

## Data for Argentina used in the Kydland-Zarazaga chapter in this volume

### Original data:

#### Description:

- O.1) Real GDP 1900-50 at market prices, million pesos moneda nacional, in 1950 prices.
- O.2) Real GDP 1950-70 at market prices, australes, 1960 prices.
- O.3) Real GDP 1970-80 at market prices, australes, 1970 prices.
- O.4) Real GDP 1980-97 at market prices, thousand pesos, 1986 prices.
- O.5) Real Investment in Machinery and Equipment 1900-50, millions of pesos moneda nacional, 1950 prices.
- O.6) Real Investment in Machinery and Equipment 1950-70, australes, 1960 prices.
- O.7) Real Investment in Machinery and Equipment 1970-80, australes, 1970 prices.
- O.8) Real Gross Fixed Total Investment, 1980-1997, thousand pesos, 1986 prices.
- O.9) Real Investment in Non-Residential Structures, 1900-80, thousand australes, 1980 prices.
- O.10) Real Investment in Structures, 1980-1997, thousand pesos, 1986 prices.
- O.11) Total population
- O.12) Working age population (ages 20 to 70)
- O.13) Population actually employed in year 1950.
- O.14) Wage earners, 1944-80, thousand persons
- O.15) Total Urban Employment, thousand persons.

### **Sources:**

- O.1) ECLAC-CEPAL (1958). Data from this source are also posted in the following Website page of the Ministry of the Economy of Argentina:  
[http://www.mecon.gov.ar/secpro/dir\\_cn/series\\_historicas/series\\_pbireal.xls](http://www.mecon.gov.ar/secpro/dir_cn/series_historicas/series_pbireal.xls).
- O.2) ECLAC-CEPAL (1988), Cuadro 1, p. 205.
- O.3) ECLAC-CEPAL (1988), Cuadro 1, p. 245.
- O.4) Heymann (2000), Cuadro 1, p. 156.
- O.5) ECLAC-CEPAL (1958).
- O.6) ECLAC-CEPAL (1988), Cuadro 11, p. 215.
- O.7) ECLAC-CEPAL (1988), Cuadro 11, p. 255.
- O.8) Heymann (2000), Cuadro 1, p. 156.
- O.9) Hofman (1992).
- O.10) Heymann (2000), Cuadro 2, p. 157.
- O.11) CELADE (2002) Table 12a, p. 43.
- O.12) CELADE (2002) Table 12a, p. 43.
- O.13) Hofman (2000), Table 4.5, p. 55.
- O.14) Elías (1992), Table E.10, p. 210. As documented in personal correspondence with that author, this series corresponds to wage-earning workers, as partially reported in a supplement to the National Accounts published by the Central Bank of Argentina. Elías complete the missing observations by interpolation of total (wage and non-wage earning workers) labor force participation rates, as reported in population censuses.
- O.15) MECON (2000), Table 3.6, p. 69 (annual average).

### Constructed Data:

#### Description:

- C.1) Real GDP at market prices, thousand pesos, 1986 prices.
- C.2) Real Investment in Machinery and Equipment, thousand pesos, 1986 prices.
- C.3) Real Investment in Non-Residential Structures, thousand pesos, 1986 prices.
- C.4) Real Investment in Residential Structures, thousand pesos, 1986 prices.
- C.5) Investment as a percentage of GDP.
- C.6) Capital stock in machinery and equipment at the beginning of the year, thousands pesos, 1986 prices.
- C.7) Capital stock in non-residential structures at the beginning of the year, thousands of pesos, in 1986 prices.
- C.8) Capital stock in residential structures at the beginning of the year, thousands of pesos, in 1986 prices.
- C.9) Total capital stock at the beginning of the year, thousands of pesos, in 1986 prices.
- C.10) Total Population.
- C.11) Working age population (ages 20-70).
- C.12) Working age population normalized to 1980.
- C.13) Population employed.
- C.14) Population employed normalized to 1980.
- C.15) Fraction of household members employed.
- C.16) Fraction of personal available time employed members of the household devote to work.
- C.17) Fraction of total available time the representative household devotes to work (labor input).
- C.18) TFP growth.
- C.19) Detrended TFP growth.
- C.20) Detrended TFP level.
- C.21) Detrended TFP level as a fraction of its steady-state level.
- C.22) Detrended TFP level as a fraction of its steady-state level minus expected mean of that fraction.
- C.23) TFP level.
- C.24) Capital-output ratio.
- C.25) Normalized GDP.
- C.26) Detrended GDP.
- C.27) Detrended capital stock.
- C.28) Predicted level of investment (detrended) under rational expectations.
- C.29) Predicted capital stock (detrended) under rational expectations.
- C.30) Predicted fraction of available time the representative household devotes to work (labor input) under rational expectations.
- C.31) Predicted GDP (detrended) under rational expectations.
- C.32) Predicted capital-output ratio under rational expectations.
- C.33) Predicted investment as a percentage of GDP under rational expectations.
- C.34) Predicted capital stock (detrended) under perfect foresight.
- C.35) Predicted fraction of available time the representative household devotes to work (labor input) under perfect foresight.
- C.36) Predicted GDP (detrended) under perfect foresight.

- C.37) Predicted capital-output ratio under perfect foresight.  
 C.38) Predicted investment as a percentage of GDP under perfect foresight.

Construction of series:

- C.1) Period 1980-97: series O.4. Period 1900-79: spliced by applying to 1980 level in series O.4 the annual growth rates of original series O.1, O.2, and O.3.
- C.2) Period 1980-96: series O.8 minus series O.10. Period 1900-79: spliced by applying to the 1980 level the annual growth rates of original series O.5, O.6, and O.7.
- C.3) Period 1980-97: series O.10 multiplied by 0.54, for consistency with Hofman (1992), who applied this coefficient to derive original series O.9 for the period 1955-69 (see Table 2.A in Hofman's paper and explanatory notes in its accompanying diskette). That coefficient corresponds to the historical average of the proportion of non-residential structures in total construction permits, typically used by many researchers to allocate investment in structures between its non-residential and residential components after 1955, when that information stops being available in Argentina's National Accounts. Period 1900-79: spliced by applying to the 1980 level the annual growth rates of original series O.9.
- C.4) Period 1980-97: series O.10 minus series C.3. Period 1900-79: spliced by applying to the 1980 level the annual growth rates of original series O.9. This procedure assumes that the residential component of investment in structures grows at the same rate as the non-residential component. This assumption is implied by the fixed coefficient allocation approach used by Hofman (1992) for the period 1955-69 (see description of construction of series C.3 above) and it was kept for all years prior to 1955 as well for methodological consistency.
- C.5) Sum of series C.2 to C.4 divided by series C.1 times 100.
- C.6) Obtained as sum of residual values of investment in machinery and equipment made in the previous 15 years:
- $$K_t = \sum_{i=0}^T I_{t-1-i} * (1 - \delta)^i$$
- where T, the useful life span of the asset, is set equal to 15 years, following Hofman (1992) and ECLAC (1996), and  $\delta$ , the depreciation rate, is the solution to the equation  $1/T = (1 - \delta)^T$ , implying  $\delta = 0.1652$ . Assets depreciate completely after T years in service. Period t investment is incorporated into the capital stock at period t+1.
- C.7) Same as C.5, with T = 40 and  $\delta = 0.0881$ .
- C.8) Same as C.5, with T = 50 and  $\delta = 0.07526$ .
- C.9) Sum of C.5 through C.7.
- C.10) Obtained by geometric interpolation of series O.11.
- C.11) Obtained by geometric interpolation of series O.12.
- C.12) Series C.11 divided by its level in 1980.
- C.13) Year 1950: value from O.13 series. Period 1944-80: spliced by applying to 1950 employment level the annual growth rates of series O.14. Period 1981-97: spliced by applying to 1980 employment level the annual growth rates of series O.15.
- C.14) Series C.13 divided by level of series C.11 in 1980.
- C.15) Series C.14 divided by series C.12.

C.16) Constant obtained by imposing the restriction that in the period 1980-97 the members of the representative household devoted on average to market activities a 0.3 fraction of the available time, that is, series C.16 = 0.3/(1980-97 average of series C.16).

C.17) Series C.15 times series C.16.

C.18) Variable  $\frac{Y_t}{K_t^{0.4} * (E_t \cdot h_t)^{0.6}}$ , divided by itself lagged one period, where  $Y_t$  is

obtained from series C.1,  $K_t$  from series C.9,  $E_t$  from series C.13 and  $h_t$  from series C.16.

C.19) Series C.18 divided by  $(1+\gamma)^{(1-\theta)}$ , where  $\gamma$  is the 1951-79 geometric average of the TFP factor.

C.20) Observation for each year obtained by applying to the previous year level the corresponding growth rate in series C.19, with level for 1951 chosen so that the average of this series for the period 1951-79 equals the value of the technology level in steady-state. The steady-state technology level (or TFP) was set to the value that normalizes to 1 the steady-state output per working person, that is, by solving  $A_{ss}$  from the expression

$$1 = A_{ss}^{\frac{1}{1-\alpha}} \left( \frac{K}{Y} \right)_{ss}^{1-\alpha} \left( \frac{E}{L} h \right)_{ss}. \text{ In the paper in this volume, } (K/Y)_{ss} \text{ was set to 2 and}$$

$(E \cdot h/L)_{ss}$  (the fraction of time devoted to work) to 0.3.

C.21) Series C.20 divided by the technology level in steady-state.

C.22) Series C.21 minus its mean for the period 1951-79 (equal to 1 by construction).

C.23) Year 1980: same value as series C.20 for that year. Rest of the series constructed by recursively applying rates of growth in series C.18.

C.24) Series C.9 divided series C.1.

C.25) Calculated from the intensive version of the production

$$\text{function } Y_t = A_t^{\frac{1}{1-\alpha}} \left( \frac{K}{Y} \right)_t^{1-\alpha} (E h)_t, \text{ using series C.14, C.16, C.23 and C.24.}$$

C.26) Series C.25 divided series C.12.

C.27) Series C.25 detrended by factor  $((1+\eta)(1+\gamma))^{t-1980}$ , where  $\eta$  is the 1951-79 geometric average of working age population growth rate and  $\gamma$  the corresponding average for the TFP factor.

C.28) Series C.27 times series C.24.

C.29) Obtained by feeding the computed equilibrium decision rule for capital input under rational expectations with series C.20 and predicted beginning-of-period capital, computed in series C.30 as indicated below.

C.30) Year 1980: value for same year in series C.28. Period 1981-97: computed recursively by plugging the previous period's predicted capital stock and predicted investment into the detrended version of the law of motion of capital.

C.31) Obtained by feeding the computed equilibrium decision rule for labor input under rational expectations with series C.20 and predicted beginning-of-period capital, in series C.30.

- C.32) Calculated by the feeding the stationary version of the production function with series C.20, C.30, and C.31.
- C.33) Series C.30 divided series C.32.
- C.34) Series C.29 divided series C.32.
- C.35) Computer output under perfect foresight.
- C.36) Computer output under perfect foresight.
- C.37) Computer output under perfect foresight.
- C.38) Series C.35 divided by series C.37.
- C.39) Computer output under perfect foresight.

## References

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Hofman, André A. (1992): “Capital Accumulation in Latin America: A Six Country Comparison for 1950-89,” *Review of Income and Wealth* 38(4) (December): 365-401. Annex A, Tables AR1 and AR2, column 3, as extracted from diskette accompanying the article.

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