Reproducción de Durlauf y Johnson (1995)

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Introduccion

Durlauf y Johnson (1995) investigan el crecimiento través de paises usando el modelo de crecimiento de Solow extendido de MRW (1992)

Modelo

Parten asumiendo que el producto agregado del pais i en el periodo t, Y_{it} sigue una función Cobb Douglas

$$Y_{it} = \phi K_{it}^{\alpha} H_{it}^{\gamma} (A_t L_{it}^{1-\alpha-\gamma}) \tag{1}$$

Las ecuaciones de acumulación de capital son:

$$\frac{dK_{it}}{dt} = s_i^k Y_{it} - \delta K_{it} \tag{2}$$

$$\frac{dH_{it}}{dt} = s_i^h Y_{it} - \delta H_{it} \tag{3}$$

Esto implica que el cambio de producto entre T y $T+\tau$ por trabajador esta dado por

$$\ln\left(\frac{Y}{L}\right)_{iT+\tau} - \ln\left(\frac{Y}{L}\right)_{iT} = \xi + \beta \ln\left(\frac{Y}{L}\right)_{iT} + \Pi X_i + \epsilon_i \tag{4}$$

donde $X_i = (\ln(s_i^h), \ln(s_i^k), \ln(n_i + g + \delta)$. (g es la tasa de crecimiento de la tecnología, δ la tasa de depreciación de K, n tasa de crecimiento de L)

Data

Las variables en la regression son:

- GDP per member of working-age population, Y/L (separately for 1960 and 1985);
- fraction of real GDP devoted to investment, I/Y (annual average 1960–1985);
- growth rate of working-age population, n (annual average 1960–1985);
- fraction of working-age population enrolled in secondary school, *SCHOOL* (annual average 1960–1985);
- the adult literacy rate, *LR* in 1960.

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Statistic N Mean St. Dev. Min Pctl(25) Pctl(75) Max

NUMBER 121 61.000 35.074 1 31 91 121

NONOIL 121 0.810 0.394 0 1 1 1

INTER 121 0.620 0.487 0 0 1 1

OECD 121 0.182 0.387 0 0 0 1
GDP60 116 3,681.819 7,492.878 383.000 973.250 4,274.500 77,881.000 GDP85 108 5,683.259 5,688.671 412.000 1,209.250 7,718.750 25,635.000 GDPGRO 117 4.094 1.891 -0.900 2.800 5.300 9.200
POPGRO 107 2.279 0.999 0.300 1.700 2.900 6.800
IONY 121 18.157 7.853 4.100 12.000 24.100 36.900
SCHOOL 118 5.526 3.532 0.400 2.400 8.175 12.100
LIT60 103 48.165 35.354 1.000 15.000 83.500 100.000

Gdp60 tiene media 3,681 y varianza..

Regressions

Table II. Cross-section regressions: initial output and literacy-based sample breaks: dependent variable: $\ln(Y/L)_{i,1985} - \ln(Y/L)_{i,1960}$

	M–R–W	$(Y/L)_{i,1960} < 1950$ and $LR_{i,1960} < 54\%$	$1950 \leqslant (Y/L)_{i,1960}$ and $54\% \leqslant LR_{i,1960}$
Observations	98	42	42
		Unconstrained regressions	
Constant	3·04[a]	1·40	0·450
	(0·831)	(1·85)	(0·723)
$\ln(Y/L)_{i,1960}$	−0·289[a]	−0·444[a]	−0·434[a]
	(0·062)	(0·157)	(0·085)
$\ln(I/Y)_i$	0·524[a]	0·310[a]	0·689[a]
	(0·087)	(0·114)	(0·170)
$\ln(n+g+\delta)_i$	−0·505	−0·379	−0·545
	(0·288)	(0·468)	(0·283)
$\ln(SCHOOL)_i$	0·233[a]	0·209[a]	0·114
	(0·060)	(0·094)	(0·164)
$\bar{R}^2$	0·46	0·27	0·48
σ_ε	0·33	0·34	0·30
		Constrained regressions	
Θ	−2·56[a,b]	2·29	−0·395
	(1·14)	(1·17)	(1·24)
α	0·431[a]	0·275[a]	0·509[a]
	(0·061)	(0·097)	(0·098)
γ	0·241[a]	0·217[a]	0·108
	(0·046)	(0·061)	(0·094)
$\bar{R}^2$	0·42	0·28	0·50
σ_ε	0·34	0·34	0·29

[a] Significance at asymptotic 5% level.
[b] This equation has been reestimated under the restriction $\lambda_t = (1 - \alpha - \gamma)(n_t + g + \delta)$, where λ_t is the rate of convergence toward the steady state. This restriction was not imposed by M–R–W. Their estimates are constant = 2·46 (0·48); $\alpha = 0{\cdot}48$ (0·07); $\gamma = 0{\cdot}23$ (0·05); $\bar{R}^2 = 0{\cdot}46$; and $\sigma_\varepsilon = 0{\cdot}33$.

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plot(log(DJ$GDPGRO),log(DJ$GDP60))
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## Warning in log(DJ$GDPGRO): NaNs produced
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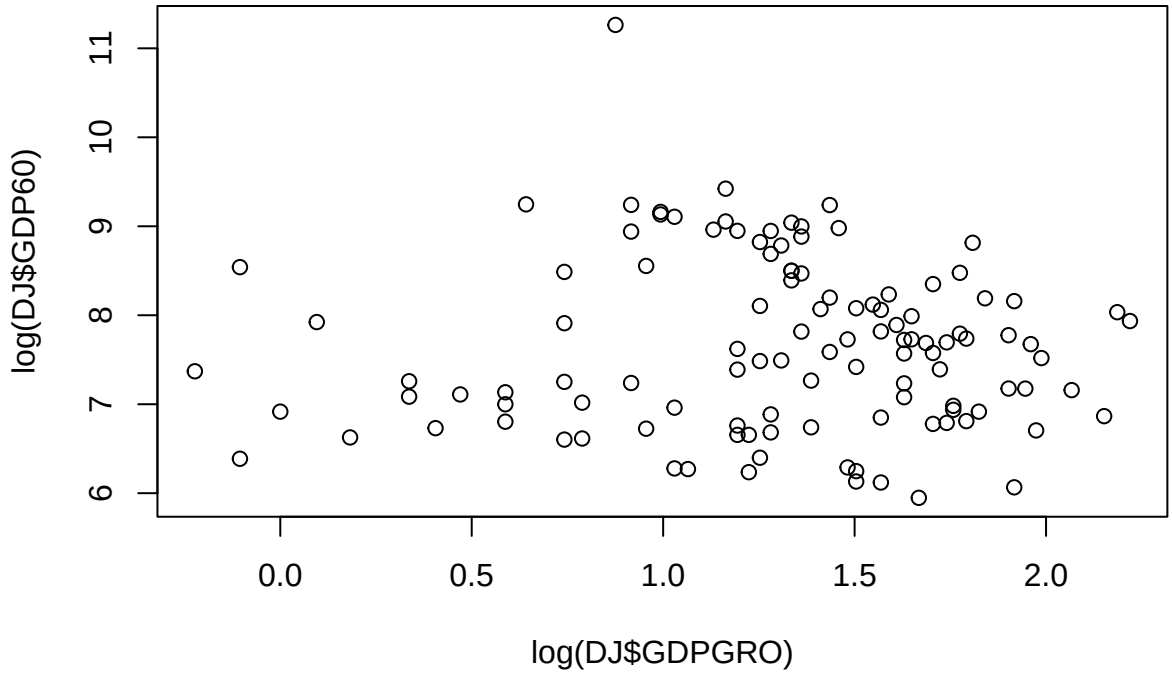

Table 1: Reproducción Table II

	Dependent variable:		
	I(log(GDP85) - log(GDP60))		
	(1)	(2)	(3)
Constant	3.022	1.400	0.450
	(0.827)***	(1.846)	(0.723)
log(GDP60)	−0.288	−0.444	−0.435
	(0.062)***	(0.157)***	(0.085)***
log(IONY/100)	0.524		
	(0.087)***		
log(IONY)		0.310	0.689
		(0.114)**	(0.170)***
log(POPGRO + 0.05)	−0.506	−0.379	−0.545
	(0.289)*	(0.468)	(0.283)
log(SCHOOL/100)	0.231		
	(0.059)***		
log(SCHOOL)		0.209	0.114
		(0.094)**	(0.164)
Observations	98	42	42
R^2	0.485	0.345	0.527
Adjusted R^2	0.463	0.275	0.476
Residual Std. Error	0.327 (df = 93)	0.341 (df = 37)	0.295 (df = 37)
Note:			*p<0.1; **p<0.05; ***p<0.01