Data Appendix

"The Role of Real Wages, Productivity, and Fiscal Policy in Germany's Great Depression 1928-37"

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Original Data: Description

O.1. Population, with the appropriate adjustment for territorial changes. From 1938-1944 inclusive Austria. After 1945 for West and East Germany combined (thousands)
O.2. GDP per capita, with the appropriate adjustment for territorial changes. From 1938-1944 inclusive Austria. After 1945 for West and East Germany combined. From 1901-1924 GNP (millions of Mark/Reichsmark/Deutsche Mark in 1913 prices)
O.3. GDP per capita, United States (1990 Geary-Khamis Dollars)
O.4. GDP Adjusted for territorial changes: Saarland and Austria in 1938 (billions of RM in 1913 prices)
O.5. Consumption, public (billions of RM in 1913 prices)
O.6. Investment, public (billions of RM in 1913 prices)
O.7. Consumption, private (billions of RM in 1913 prices)
O.8. Investment, structures and equipment, private (billions of RM in 1913 prices)
O.9. Investment, equipment, private (billions of RM in 1913 prices)
O.10. Investment, structures, private (billions of RM in 1913 prices)
O.11. Inventory investment (billions of RM in 1913 prices)
O.12. Exports (billions of RM in 1913 prices)
O.13. Imports (billions of RM in 1913 prices)
O.14. GDP (billions of RM)
O.15. Wages and salaries (billions of RM)
O.16. Proprietor's income in forestry and agriculture (billions of RM)
O.17. Proprietor's income in manufacturing (billions of RM)
O.18. Direct taxes (billions of RM)
O.19. Indirect taxes (billions of RM)
O.20. Subsidies (millions of RM)
O.21. Social security contributions by all (millions of RM)
O.22. Employer contributions to social security and unemployment insurance, from official statistics (millions of marks)
O.23. Unemployment insurance contributions (millions of RM)
O.24. Government purchases of goods and services (millions of RM)
O.25. Ongoing transfers (millions of RM)
O.26. One-time transfers (millions of RM)
O.27. Total hours worked Agriculture and Forestry, Annual (millions of hours)
O.28. Total hours worked Energy and Mining, Annual (millions of hours)
O.29. Total hours worked, Manufacturing, Annual (millions of hours)
O.30. Total hours worked, Construction, Annual (millions of hours)
O.31. Total hours worked, Trade, Annual (millions of hours)
O.32. Total hours worked Transportation and Communication, Annual (millions of hours)
O.33. Total hours worked Finance and Insurance, Annual (millions of hours)

O.34. Total hours worked, Services, Annual (millions of hours)
O.35. Total hours worked, All Industries, Annual (millions of hours)
O.36. Total Labor Cost, Agriculture and Forestry, Annual (millions of RM)
O.37. Total Labor Cost, Energy and Mining, Annual (millions of RM)
O.38. Total Labor Cost, Manufacturing, Annual (millions of RM)
O.39. Total Labor Cost, Construction, Annual (millions of RM)
O.40. Total Labor Cost, Trade, Annual (millions of RM)
O.41. Total Labor Cost, Transportation and Communication, Annual (millions of RM)
O.42. Total Labor Cost, Finance and Insurance, Annual (millions of RM)
O.43. Total Labor Cost, Services, Annual (millions of RM)
O.44. Total Labor Cost, All Industries, Annual (millions of RM)
O.45. Wholesale price index for finished manufactures (index, 1925=100).
O.46. Cost of living price index (index, 1928=100)
O.47. Currency (millions of RM)
O.48. Demand and time deposits (millions of RM)

Data for Working Paper Version

O.49. Employees, adjusted for average work time (millions, annual average of quarterly data)
O.50. Average weekly hours worked in Mining and Manufacturing (hours)
O.51. Employment, Agriculture, Annual (thousands)
O.52. Employment, Mining, Annual (thousands)
O.53. Employment, Manufacturing, Annual (thousands)
O.54. Employment, Transportation, Annual (thousands)
O.55. Employment, Trade, Banking, and Insurance, Annual (thousands)
O.56. Employment, Domestic Services, Annual (thousands)
O.57. Employment, Other Services excluding Defense, Annual (thousands)
O.58. Employment, Defense, Annual (thousands)
O.59. Average hourly wages, actual earnings (index, 1913-1914=100)
O.60. GDP per capita, Germany (1990 Geary-Khamis Dollars)

Unless otherwise noted all series refer to Germany

Original Data: Source

O1.	Ritschl and Spoerer (1997), Tables A.1 and A.2
O2.	Ritschl and Spoerer (1997), Tables A.1 and A.2
O3.	Maddison (1995), Table D-1a
O4.	Ritschl (2001), Table B.9
O5.	Ritschl (2001), Table B.8
O6.	Ritschl (2001), Table B.6
O7.	Ritschl (2001), Table B.8
O8.	Ritschl (2001), Table B.6
O9.	Ritschl (2001), Table B.6
O10.	Ritschl (2001), Table B.6
O11.	Ritschl (2001), Table B.3
O12.	Ritschl (2001), Table B.7
O13.	Ritschl (2001), Table B.8
O14.	Ritschl (2001), Table B.5
O15.	Bry (1960), p.122, Table 30
O16.	Bry (1960), p.122, Table 30
O17.	Bry (1960), p.122, Table 30
O18.	Ritchl (2001), Table B.2D
O19.	Ritchl (2001), Table B.5D
O20.	Ritchl (2001), Table B.2D
O21.	Ritchl (2001), Table B.2D
O22.	Ritchl (2001), Table A.12
O23.	Ritchl (2001), Table A.12
O24.	Ritchl (2001), Table A.12
O25.	Ritchl (2001), Table A.12
O26.	Ritchl (2001), Table A.12
O27.	Lölhöffel (1974), Table 1, column (4)
O28.	Lölhöffel (1974), Table 2-1, column (4)
O29.	Lölhöffel (1974), Table 2-2, column (4)
O30.	Lölhöffel (1974), Table 2-3, column (4)
O31.	Lölhöffel (1974), Table 3, column (4)
O32.	Lölhöffel (1974), Table 4, column (4)
O33.	Lölhöffel (1974), Table 5, column (4)
O34.	Lölhöffel (1974), Table 6, column (4)
O35.	Lölhöffel (1974), Table 7, column (4)
O36.	Lölhöffel (1974), Table 1, column (2)
O37.	Lölhöffel (1974), Table 2-1, column (2)
O38.	Lölhöffel (1974), Table 2-2, column (2)
O39.	Lölhöffel (1974), Table 2-3, column (2)
O40.	Lölhöffel (1974), Table 3, column (2)
O41.	Lölhöffel (1974), Table 4, column (2)
O42.	Lölhöffel (1974), Table 5, column (2)
O43.	Lölhöffel (1974), Table 6, column (2)
O44.	Lölhöffel (1974), Table 7, column (2)
O45.	Bry (1960), Table A-30, p.406

O46. Bry (1960), Table A-1, p.325
O47. Bundesbank (1976), Table 1.01, p.4.
O48. Bundesbank (1976), Table 1.01, p.4.
O49. Ritchl (2001), Table C.1
O50. Hoffmann (1965), Table 26
O51. Hoffmann (1965), Table 20, pg. 204-206
O52. Hoffmann (1965), Table 20, pg. 204-206
O53. Hoffmann (1965), Table 20, pg. 204-206
O54. Hoffmann (1965), Table 20, pg. 204-206
O55. Hoffmann (1965), Table 20, pg. 204-206
O56. Hoffmann (1965), Table 20, pg. 204-206
O57. Hoffmann (1965), Table 20, pg. 204-206
O58. Hoffmann (1965), Table 20, pg. 204-206
O59. Bry (1960), Table A-2, p.331
O60. Maddison (1995), **Table D-1a.**

Note, the Sources Refer to:

Bry, G. (1960). Wages in Germany 1871-1945, Princeton: Princeton Univ. Press.
Deutsche Bundesbank (1976). Deutsches Geld und Bankwesen in Zahlen, 1876-1975, Frankfurt am Main: Verlag Fritz Knapp.
Gehrig, G. (1961). "Eine Zeitreihe für den Sachkapitalbestand (1925 bis 1938 und 1950 bis 1957)," IFO-Studien 7, 7-60.
Hoffmann, W.G. (with F.Grumbach and H.Hesse) (1965). Das Wachstum der Deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts. Heidelberg: Springer Verlag.
Lölhöffel, M. v. (1974). "Zeitreihen für den Arbeitsmarkt - Lohnsatz, Beschäftigungsfälle, Arbeitskosten und Arbeitsstunden (1925 bis 1938 und 1950 bis 1967)," IFO-Studien 20 (1/2), 33-150.
Maddison, A. (1995). Monitoring the World Economy 1820-1992. Paris: OECD.
Ritschl, A. (2001). Deutschlands Krise und Konjunktur 1924-1934. Binnenkonjunktur, Auslandsverschuldung und Reparationsproblem zwischen Dawes-Plan und Transfersperre. Forthcoming in Jahrbuch für Wirtschaftsgeschichte. Beiheft 2
Ritschl, A., and Spoerer, M. (1997). "Das Bruttosozialprodukt in Deutschland nach den amtlichen Volkseinkommens- und Sozialproduktsstatistiken 1901-1995," Jahrbuch für Wirtschaftsgeschichte 1997 (2), 27-54.

Constructed Series: Description

C.1. Implicit GDP Deflator (index, 1913=100)
C.2. Capital Stock in Private Sector, Equipment, Germany (millions of RM in 1913 prices)
C.3. Capital Stock in Private Sector, Structures, Germany (millions of RM in 1913 prices)
C.4. Capital Stock in Private Sector, Structures, Germany (millions of RM in 1913 prices)
C.5. Wage Income Share, Germany (fraction)
C.6. Labor Productivity (index, 1928=100)
C.7. Total Factor Productivity (index, 1928=100)
C.8. Average Hourly Labor Cost, Agriculture and Forestry, Germany (index, 1928=100)
C.9. Average Hourly Labor Cost, Energy and Mining, Germany (index, 1928=100)

C.10. Average Hourly Labor Cost, Manufacturing, Germany (index, 1928=100)
C.11. Average Hourly Labor Cost, Construction, Germany (index, 1928=100)
C.12. Average Hourly Labor Cost, Trade, Germany (index, 1928=100)
C.13. Average Hourly Labor Cost, Transportation and Communication, Germany (index, 1928=100)
C.14. Average Hourly Labor Cost, Finance and Insurance, Germany (index, 1928=100)
C.15. Average Hourly Labor Cost, Services, Germany (index, 1928=100)
C.16. Average Hourly Labor Cost, All Industries, Germany (index, 1928=100)
C.17. Implicit Income Tax Rate (fraction)
C.18. Implicit Sales Tax Rate (fraction)
C.19. Effective Tax Rate (fraction)

Series constructed for working paper version

C.20. Total hours worked based on Hoffmann (1965) (thousands of hours)
C.21. Total payments to labor (billions of RM)
C.22. Average wage based on Ritschl (2001) employment
C.23. Average wage based on Hoffmann (1965) employment

Construction of Series

C.1. (O.14 / O.4) * 100,
C.2. See note below
C.3. See note below
C.4. See note below
C.5. We assume that (1) 90 percent of proprietors' income in agriculture is labor income and (2) the share of labor income in proprietors income in trade and industry is the same as in the overall economy C.5 = (O.15 + 0.9*O.16 + O.22) / (O.14 – O.19 + O.20 – O.17)
C.6. O.4 / O.35 detrended with 1.87 percent annual growth rate, rescaled to 100 in 1928
C.7. Let X = [log(O.4 / O.35) – (1 – {average of C.5 from 1925-37}) * log(C.4 / O.35)] / {average of C.5 from 1925-37}. Then, C.7 is exp(X) detrended with 1.87 percent annual growth rate, rescaled to 100 in 1928
C.8. (O.36 / O.27)* 100, rescaled to 100 in 1928
C.9. (O.37 / O.28) * 100, rescaled to 100 in 1928
C.10. (O.38 / O.29) * 100, rescaled to 100 in 1928
C.11. (O.39 / O.30) * 100, rescaled to 100 in 1928
C.12. (O.40 / O.31) * 100, rescaled to 100 in 1928
C.13. (O.41 / O.32) * 100, rescaled to 100 in 1928
C.14. (O.42 / O.33) * 100, rescaled to 100 in 1928
C.15. (O.43 / O.34) * 100, rescaled to 100 in 1928
C.16. (O.44 / O.35) * 100, rescaled to 100 in 1928
C.17. (O.18 + O.21 + O.23) / (O.14 – O.19 + O.20)
C.18. (O.19 – O.20) / (O.14 – O.19 + O.20)
C.19. (1 – (1 – C.17) / (1 + C.18)
C.20. O.50 * (O.52 + O.53) + {average of O.50 from 1925-38} * O.51 + O.54 + O.55 + O.56 + O.57

C.21. C.5 * (O.14 – O.19 + O.20)
C.22. C.21 / O.49
C.23. C.21 / C.20, in thousands

Note:

Capital Stock: The capital stock was generated using a perpetual inventory method, given the capital stock in 1929, investment from 1925-1938, a depreciation rate for capital, and using the law of motion of capital:

$$K_{t+1} = (1-\delta)K_t + I_t$$

We calculate separate time series for equipment and structures in the private sector in constant prices. Total capital is the sum of equipment and structures. For this procedure we use data from Hoffmann (1965), Gehrig (1961), and Ritschl (2001).

Equipment Capital: Using the perpetual inventory method and Gehrig (1961)'s data on capital stocks and investment, we calculate the depreciation rate on equipment capital such that given the end-of-year capital stock in 1929 and cumulative investment from 1930 to 1939, we match the end-of-year capital stock in 1930. This yields an annual depreciation of 3.16 percent. Gehrig (1961)'s capital stock and investment series are in 1954 prices. To make the series comparable with the investment series in 1913 prices from Ritschl (2001), we use Gehrig (1961)'s equipment price index to rescale the 1929 capital stock to reflect prices relative to 1913. We then construct the capital stock using Ritschl (2001)'s constant-price equipment investment series O.10.

Structures: Gehrig (1961)'s structures include public and private capital. We adjust Gehrig's 1929 estimate of structures based on Hoffmann (1965)'s estimate of the share of public structures in total structures in 1929. We then rescale the 1929 capital stock to reflect prices relative to 1913 and construct the capital stock using Ritschl (2001)'s constant-price investment series for structures, O.10, and Gehrig (1961)'s estimate of the depreciation rate for structures, 0.32 percent.

Figures and Tables

Table 1: Output per capita is O.2, capital stock per capita is C.4/O.1, labor is O.35/O.45, and real wage is C.16/O.45 where O.45 is rescaled to 100 in 1928; these series are detrended with a 1.87 percent annual growth rate and rescaled to 100 in 1928. Labor productivity is C.6 and TFP is C.7.

Table 2: Finished Goods is O.45, Cost of Living is O.46, GNP deflator is C.1, and M1 is O.47+O.48. All series are normalized to 100 in 1928.

Table 3: G per capita is (O.5 + O.6)/O.1, C per capita is O.7/O.1, X is (O.8 + O.11)/O.1, Ex is O.12/ O.1, and Im is O.13/O.1. Series in Panel A are detrended with a 1.87 percent annual growth rate and rescaled to 100 in 1928. Series in Panel B are shares in O.4.

Table 4: G is ratio of O.24/O.14, Tr is the ratio (O.25+O.26)/O.14, and Total is the sum of G and Tr. The implicit direct tax rate is C.17, the implicit indirect tax rate is C.18, and the effective tax rate is C.19.

Figure 1: The line labeled Germany is O.2 detrended using a 1.87 percent annual growth rate and rescaled to 100 in 1928. The line labeled United States is O.3 detrended using a 1.9 percent annual growth rate and rescaled to 100 in 1929.

Figure 2: The line labeled Germany is O.2 was normalized so that its in 1901 equals O.60 in 1901. The line labeled United States is O.3.

Figure 3: The lines are C.8 to C.16

Tables and Figures for Working Paper Version

Table A.1: Lohlhoffel (1974) is O.35, Ritschl (1990) is O.49, and Hoffmann (1965) is C.20. All series are per capita usingO.1and normalized to 100 in 1928.

Table A.2: The nominal wages are for Lohlhoffel (1974): C.16; for Ritschl (1990): C.22; and for Bry (1960) O.59. All series are deflated with O.45, detrended with a 1.87 percent growth rate, and normalized to 100 in 1928.

Figure A.1: The line labeled Maddison is O.60 and the line labeled Ritschl is O.2. Both series are detrended using a 1.87 percent annual growth rate and rescaled to 100 in 1928.