

## Data Appendix

“A Decade Lost and Found: Mexico and Chile in the 1980s”

by Raphael Bergoing, Patrick J. Kehoe, Timothy J. Kehoe, and Raimundo Soto

### Original Data

| Series   | Source  |
|--|---|
| (O.1) Index of real GDP, Chile                               | IFS, 22899BVPZF...  |
| (O.2) Index of real GDP, Mexico                              | IFS, 27399BVRZF...  |
| (O.3) Population 15-64, Chile                                | WDI, Population ages 15-64, total                         |
| (O.4) Population, 15-64, Mexico                              | WDI, Population ages 15-64, total                         |
| (O.5) Real GDP per capita (PPP, 1985), Chile                 | World Bank, Real GDP per capita in constant dollars       |
| (O.6) Real GDP per capita (PPP, 1985), Mexico                | World Bank, Real GDP per capita in constant dollars       |
| (O.7) Nominal GDP, Chile (billions)                          | IFS, 22899B..ZF...  |
| (O.8) Gross fixed capital formation, Chile (billions)        | IFS, 22893E..ZF...  |
| (O.9) Increase/decrease(-)in stocks, Chile (billions)        | IFS, 22893I..ZF...  |
| (O.10) Nominal GDP, Mexico (billions)                        | IFS, 27399B..CZF...                                       |
| (O.11) Gross fixed capital formation, Mexico (millions)      | IFS, 27393E.CZF...  |
| (O.12) Change in inventories, Mexico (millions)              | IFS, 27393I.CZF...  |
| (O.13) Employment, Chile                                     | IFS, 22867E..ZF...  |
| (O.14) Employment, Mexico                                    | IFS, 27367E..ZF...  |
| (O.15) Population, Chile (thousands)                         | Penn World Tables, POP                                    |
| (O.16) Real GDP per working-age person, Chile (PPP, 1985)    | Penn World Tables, RGDPC                                  |
| (O.17) Employment, Chile                                     | Penn World Tables (from (O.15) and (O.16))                |
| (O.18) Population, Mexico (thousands)                        | Penn World Tables, POP                                    |
| (O.19) Real GDP per working-age person, Mexico (PPP, 1985)   | Penn World Tables, RGDPC                                  |
| (O.20) Employment, Mexico                                    | Penn World Tables (from (O.15) and (O.16))                |
| (O.21) Average hours per week in Chile, quarterly            | <i>Encuesta de Ocupación y Desocupación</i>               |
| (O.22) Average hours per week in Chile, annual               | <i>Encuesta de Ocupación y Desocupación</i> (from (O.21)) |
| (O.23) Hours worked manufacturing, Mexico (index, 1990=100)  | OECD, Hours of work manufacturing                         |
| (O.24) Employment in manufacturing, Mexico (index, 1990=100) | OECD, Employees: manufacturing                            |
| (O.25) Labor force, Mexico                                   | WDI, Labor force  |
| (O.26) Price of copper, (\$U.S.)                             | IFS, 11276C.ZZF...  |
| (O.27) Oil price, spot price (\$U.S.)                        | IFS, 00176AAZZF...  |
| (O.28) U.S. wholesale price index                            | IFS, 11163...ZF...  |
| (O.29) Real wages in Chile                                   | <i>Indicadores Mensuales de Empleo y Remuneraciones</i>   |
| (O.30) Manufacturing wages, Mexico                           | IFS, 27365...ZF...  |
| (O.31) Real monthly earnings manufacturing, Mexico           | OECD, Real monthly earnings: manufacturing                |
| (O.32) Consumer price index, Chile                           | IFS, 22864...ZF...  |
| (O.33) Consumer price index, Mexico                          | IFS, 27364...ZF...  |
| (O.34) Total external debt, Chile, (\$U.S.)                  | WDI, External debt, total                                 |
| (O.35) Total external debt, Mexico, (\$U.S.)                 | WDI, External debt, total                                 |
| (O.36) Nominal exchange rate, Chile-U.S.                     | IFS, 228..RF.ZF...  |
| (O.37) Nominal exchange rate, Mexico-U.S.                    | IFS, 273..WF.ZF...  |

|        |  |                                      |
|--------|--|--------------------------------------|
| (O.38) | Government surplus, Chile                          | IFS, 22880...ZF...                   |
| (O.39) | Government surplus, Mexico                         | IFS, 27380...ZF...                   |
| (O.40) | Claims on nonfinancial. public enterprises, Chile  | IFS, 22852C..ZF...                   |
| (O.41) | Claims on private sector, Chile                    | IFS, 22852D..ZF...                   |
| (O.42) | Claims on nonfinancial. public enterprises, Mexico | IFS, 27352C..ZF...                   |
| (O.43) | Claims on private sector, Mexico                   | IFS, 27352D..ZF...                   |
| (O.44) | Nominal GDP, U.S.                                  | IFS, 11199B.CZF...                   |
| (O.45) | Claims on private sector. , U.S.                   | IFS, 27352D..ZF...                   |
| (O.46) | Consumer price index, U.S.                         | IFS, 11164...ZF...                   |
| (O.47) | Exports goods and services, Chile (billions)       | IFS, 22890C..ZF...                   |
| (O.48) | Imports goods and services, Chile (billions)       | IFS, 22898C..ZF...                   |
| (O.49) | Exports goods and services, Mexico (billions)      | IFS, 27390C.CZF...                   |
| (O.50) | Imports goods and services, Mexico (billions)      | IFS, 27398C.CZF...                   |
| (O.51) | Exports, Chile (\$U.S.)                            | WDI, Merchandise exports             |
| (O.52) | Exports, Mexico (\$U.S.)                           | WDI, Merchandise exports             |
| (O.53) | Population, Chile                                  | WDI, Population, total               |
| (O.54) | Population, Mexico                                 | WDI, Population, total               |
| (O.55) | Business bankruptcies in Chile                     | <i>Fiscalía Nacional de Quiebras</i> |

Notes:

IFS denotes *International Financial Statistics CD-ROM*, October 2000-September, 2001.

WDI denotes *World Bank Development CD-ROM 2000*.

World Bank data have been downloaded from: <http://www.worldbank.org/research/growth/GDNdata.htm>

Series (O.15), (O.16), (O.18) and (O.19) have been downloaded from <http://pwt.econ.upenn.edu>.

## Constructed Series

### Series

- (C.1) Real GDP, billions of 1995 pesos, Chile
- (C.2) Real GDP, billions of 1995 pesos, Mexico
- (C.3) Real investment, billions of 1995 pesos, Chile
- (C.4) Real investment, billions of 1995 pesos, Mexico
- (C.5) Capital stock, billions of 1995 pesos, Chile
- (C.6) Capital stock, billions of 1995 pesos, Chile (new — see notes on Construction of Series Used in the Paper below)
- (C.7) Capital stock, billions of 1995 pesos, Mexico
- (C.8) Capital stock, billions of 1995 pesos, Mexico (new)
- (C.9) Labor input, Chile
- (C.10) Labor input, Chile (new — see notes on Construction of Series Used in the Paper below)
- (C.11) Labor input, Mexico
- (C.12) Labor input, Mexico (new)
- (C.13) Real GDP per working-age (15-64) person detrended by 2 percent per year, Chile
- (C.14) Real GDP per working-age (15-64) person detrended by 2 percent per year, Mexico
- (C.15) Purchasing power parity real GDP per working-age (15-64) person, Chile
- (C.16) Purchasing power parity real GDP per working-age (15-64) person, Mexico
- (C.17) Copper price deflated by U.S. PPI.
- (C.18) Crude petroleum price deflated by U.S. PPI.
- (C.19) Index of real wages in Mexico, 1980=100
- (C.20) Real exchange rate against the U.S. dollar, Chile
- (C.21) Real exchange rate against the U.S. dollar, Mexico
- (C.22) Exports as a percent of GDP, Chile
- (C.23) Imports as a percent of GDP, Chile
- (C.24) Exports as a percent of GDP, Mexico
- (C.25) Imports as a percent of GDP, Mexico
- (C.26) Export value in U.S. dollars deflated by U.S. PPI, Chile
- (C.27) Export value in U.S. dollars deflated by U.S. PPI, Mexico
- (C.28) Total external debt as a percent of GDP, Chile
- (C.29) Total external debt as a percent of GDP, Mexico
- (C.30) Investment as a percent of GDP, Chile
- (C.31) Investment as a percent of GDP, Mexico
- (C.32) Government surplus as a percent of GDP, Chile
- (C.33) Government surplus as a percent of GDP, Mexico
- (C.34) Private credit as a percent of GDP, Chile
- (C.35) Private credit as a percent of GDP, Mexico
- (C.36) Total factor productivity detrended by 1.4 percent per year, Chile
- (C.37) Total factor productivity detrended by 1.4 percent per year, Chile (new — see notes on Construction of Series Used in the Paper below)
- (C.38) Total factor productivity detrended by 1.4 percent per year, Mexico
- (C.39) Total factor productivity detrended by 1.4 percent per year, Mexico (new)

## Construction of Series Used in the Paper

We briefly outline the construction of the series we used in the paper. Our outline of the construction of these series corresponds to the description given in Appendix A of the paper. Numbers in parenthesis correspond to the series listed above.

### Detrending

The series have been detrended according to

$$Y_t^d = \frac{Y_t}{(1+x)^{t-1980}}.$$

where  $Y_t^d$  denotes the detrended series,  $Y_t$  is the undetrended series and  $x$  is the trend growth rate.

### Data for growth accounting:

**GDP:** The GDP series are from *IFS*. To compute real GDP in constant 1995 pesos, we multiplied the real GDP index ((O.1),(O.2)) by the nominal value of GDP in 1995 ((O.7),(O.10)).

**Capital Stock:** The investment series used to compute the capital stocks are the sum of gross fixed capital formation and change in inventories reported by *IFS*. The values reported by *IFS* are nominal. We converted these values into 1995 pesos as follows. First, we took the ratio of nominal investment ((O.8)+(O.9),(O.11)+(O.12)) to nominal GDP ((O.7),(O.10)). We then multiplied this by our constant 1995 pesos series for GDP. (Notice that calculating real investment by deflating nominal investment by the GDP deflator is not the same as deflating by an investment deflator.) We then used a perpetual inventory method to generate the capital stock. We used a depreciation rate of 0.05. Note: The capital stock series used in the paper depend on the initial values for the capital stock in the series, that in 1960 for Chile and that in 1950 for Mexico. In the original series these initial values were chosen somewhat arbitrarily. We report corrected series — labeled “new” — in which for the initial values are chosen so that the capital-output ratio is the same in 1960 in Chile as its average 1961-1980 and the same in 1950 in Mexico as its average for 1951-1980. These new series ((C.6),(C.8)) differ from the original series ((C.5),(C.7)) only slightly over the period 1980-2000.

**Labor Input:** The labor series have been estimated using data from a number of sources: The labor inputs for both countries are the products of total employment and a survey of average hours per worker. In Mexico, total employment from 1980-1990 is total employment from the *Penn World Table 5.6* (O.20) multiplied by the ratio of *IFS* employment (O.14) to *Penn World Table* employment in 1988. This series is spliced with the available data on employment reported by *IFS* for the 1990s. The data for missing years are calculated using linear interpolation. Employment in Mexico in 1999 and 2000 has been calculated as the product of the labor force (O.25) from *WDI* and the ratio of employment (O.14) in 1998 to the labor force in 1998 (O.25). A series for average hours worked per worker in Mexican manufacturing is calculated as the ratio of an index of total hours (O.23) to an index of total employment (O.24) in manufacturing reported in *Main Economic Indicators* scaled so that average hours worked in 1980 is 45 hours. The labor series in Chile is calculated computed using data on total employed from the *Penn World Table 5.6* from 1980-1985 (O.17) and total employment reported in *IFS* from 1985-2000 (O.13). The hours series is Average Hours Worked in Urban Santiago from the survey *Encuesta de Ocupación y Desocupación* released quarterly by the Departamento de Economía, Universidad de Chile. These quarterly data (O.21) have been averaged to form an annual series (O.22). Notice that there was no survey conducted in September 1973. There were minor errors in the calculation of the labor input series for both Chile and Mexico. We report corrected series, labeled “new” for both series ((C.10),(C.12)).

**Total Factor Productivity:** The data on TFP ((C.36),(C.38)) have been constructed as

$$A_t = \frac{Y_t}{K_t^{0.3} L_t^{0.7}}.$$

The input series for Chile are (C.5) and (C.9); those for Mexico are (C.7) and (C.11). We also report new total factor productivity series for each country ((C.37),(C.39)) constructed using the corrected series for capital ((C.6),(C.8)) and for hours worked ((C.10),(C.12)).

**Table I:** All the data are from *IFS*. The real GDP series for Chile is (O.1)/(O.3) and for Mexico it is (O.2)/(O.4). Both series are detrended at an annual rate of 2 percent.

**Figure 1:** The real GDP series are indices of real GDP volume from *IFS*. Real GDP per working-age person (15-64) in Chile equals (O.1)/(O.3). Real GDP per working-age person (15-64) in Mexico is (O.2)/(O.4). The population aged 15-64 is from *WDI*. These data end in 1999. The population aged 15-64 in 2000 has been estimated by linear extrapolation. The population for 2000 is estimated for 2000 as follows:

$$Pop_{2000} = \frac{Pop_{1999}}{Pop_{1998}} Pop_{1999}.$$

**Figure 2:** The real GDP series are real GDP per working-age person in constant dollars (international prices, base year 1985). These series are downloaded from the World Bank's *Global Development Network Growth Database*. To convert GDP per capita to GDP per working-age person, we use the population data from *WDI*. For Chile, real GDP per capita is given by (O.5)\*(O.53)/(O.3), and for Mexico by (O.6)\*(O.54)/(O.4). The data for 2000 have been calculated using the 1999 data and the real growth rate from the data in Figure 1.

**Figure 3:** The data are from *IFS*: the price of copper is the London price (O.26), while the price of oil reported in the average world price (O.27). Both series are deflated using the U.S. PPI from *IFS* (O.28).

**Figure 4:** The real manufacturing wage in Chile (O.29) is a series reported in *Indicadores Mensuales de Empleo y Remuneraciones* from Chile's Instituto Nacional de Estadísticas. The real wage in manufacturing for Mexico has been created by splicing a series reported by *IFS* (O.30) with a series from Organization for Economic Co-Operation and Development's *Main Economic Indicators* (O.31). The *IFS* series is deflated using the CPI reported by *IFS* (O.33). The OECD series is a real series. These series are spliced using their ratio in 1995. It is worth noting that the date at which the two series are spliced matters. We choose to splice the two series in 1995 since this is the latest date for which the *IFS* series is available.

**Figure 5:** The real exchange rates are calculated using period averages of the nominal exchange rates and Consumer Price Indices from *IFS*. The real exchange rate in Chile is (O.36)\*(O.46)/(O.32) and in Mexico is (O.37)\*(O.46)/(O.32).

**Figure 6:** The series are the ratios of nominal imports and exports and nominal GDP from *IFS*. For Chile, imports/GDP = (O.48)/(O.7), exports/GDP = (O.47)/(O.7), and for Mexico, imports/GDP = (O.50)/(O.10), exports/GDP = (O.49)/(O.10).

**Figure 7:** The U.S. PPI (O.28) is from *IFS*. The export values in U.S. dollars are from *WDI* and the World Trade Organization's *International Trade Statistics 2000*. The series used are Chile: (O.51)/(O.28), and for Mexico (O.52)/(O.28)

**Figure 8:** Total external debt for 1980-1999 is from *WDI*. The GDP series are from *IFS*, and are converted into U.S. dollars using period average nominal exchange rates from *IFS*. The 2000 value has been obtained from the Banco Central de Chile's *Boletín Mensual, Julio 2001* for Chile and the Economic Commission for Latin America and the Caribbean's *Economic Survey of Latin America and the Caribbean*,

2000-2001. The series used are: Chile is  $(0.34)/((0.7)*(0.36))$ , and Mexico is  $(0.35)/((0.10)*(0.37))$ . Note that the GDP series are reported in billions, and that the debt figures are in dollars.

**Figure 9:** Nominal investment and nominal GDP are from *IFS*. Nominal investment as a percentage of GDP is: Chile  $((0.8)+(0.9))/(0.7)*100$ , and  $((0.11)+(0.12))/(0.10)*100$

**Figure 10:** Government surplus is from *IFS*. The value of the surplus in Chile in 2000 is from the *Estadísticas de las Finanzas Públicas 1990-2000*, Dirección de Presupuesto, Ministerio de Hacienda. For Chile, this is  $(0.38)/(0.7)$  for Mexico  $(0.39)/(0.10)$ .

**Figure 11:** Both the private credit and GDP series are from *IFS*. Private Credit is the sum of claims on Non-Financial Public Enterprise and Claims on Private Sector. For Chile, this is  $((0.34)+(0.35))/(0.7)$ , and for Mexico is  $((0.36)+(0.37))/(0.10)$ .

**Figure 12:** The data on bankruptcies in Chile correspond to the number of new filings, not the number of resolutions; the Fiscalía Nacional de Quiebras of the Ministerio de Justicia provided the authors with these data on request.