

## Appendix: Data Construction and Sources

### Argentina

#### *Agricultural Output:*

1900-1960: Banco Central de Argentina (1976)

1961-2004: World Bank, World Development Database.

#### *Industrial Output:*

1875-1960: della Paolera and Taylor (2003)

1961-2004: World Bank, World Development Database.

#### *Transport Output:*

1870-1960: Geometric weighted average of passengers and tons of freight per kilometers times total railwayroad extension; then spliced in 1913 with the index provided in Carlos F. Diaz-Alejandro, 1970, *Essays on the Economic History of the Argentine Republic*. Yale.

#### Cement Consumption:

1870-1913: Total cement imports in tons from the United Kingdom and the United States, which together accounted for no less than between 60 to 70 percent of Argentina's total cement imports. The sources are the United Kingdom, Board of Trade, *Annual Statements of the Trade of the United Kingdom with Foreign Countries and British Possessions*. London: HMSO. Commerce and Navigation, several issues; and the United States, *Foreign Commerce, Navigation and Tonnage of the United States*, Washington, DC: Department of Labor, several issues. Because a local cement industry was non-existing before World War I, all domestic consumption of cement was then met by imports. So this newly constructed series for the period should be expected to a good proxy for domestic construction activity.

1913-2000: Oxford Latin American Economic History database, available at <http://oxlad.qeh.ox.ac.uk/>.

2001-2004: Instituto Nacional de Estadísticas y Censu de la Republica Argentina, available at: [www.indec.mecon.ar/](http://www.indec.mecon.ar/).

#### *Fixed Investment:*

1870-1884: Capital goods imports from the United Kingdom and the United States (converted into equivalent pounds sterling) and deflated by the UK capital good deflator taken from Charles H. Feinstein, 1972, *Statistical Tables of National Income, Expenditure and Output of the United Kingdom, 1855-1965*, Cambridge. Since the domestic capital goods industry was virtually non-existent in Argentina before World War I (being in fact relatively negligible before WWII – see Diaz-Alejandro, 1970), and because the UK and the US were

the two most important suppliers of capital goods to Argentina, such imported capital goods series should be expected proxy very well aggregate fixed capital formation in the country in those early decades.

1885-1960: della Paolera and Taylor (2003).

1961-2004: International Financial Statistics (IFS), International Monetary Fund.

*Central Government Expenditures and Revenues:*

1870-1960: Brian M. Mitchell, 1998, *International Historical Statistics: The Americas*, London.

1961-2004: Luis A.V. Catão and Marco E. Terrones, 2005, "Fiscal Deficits and Inflation," *Journal of Monetary Economics*, 52, 529-554. Both series are expressed in real terms by deflating them by the consumer price index (CPI).

*Narrow (Mo) and Broad Money (M2):*

1870-1960: Mitchell, op cit.

1961-2004: IFS. Both series expressed in real terms by deflating them by the CPI.

*Consumer Price Index (CPI):*

1870-1913: Catão and Solomou (2005).

1914-1960: della Paolera and Taylor (2003)

1961-2004: IFS.

*Average Interest Rate on Domestic Public Bonds:*

1870-1913: 'Monetary and Banking Experiments in Argentina: 1861-1930', Paper presented at the conference, 'Economic Growth in the Long Run: Argentina, Brazil and Mexico, 1870-1950' at the Institute of Latin American Studies, University of London, March, 1992.

1914-1993: della Paolera and Javier Ortiz, 1995, Dinero, Intermediación Financiera y niveles de actividad en 110 años de historia económica Argentina. Documentos de Trabajo 36 (December), Universidad Torcuato di Tella.

1993-2004: IFS (line 60p). Real interest rate series obtained by deflating annual nominal yields by current period CPI inflation.

*Export and Import volumes and Net Barter Terms of Trade:*

1870-1913: Catão and Solomou (2005).

1914-1960: Oxford Latin American Economic History database, available at <http://oxlad.geh.ox.ac.uk/>.

1961-2004: IFS.

*Real Effective Exchange Rate*

1870-1913: Catão and Solomou (2005).

1914-2004: CPI-based geometric weighted averages of Argentina's real bilateral exchange rates with its eight largest trading partners (covering between 67 and 80 percent of visible trade). Fisher ideal indices were derived for the sub-periods 1914-1946 and 1946-2004 (based on 1913 and 1938, and 1960 and 2000 weights respectively), and then spliced at 1946. Nominal exchange rates for the entire post-war period are market rates underlying Carmen M. and Kenneth S. Rogoff, 2004, "The Modern History of Exchange Rate Arrangements: A Reinterpretation," *Quarterly Journal of Economics*, CXIX, No.1, pp.1-48.

*Net Foreign Capital Inflows:*

1870-1960: Obtained by splicing the series on UK capital flows to Argentina provided in Stone, Irving, 1999, *The Global Export of Capital from Great Britain, 1865-1914: A Statistical Survey*, New York, with a post-1884 series on net capital inflows constructed as changes in end-year net international reserves expressed in US\$ million (obtained from Gerardo della Paolera, 1988, "How the Argentine Economy Performed During the International Gold Standard: A Re-examination", PhD thesis, University of Chicago for 1870-1913 then with the Cavallo-Mundlak series, as kindly supplied by Alan Taylor) minus the current account balance (also expressed in US\$ millions) provided in della Paolera and Taylor (2003). The splicing of the two series is warranted by the fact that the UK was by far the most important source of foreign capital flows to Argentina before World War I (and particularly prior to 1890), and evidence that the two series co-move tightly together in the 1884-1913 period, with a correlation coefficient of 0.81.

1961-2004: Also obtained as the difference between changes in international reserves and the current account balance, both as reported by the IFS. The resulting nominal series in US dollars was then deflated by the US Wholesale price index (WPI) obtained from Global Financial Database for the period 1870-1947 and the IFS for 1948-2004.

*Wages:*

1870-1913: Jeffrey G. Williamson, "The Evolution of Global Labor Markets Since 1830", *Explorations in Economic History*, 32 (2), 1995, pp. 141-96.

1914-1980: della Paolera and Taylor (2003).

1981-2004: IMF's WEO database. This series was then deflated by CPI to obtain the real wage index.

*Foreign 3-month bill rate:*

1870-1920: Annual average yields of 3-month bills on the London market provided in Sidney Holmer and Richard Sillas, 1996, *A History of Interest Rates*, Rutgers.

1921-2004: Annual average yields of the US 3-month Treasury Bill provided in the same source. The choice of 1920 as the splicing point was due to the unavailability of the US instrument prior to 1920. Both series were deflated by the respective countries' CPI inflation, obtained from Catão and Solomou (2005) for 1870-1913, Mitchell, op cit (1914-1960) and the IFS (1961-2004).

*Foreign Output:*

Sum of France's, Germany's, UK's and US's GDP, all expressed in 1990 PPP constant dollars from Maddison (2003).

*Population at mid-year:*

1870-1960: Maddison (2003).

1961-2004: IFS (2003).

**Brazil**

*Agricultural and Manufacturing Output:*

1900-1946: Haddad (1978).

1947-2004: Instituto Brasileiro de Geografia e Estatística, available at <http://www.IBGE.gov.br>.

*Transport Output:*

1870-1907: Average of freight and passenger transported in railways, using 1908 weights provided in Haddad (1978).

1908-1946: Haddad (1978).

1947-2004: Instituto Brasileiro de Geografia e Estatística, available at <http://www.IBGE.gov.br>.

*Communications Output:*

1870-1907: Average of mail and telegraph traffic in the national postal system, weighted according to current 1889 values provided in Instituto Brasileiro de Geografia e Estatística, 1987. *Estatísticas Históricas do Brasil*, Rio de Janeiro, IBGE.

1908-1946: Haddad (1978).

1947-2004: Instituto Brasileiro de Geografia e Estatística, available at <http://www.IBGE.gov.br>.

*Cement Consumption:*

1870-1901: Cement imports from the France, Germany, the UK, and the US, obtained from these countries' own trade statement data (see above). Since these four countries accounted for between 75 and 85 percent of total Brazilian imports (see IBGE, op.cit., pp. 545-49) and all cement consumed in Brazil at the time was imported, this newly constructed series is very representative of aggregate cement consumption and hence a good proxy for domestic construction activity.

1902-1945: Anibal V. Villela and Wilson Suzigan, 1975, *Política do Governo e Crescimento da Economia Brasileira 1889-1945*, p.423.

1945-2004: Instituto Brasileiro de Geografia e Estatística, available at <http://www.IBGE.gov.br>; and IPEA database.

*Machinery Investment:*

1870-1913: Wilson Suzigan, *Industria Brasileira. Origens e Desenvolvimento*, São Paulo, 1986.

1913-2004: Instituto Brasileiro de Geografia e Estatística, available at <http://www.IBGE.gov.br>.

*Central Government Expenditures and Revenues:*

1870-1960: IBGE, op. cit.

1961-2004: Luis A.V. Catão and Marco E. Terrones, 2005, "Fiscal Deficits and Inflation," *Journal of Monetary Economics*, 52, 529-554. Both series are expressed in real terms by deflating them by the GDP deflator.

*Narrow (M1) and Broad Money (M2):*

1870-1960: IBGE, op. cit.

1961-2004: IFS. Both series expressed in real terms by deflating them by the GDP deflator.

*GDP deflator:*

1870-1913: Catão and Solomou (2005).

1914-1960: IBGE, op. cit.

1961-2004: IFS.

*Domestic Interest Rate:*

1870-1961: yields on government perpetuities ("apolices"). Pre-1930 data kindly provided by Bill Summerhill and Gail Trinner based on their research with Brazilian historical archives. Post-1930 data from Claudio Contador, 1975, *O Mercado de Ativos Financeiros no Brasil. Perspectiva histórica e comportamento recente*. Rio de Janeiro.

1965-1980: Equivalent nominal yield on inflation indexed public bonds (ORTNs), from Goldsmith, op. cit. The gap between the apolice series and the ORTN series was bridged by linear interpolation.

1981-2004: Money market interest rate from IFS. Real interest rate series obtained by deflating annual nominal yields by current annual percentage changes in the GDP deflator.

*External Interest Rate Spread:*

1870-1913: Mauro, Paolo, N. Sussman and Y. Yafeh, 2002, "Emerging Market Spreads: Then versus Now," *Quarterly Journal of Economics*, CXVII.

1914-1956: Global Financial Data.

1968-1986: Eliana Cardoso and Albert Fishlow, “The Macroeconomics of Brazilian External Debt,” in J. Sachs (ed.), *Developing Country Debt and Economic Performance*. Chicago, 269-391

1987-1993: Estimated as the one-year libor interest rate plus a 400 basis points spread minus the US 10-year bond interest rate.

1993-2004: IMF’s global data source database. Real interest rate series obtained by deflating annual nominal yields by current period CPI inflation.

*Export and Import volumes and Net Barter Terms of Trade:*

1870-1913: Catão and Solomou (2005).

1914-1960: Instituto Brasileiro de Geografia e Estatística, available at <http://www.IBGE.gov.br>

1961-2004: IFS.

*Real Effective Exchange Rate*

1870-1913: Catão and Solomou (2005).

1914-2004: GDP deflator-based geometric weighted averages of Brazil’s real bilateral exchange rates with its eight largest trading partners (covering between 64 and 75 percent of visible trade).<sup>1</sup> Fisher ideal indices were derived for the sub-periods 1914-1946 and 1946-2004 (based on 1913 and 1938, and 1960 and 2000 weights respectively), and then spliced at 1946. Nominal exchange rates for the whole post-WWII period are market rates underlying Carmen M. and Kenneth S. Rogoff, 2004, “The Modern History of Exchange Rate Arrangements: A Reinterpretation,” *Quarterly Journal of Economics*, CXIX, No.1, pp.1-48.

*Wages:*

1870-1940: Jeffrey G. Williamson, “The Evolution of Global Labor Markets Since 1830”, *Explorations in Economic History*, 32 (2), 1995, pp. 141-96.

1940-1955: IBGE, op cit..

1955-1976: Raymond Goldsmith, 1986, *O Desenvolvimento Financeiro do Brasil*, Sao Paulo.

1977-2004: IBGE, op cit..

*Foreign 3-month bill rate and Foreign Output:*

The same as for Argentina.

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<sup>1</sup> The choice of GDP deflator rather than a CPI-based index was determined by the deficiencies of the existing CPI series during the period 1870-1913, compared to an existing series based on production weights (therefore mimicking a GDP deflator) which covers a much extensive range of products and constructed based on weights from national production censuses.

*Population at mid-year:*

1870-1960: Maddison (2003).

1961-2004: IFS (2003).

**Chile**

*Agriculture, Manufacturing and Mining Output:*

1870-1960: Juan Braun, Matías Braun, Ignacio Briones, José Díaz, Rolf Luders and Gert Wagner, 2000, "Economía Chilena 1810–1995: Estadísticas Históricas", Documento de Trabajo No. 187, Catholic University of Chile, Instituto de Economía.

1961-2004: World Development database, World Bank, and Central Bank of Chile.

*Machinery Investment:*

1870-1900: Capital goods imports from the United Kingdom and the United States (converted into equivalent pounds sterling) and deflated by the UK capital good deflator taken from Charles H. Feinstein, 1972, *Statistical Tables of National Income, Expenditure and Output of the United Kingdom, 1855-1965*, Cambridge.

1901-1990: Andre Hoffman, 2000, *The Economic Development of Latin America in the Twentieth Century*, Cheltenham (pp. 190-91, Table D2).

1991-2004: Central Bank of Chile, *ibid*.

*Central Government Expenditures and Revenues:*

1870-1960: Brian M. Mitchell, 1998, *International Historical Statistics: The Americas*, London.

1961-2004: Luis A.V. Catão and Marco E. Terrones, 2005, "Fiscal Deficits and Inflation," *Journal of Monetary Economics*, 52, 529-554. Both series are expressed in real terms by deflating them by the consumer price index (CPI).

*Narrow Money (Mo) and Broad Money (M2):*

1870-1878: Mo calculated as paper money issued minus banks' cash-in-vault, both taken from Llona Rodriguez, Agustin, *Chilean Monetary Policy 1870-1925*, PhD thesis, Boston University; M2 from Braun et al, *op.cit*.

1879-1960: Mo from Mitchell, *op cit*.; M2 from Braun et al. *op.cit*.

1961-2004: IFS. Both series expressed in real terms by deflating them by the CPI.

*Mortgage Credit:*

1870-1995: Braun et al. (1995).

1995-2004: Central Bank of Chile.

*Consumer Price Index (CPI):*

1870-1913: Catão and Solomou (2005).

1914-1960: Mitchell, op cit.

1961-2004: IFS.

*Domestic Interest Rate:*

1870-1993: Bank lending rate from Braun et al, op cit.

1993-2004: IFS (line 60p). Real interest rate series obtained by deflating annual nominal yields by current period CPI inflation.

*Export and Import volumes and Net Barter Terms of Trade:*

1870-1913: Catão and Solomou (2005).

1914-1960: Braun et al, op.cit.

1961-2004: IFS.

*Real Effective Exchange Rate*

1870-1913: Catão and Solomou (2005).

1914-2004: CPI-based geometric weighted averages of real bilateral exchange rates with up to Chile's twenty largest trading partners (covering between 79 and 93 percent of visible trade). Fisher ideal indices were derived for the sub-periods 1914-1946 and 1946-2004 (based on 1913 and 1938, and 1960 and 2000 weights respectively), and then spliced at 1946. Nominal exchange rates for the whole post-WWII period are market rates underlying Carmen M. and Kenneth S. Rogoff, 2004, "The Modern History of Exchange Rate Arrangements: A Reinterpretation," *Quarterly Journal of Economics*, CXIX, No.1, pp.1-48.

*Wages:*

1870-1995: Real wage index from Braun et al, op.cit.

1995-2004: Average nominal wage index from IMF's WEO database, deflated by CPI.

*Population at mid-year:*

1870-1960: Maddison (2003).

1961-2004: IFS (2003).

**Mexico**

Agricultural Output:



1878-1910: Colégio de México, 1960, *Estadísticas Económicas del Porfiriato*, p.61. Refers to export crop sub-index. Converted from a fiscal to calendar year basis by the averaging of two successive years.

1911-1921: Index constructed as a weighted average of the output of ten main crops (beans, corn (maiz), cotton, coffee, garbanzo, rice, sisal, sugar, and tomatoes) weighted by their 1900 (normalized) share in total value of agricultural production. The information on individual crop output was taken from INEGI, 1992, *Estadísticas Históricas de México*, Mexico.

1921-1960: Leopoldo Solís, 1975, *La Realidad Económica Mexicana. Retrovisión y Perspectivas*. Mexico.

1961-2004: World Development database, World Bank, and INEGI, available at <http://www.inegi.gob.mx/est/default.asp?c=1601>.

#### *Manufacturing Output:*

1878-1910: Colégio de México, op. cit, p.105. Prior to 1892, the series reflects solely changes in the index of domestic textile production taken from Haber, Stephen, Armando Razo and Noel Maurer, 2003, *The politics of property rights: Political instability, credible commitments, and economic growth in Mexico, 1876-1929*. Cambridge. Figures for 1879-1882, 1884-87, and 1890 derived by linear interpolation due to the gaps in the original source.

1910-1921: INDEC, op.cit.

1921-1960: Solís, 1975, op.cit.

1961-2004: World Development database, World Bank, and INEGI, available at <http://www.inegi.gob.mx/est/default.asp?c=1601>.

#### *Mining Output:*

1878-1910: Colégio de México, op. cit, p.135.

1911-1921: Weighted average of the output of ten main domestically produced metals (silver, gold, iron, graphite, lead, mercury, copper, zinc, antimonio, and lead) as well as oil, weighted according their 1900 value share in total mining output provided in the same source (pp.136-43).

1921-1960: Solís, 1975, op.cit.

1961-2004: World Development database, World Bank, and INEGI, available at <http://www.inegi.gob.mx/est/default.asp?c=1601>.

#### *Transportation and Communications Output:*

1870-1921: Weighted average of railway freight and passenger traffic (taken from John Coatsworth, *Growth Against Development – The Economic Impact of Railways in Porfirian Mexico*, Illinois) and postal service traffic, taken from Mitchell, op.cit.

1921-1960: Solís, 1975, op.cit.

1961-2004: World Development database, World Bank, and INEGI, available at <http://www.inegi.gob.mx/est/default.asp?c=1601>.

*Cement Consumption:*

1870-1931: Cement imports from the UK and the US (by far the two main foreign suppliers), obtained from these countries' own trade statement data (see above). From 1906 onwards, when the first plants of domestic cement production began operations, we add their output (taken from the Oxford Latin American Economic History database, see above) to imports.

1932-2000: Oxford Latin American Economic History database, available at

<http://oxlad.geh.ox.ac.uk/>.

2001-2004: INEGI, op.cit.

*Machinery Investment:*

1870-1925: Luis Catão, 2005, "Exchange Rate and Machinery Investment in Early Development: The Cases of Brazil and Mexico." International Monetary Fund. Mimeo.,

1925-1940: Enrique Cardenas, 1987, Mexico's Industrialization during the Great Depression: Public Policy and Private Response, PhD thesis, Yale University. The index is based on the volume of imported capital goods.

1941-1993: Hoffman, op.cit.

1994-2004: INEGI, op.cit.

*Central Government Expenditures and Revenues:*

1870-1960: IBGE, op. cit.

1961-2004: Luis A.V. Catão and Marco E. Terrones, 2005, "Fiscal Deficits and Inflation," *Journal of Monetary Economics*, 52, 529-554. Both series are expressed in real terms by deflating them by the CPI deflator.

*Narrow (M0) and Broad Money (M2):*

1870-1925: Catão, op. cit.

1926-1960: INEGI, op.cit.

1961-2004: IFS. Resulting real series was obtained by CPI deflation.

*CPI:*

1870-1913: Catão and Solomou (2005).

1914-1917: Interpolated assuming relative PPP, given that no domestic data seems available for the hyperinflation period. Assuming PPP is probably not very inaccurate since those years were characterizing by soaring inflation and a hyperinflation (see main text) which typically tends to align domestic price movements with the exchange rate.

1918-1940: Williamson, op.cit.

1941-1960: Mitchell, op.cit.  
1961-2004: IFS.

*Export and Import volumes and Net Barter Terms of Trade:*

1870-1925: Catão (2005), op.cit.  
1926-1940: Cardenas, op.cit.  
1941-1960: INEGI, op.cit.  
1961-2004: IFS.

*Real Effective Exchange Rate*

1870-1913: Catão and Solomou (2005).  
1914-2004: CPI-based geometric weighted averages of Mexico's real bilateral exchange rates with its six largest trading partners (covering over 90 percent of visible trade). Fisher ideal indices were derived for the sub-periods 1914-1946 and 1946-2004 (based on 1913 and 1938, and 1960 and 2000 weights respectively), and then spliced at 1946. Nominal exchange rates for the whole post-WWII period are market rates underlying Carmen M. and Kenneth S. Rogoff, 2004, "The Modern History of Exchange Rate Arrangements: A Reinterpretation," *Quarterly Journal of Economics*, CXIX, No.1, pp.1-48.

*Wages:*

1870-1940: Jeffrey G. Williamson, "The Evolution of Global Labor Markets Since 1830", *Explorations in Economic History*, 32 (2), 1995, pp. 141-96.  
1940-1974: Mitchell, op cit..  
1974-2004: WEO and IFS databases.

*Foreign 3-month bill rate:*

1870-1920: Annual average yields of 3-month bills on the London market provided in Sidney Holmer and Richard Sillas, 1996, *A History of Interest Rates*, Rutgers.  
1921-2004: Annual average yields of the US 3-month Treasury Bill provided in the same source. The choice of 1920 as the splicing point was due to the unavailability of the US instrument prior to 1920. Both series were deflated by the respective countries' CPI inflation, obtained from Catao and Solomou (2005) for 1870-1913, Mitchell, op cit (1914-1960) and the IFS (1961-2004).

*Foreign Output:*

US real GDP in 1990 PPP constant dollars from Maddison (2003).

*Population at mid-year:*

1870-1960: Maddison (2003).

1961-2004: IFS (2003).