

**The Business Cycle in a Changing Economy: Conceptualization, Measurement, Dating**

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# **The Business Cycle in a Changing Economy: Conceptualization, Measurement, Dating** by Allen Sinai\*

## **I. The Business Cycle in a Changing Economy**

Modern business cycle analysis, measurement, and dating began over 80 years ago at the National Bureau of Economic Research (NBER), culminating in Burns and Mitchell (1946), in an essentially descriptive empirical approach to business cycles. The approach and data examined remain today as the empirical framework for business cycle analysis and was based on the economy at the time—an economy far different than currently, particularly as underscored by the “Great Recession” of 2007-09, the longest and deepest U.S. downturn since the 1930s.

This last recession was marked by a classic financial crisis and panic—the “Financial Factor” in the business cycle, always present, more-or-less, especially at the upper turning point.<sup>1</sup> The U.S. downturn spread throughout the global economy, particularly during 2008:3 to 2009:2 when sudden and stunning declines in real GDP occurred almost everywhere.

Has the business cycle changed? Or, perhaps another way to put it is whether the economy has changed and thus the ways that the business cycle should be conceptualized, measured and dated changed.

This paper asks and attempts to answer, or simply to leave for further research, some questions about the business cycle in its modern setting, presenting evidence on some changes in a changing U.S. economy that might be relevant for the business cycle.

Would a rethinking and revisiting of the U.S. business cycle given tightly interrelated global

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<sup>1</sup>The “Financial Factor” encompasses the financial system in its interactions with the real economy; the behavior of financial institutions, banks and nonbanks; stocks and flows of assets and liabilities by sector, or balance sheet positions; the financial risk of various sectors and effects on spending; credit, financial instability, and financial crises. Sinai (1992) and Eckstein-Sinai (1986) developed an integrated financial and real economy flow-of-funds framework, emphasizing the endogeneity of balance sheet positions and the interactions of balance sheets and flows-of-funds with the real economy.

financial and real economic phenomena lead to a different conceptualization of its phases? Does a changed structure of the labor market or the composition of spending on goods and services in consumption indicate a largely services economy and different time-series for measurement and dating? Are different indicators for cyclical turning points and perhaps depth and duration called for rather than those now in use, e.g., real GDP or industrial production? Might some conclusions drawn about business cycles, ranging from the notion of a “Great Moderation” to the information content of real GDP, be altered?

Why should we care? One answer is a better understanding of the business cycle. Another is better prediction of its stages and risks for planning. Finally, conceptualizing, measuring, and dating the business cycle in light of a changed U.S. economy could have implications for the timing and content of stabilization policy.

## **II. Changes in a Changing Economy and the Business Cycle**

What are some features or major changes that invite a rethinking and revisiting of the business cycle? Five are highlighted—1) the “Financial Factor” in the Business Cycle; 2) “Goods” or “Services” Economy; 3) the Labor Market; 4) Globalization; and 5) Psychology and Expectations. (1) and (5) are “features,” always present but not fully recognized. (2), (3) and (4) represent changes that may have altered the structure of the economy. Four are discussed here. Figures and Tables with underlying data can be found in the complete paper.

### **A. The Financial Factor in the Business Cycle**

Financial phenomena, no matter in what form, always have been present in the business cycle.<sup>2</sup> In the latest downturn, the “financial factor” can be illustrated by the behavior of asset prices, household wealth, and consumption.

This aspect of the financial factor was more pronounced than in any other post-W.W.II

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<sup>2</sup>See Sinai (1992, pp. 1-2; 5-6); Kindleberger-Aliber (2005); Wolfson (1994).

downturn. Outsized declines in real estate and equity prices, 27.4% and 52.6%, respectively, peak-to-trough, price “bubbles” that burst after an unprecedented housing boom, huge increases in housing prices and unsustainably high equity prices, took real household wealth down 29.3% over 2007 to 2009, *double* the decline in any previous NBER-dated downturn.

The declines in real household net worth ranged from \$16 to \$10 trillion, year-over-year, between 2008:1 and 2009:1. Given DE estimates of the marginal propensities to consume wealth, mainly equity and real estate, at \$0.06 per dollar, the decline in aggregate consumption from this source was about \$720 billion. Multiplier effects from this decline rippled through the U.S. economy, bringing down growth in other spending aggregates.

Two other separately identifiable financial determinants of consumer spending—gross cashout mortgage refinancing and capital gains realizations—are estimated to have fallen \$400 billion and \$330 billion, respectively, over 2007:4 to 2009:2. The marginal propensity to consume capital gains realizations is estimated at \$0.25 per dollar within about a year; for gross cashout financing as much as \$0.30 per dollar over a year. The loss in funding to consumers from these sources and the declines in wealth had a combined impact greater than from real disposable income, and accounted for a large portion of the unusually large declines in consumer spending during the second half of 2008 and first half of 2009.

Over only a two-quarter span, 2008:3 and 2008:4, but even before-and-after, aggregate consumption, in real terms and at annual rates, fell 3.5% and 3.1%, respectively, the biggest back-to-back declines in the postwar period. At over 71% of the U.S. economy, these large reductions in consumption were transmitted widely, domestically through multiplier-accelerator interactions and externally to the global economy where a large proportion of exports are to American consumers from countries such as China, Japan and Germany. *This negative trade*

*shock levered down the economies of numerous countries and, along with financial strains, induced sharp downturns in real economic growth around-the-world, then back to the U.S., to the rest-of-the-world, etc..*

*These changes in a changed economy affected the depth and duration of the downturn, with the “financial factor” an essential ingredient. The financial factor, at least this dimension of it, shows up far more negative than in any other post-W.W.II recession and underscores the need to more fully integrate it into the conceptualization, measurement, and dating of the business cycle.*

### **B. Goods or Services Economy?**

*Goods sector jobs now account for only 14% of total nonfarm payrolls. Services jobs are 86%. In 1953-54, goods-producing jobs were around 30% of the total and services-producing jobs approximately 61%. Manufacturing jobs, 31%-or-so of nonfarm payrolls in 1953-54, now are only about 9%.*

Many of the measures used to define and depict the business cycle and, in particular, to assess turning points, such as industrial production, relate to the goods-side of the economy. Nonfarm payroll jobs, once a coincident indicator, is yet another, with so much services content that what it measures now might be different. Services jobs, with a few exceptions, tend to be less volatile than goods jobs and can lag or lead economic activity, e.g., Temporary Help, part of Professional/Business Services, a rapidly growing services jobs category. In recent business cycles Temps have been used as a kind of “inventories” before permanent hiring. This series appears to have led the last downturn in jobs and may be leading the next upturn. Within the services sectors, growth in Health Care as a portion of the total has been substantial, now 14.8% of nonfarm payrolls against only 5% in the late 1950s.

From the demand-side, whether the U.S. is a goods or services economy can be found in the

composition of aggregate consumption. The proportion of real GDP in services consumption has risen across business cycles and that of goods consumption declined. Services consumption was 46.9% of total real GDP in October 2009; 38.1% in 1954. Within consumption, 67.5% is services compared with 43.6% in 1954. Health Care spending is now 16.1% of total consumption and between 11% and 12% of real GDP, more than triple the size of residential construction, near the share of exports, not far below the share of business fixed investment, and more than double the share of real GDP in federal government purchases.

*These labor market and consumption data confirm that the U.S. is largely a “services” economy. Conceptualizing and measuring the business cycle as industrial, or manufacturing, is outdated and using economic time-series that reflect the services side of the economy would be more accurate.*

### **C. The Labor Market—A Structural Change?**

The first “jobless” recovery occurred after the 1990-91 recession when nonfarm payroll jobs declined for several months and then did not show any significant, sustained increases until about one year later. After the 2001 recession, a similar pattern occurred, with 12 months before nonfarm payroll jobs began to rise and over two years until jobs showed sustained increases of 100,000-or-more. Of ten prior post-recession upturns, the median number of months after a turning point until nonfarm payroll jobs turned positive had been 2.3 months and for significant rises in jobs (more than 100,000 per month), 5.3 months. Nonfarm payrolls typically turned close to the turning point as did measures of output.

*Could these two situations represent a new trend, a secular change?*<sup>3</sup>

Possible reasons are the reluctance of businesses to hire quickly after a turning point because

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<sup>3</sup>Hall (2007), using nonfarm payroll jobs, calls attention to a shift in the behavior of employment and output over postwar business cycles and notes that only real GDP has shown a moderation—not jobs.

of increasingly costly labor, the many alternatives to labor in production because of information technology, modern telecommunications, outsourcing, robotics, organizational reengineering, interactions of technology with low cost but technologically skilled workers, and uncertainties associated with initially weak recoveries. Doubt on whether the initial increases in sales and earnings will be permanent can lead to cautious hiring, or firing, and holding down expenses to *maximize shareholder value. Maximizing shareholder value is now the mantra of U.S. business, especially since 1990.*

Maximizing shareholder value suggests keeping expenses down and growing revenues in a more pronounced way than historically. The biggest business expense now is labor, all-in including wages, bonuses, social security, pensions, and benefits such as 401k's and health care.

*Maximizing shareholder value, or the stock price, on discounted expected earnings with expected interest rates involves keeping expenses down and revenues up. In the "modern" business cycle, companies pay more attention to keeping expenses down in good times and bad. Given how costly labor is and the emphasis on maximizing shareholder value even after the onset of recovery, joblessness has become more likely. This changes the information content for the nonfarm payroll indicator in the business cycle and its usefulness in dating turning points.*

#### **D. Shifting Global Economic and Financial Geography**

Few appreciate the seismic shift in the geography of the global economy, financial markets and wealth that has taken place, to change for decades the ways the U.S. interacts with the rest-of-the-world and how other economies and policies affect the U.S. economy and the business cycle.

In this most recent cycle, the financial factor in the U.S. reverberated through consumption into exports of non-U.S. countries. Where intraregional trade propensities were high and trade a

significant transmission mechanism, the negative demand shock from the U.S. took down real economic growth, intensified the financial crisis, through global financial markets negatively affecting the global economy, then to the U.S. economy through trade, intensifying the global economic downturn, the financial crisis, etc..

Was this a one-time event or did it represent fundamental changes in the U.S. and global economies?<sup>4</sup>

One change is relative size. In terms of 2008 GDP, the U.S. ranks first; its GDP almost double that in 1995. China was #3 in 2008, up from #7 in 1995. China's nominal GDP is about six times what it was then, reflecting near double-digit average per annum growth of the Chinese economy.

Another change is the “decoupling” of trade between 1995 and 2008 that has occurred on changes in export propensities and the external exposure of various countries. Those countries who had exported much to the U.S. now export less as a proportion of the total and a greater proportion of total exports are traded intraregionally.

The upshot should be more resilience to declines in U.S. economic activity, depending on the source, particularly if other countries do not simultaneously suffer downturns. To some extent, the aftermath of the Great Recession reflects this. Asia ex-Japan is recovering more “V”-like than the U.S..

Significant changes also have occurred in global finances. The U.S. current account *deficit* is estimated at nearly -\$500 billion for 2009, almost seven times its magnitude in 1990 when it was -3.3% of GDP. In contrast, China shows a \$380 billion current account *surplus*, far higher than in 2000. As a portion of GDP, it is 6.6%; in 1995 it was just 0.2%.

For China, a long period of trade surpluses has led to a huge foreign exchange surplus, \$2.3

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<sup>4</sup>See Sinai (2007) for a discussion of the seismic shifts in the global economy and financial markets.

trillion, the highest of any country and 52.5% of GDP. The U.S., on the other hand, has only \$127 billion in foreign exchange reserves, or 0.9% of GDP. Similar situations exist in numerous other countries, many that were previously emerging.

Figures for government budget deficits and debt also show major shifts. The U.S. is far up in the rankings with deficits and gross debt-to-GDP now over 10% and 70%, respectively. Debt-to-GDP ratios in many emerging countries are well below those in, and expected for, the United States.

Implications for understanding and depicting the U.S. business cycle are many, e.g., the dynamics of trade flows in situations of declines in non-U.S. economic activity, especially for larger economies, and the potential compensating effect on the U.S. from a downturn where falling imports help cushion real GDP.

*Real GDP, therefore, as a measure of the business cycle and key indicator for cyclical turning points may be less informative on the extent of the downturn, its timing, depth and duration, since real net exports are averaged into real GDP along with consumption, business investment, and government.*

### **III. Concluding Perspectives—Revisiting and Rethinking the Business Cycle**

Five features or changes in a changing U.S. economy that invite revisiting and rethinking the business cycle are highlighted. Four of them are discussed.

1. The financial sector comprises a much larger part of the economy than previously and the financial factor in the business cycle is decisive in the business cycle. This is underscored by the latest business cycle downturn, where financial matters mattered much.

With ample evidence for the regular and periodic nature of financial crises, credit crunches, financial disarray and the financial factor in business cycles, the range of indicators used should

include more financial market and high-frequency financial indicator time-series, especially in dating and defining phases and turning points.

2. Many of the indicators used to describe, measure, and date the business cycle may no longer be relevant. Industrial production, e.g., measures only a small part of the economy, the “goods-producing” sectors, just 14% of employment measured on the nonfarm payroll basis. Only 32.5% of aggregate consumption spending is on “goods.”

3. Yet another indicator, nonfarm payroll jobs, previously a coincident indicator, may no longer be so given structural changes associated with persistent joblessness post- the 1990-91 and 2001 recessions and possibly after 2007-09.

4. The changing economic and financial geography of the world and more highly interrelated economies and financial markets, where the economies of countries such as China are growing in relative importance and others decoupling from the U.S. to become a major source of global economic growth, represent another change that may be affecting the business cycle. As an example, the global economic recovery in-process now may be due more to revival in China and Asia ex-Japan than the U.S. and North America.

Conceptualization of the business cycle should take account of changes in a changing economy, recognize more its financial dimension by using existing data, or developing new data, perhaps integrating the processes and dynamics of sector subcycles with data used in measurement, and use knowledge of the lags in various sector subcycles such as consumer durables spending, inventories, credit and trade, in measurement and description.

Solutions for conceptualization, measurement and dating were not offered here, mainly the motivation and some justification for rethinking and revisiting the business cycle given long-standing features and structural changes in a changing economy.

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