The True Cost of Business Cycles

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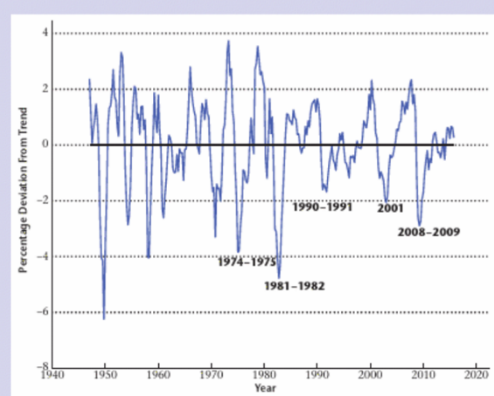
Business Cycles affect the defining elements of an economy and subsequently have many costs to society and its members. Some of the core economic consequences of a business cycle include changes in aggregate output, the unemployment rate, inflation, and access to credit. Just as these realities change according to the business cycle, so too will a business cycle change from a shock to any of these elements. Each of these elements directly influences a consumer's ability to purchase and consume goods. Consumption has oftentimes been tied to the happiness of a person. Thus, the costs of business cycles can be summarized as a change in the happiness of the members of society.

Before discussing the elements of a business cycle and their impact on society, it's important to understand what a business cycle is. While the definition is up for debate, business cycles are typically classified as classic or growth cycles. Classic cycles refer to every increase or decrease in the Gross Domestic Product's output. On the other hand, growth cycles are deviations from a nation's average trend line of GDP. Whichever definition taken, the costs to society remain the same. Business cycles will first be seen as a change in Gross Domestic Product, which measures the financial output of a country's production of goods and services. Reference figure 1.1[1] for an image of the fluctuations of GDP in the United States with some of

Figure 3.2 Percentage Deviations from Trend in Real GDP from 1947 to 2015
Of particular note are the five most recent recessions: in 1974–1975, 1981–1982, 1990–1991, 2001, and 2008–2009.



[1] Williamson, Stephen. *Macroeconomics; Global Edition.* Harlow; Pearson Educated, Limited, 2018. 92

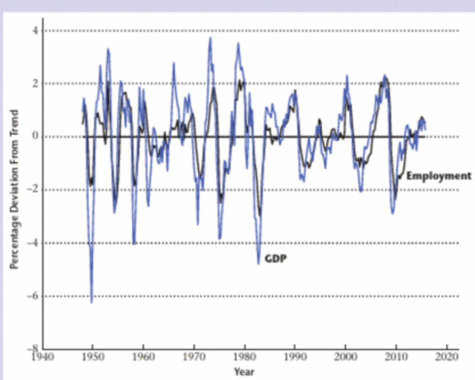
the recent constricting business cycles (recessions) labeled. These changes in GDP will then roll into changes in the labor market and the price of goods and services. More recently, credit has also become an important factor in consumer spending and is strongly correlated to business cycles. All these factors correlated to business cycles limit the consumer's ability to consume which, as we will see, is quite a heavy price to pay.

The unemployment rate is arguably the most important factor in consumer spending that is correlated with business cycles. The unemployment rate is measured by the number of adults above 16 who are not employed but have looked for work in the past month divided by the number of employed workers plus unemployed. This is a good measure of how many jobs are available to workers in the economy. When the economy is growing in an expansionary business cycle, productivity and output rise, which creates more jobs, and thus lowers the unemployment rate. The employment rate, while correlated, moves less variably than real GDP explaining its lower correlation coefficient of 65%, derived from figure 1.2 showing the United States' employment next to the real GDP.[2] The GDP and subsequent business cycle seem to determine whether a large populace of the economy has a job or not. As we well know, it's difficult to spend and consume goods without steady income funding said purchases.

Figure 3.13 Percentage Deviations from Trend in Employment (black line) and Real GDP (colored line)

Employment is procyclical, it is a lagging variable, and it is less variable than real GDP.

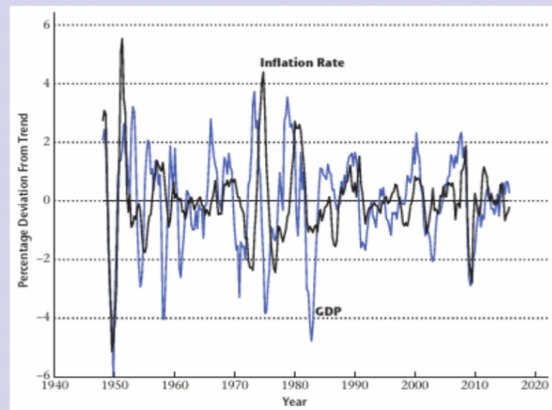
Source: Data from U.S. Department of Commerce, Bureau of Economic Analysis, and Bureau of Labor Statistics, © Stephen D. Williamson.



[2] Williamson, Stephen. *Macroeconomics; Global Edition*. 107

Business cycles also tend to change the prices of goods and services households buy, also known as inflation. Prices are typically slow to change which is why inflation tends to lag behind GDP. Figure 1.3 shows this lagging nature of changes in inflation in relation to the GDP of the United States, giving us a correlation coefficient of around 30%,[3] The origin of changes in inflation tends to be unique to the economic pressures on supply or demand of the time. Regardless of the cause, these changes in the prices of goods and services are quite harmful to the consumer. Changes in influence change the quantity of goods a consumer can purchase, which is referred to as a person's real wealth. Depending on the severity, a reduction in real wealth can have the same effect on a person's consumption behavior as losing a job. In both cases, the consumer is left with reduced purchasing power. Increases in prices are much harsher on lower-income consumers who do not have the wiggle room in their budget to continue typical purchasing behavior at a higher price.

Figure 3.12 The Inflation Rate and GDP
This figure shows the percentage deviations from trend in real GDP, and the deviations from trend in the inflation rate. The correlation coefficient is 0.30, which conforms to a conventional Phillips curve correlation.
Source: Data from U.S. Department of Commerce, Bureau of Economic Analysis, © Stephen D. Williamson.



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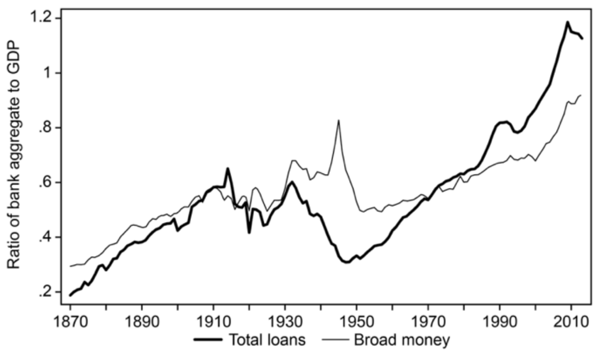
[3] Williamson, Stephen. *Macroeconomics; Global Edition*. 106

The last element we will discuss, related to the business cycle and consumption, is the variability of credit. In the past 50 years, the phenomena known as “The Great Leveraging” has



resulted in developed nations taking on much more debt, displayed in figure 1.4 on the left.[4] This higher debt, primarily in households, is influencing business cycles. The concordance index, which equals 1 when two cycles are perfectly matched, rose from 0.61 to 0.79 after World War 2 in the United States.[5] Business and credit cycles have become so strongly correlated because consumers have begun to rely on access to credit to justify spending. We see in figure 1.5 on the right that as the Credit to GDP ratio has risen, so too has the correlation between consumption and credit.[6] So, as countries and households have begun to rely more on debt for consumption, credit cycles and business cycles have become ever more correlated adding another factor into the business cycle equation.

Consumption is heavily reliant on the business cycle both in the short and long run. Intuitively, this makes complete sense. The stability and wealth a consumer feels will define their willingness to spend and save. As discussed above, this feeling of affluence stems from job stability, real wealth, and access to credit. Williamson quantified a strong correlation between

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4 Jorda, Oscar. Schularick, Moritz. Taylor, Alan M. *Macrofinancial History and the New Business Cycle Facts*.; NBER/Macroeconomics Annual (University of Chicago Press). 2017. 219

5 Jorda. *Macrofinancial History and the New Business Cycle Facts*. 232

6 Jorda. *Macrofinancial History and the New Business Cycle Facts*. 249

consumption and GDP at 77% as shown in Figure 1.6 on the right.[7] This correlation has severe consequences on society. Oscar Jorda and company conducted a revaluation of the impacts shifting business cycles (small and large) have on welfare and consumption. They discovered that fluctuations in business cycles resulted in around a 15% welfare loss of permanent consumption over time, while assuming moderate risk aversion.[8] This means that business cycles are so detrimental to consumer spending in the long run, that society should be willing to pay at least 15% of its real wealth in order to mitigate said fluctuations. As we will see, the implications this correlation has, on the members of society, go beyond basic ability to purchase.

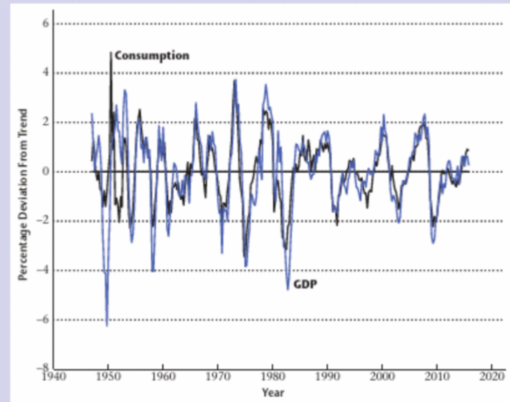

Figure 3.9 Percentage Deviations from Trend in Real Consumption (black line) and Real GDP (colored line) 1947–2015
From the figure, we can observe that consumption is procyclical, coincident, and less variable than GDP.
Source: Data from U.S. Department of Commerce, Bureau of Economic Analysis, © Stephen D. Williamson.

The defining elements of a business cycle have serious consequences on the ability of a population to consume goods and services, particularly in lower classes. For our purposes, I will refine the term consumption into two categories: Sustenance and Luxury Consumption. Essentially, sustenance consumption will define what is necessary for the survival of life. The term luxury consumption will then represent all the excess consumption beyond what is required for survival. We will see that happiness is correlated with both types of consumption however, threats to sustenance consumption are the primary causes of unhappiness within a society.

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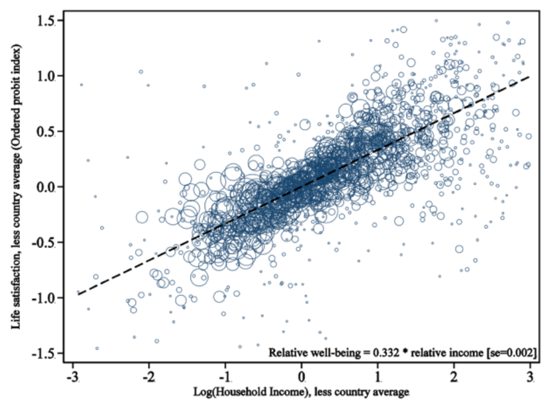
[7] Williamson, Stephen. *Macroeconomics; Global Edition*. 102
[8] Jorda, Oscar. Schularick, Moritz. Taylor, Alan M. *Disasters Everywhere: The Costs of Business Cycles Reconsidered*. Cambridge; National Burau of Economic Research. 2020. 31

An individual's access to luxury consumption in greater quantity is correlated with an increase in happiness, to a certain extent. A study evaluating the happiness of a country relative to its GDP found evidence of a correlation between relative household income and happiness across multiple countries, reference figure 1.7.[9] This study was done in response to the research out of China conducted between the 1980s to the 2000s. Multiple studies evaluating China's rise in GDP and resulting happiness found little to no positive correlation between happiness and absolute income[10]. Bertram-Hümmer and Balikil theorized that this relationship between consumption and happiness depends on the type of consumption. Referenced in a study by Haining Wang and company, Bertram- Hümmer and Balikil found evidence that "Consumption of goods and services by others increased feelings of deprivation in that individual".[11] So, fluctuations in our consumption that are visible to others in our reference group will have notable effects on individual happiness. This prideful luxury consumption is squeezed in times of economic hardship as consumers are forced to prioritize sustenance consumption because of a reduction in real wealth. According to this logic, in constricting business cycles consumers are less happy because the consumption which brings

Figure 9. Within-Country Comparisons of Life Satisfaction and Household Income: Gallup World Poll



Source: Gallup World Poll, 2006.
Notes: Each circle aggregates satisfaction in one income category in one country, and its diameter is proportional to the population of that income category in that country. The vertical axis plots the coefficients from an ordered probit regression of life satisfaction on indicator variables for each income category in each country, controlling for country fixed effects; the horizontal axis plots the logarithm of average real household income in each country × income category, less the country average. The dashed line is from an OLS regression, weighting by the number of respondents in each income category × country.

[9] Stevenson, Betsey and Justin Wolfers. *Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox.* Institute for the Study of Labor (IZA). Germany. 2008. 13

[10] Wang, Haining and Zhiming Cheng and Russell Smyth. *Consumption and Happiness*. Journal of Development Studies. V.55. 2019. 5

[11] Wang. *Consumption and Happiness*. 10

them satisfaction and pride is tightened and oftentimes cut out. While there are a lot of studies surrounding consumption and happiness, there is a lack of consensus on their true relationship. This is an area of growing inquiry and requires further study, research, and more consistent methods of surveying happiness in order to draw hard conclusions.

Another theory worth further investigation focuses on the relationship between sustenance consumption and happiness. In his *Essay on the Principles of Population,* Malthus first introduced the idea that unhappiness is derived from the inability to provide for the sustenance of oneself and one's family. He claimed that the overwhelming instinct for life is to grow and that, if left unchecked, life would continue to reproduce and grow forever.[12] He separates these checks imposed on mankind into two kinds: positive and preventative. Positive checks are the physical limits that finite resources and space have placed on the subsentence of life on Earth.[13] Preventative checks are defined by man's reasoning allowing him to calculate distant consequences stemming from the inability to acquire sustenance.[14] Both checks bring unique forms of misery as they hinder man's ability to fulfill his natural desire to grow and reproduce, with that said, positive checks are far more miserable.[15] Malthus theorized that some combination of these checks could be observed in tangency with business cycles. As the population rose with ease of access to resources, society's resources will be squeezed, and these checks would step in to rebalance the economy. Malthus' thoughts offer new costs to business cycles which are also reliant on people's ability to consume goods, this time for their sustenance.

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[12] Malthus, Thomas Robert. *Essay on the Principles of Population.* Dent. 1982. 6

[13] Malthus. *Essay on the Principles of Population.* 12

[14] Malthus. *Essay on the Principles of Population.* 12

[15] Malthus. *Essay on the Principles of Population.* 13-15

While there is great value in Malthus' thoughts, his theory surrounding positive checks has fallen short in recent times. Malthus failed to predict the levels technology could reach, which have almost extinguished positive checks in developed nations. Regardless, further research surrounding the effect business cycles have on the miseries Malthus claimed to come from preventative checks would be interesting and worthwhile in evaluating the relationship between aggregate output and happiness.

Intuitively, the procyclical relationship between happiness and business cycles makes sense. Whether a person defines happiness as greater consumption for himself or the ability to provide for others, the fact remains the same. An increased ability to consume is directly correlated to a human's experience in the world and possibly his happiness. As we have seen, this ability to consume is completely reliant on various elements of a business cycle. This business cycle does not affect all classes of society the same. Regardless, most of the population may "pay" for business cycles in the form of fluctuations in their overall happiness.

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