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APPENDIX B

Chronology of German Business Cycles

Several scholars have established chronologies of German business cycles for the period under review. This Appendix contains a comparison of the reference cycle chronology of the National Bureau with those developed by Arthur A. Spiethoff for the years up to World War I, by Gustav Clausing for the interwar period, and by Ernst Wagemann for the prewar and part of the interwar period. These chronologies are shown in Table B-1, which permits the identification of cycles, cycle phases, and durations.

The National Bureau identifies business cycle turning points on a monthly and on an annual basis. From the dates of lower turns (troughs)

TABLE B-1
Chronologies of German Business Cycles, 1870-1932

Year	NATIONAL BUREAU OF ECONOMIC RESEARCH			SPIETHOFF-CLAUSING		
	Turning Points		Duration, In Years	Characterization	Duration, In Years	
	Monthly	Annual	Phase		Phase	Cycles
1870		T	Exp. 2	Boom	Upswing 5	11
1871		P		Boom		
1872		P	Boom	Slump 6		
1873		P	Cap. Shortage			
1874		P	Recession	Upswing 3		
1875		P	Recession			
1876		P	Recession	Slump 5		
1877		P	Recession			
1878		T	Exp. 4	Primary Rise	Upswing 3	
1879	T, Feb.	T		Secondary Rise		
1880		P	Exp. 4	Secondary Rise	Slump 5	
1881		P		Cap. Shortage		
1882	P, Jan.	P	Exp. 4	Recession	Upswing 3	
1883		P		Primary Rise		
1884		P	Exp. 4	Primary Rise	Slump 4	
1885		P		Primary Rise		
1886	T, Aug.	T	Exp. 4	Primary Rise	Upswing 3	
1887		T		Secondary Rise		
1888		P	Exp. 4	Boom	Slump 4	
1889		P		Cap. Shortage		
1890	P, Jan.	P	Exp. 4	Recession	Upswing 3	
1891		P		Recession		
1892		P	Exp. 4	Recession	Slump 4	
1893		P		Recession		
1894		T	Exp. 4	Primary Rise		

(continued on next page)

TABLE B-1 *continued*

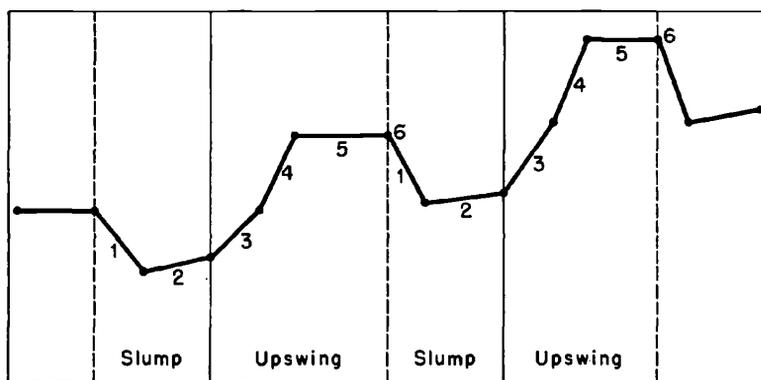
Year	NATIONAL BUREAU OF ECONOMIC RESEARCH			SPIETHOFF-CLAUSING		
	Turning Points		Duration, In Years	Characterization	Duration, In Years	
	Monthly	Annual	Phase		Phase	Cycles
1895	T, Feb.			Secondary Rise		
1896				Boom		
1897			Exp. 6	Boom	Upswing 6	8
1898				Boom		
1899				Boom		
1900	P, Mar.	P		Cap. Shortage		
1901			Contr. 2	Recession	Slump 2	
1902	T, Mar.	T	Exp. 1	Primary Rise		
1903	P, Aug.	P		Boom	Upswing 5	7
1904		T	Contr. 1	Boom		
1905	T, Feb.		Exp. 3	Boom		
1906				Boom	Slump 2	
1907	P, July	P	Contr. 1	Cap. Shortage		
1908	T, Dec.	T		Recession		
1909				Primary Rise	Upswing 4	
1910			Exp. 5	Boom		
1911				Boom		
1912				Boom		
1913	P, Apr.	P		Cap. Shortage		
1914	T, Aug.	T	Contr. 1	World War I		
1915				World War I		
1916			Exp. 3	World War I		
1917		P		World War I	Upswing 2	3
1918	P, June	P	Contr. 2	World War I		
1919	T, June	T		Inflation		
1920			Exp. 3	Inflation		
1921				Inflation		
1922	P, May	P		Inflation		
1923	T, Nov.	T	Contr. 1	Inflation		
1924			Exp. 2	Adaptation		
1925	P, Mar.	P		Adaptation		
1926	T, Mar.	T	Contr. 1	Adaptation		
1927			Exp. 3	Boom	Upswing 2	
1928				Cap. Shortage		
1929	P, Apr.	P		Recession		
1930			Contr. 3	Recession	Slump 4	6
1931				Recession		
1932	T, Aug.	T		Recession		

and upper turns (peaks) the duration of expansion and contraction phases as well as the duration of full cycles can be computed. In Table B-1, these durations are given for the annual chronology only, and the full cycle measures gauge the duration of trough-to-trough cycles. However, the durations based on monthly turning points and the duration of peak-to-peak cycles can be readily computed from the data presented. Note that the annual reference dates are not independently derived from annual data, but are established in the neighborhood of monthly turning

points. This insures compatibility of the annual and monthly reference systems and of the cyclical measures derived from them.

The determination of a turning point is not based on any one major aggregate, such as production or employment, but on the cyclical behavior of a considerable number of time series in the area of production, transportation, trade, prices, finance, and so forth.¹

Spiethoff's chronology of German business cycles is based on the economic characterization of each year rather than on the identification of turning points. This characterization is done in terms of the following schematic model of the business cycle:



The stages are (1) recession, (2) primary rise, (3) secondary rise, (4) boom, (5) capital shortage, and (6) crisis. While the first five stages characterize extended time periods, stage 6 denotes the end of the prosperity plateau and refers thus to a brief period—pictured as a point rather than a line on the schematic diagram. Recession and primary rise form the “slump,” the other stages form the “upswing” of the cycle. Full cycles are measured from stage 1 through stage 6. It will be noted that the slump includes the period of mild primary rises. Upper turning points are identified, lower ones are not. Each calendar year is characterized as belonging to one of the six stages, as indicated in the synoptic table, B-1.²

The characterization is carried by Spiethoff to the year 1913 only. For the interwar period Spiethoff's work was continued by Clausing, who

¹ A detailed description of the methods used can be found in Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles* (National Bureau of Economic Research, 1947). This work contains also the chronology (p. 79), in which the last turning point given is the trough of 1932. But presumably the period of National Socialism constitutes an additional cycle with the peak in the neighborhood of 1943 and the trough about 1945. The subsequent economic recovery constituted a long expansion with no evidence of any general contraction in business activity up to the time of this writing.

² For details of the chronology see Arthur A. Spiethoff, *Die Wirtschaftlichen Wechsellagen* (Tübingen, 1955). The translation of Spiethoff's nomenclature used here is that given in Wilhelm Röpke, *Crises and Cycles* (London 1936), p. 19.

developed the following monthly chronology for business cycles during the postinflation years:³

Nov. 1923–July 1924	recession	} period of adaptation
Aug. 1924–Sept. 1924	primary rise	
Oct. 1924–Jan. 1925	boom	
Feb. 1925–June 1925	capital shortage	
July 1925–Jan. 1926	recession	
Feb. 1926–Oct. 1926	primary rise	} upswing
Nov. 1926–Feb. 1927	secondary rise	
Mar. 1927–Dec. 1927	boom	
Jan. 1928–June 1929	capital shortage	} slump
July 1929–end 1932	recession	

The time from November 1923 to October 1926 is characterized as a period of adaptation. For the following years the upswing-slump scheme is used again. In Spiethoff's recent use of this work for his annual chronology, the year 1929 appears as a recession year.

Let us next consider the chronology presented by Ernst F. Wagemann,⁴ who developed a four-phase scheme of the business cycle, consisting of (1) depression, (2) upswing, (3) boom, and (4) downswing. In principle, all these phases are time periods, that is, phases (1) and (3) should not be mistaken as pinpointing peaks or troughs. In determining the duration of cycles, however, Wagemann measures from "low" (*Tiefstand*) to "crises"—terms which could be taken to stand for "trough" and "peak," were it not that the low is always the year following the crisis. Thus we actually have here a duration measure considering the period covered from "one year after the peak" to and including the following peak. The peak years from 1873 to World War I are the same as those given by Spiethoff except that Wagemann places the "crisis" in 1913-14 rather than in 1913. Since peak-to-peak durations (similarly measured) are the same for the two authors, and Wagemann does not specify trough years, Wagemann's chronology was omitted from our annual table. However, Wagemann has also a monthly chronology, for the period November 1923 to December 1927, which differs from Clausen's chronology, and is therefore presented.

Nov. 1923–June 1924	depression
July 1924–Jan. 1925	upswing
Feb. 1925–Sept. 1925	boom
Oct. 1925–Jan. 1926	downswing
Feb. 1926–Oct. 1926	depression
Nov. 1926–Aug. 1927	upswing
Sept. 1927–Nov. 1927	boom
Dec. 1927–	downswing

³ Gustav Clausen, *Die Wirtschaftlichen Wechsellagen von 1919-32* (Jena, 1933), particularly p. 13. The characterization given here has been somewhat simplified. Readers with specialized interests should thus consult the original source.

⁴ Ernst F. Wagemann, *Konjunkturlehre* (Berlin, 1928), particularly pp. 82, 85, and 87.

Comparison between the various chronologies and characterizations is not simple. Table B-1 reveals a fair correspondence in the identification of full cycles and their approximate duration, on an annual basis, except for the fact that Spiethoff regards the years 1903 through 1907 as a single upswing, skipping the 1903-4 contraction shown in the National Bureau chronology. However, the intracyclical phases are not comparable because (1) Spiethoff includes part of the expansion (as measured by the National Bureau) in his "slump"; and (2) he measures durations of phases by the number of calendar years included, while the National Bureau counts the years between turning points. (This is reflected in the different position of the phase brackets in Table B-1.) The general effect of both of these distinctions is to shift Spiethoff's phases forward in time, relative to the expansions and contractions identified by the National Bureau.

In order to compare the chronologies directly in terms of turning points, the last year of Spiethoff's recession was experimentally regarded as a trough, and the last year of his upswing as a peak. The results appear in the Table B-2.

TABLE B-2
Reference Cycle Turning Points, NBER and Spiethoff-Clausing, Annual,
1870-1932

PEAKS			TROUGHES		
NBER Date	Spiethoff-Clausing		NBER Date	Spiethoff-Clausing	
	Date	Timing rela- tive to NBER (years)		Date	Timing rela- tive to NBER (years)
			1870	...	
1872	1873	+1	1878	1878	0
1882	1882	0	1886	1883	-3
1890	1890	0	1894	1893	-1
1900	1900	0	1902	1902	-1
1903	...	...	1904	...	...
1907	1907	0	1908	1908	0
1913	1913	0	1914	...	...
1917	...	...	1919	...	...
1922	...	...	1923	...	...
1925	...	...	1926	1926	0
1929	1928	-1	1932	1932	0

Based on sources given in footnotes 1, 2, and 3 of this Appendix. For derivation of Spiethoff-Clausing dates, see the accompanying text.

The annual turning points compare tolerably well. In nine of fourteen cases they are identical, in four more they do not differ by more than a year. Only for the trough in the eighteen-eighties is there a serious discrepancy.⁵

⁵ Note that Spiethoff and Wagemann agree on 1873 rather than 1872 as the peak year of the *Gründerjahre*. In view of these opinions and other quantitative evidence, the National Bureau may decide to review the determination of that turning point. Some review of the evidence may also be called for in order to explain the large discrepancy in the timing of the trough in the eighteen-eighties.

A similar comparison can also be carried through for the monthly chronologies of the National Bureau, Clausing, and Wagemann, during part of the interwar period. The last month of recession and of upswing in Clausing's, and the last month of depression and of boom in Wagemann's scheme, will be regarded as turning points (Table B-3).

TABLE B-3
Reference Cycle Turning Points, NBER, Clausing, and Wagemann,
Monthly, 1923-1932

<i>NBER Date</i>	<i>Clausing</i>		<i>Wagemann</i>	
	<i>Date</i>	<i>Timing relative to NBER</i>	<i>Date</i>	<i>Timing relative to NBER</i>
PEAKS				
1925, Mar.	1925, June	+3 months	1925, Sept.	+6 months
1929, Apr.	1929, June	+2 months	^a	
TROUGHs				
1923, Nov.	1924, July	+8 months	1924, June	+7 months
1926, Mar.	1926, Jan.	-2 months	1926, Oct.	+7 months
1932, Aug.	1932, (end)	+4 months	—	—

^a Wagemann gives Nov. 1927 as end of the boom. This, however, was obviously not a turning point corresponding to the business cycle peak preceding the Great Depression. Wagemann's book was published in 1928.

On the whole, there is agreement on the identification of cycles. The National Bureau, Clausing, and Wagemann agree on the existence of an expansion up to 1925 and a brief contraction from then to 1926. The National Bureau and Clausing concur on the subsequent expansion to 1929 and the following Great Depression. However, there exists considerable difference of opinion on the dates of turning points. Except for one turn, those inferred from the Clausing and the Wagemann chronology are markedly later than those accepted by the National Bureau. This consistent sequence suggests the existence of systematic reasons for the differences in turning points. Wagemann's concept of depression and boom may explain the lag of the last month of these phases behind the National Bureau's reference turns. However, Spiethoff's definition of his phases (as illustrated in the schematic diagram) seems to exclude such explanation.

This is not the place to attempt an evaluation of the substantive merits of the chronologies. As a research tool, the National Bureau reference chronology has the advantage of presenting monthly as well as annual benchmarks, covering the whole period without gaps, and offering explicit reference dates that lend themselves to the computation of comparative

timing and amplitude measures.⁶ These advantages are not fortuitous. Unlike the other chronologies, the chronology of the National Bureau was devised as a reference grid for the very purpose of describing and comparing cyclical behavior in various segments of the economy. The National Bureau chronology was used throughout this study, without further reference to alternative ways of periodization.

⁶ Regarding the qualitative characterization of each year, the National Bureau of Economic Research has published material on Germany in Willard L. Thorp's *Business Annals* (1926) and Carl T. Schmidt's *German Business Cycles, 1924-1933* (1934), particularly Chapter 2.