slowing of the workforce due to Baby Boomer retirement in the next two decades.

The reason for that switch was that broader inflation measures like the PPI and the CPI have related more to G-wave Cycles that concentrated in higher value added products and services with lower and lower commodity content. Hence, they started to diverge from the K-wave patterns, whereas commodity prices, which are more related to basic innovation and technology cycles, are still following the K-wave. The broader PPI and CPI price levels are reflecting the rising specialization of labor, which raises the costs of goods beyond mere commodity prices in a new demographic-driven, hyper-growth technological and inflationary cycle.

The Demographic Supercharger

The dramatic Baby Boom Generation here and around the world has shifted our economy into a new pattern of higher growth,

Kondratieff and Stock Market Cycles since 1789



Source: Ian Gordon-The Long Wave Analyst

Chart 3

inflation, and innovation since the 1930s. **Chart 4** shows inflation trends over the last 1,000 years and brings two important insights into economic cycles. First, we have seen extended periods of accelerated demographic growth and inflation with economic progress to follow in the past: from around AD 960 to 1220, and from around AD 1440 to 1650. These periods also followed major technological innovations, like the heavy plough, three-field rotation, and the stirrup in the mid to late 900s; and the printing press, gunpowder, and tall sailing ships in the mid to late 1400s, also as we discussed in Chapter 3. There is an approximate 500-year cycle of macro innovation at work here that included the computer, DNA, the A-bomb, TV, the jet engine, and radar invented in the 1940s and early 1950s—following the printing press by about 500 years. Since the mid 1890s and the mid 1930s, inflationary trends have been accelerating again, as in past periods of macro innovation and surging population growth.

We can also see evidence of the 250-year Revolutionary Cycle we discussed in Chapter 3, with the rising inflationary trends in the second half of the last 500-year cycle, in the mid to late 1700s, that launched the American and Industrial Revolutions. That rising inflation cycle strongly suggests a larger generation, like the Baby Boom of today, coming along and stretching innovation, growth, and institutional change as they age. And, in fact, long-term population growth did start to accelerate in the 1700s. So, it does seem that every 250 years we get larger generations that exaggerate the demographic trends and stretch the more typical 58- to 60-year Kondratieff Cycles around two 40-year Generation Waves to an approximate 80-year New



Economy Cycle, as we are witnessing today.

From the perspective of this 250-year Revolutionary Cycle, the Kondratieff Wave did not disappear, it just got “stretched” or supplanted temporarily by an 80-year Generation Wave Cycle consisting of two 40-year Spending Wave Cycles, instead of the more typical two 29- to 30-year Commodity Cycles. This new, stretched cycle follows the same four-stage life cycle and pattern of the past. Our global demographic trends suggest that we will turn back toward the previous and more consistent 60-year cycle in the future, as birth and generational cycles slow again and become less dominant and the global demographic trends in rising Asia shift the G-wave internationally. Hence, the Kondratieff Wave still lives!

The second insight is that inflation is not a negative trend to be “avoided at all costs,” as most economists see it. In the long term, inflation correlates clearly with our rising standard of living and, in fact, finances growth in productivity for

decades into the future. There was a dramatic boom from Greek science into the Roman Empire that caused rising inflation and economic growth for over 1,000 years. Since the Dark Ages of deflation and economic contraction from around AD 450 to 950, we have seen a dramatic boom with rising inflation for over 1,000 years.

Inflation is simply the economy’s means of financing new generations, technologies, and infrastructures, which evolve into new business models and economies with greater specialization of labor and higher standards of living. These new trends require high investments at first, which pay off in higher productivity on a two- to three-decade lag historically.

Larger populations, technological advances, and new infrastructures for communication, transportation, energy, and production, allow larger and more sophisticated organizational systems, which in turn allow greater specialization of labor and trade. This trend first started when hunting and gathering bands first settled into small towns and growing cities in the

Agricultural Age starting around 10,000 years ago in towns like Jericho. When we as workers move into larger, more urban areas and specialize more, we become more productive and earn more. Old jobs like hunting and farming are replaced by factory jobs, then clerical jobs, and then professional and managerial jobs, which increasingly are more specialized. However, as we add more specialists to the chain of production of goods and services, the prices go up, because we delegate more tasks to middlemen and produce less of those products directly ourselves. Hence, the costs of most goods rise, but incomes through expanding productivity rise even higher. That's how inflation and rising productivity go hand and hand—but again, on a lag – that's why most economists and people miss this correlation, just like births and rising spending 40 to 50 years later.

Inflation finances the cost of raising young people and incorporating them into the workforce before they become productive workers and high-spending consumers. Inflation finances wars that free up countries to grow or create larger empires and markets for trade and

specialization. Inflation finances new technologies and infrastructures before they start to pay off in higher productivity and tax revenues. The truth is that inflation is the best long term leading indicator of economic progress! We feel the pain of it at first through rising prices that go to finance new investments (forced savings), which aren't offset with rising incomes to the same degree at first. On a near 30-year lag today, we do get the benefits—big time! Inflation will be at its highest when a new generation is just entering the workforce, around age 20.5 today, and then productivity, income, and spending will be at its highest around age 48 today..

In our past books and in Chapter 2 of *The Great Depression Ahead*, we have shown more conclusively how inflation correlates with workforce entry and how the economy and stock market correlate with a lag in births for the peak in spending of the average household. Into the 1970s, the Baby Boom caused the highest sustained inflation rates in hundreds of years. Now we are predicting that this unprecedented bubble boom will peak around 2010, 30 years after the peak of inflation rates in 1980 and 48 to

49 years after the peak of the baby boom birth cycle in 1961.

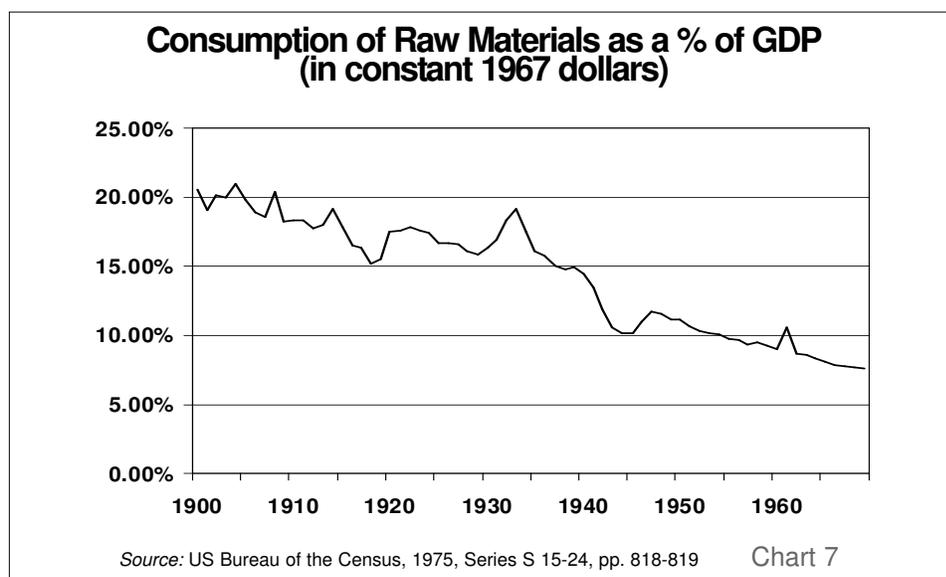
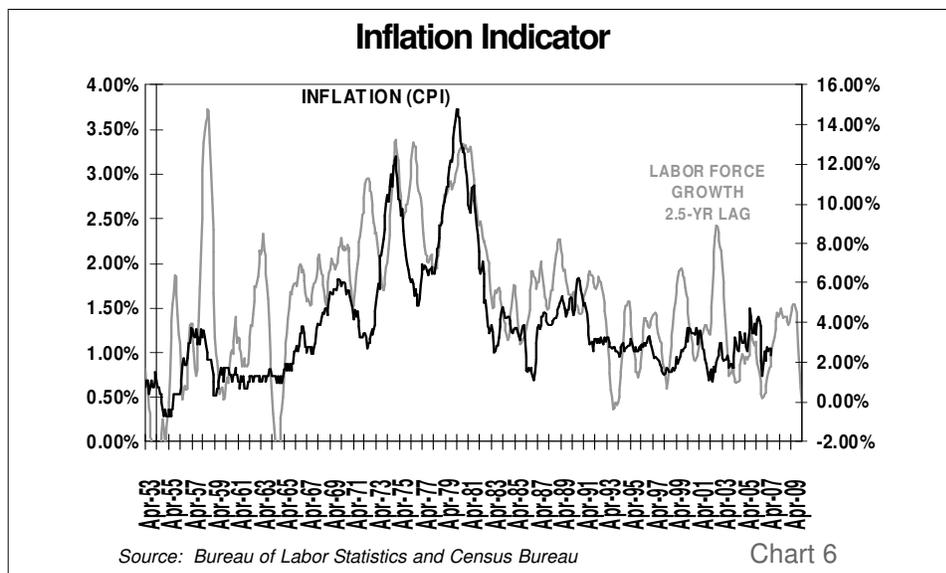
Economists looking for our present inflation, technology, and boom cycles to be similar to cycles of the past 200 years continue to be shocked by both more extreme and more extended cycles in inflation and economic growth. Accelerated demographic trends and mass affluence are the cause—and their impacts can be documented and projected forward. This is typical of the early stages of the 500-year Mega Innovation Cycle, which occurred in the late 1400s/1500s as well. What should be expected in the next two decades on the 250-year Revolutionary Cycle is a social, political, and business revolution similar to the American and Industrial Revolution, and the Protestant and Capitalist revolutions of the early 1500s, wherein people in developed and emerging countries demand higher levels of rights, freedom, and input into the system at all levels from the workplace to politics.

Chart 5 demonstrates this paradox of strongly rising productivity in an era of dramatically rising inflation. It shows rising GDP per capita in the U.S. since 1900, which is the best indicator of our rising standard of living—and the results are impressive. Despite dramatically rising inflation levels, especially since the early 1930s, our standard of living has been increasing steadily and dramatically due to increasing specialization of labor and rising incomes. Again, we pay more as we delegate tasks to others, but we can afford more due to our rising incomes from specialization and higher-value-added jobs. This is also one of the central principles of management – delegation.



What has really occurred here since the 1930s was that the G-wave was increasingly dominating and affecting broader price trends through workforce growth (exaggerated by the baby boom into the 1970s), which is inflationary at first with the high costs of raising and incorporating new workers, followed by rising labor productivity into this decade, which leads to disinflation on a lag for peak productivity rates (peaking in the mid to late 40s age ranges today) in an increasingly affluent, middle class economy. In 1989, we generated a new inflation indicator that correlates (outside of major war periods) with rising and slowing workforce growth on a 2.5-year lag in **Chart 6**. This indicator explains why general inflation rates rose to such extreme rates into 1980 and have declined despite a booming economy since 1983. A projection of workforce growth would forecast a deflation in prices, as the Baby Boomers retire faster than the Echo Boom Generation enters the workforce into 2023, after a minor rise in inflation from 2006 into 2009.

Commodity prices correlate more with the most basic industries, in line with the K-wave Cycle and emerging countries, which are focused more on those industries. The biggest reason, which has had only a minor effect on broader price levels, is that commodity prices have become a much smaller percentage of our economy since 1900 as we show in **Chart 7**. Commodities as a percentage of GDP have fallen from just over 20% in 1904 to near 5% today. Oil in 2008 as high as \$147 a barrel had only a minor impact on inflation, the economy, and stock prices—as opposed to \$40 prices having a more substantial impact in the late 1970s—and commodity price indices would have had a



much more major impact as we go back further in history.

Whereas new technologies definitely reduce the price of commodities and inputs, including semiconductor chips and DRAMs today, new consumer industries like software and the Internet tend to raise the level of quality, service, and convenience, which consumers receive at the same level of output and which are more affected by the

labor productivity of larger percentages of clerical, technical, professional, and service workers.

We would suggest that PPI and CPI inflation rates would be lower today if they were more accurately adjusted for quality, customization, and convenience — intangible values that are harder to measure in economic statistics.

The Great Chicken and Egg Argument: Supply vs. Demand Economics

Now we will look briefly at the alternating cycles of demand and supply that new technology and demographic cycles naturally create. These cycles, in turn, link inflation cycles to the K-wave and the emerging G-wave cycles, which increasingly dominate our economy. We all are familiar with the supply side vs. demand-side debates in economics and politics.

According to the supply side (or as more Republican economists say), lowering taxes and encouraging investment will create new innovation, industries, and technologies, which will lead to higher productivity, job growth, and wage gains. Encouraging saving and investment first rather than consumption or welfare will have the long-term effect of higher incomes, wealth, and consumption: a rising tide will raise all boats. Rising wealth and incomes will create higher tax revenues for the government down the road to pay for the initial loss in tax revenues to finance the supply-side strategy.

Hence, the whole system will expand and be better off long term.

The demand-side or Democratic model says that the affluent consumer and business sectors of our economy already naturally do well. The problem in our economy is that earners of lower wages do not share to the same degree in our economy, which is unfair. If you give these people benefits, education, and welfare to stimulate their demand, that rising demand will cause spending to grow much faster than if you let businesses and affluent people earn more in the free market economy. Why? They save or reinvest more and spend a smaller percentage of their incomes or profits – and a society with greater equality is a happier and more peaceful one.

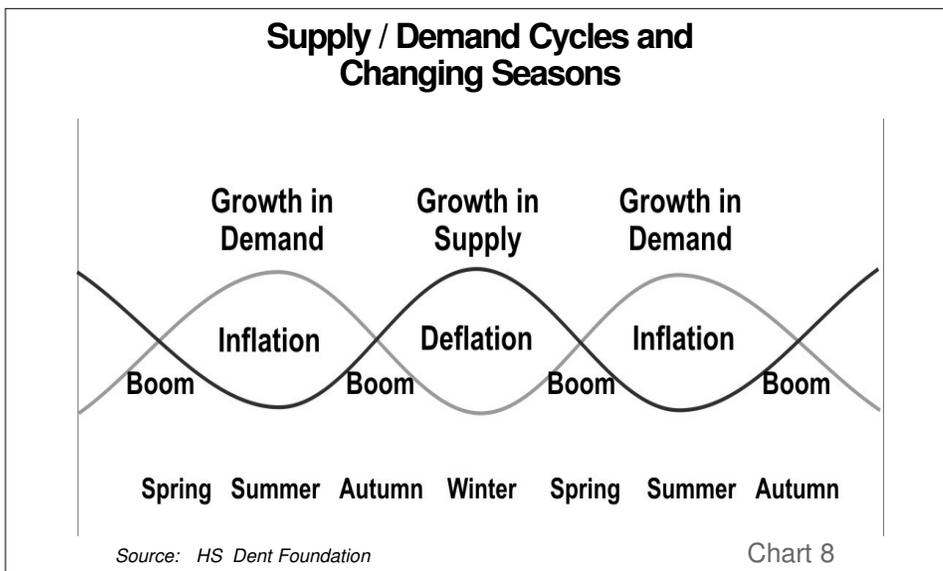
John Maynard Keynes became famous from the 1930s on for adding the liberal premise that governments can stimulate the economy out of a downturn and iron out economic cycles by lowering interest rates and initiating government spending and work programs that would stimulate demand in downturns or, conversely, raise interest rates in

strong upturns to curb excesses; that is the primary role of the Federal Reserve today. The Pharaohs in ancient Egypt were known for building pyramids and infrastructures in down agricultural cycles to utilize excess labor.

The truth is that technology, generation, and economic cycles already naturally stimulate demand and supply in alternating cycles that have a clear logic and that work better than government planning either on the supply or the demand side. It is not the chicken or the egg—it is both simultaneously! They respond to each other in dualistic cycles and are often out of phase with each other, which creates cycles in inflation (when demand exceeds supply), moderate prices and boom periods (when demand and supply are more in balance), and deflation and bust (when supply exceeds demand).

Chart 8 shows theoretically how cycles in demand and supply follow each other on a lag, reacting to each other in a dynamic equilibrium—like a sailor tacking into the winds and trying to adjust and to stay on schedule to his destination ahead. You can argue that supply leads demand or demand leads supply, but they simultaneously lead and lag each other. Only in alternate cycles do they come into equilibrium or increasing balance of supply and demand, and that is when the economy feels most on track and prosperous. These alternating cycles create spring, summer, autumn, and winter seasons.

New technologies create new products that consumers will have demand for and new jobs to produce greater income and productivity. However, rising demand from demographic growth in new consumers and new generations



entering their peak productivity and spending years also creates the need for rising innovation and capacity expansions from businesses. The innovations from the younger age ranges of new generations also naturally lead to rising demand as the generations grow up and have higher incomes to adopt those technologies.

We simply have an ongoing cycle of supply and demand, as is conveyed in Chart A.8, and the chicken-and-egg argument is not really relevant except for one overriding principle from our research: Demographic trends drive innovation when we are younger, creating new potential demand vs. tighter supply at first and then greater supply as we age and become more productive. But demographic growth also drives basic demand and needs from rising population and incomes as we age, up to a point—around age 46 to 50 today—or age 48 on average. Then, aging generations and populations save more and create investment capital for the next generation to use for the innovation of new technologies and industries for growth again. The U.S. has both had the largest Baby Boom Generation in the Western world and the political and financial structures that have supported the strongest innovation over the last 200 years, and that is why we lead the world today!

Excess demand in one cycle creates the incentive for investment and excess supply in the next, and excess supply creates a cycle of consolidation and lower prices to stimulate demand again. Governments are not good at anticipating such cycles and hence react too late and tend to often do more harm than good, either through demand-oriented policies or supply-oriented. But at least we can

predict when they will respond and the next cycle will be a liberal demand and consumer income redistribution cycle or “New Deal” in the Next Great Depression ahead with major infrastructure projects – like building pyramids in the droughts in Egypt.

The Rise of U.S. Leadership in Technology and Innovation

The U.S. cycle of innovation leadership started with the landmark American Revolution in democracy in the 1760s to 1770s and then followed in new technologies, first with the cotton gin; then steamships; the McCormick Reaper; cross-country railroads; the telegraph and steel; electricity, phones, and automobiles; the Information Revolution, from mainframes to PCs to the Internet to broadband; and presently to alternative energy technologies; and ultimately biotech, nanotechnology and robotics. More critical, new business models also increasingly were led by the U.S. after the factory model in Great Britain from the standardization of parts and mass production by Samuel Colt, scientific work management by Frederick Taylor, the large scale R&D lab by Thomas Edison, the assembly line by Henry Ford, the modern corporation by Alfred Sloan, and even more decentralized product and profit divisions by GE.

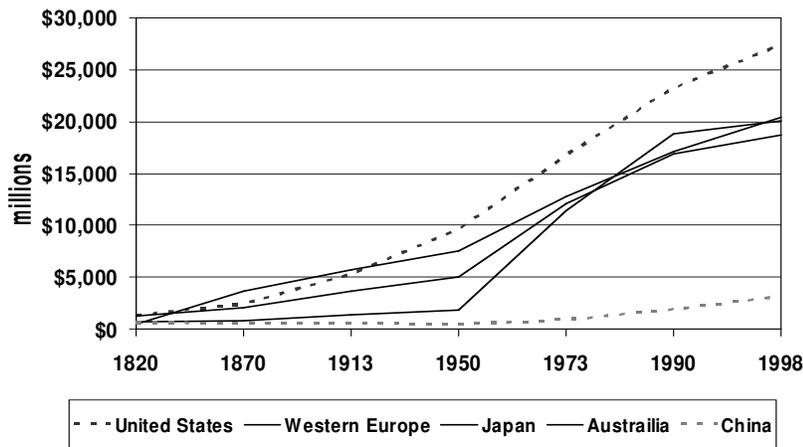
Currently, the U.S. is leading the emergence of the “Network Corporation”. This business model collaborates among different businesses large and small and innovates more horizontally than verti-

cally—with decision-making driven more from the bottom up or customer back than from the top down (as we have described in *The Roaring 2000s* and *The Next Great Bubble Boom*, and as does Thomas Freidman in his recent book, *The World Is Flat*). That model will increasingly pass to emerging Asian countries like China and India over the coming decades, along with their growing leadership in new technologies. This is the business side of the 250-year cycle, along with the “Lean Production” Revolution, as described by Paul Hawken, Amory Lovins and L. Hunter Lovins in *Natural Capitalism* (1999).

One of the reasons that the U.S. economy has outperformed the rest of the world in the last two centuries is that we have less government planning and encourage freer markets than maturing nations in Europe or most emerging nations in Asia. Also, we are an immigrant and entrepreneurial nation that has aspired more to the new rather than to preserving the past. **Chart 9** shows the rise in GDP per capita in select countries around the world since 1820. The U.S. and similar spin-off and immigrant countries, like Australia and New Zealand, have seen the highest rates of growth, with China (the new, most rapid up-and-comer) out of dramatic new aspirations to catch up and reclaim their past heritage. European countries like France, Great Britain and Germany and countries like Japan have been “playing catch up” with the U.S. since World War II, but the U.S. still has the highest standard of living of any major country today. How did we achieve this?

Many maturing European nations have sought to raise taxes and have their governments stimulate demand in the name of equalizing

GDP Per Capita of Leading Nations Since 1820



Source: Maddison, Angus. *The World Economy: A Millennial Perspective* Chart 9

inequalities between higher and lower income segments. That may create a better or more harmonious society, as do lower immigration rates of outsiders, but it doesn't seem to create higher economic growth or innovation. Leading Asian economies like Japan or China have chosen to have the government choose and favor the best potential industries for growth and exports to stimulate growth and jobs. However, Japan increasingly has underperformed the U.S. economy in the last 15 years, after outperforming for a few decades. There are demographic reasons for that shift, as we have explained in this and past books, but there is a more basic economic and political principle as well.

History does not tend to show that higher government planning and participation from either a demand side or supply side are better than letting free markets work within the best designed democratic and legal, financial, and technological infrastructures that support free markets (outside of the earlier stages of growth and emergence, in which export-oriented strategies and protectionism are warranted to allow new industries to incubate

and reach critical mass, much as with children). The weakest nations worldwide today tend to be those with heavy, top-down dictatorships, and they continue to fall like flies—from Russia to Afghanistan to Iraq—with stronger growth and innovation to follow.

The strongest tend to be democracies with strong, market-based economies, like the U.S., Australia, Hong Kong, Singapore, Sweden, and Norway. The best role of government is not merely a minimal role, but a strong and efficient role in establishing the legal, financial, and political infrastructures to maximize the workings of free markets, human creativity, technological innovation, and economic evolution. China is growing rapidly with a combination of top-down planning and bottom-up capitalism in urban areas, but it may be the next to meet major challenges with huge failing state industries and enormous environmental and infrastructural challenges.

Since the American Revolution, the U.S. unquestionably has led the trend toward democratic government and free market economic systems that are now

spreading like an infection around the world through globalization, despite predictably strong reactions from more backward nations — which are naturally threatened by the growth of new cultures of technology and lifestyles. That backlash will continue for decades to come, but a first-world and third-world revolution and “New Deal” between them eventually will emerge out of the backlash, including more effective global institutions to deal with pollution, trade, currencies and terrorism. This will mark the true beginning of the next 250-year Revolutionary Cycle.

At the same time that the Industrial Revolution was creating the technological base for a massive rise in our standard of living, the rise of democracy and the decline of monarchies emerged. That happened most profoundly in the U.S. You can argue either that it was the egg (new government and political systems) or the chicken (technologies that created the greatest booms and advances in standard of living in history in the last 200 years or so). However, both emerged around the same time, in the late 1700s. The visionary constitution and more decentralized structure of state powers in the U.S. simultaneously built the base for its rise to world dominance in standard of living and trade increasingly in the 1800s and 1900s—but so did its increasing rise in technological innovation, starting with the cotton gin. We overtook Great Britain in the size of our economy and technological leadership just after the Civil War from the 1870s onward, as they overtook the Dutch before them and as other nations and empires have risen and fallen in the past.

Chart 10 shows the increasing bubble boom and prosperity that has occurred since the twin innovations of the Industrial Revolution and democracy, which increasingly centered in the US.

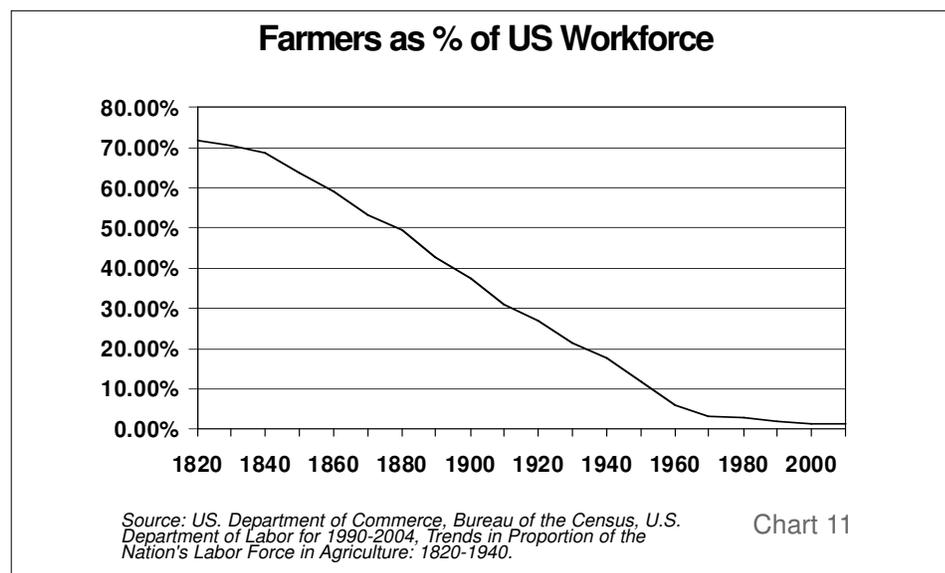
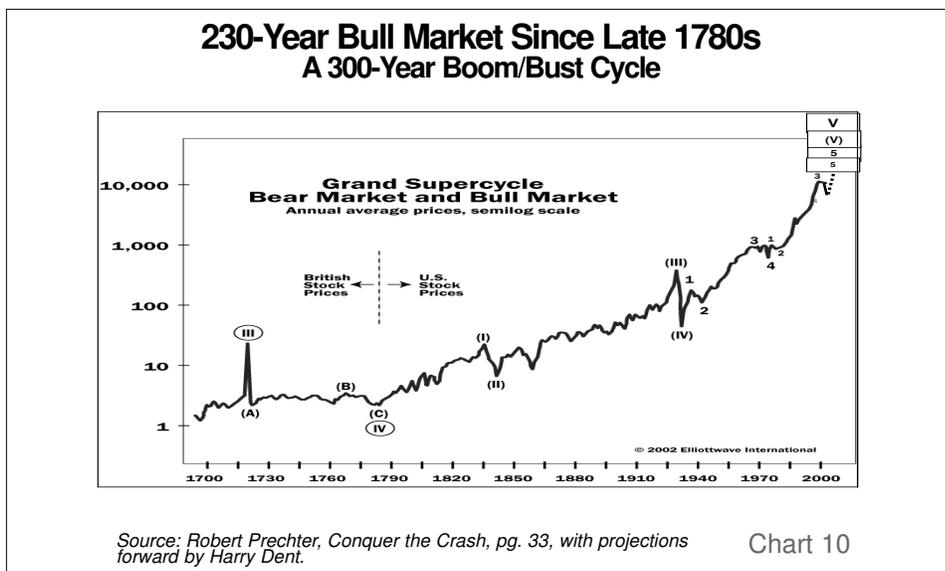
We have not merely been in an increasing bubble boom since the early 1980s — we have seen an accelerating bubble boom since the late 1700s!

The next stock expansion, into late 2008 or 2009, should represent the longer-term peak of that long bubble boom in the West. Hence, this is likely to be the last great bubble for Western nations, from Europe to North America. There will continue to be strong demographic-driven growth with industrialization and information technologies throughout most of Asia and to some degree in Latin America, the Middle East and Africa until world population growth peaks according to present demographic projections, around 2065.

That is when we are likely to see the Next Great Depression on a near 60-year cycle from this one — the early 2070s!

The Rise of Mass Affluence and Influence

The Industrial and Democracy revolutions started a trend of rising productivity beginning in the late 1700s, as we showed in Charts A.9 and A.10. Everyday people started earning more money by moving from farms to factories (and then into clerical and professional jobs), and the new political structures and laws allowed them to keep more of their productivity contributions, in contrast to the aristocracy and feudal lord, land-based structures of power and affluence of the past. This revolution started



first in Great Britain and then spread increasingly to Europe and North America from the early 1800s onward. As more everyday people shifted from subsistence farm work to factory work and to an increasing array of more specialized jobs, incomes and economic influence started to rise for more people.

As more immigrants were attracted to the more entrepreneurial and freer society in North America, innovation boomed from these new penniless and motivated entrepreneurs and “Puritans.” America always has been a contrasting

society both of dissident, frugal, hard-working people and simultaneously of hucksters, salesmen, entrepreneurs, and Wild West gold miners and gun slingers. It’s not flattering, and that’s why older, more refined European cultures shun us. But that melting pot of more “cowboy” and independent thinkers is what made this country the leading nation in the world today. Farmers peaked as a percentage of the U.S. workforce in 1820 at almost 75%, as **Chart 11** shows, and have been declining ever since to less than 2% today, who produce all of the food we can eat and provide a major export industry as well.

The Industrial Revolution has created the greatest gains in productivity and standard of living since the Agricultural Revolution that began 8,000 to 10,000 years ago in Old Testament times—but in a shorter time frame, just 200 years (see our free special report at “Concepts/The Long View” at www.hsdent.com for greater in-depth analysis). The second stage of the revolution started in the late 1800s, with the advent of electricity, electrical appliances, cameras, movies, phones, automobiles, small motors, oil, airplanes, synthetic chemicals and fibers, and so on. That stage was followed quickly by the mass production revolution, which began in America with standardized parts for guns like the Colt 45 in the mid-1800s, the scientific management of work by Frederick Taylor in the early 1900s, the assembly line by Henry Ford in 1914, and the modern corporation by Alfred Sloan at GM in the early 1920s.

Beginning in the late 1800s and early 1900s, the mass production revolution finally catapulted the influence of everyday consumers and workers to drive our economic, innovation, and inflation phases into generational cycles of approximately

40 and 80 years, which increasingly has overridden the roughly 29- to 30-year and 58- to 60-year Kondratieff innovation and inflation cycles of the past. Before that point, most of the gains and profits went to a small percentage of the population.

The Generation Wave Explained in Simple Terms

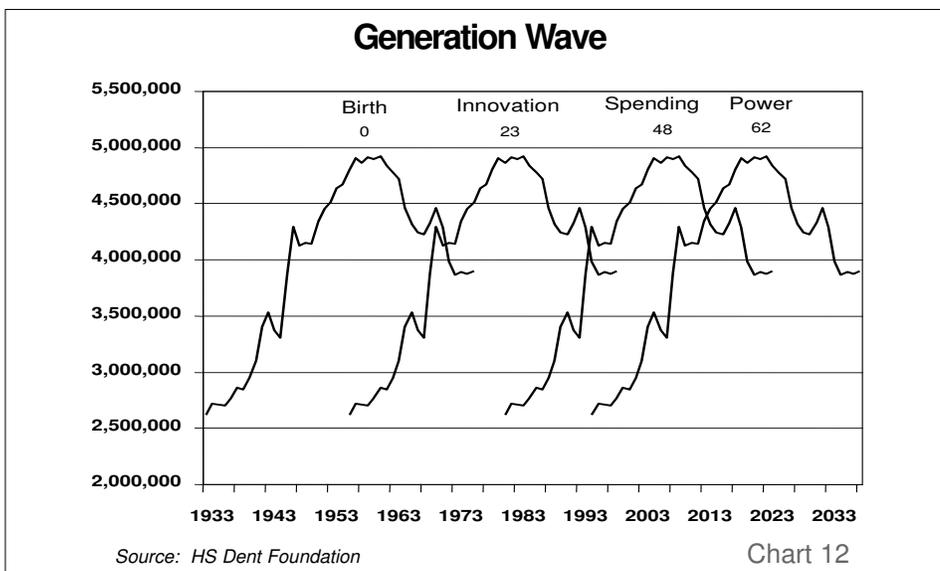
We will look in more depth than in Chapter 2 at the new logic in economic cycles that is driven as new, affluent generations go through predictable cycles from innovation when they are young to spending and productivity and then to corporate, political, and investment power as they age. Currently, new generations have a greater impact on our economy compared with past eras. **Chart 12** shows the simplest and broadest waves of impact that new generations, like the past Bob Hope and the current, massive Baby Boom generations, have on our society and economy as they age.

The first wave is the Birth Wave (including adjustments for immi-

gration), which creates the generation and that peaked in 1961 for the baby boom in the U.S. in the last cycle and in 1921 for the Bob Hope Generation before. The second wave is the Innovation Wave, which peaks as the most innovative of the new generation get out of college, first enter the workforce, and start new technology and lifestyle trends, especially among the more affluent “yuppies.” That Innovation Wave creates inflation, with the high cost of incorporating the new generation and their initial innovations into the economy.

The third or Spending Wave creates an economic boom, as the new generation moves into its peak income and spending years—with falling inflation rates as they simultaneously move into their peak productivity years—into their mid- to late 40s today (spending rates peaked earlier back in history with lower life expectancies). The final or Power Wave occurs as the aging generation moves into their late 50s and early 60s and begins to dominate political and business power structures and have the highest savings and net worth for investment and philanthropy. In that stage, the waning generation presides over political, social, and organizational changes while the new generation enters its innovation stage, creating the new innovations and future workforce productivity and spending to drive the next the next G-wave Cycle (financed by the older generation’s investment).

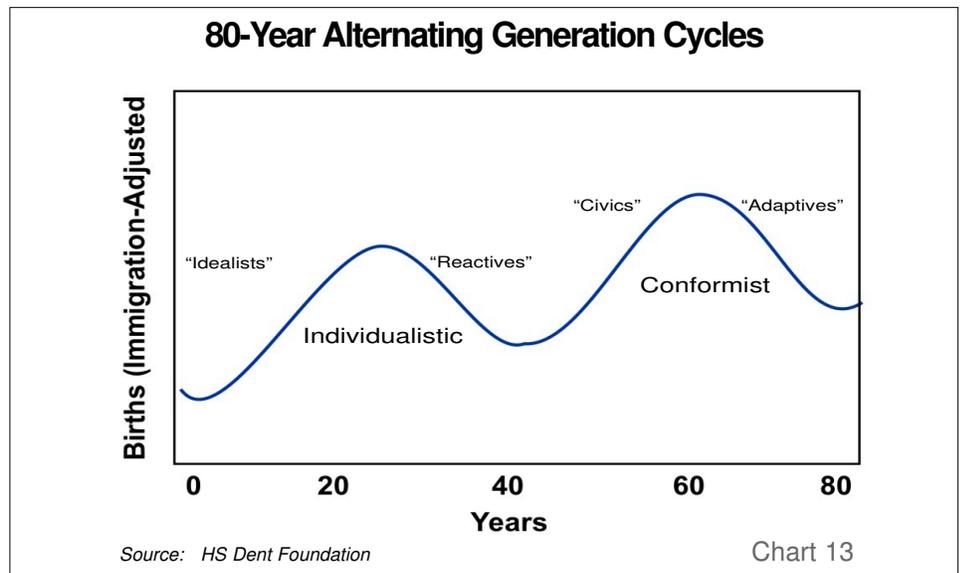
Neil Howe and William Strauss document a two-generation, four-stage cycle that occurs roughly every 80 to 84 years in their books, starting with *Generations* in 1984 (**Chart 13**). Their research extends beyond the last century of more detailed economic and statistical research, with deep, qualitative academic research back to the 1500s in European and North



American history. Two booms in births (and immigration) create two generations that are radically different and react to each other. The first is more radical and individualistic. The second is more collaborative and conformist. The first brings the more radical social and technological innovations that create a new economy with new industries, business models, and lifestyles. The second generation improves and extends them, with more conformist and collaborative efforts and more pragmatic ideals. Hence, it takes two generations to build a new economy to full maturation – and like supply and demand economics, both are required at different times to optimize long term growth and progress.

For example, the more individualistic Henry Ford Generation (prior to the Bob Hope Generation) brought us women's rights, automobiles, electricity, phones, airplanes, the assembly line, and so on. The more conformist Bob Hope Generation brought incremental innovations to the new industries, including more automated home appliances, power brakes and steering and automatic transmissions in automobiles, jet engines for planes, and a more refined model of decentralized corporate management at maturing large corporations like GE.

Each alternating generation has a rising and falling tide of births. Each wave up and down of these two generations has differing personalities and innovation/lifestyle temperaments. The rising tide of the individualistic generation in Chart A.13 is called the "Idealists" (these terms come from Howe and Strauss in *Generations*). They are the childlike visionaries and innovators who start radical new trends in reaction to the conservative nature of the waning generation.



The falling tide of the individualistic generations is called the "Reactivies." They still are individualistic in nature but react to the idealistic nature and failures of the Idealists. They are good entrepreneurial managers who take more calculated risks but are still into growth and change.

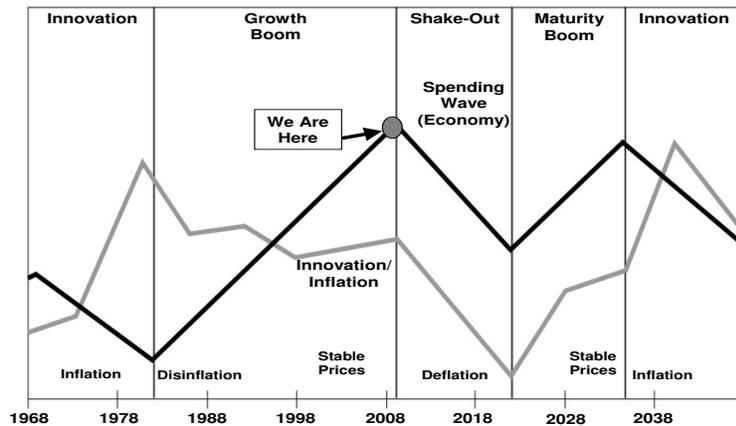
The rising tide of the next, more conformist generation is called the "Civics." They want to bring society back from extreme individualism into a greater whole that works for the better of everyone and brings greater equality after the rich have gotten richer. They tend to fight the next great wars or political battles and are great large corporate growth managers. They grow by systems and collaborative efforts aimed at the greater good and continued growth into the maturity of those industries. The declining tide of the conformist generation is called the "Adaptives." They are the silent generation that simply follows the rules set by the Civics and adapts larger organizations into declining growth and consolidation—never complaining, but wishing they could do something more creative. They were called the "Organizational Man" in the 1970s. That leads to the next truly cre-

ative and individualistic generation, which reacts to their extreme conformity and suppression of individualistic needs and desires.

The Rise of the 80-Year Generation-Driven New Economy Cycle

The rise in affluence, spending power, and innovation of masses of everyday consumers and workers has caused this 80- to 84-year generational cycle increasingly to dominate the emergence of new economies and technologies, despite the fact that many basic technological innovations follow the K-wave Cycle to a greater degree. New economies with new technological infrastructures, new business and work models, new consumer lifestyles, and new growth industries emerge every other generation. This generation-driven New Economy Cycle has four seasons or stages, just like the K-wave and all product and industry life cycles, with two very different booms and two very different busts. **Chart 14** shows this cycle, which we have elaborated on in

80-Year New Economy Cycle



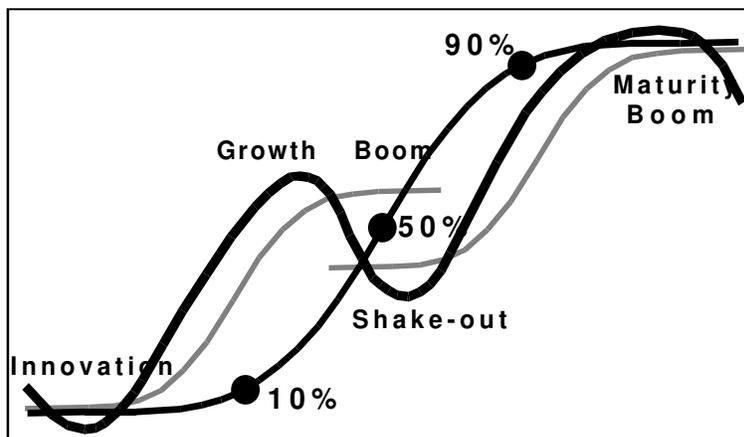
Source: HS Dent Foundation

Chart 14

tend to be larger and allow more immigration and, hence, higher workforce entry. The economy goes into a general downturn due to the slowing spending from the peak of the last generation (Civics). Small-cap stocks perform the best in this season, as it favors companies growing rapidly in new emerging industries – while large cap stocks tend to decline.

The Innovation Stage is characterized by radical innovation and the emergence of new technologies and industries into business and niche consumer markets, falling productivity, rising inflation, and a falling economy and stock market. “Stagflation” is the theme.

The Industry Life Cycle



Source: HS Dent Foundation

Chart 15

much greater detail in all of our books, most recently *The Next Great Bubble Boom*. Note that our cycle revolves around the life cycle of the most radical new technologies, like autos and electricity or PCs, cell phones, the Internet and broadband today. Hence, our G-wave Cycle starts in the summer season of the K-wave Cycle even though it follows the same four stage process.

The Innovation Season

The first season in our 80-Year New Economy Cycle is the

Innovation Stage, when radical new technologies (PCs and cell phones vs. mainframes) first enter into niche markets, while older technologies are at a plateau and consolidating (like the summer season of the K-wave Cycle). The rising tide of the new, individualistic generation (Idealists) is just entering the workforce in their innovation stage of their Generation Wave, which creates rising and peak inflation rates but also creates radical new technologies and industries and new lifestyles that rebel against the old. Inflation is also at a more extreme peak, because these generations

The Growth Boom Season

The second stage is the Growth Boom Season. Here, the Idealist Generation moves into its Spending Wave with rising productivity into their late 40s, driving an extended boom with falling inflation (disinflation) trends. The radical new technologies move mainstream increasingly as they are adopted by the new generation, which has more income and spending clout. This growth stage is where we see strong technology-led bubbles in the stock market, like 1915 to 1919 and 1925 to 1929 in the last New Economy Cycle and like 1995 to 1999 and 2005 to 2009 in the present cycle. As the new industries move mainstream on an S-curve pattern in the second half of the Growth Boom, there are two bubbles with a shakeout and crash in between, as **Chart 15** illustrates. Large-cap stocks do the best in this season as new industries move mainstream and the innovative companies of the last season become large companies and leaders of the new

industries. This is like the autumn season of the K-wave.

The Growth Boom Stage sees a dynamic boom, with growing stock market bubbles and brutal crashes within, rising productivity, disinflation, and the movement of radical new technologies and consumer industries mainstream. The rich get richer in this stage, which favors risk takers and new skills in the workforce.

The Shakeout Season

The next season is the worst season of the cycle, the Shakeout Season. The economy sees the greatest overexpansion of new industries and the greatest overvaluation of the stock markets at the top of the dynamic Growth Boom that leads into it. The generational Spending Wave peaks out, and the new technologies and consumer industries reach 90% penetration on the S-curve and slow down dramatically. This leads to a deflationary downturn wherein all assets from stocks to real estate to commodity prices fall, similar to the winter season of the K-wave Cycle. This stage narrows the leaders in the emerging mainstream industries down to a few companies that gain market share while others go under. This stage sees the highest unemployment and the worst stock crashes.

The Idealist Generation is moving into its Power Wave and makes major changes in political and social policies that start to favor the everyday person vs. the wealthier innovators, in line with their original visions to change the world and address inequalities when they were younger. At the same time, the new, more conformist Civic Generation moves into its

Innovation Wave, with more incremental innovations that largely improve and extend the emerging industries rather than creating radical new ones, although very early radical inventions do emerge here to eventually stimulate the next cycle.

The Shakeout Stage sees the strongest downturns and stock crashes, deflation in prices and real estate, the highest unemployment, major political changes to favor everyday workers, and incremental innovations that extend the new industries further mainstream in the next boom—as well as the seed of the next radical innovations.

The Maturity Boom

The final season is The Maturity Boom. This is a less dynamic boom, which has steadier growth and less volatile stock prices, with moderately rising inflation coming out of the deflationary slowdown before it. The surviving few new industry leaders enjoy steady growth, because the incremental innovations allow new growth and applications of their maturing industries—while the next radical innovations are just being innovated. This is the optimistic season with high hopes for the future and less radical changes and disruptions in which people are the most content, like “The Happy Days” of the 1950s. The Civic Generation driving this boom brings order and conformity to the more innovative boom and bust of the last more individualistic generation. As the new industries mature and this Civic Generation’s Spending Wave peaks, we enter the next New Economy Cycle and a new Innovation Season, where the Civic Generation moves into its Power Wave and the next Idealist

Generation moves into its rising Innovation Wave. This is the spring season of the K-wave Cycle.

The Maturity Boom Season sees steady and moderate growth with mild inflation. The growth industries of the last boom, move fully mainstream and begin to mature with few companies leading. Productivity continues to rise, but not as dramatically as in the Growth Boom Season. The benefits of the new economy spread more widely to everyday consumers and workers and we have the least inequality in incomes.

The Last Generation Wave Cycle

Let’s briefly trace this new 80-year generation-driven New Economy Cycle since it has become more dominant in the last century. The G-wave was just beginning to emerge in the early 1900s but only set in more fully with the first mass middle class generation, which emerged from the 1940s to the 1960s. The last Idealist, or radical, generation was the Henry Ford Generation in the U.S., which brought radical innovations with autos, oil, telephones, electricity, basic appliances, and airplanes in the late 1800s. The Growth Boom of that generation was from around 1902 to 1929. The Shakeout was from 1930 to 1942, and the Maturity Boom from 1942 to 1968.

The Baby Boom Generation was the next Idealist group, and they brought radical innovations from microchips to PCs to cell phones to operating systems to Wal-Mart to Starbucks to Dell in their Innovation Stage from the late 1960s through the early 1980s. Their Growth Boom started in

1983 and will peak with their Spending Wave around 2009. The next Shakeout Season is ahead from 2010 to 2022-2023. A Maturity Boom will follow with the Echo Baby Boom's (Civics) Spending Wave, from 2023 to the late 2050s or so. Although global trends will likely create a shorter Maturity Boom that peaks in the mid 2030s. In addition, an interesting deviation in the earliest stages of the last 80-year cycle actually showed that the K-wave model was still more dominant at that time.

Inflation was rising well into the Growth Boom of the last Henry Ford Generation Spending Wave, rather than falling. That inflation takes some explaining. The still-dominant K-wave and unusually strong immigration cycles back then explain such rising inflation!

The first reason for rising inflation in the Henry Ford Growth Boom was that the K-wave was still dominant, with a peak inflation or summer season building into 1920, on a 56-year lag from the last peak in 1864. The second reason for rising inflation in that Growth Boom season was that the last Idealist Generation largely was an immigrant generation, with dramatically rising immigration rates into the U.S. between the late 1800s and 1914. Since these people weren't born here, they came into our economy already in their early to mid 20s, typically, or 30 years old on average. Our inflation models (Chart A.6 previous) correlate with workforce entry (the expense of incorporating new generations into the workforce). Their sudden workforce entry later in the cycle than people born here (age 12 to 18 for workforce entry back then) caused inflation to rise well into the Growth Boom, which occurred from 1897 to 1929. They also soon added to income and

spending growth and, hence, economic expansion and inflation.

Rising immigration, which peaked between 1907 and 1914, kept inflation levels rising modestly, just as Baby Boomers entering the workforce did into 1980. Then there was World War I. Major wars are the other major cause of inflation, as production efforts are switched from consumer goods to war efforts, making consumer goods more scarce and expensive. That war extended inflation more sharply into early 1920 before prices collapsed. Rising inflation rates into 1919 suppressed stock values outside of the bubble that formed in tech stocks from 1915 to 1919. Rising inflation trends totally were consistent with the still more dominant K-wave Cycle, as was World War I, into the peak inflation or summer stage, similar to the Civil War that peaked in 1864 in the previous K-wave inflation cycle.

Hence, we only saw disinflation in the latest and strongest phase of the Growth Boom of the new immigrant or Henry Ford Generation in the Roaring 20s, whereas new technologies were moving fully mainstream with the highest productivity rates after their first technology bubble peaked in late 1919 and crashed in late 1921 to early 1922. The years 1922 to 1929 represented the typical bubble-like autumn boom of the last, still-dominant K-wave Cycle. Those two trends, the peak of new technologies into the mainstream and the peak of that generation's spending (earlier back then in age), allowed an extreme boom and stock bubble in the late 1920s—and the K-wave and G-wave cycles were nearly perfectly in sync in their boom/bust and inflation/deflation cycles during the 1920s and 1930s.

Rising inflation creates lower stock valuations or Price/Earnings ratios (P/Es), and so does the uncertainty of wars or major international conflicts. Hence, stock prices underperformed into 1919, outside of the strong bubble in tech stocks at the time. But falling inflation and rising political stability creates higher stock valuations. We showed in Chapter 2 how we saw two technology stock bubbles, the first peaking in late 1919 and the second peaking in late 1929, as automobiles and other leading technologies moved from 10% to 90% of urban households from 1914 to 1928 in the Growth Boom, Shakeout and Maturity Boom Cycle around that S-curve acceleration. The second bubble led both tech stocks and broader indices like the Dow into the greatest stock bubble in U.S. history.

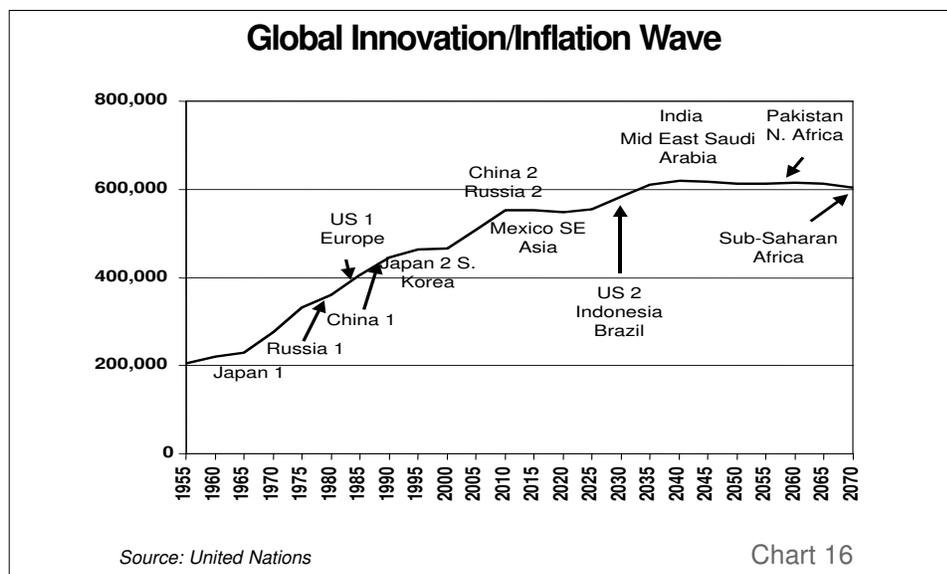
The G-wave Cycle was beginning to emerge in the early 1900s with the Henry Ford Generation (Idealists), but first fully emerged by time the Bob Hope (Civic) Generation was ascending into broad middle class incomes and affluence for the first time in history. Hence, the K-wave was fading in influence and the G-wave and new 80-year New Economy Cycle was rising, powered by the demographic supercharger of the massive Baby Boom Generation here and around the world. The first extended generational boom in the economy and stocks emerged from 1942 to 1968, a boom much longer than in past K-waves. The next inflation trend was much larger than in the past and extended into 1980, more in line with the next K-wave peak around 1979 - 1980. The next extended generational spending boom manifested from 1983 into around 2009.

This is what we mean by the new G-wave stretching economic cycles more around its 80- to 84-

year cycle. Despite this broader trend, inflationary cycles have continued along the Commodity and Kondratieff Cycles, and global demographic cycles strongly suggest that the next inflation and Innovation Wave on the G-wave Cycle will peak between the late 2030s and the very early 2040s back in line with the 58- to 60-year Kondratieff Cycle.

Chart 16 shows our Global Innovation Wave, which peaks with 20 to 24 year olds. The impact of the larger emerging countries like India will forecast a peak in innovation and inflation pressures from demographic forces (beyond commodity cycles) around 2040, very close to the next 29- to 30-year Commodity Cycle peak between 2038 and 2039. That commodity peak, as in 1980 and 1920, would represent the peak of the inflation or summer season in the Kondratieff Cycle. Hence, the G-wave and K-wave would merge into alignment again, and we are likely to see the New Economy Cycle return more to the 58- to 60-year cycles that we saw since the late 1700s. The next Growth Boom Season would then follow into the projected world peak in spending around 2065 with the next Shakeout Season or depression to follow into the 2070s.

The U.S. will start to diverge a bit from these increasingly global cycles, due to its unique demographics. The Echo Boom had two distinct surges that peaked in 1990 and likely again around 2007, as we discussed in Chapter 6. The first Echo Boom Spending Wave will generate a boom from the early 2020s into the early 2040s, more in line with the Maturity Boom in the present New Economy Cycle that is likely to peak in the mid 2030s due to stronger demographic declines in



China, Europe, East Europe and Russia. The second wave will create a second boom from the late 2040s into the late 2050s more in line with the next Growth Boom Season globally that is due to peak more around 2065. If there is a dramatic aging revolution in the developed nations that causes a peak in spending more in the late 50s or early 60s than in the early 50s then cycles for major regions like North America would fall more precisely in line with the next Global New Economy Growth Boom Season. This could well occur by then with advances in biotechnology that are likely to create more tangible impacts on life spans starting in the 2010s onward.

Commodity prices will be seeing a secondary peak (on the K-Wave) between late 2009 and mid 2010 with a likely less severe crash than in the 1980s into the early to mid 2010s due to continued expansion in emerging countries that are more commodity-intensive for decades to come. Oil prices could go as high as \$150 to \$170 and then correct and settle more back in a range of \$10 to \$60.

That would still leave plenty of incentive for alternative energies to emerge and such a cycle of breakthrough innovations is due near term and necessary to deal with global warming and pollution issues. Commodity prices are likely to be more sideways up and down between the mid 2010s and the early 2020s, and then to accelerate again into a primary or more dramatic peak into 2039 - 2040.

Hence, deflation and a major downturn are in store for North America and most of Europe between 2010 and 2022-2023, due to the dominance of the Generation Wave. But such deflation trends could actually bottom between 2011 and 2013 or early 2015 at the latest. However, most of Asia is destined to continue to grow in demographic spending trends and increasingly to lead in new technology cycles. These economies will react at first to the slowdown in the West between 2010 and 2012, but then boom again and likely lessen the deflation trends worldwide, as will the K-wave Cycle, which will be in a mild inflationary mode in commodity prices into the latter 2010s, with rising inflation trends from the early 2020s into 2038 to 2040 or so.

The Next New Economy Cycle

The present 80-Year new Economy Cycle will very likely see a shorter Maturity Boom Season from around 2020/2023 into 2035/2036 that will bring it back more in line with the K-Wave Cycle. The next cycle on our seasons that starts with the Innovation Season will see that occur between 2036 and the mid 2040s with a stock crash and deep recession much like 1973 – 1975. Within that the next Commodity Cycle peak should come around 2039 – 2040 and an innovation peak in India around 2040 or a bit later. That season could extend with off and on recessions in parts of the world into the early 2050s. Then we would see a Growth Boom Season dominated by India and the Middle East into around 2065 or as late as 2068 – 2069 (the next Commodity Cycle peak) that would lead to the next Shakeout Season or depression with its worst crisis into the early to mid 2070s. That season should last off and on into the late 2070s or early 2080s. Then a final Maturity Boom Season would occur into the 2090s or so lead more by the Middle East and Africa.

Recall that our broader 500-Year Mega Innovation Cycle would suggest rising inflation and standards of living into around 2150, following past cycle peaks around 1650 and 1150. That would not be consistent with a peak in global population around 2065 unless we had a very extreme advance in life expectancy and peak spending/productivity. It would more likely suggest that in the coming decades we could first see a major leap in life expectancy due to advances in biotech-

nology between the 2010s and 2040s as Ray Kurzweil predicts. Much later in this century, the spread of rising life expectancy and broader prosperity to emerging countries, could lead to another major baby boom, most likely coming out of the next depression from the late 2070s into the 2090s. That would then extend long term inflation, population and economic growth out to around the 2150s or 2160s.

Since progress in life expectancy in the early to mid part of this century is likely to take many decades to reach the emerging countries, the present projections for a peak in population and global spending around 2065 is likely to hold more or less. Such a cycle is likely to merely extend the spending cycles of major countries like the US from the 2050s into the 2060s more in line with such global cycles centered more in India. Europe, East Europe and Russia have no Echo Boom Generation to fully leverage such extended life spans, hence those countries will continue to age and slow, just not as fast. The next more dynamic New Economy Cycle is not likely to occur until the first half of the 2100s. We have already seen the most dynamic such cycle and the greatest boom we will see in our lifetimes from 1983 to 2009.