The Instability of the Prewar Economy Reconsidered: A Critical Examination of Historical Macroeconomic Data

One of the most recurrent empirical generalizations about the American economy is that the prewar business cycle was substantially more severe than the postwar business cycle.\(^1\) This instability of the prewar economy is evident in nearly every conventional indicator of the business cycle; unemployment, industrial production, and real gross national product all show greater cyclical fluctuations before World War II than after. Even if one excludes the Great Depression, the business cycle between the Civil War and 1930 was by all measures substantially worse than the business cycle in the postwar era.

My thesis challenges this usual view of the prewar economy. It argues that, in fact, the business cycle in the pre-Depression era was only slightly more severe than the business cycle in the postwar era. The basis for this challenge is an examination of three key macroeconomic data series for the late 1800s and the early 1900s. This examination shows that the methods used to construct the historical data exaggerate cyclical movements. As a result, the apparent dramatic stabilization of the postwar economy is actually a figment of the data.

In the thesis, I consider what are arguably the three most important indicators of real economic activity: the unemployment rate, the index of industrial production, and real gross national product. I examine the most commonly used prewar versions of these series over the periods for which they exist. One chapter analyzes Stanley Lebergott's unemployment rate series for 1900-1930. Another analyzes Edwin Frickey's index of industrial production for 1866-1914. Finally, a third chapter analyzes Simon Kuznets's estimates of real gross national product for 1869-1918. For each series I examine the construction of the historical data and demonstrate that the methods used to derive the prewar series yield systematic biases.

These biases and their importance are identified using somewhat different methods for each series. For the unemployment rate and the industrial production series I use a technique that can be described as extrapolating forward. I replicate the methods used to form the historical series in the postwar era. In this way, I create postwar data that are consistent with the prewar data. The constructed postwar series are compared to the historical series to see how much business cycles have changed over time. I find that consistent unemployment and industrial production data show little damping of cyclical fluctuations between the prewar and postwar eras.

The constructed postwar series are also compared to the actual postwar data to identify the direction and the source of systematic biases caused by the derivation procedures. I find that the constructed postwar unemployment rate and industrial production series exaggerate cyclical movements symmetrically; both booms and depressions are more extreme in the constructed postwar data than in the actual postwar series. For both unemployment and industrial production the source of this exaggeration of cyclical movements is the fact that data for a particularly volatile sector or component are used to derive movements in the aggregate series. In constructing the unemployment data, employment in some sectors is assumed to move one-for-one with output in those sectors. In deriving the Frickey index, total industrial production is assumed to move one-for-one with the production of manufactured materials. Both these assumptions are false in the postwar era and yield aggregate series that exaggerate cyclical fluctuations.

\(^1\) The dissertation was completed at the Massachusetts Institute of Technology under the direction of Peter Temin and Rudiger Dornbusch.
In addition to showing that the historical methods yield inaccurate unemployment and industrial production series in the postwar era, I also provide some evidence that the historical methods yield inaccurate prewar series as well. I show that the particular assumptions that cause the postwar constructed data to be excessively volatile are also false in the prewar era. As a result, the historical series are also excessively volatile. For the unemployment series, I take the analysis a step further. I use the relationship between the actual and the constructed postwar unemployment data to derive a filter for modifying the prewar series. Applying this filter to the Lebergott unemployment data yields a series that may represent prewar cycles more accurately.

To analyze the data on real gross national product I use a somewhat different approach. Rather than creating bad postwar data, I begin by trying to improve the existing historical series. I examine Kuznets's methods and point out some possible problems with his estimates of GNP. The main problem I examine is the fact that Kuznets created GNP data using the assumption that the annual deviations of GNP from trend move one-for-one with the deviations from trend of commodity output valued at producer prices. Both interwar and postwar evidence suggest that GNP moves substantially less over the cycle than does commodity output. As a result, it is likely that Kuznets's estimates of GNP exaggerate the size of cyclical fluctuations.

To correct this possible bias I create new GNP data for the pre-World War I era. The new GNP series is derived from data on commodity output using the estimated relationship of aggregate real GNP and aggregate real commodity output over the period 1909–1928. Before using this estimated relationship to create new prewar GNP data, I test its stability over time using data for the postwar era and a model of the effect of sectoral shifts. I find that the new data derived in this way differ systematically from the Kuznets series. Specifically, cyclical fluctuations are much milder in the new series than in the Kuznets estimates of prewar GNP.

It is important to emphasize that this examination of the historical data does not include data from the Great Depression. Indeed, in the case of industrial production and gross national product, even data for the 1920s are excluded. The reason for this is that beginning in the 1920s and 1930s various official government statistical series became available. These are the series that are now generally used in empirical analyses of prewar business cycles. While the accuracy of the official data from the 1920s and the Depression decade is far from established, this is a topic that I chose to leave to another study.

The period that my analysis does cover is nevertheless very important. The last three decades of the 1800s and the first three decades of the 1900s are a period that is typically considered to be wracked by severe cyclical fluctuations. The depressions of the 1870s and the 1890s are conventionally thought to be orders of magnitude worse than even the deepest recessions of the postwar era. The boom of the late 1920s is also considered to be unrivaled by any boom of the postwar era. The fact that the prewar unemployment, industrial production, and GNP series all show exaggerated cyclical movements suggests that this view of the prewar economy is not correct. Rather, when the excess volatility of the prewar data is taken into account, either by using similarly flawed postwar data or by creating new historical data, there is little evidence of stabilization between the pre-Depression and the postwar eras. Indeed, the stylized fact that the pre-Depression economy was more volatile than the postwar economy turns out not to be a fact at all.

Indirectly, these results also provide support for the view that the Great Depression was an economic collapse of unprecedented magnitude. In the process of analyzing the pre-Depression series, new data on unemployment and gross national product are created. Fluctuations in economic activity before 1930 in these new data are dramatically smaller than those in the conventional unemployment and GNP series. As a result prewar depressions that appear to be nearly as severe as the Great Depression in the
conventional data are actually substantially less severe than the Great Depression when
the new data are considered. If one believes that the various official government
statistics for the 1930s are correct, or nearly so, then this is evidence that the Great
Depression was indeed an extraordinary business cycle. Rather than being the worst of
many, very severe prewar depressions, the Great Depression stands out as the
unprecedented collapse of a relatively stable prewar economy.

CHRISTINA ROMER, Princeton University

The Growth and Dissolution of a Large-Scale
Business Enterprise: The Furness Interest,
1892–1919

The dissertation examines the enterprise built by Christopher Furness (1852–1912),
from its origins in the provisioning business established by his father, through its
emergence as one of the five principal Groups in the British shipping industry, and to the
eventual dissolution of the Furness Group in 1919.1 Information gathered from the
surviving records of the constituent firms is used to address a series of questions
concerning the rise of large-scale enterprise in the late nineteenth and early twentieth
centuries.

Drawing upon Edith Penrose’s analytical framework in The Theory of the Growth of
the Firm, the investigation explains the pace and direction of expansion in terms of the
interaction of the Furness Group’s changing resources and the emergent productive
opportunities of the 1890–1919 period. Pursuing Alfred Chandler’s work (Strategy and
Structure and The Visible Hand), the study examines the interrelated growth and
organizational development of the Furness Group in order to compare the factors that
shaped its administrative growth with the formative influences behind other large-scale
emerging business units in Britain, America, and Continental Europe.

The first part of the dissertation considers variables that positively encouraged growth
in specific directions and those that hindered expansion. After examining the develop-
ment of the Group’s shipping lines within expanding world trade and the rise of a
multilateral trading network, the study investigates how acquisition was used to
accelerate growth in established operating areas, to gain entry to new routes, and to
diversify into heavy industry. It was found that because Furness entered the industrial
sector by making a series of quasipublic flotations, the ownership of the Group’s
interests in this field was not as concentrated as ownership of the shipping affiliates
purchased by central holding companies with internally generated funds. These findings
are compared with studies of merger movements and discussions (by Leslie Hannah,
Ralph Nelson, and S. G. Sturmey) concerning the rise of the so-called group structure
in British shipping.

The middle section of the dissertation examines the factors that shaped the operating
ties, administrative structure, and financial organization of the Furness Group. Com-
parative studies (by P. L. Payne, Hannah, and Chandler) of the influence of legislation
on the emerging large business unit in America and Britain suggest that in Britain the lax
administration of legal provisions governing competition may have hindered industrial
concentration and prevented thorough rationalization of production. An investigation of

1 The dissertation was completed under the direction of C. J. Erickson at the London School of
Economics. The author thanks the executives of Furness, Withy & Co. for access to the records
in their care.