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Economics Letters 82 (2004) 259–267
economics letters
www.elsevier.com/locate/econbase

The mother of all puzzles would not go away

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Received 10 April 2003; accepted 26 June 2003

Abstract

This paper studies the short-run and long-run relationships between saving and investment rates for 123 countries using an error correction framework. The conventional wisdom suggests that capital should be more mobile for the countries with high per capita income. Our estimates suggest that capital is mobile for 16 countries most with a low per capita income.

Keywords: Saving and investment; Feldstein–Horioka puzzle; Long-run relationship; Cointegration

JEL classification: C22; E21

1. Introduction

Feldstein and Horioka (1980) study the relationship between saving and investment rates by using cross-section data for OECD countries to find a high correlation between the two rates. The high correlation between the saving and investment rates was interpreted as capital being immobile even among the developed countries. This came to be known as the "Feldstein–Horioka puzzle" because the evidence of capital immobility flies in the face of financial liberalization that seemed to have already taken place. For its importance, Obstfeld and Rogoff, (2000, p. 175) has called it "the mother of all puzzles." This puzzle has a counterpart in finance literature called the "home country bias puzzle."

Most studies have concentrated on studying one country (see De Vita and Abbott, 2002 for a recent example). Others have taken groups of countries (such as those of Obstfeld and Rogoff, 2000), but *never*

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doi:10.1016/j.econlet.2003.06.002

the largest possible sample of countries possible to examine. This paper does precisely that. We examine the long-run relationship between saving and investment rates in 123 countries using the Penn World Table data.

2. Methodology

Davidson et al. (1978) introduce the general class of error correction models, applying it to examine the relationship between consumer expenditure and income in the UK. Jansen (1996) and Jansen and Schulze (1996) also use this error correction model to estimate saving–investment relationship for OECD countries and Norway, respectively.

The equation estimated by Jansen takes the following form:

$$\Delta IR_t = \alpha + \beta \Delta SR_t + \gamma(\mathrm{SR}_{t-1} - \mathrm{IR}_{t-1}) + \delta \mathrm{SR}_{t-1} + \varepsilon_t \quad (1)$$

where SR and IR are saving and investment rates, respectively, and Δ stands for the first difference. Taylor (1996, 1998) also follows the same methodology. Jansen and Schulze (1996) point out a number of advantages that the error correction model (1) has. It can show us both the short-run and the long-run relationships. If the error correction term γ is found to be statistically significant, it implies that there is a long-run relationship between saving and investment. In other words, it shows that saving and investment are cointegrated. Cointegration implies that the intertemporal budget constraint is obeyed. The current account gravitates back towards an equilibrium level and γ shows the speed of adjustment. In this approach, δ measures capital mobility. If δ is statistically significant, it means that the current account does not converge to a constant in the long run. This implies that there is capital mobility (Jansen, 1996, p. 762). β measures the Feldstein–Horioka type relationship. "It is a measure of the extent to which shocks pass immediately through to investment in the current period" (Taylor, 1998, p. 162).

3. Data and the results

We use the version 5.6 of the Penn World Table in our empirical analysis. We include only those countries for which at least 30 annual observations are available. For our saving measure, we use what has been called "basic saving" by Baxter and Crucini (1993). Basic saving is defined as gross domestic product minus two types of consumption—private consumption and government consumption. For our measure of investment, we use gross fixed capital formation. Bayoumi (1990) points out the advantage of gross fixed capital formation as a measure of investment: it has a lesser tendency to behave procyclically because it excludes the highly procyclical inventories component. In our study, SR and IR are saving and investment rates where these rates are defined as percentages of GDP.

For the countries for which we encounter the problem of serial correlation, an autoregressive (AR) procedure is used. To estimate the AR model, we use the nonlinear least squares procedure by Fair (1984). For other countries, the method of ordinary least square (OLS) is used.

The results (summarized in Table 1) are as follows. For the following 21 countries, the Jarque–Bera statistic indicates the problem of nonnormality at 5% level of significance: Angola, Barbados, Guinea, Iceland, Iran, Iraq, Lesotho, Mauritius, Mexico, Morocco, Mozambique, Nicaragua, Nigeria, Pakistan,

Table 1
Estimated Eq. (1) for 123 countries (explanation of each column appears at the foot of the table)

Country	#	R^2	β	γ	δ	α	DW	JB	Process
Algeria	33	0.06	0.13	−0.02	0.25	−0.08	2.18	2.28	AR(2)
t-statistic			0.75	−0.18	1.28	−1.45			
Angola	30	0.16	−0.05	0.39	−0.44	0.02	2.02	20.37	AR(1)
t-statistic			−1.64	0.49	−0.52	0.56			
Argentina	41	0.58	0.84	0.01	0.01	−0.002	1.91	0.42	AR(2)
t-statistic			7.45	0.11	0.11	−0.25			
Australia	43	0.63	1.13	0.69	0.09	−0.006	2.11	2	AR(3)
t-statistic			8.05	0.16	0.16	−0.14			
Austria	43	0.86	1.46	0.64	0.21	−0.05	1.87	1.5	AR(1)
t-statistic			15.47	0.94	0.74	−0.73			
Bangladesh	34	0.93	0.78	0.6	−0.04	0.01	2.16	0.08	OLS
t-statistic			19.35	4.08	−1.13	2.77			
Barbados	30	0.35	−0.01	0.85	−0.88	0.11	1.99	6.58	OLS
t-statistic			−0.12	4.15	−3.68	3.77			
Belgium	43	0.61	1.02	0.20	0.09	−0.01	1.81	0.05	OLS
t-statistic			7.65	2.29	1.13	−0.89			
Benin	33	0.87	0.96	0.14	−0.12	0.01	1.95	0.56	OLS
t-statistic			13.04	1.61	−2.38	2.17			
Bolivia	43	0.86	1.06	0.43	0.05	−0.005	2.19	1.2	OLS
t-statistic			15.91	3.47	1.47	−0.86			
Botswana	30	0.61	0.84	0.19	−0.19	0.04	1.86	0.62	OLS
t-statistic			5.71	1.9	−2.26	2.35			
Brazil	43	0.8	1.06	0.08	0.02	−0.005	2.08	1.18	AR(1)
t-statistic			11.79	1.42	0.42	−0.48			
United Kingdom	43	0.64	0.81	0.03	−0.08	0.02	1.88	4.41	AR(3)
t-statistic			6.48	0.35	−1.91	2.01			
Burkina Faso	34	0.44	0.66	0.22	0.17	0.02	2	0.48	OLS
t-statistic			4.95	2.23	1.38	2.36			
Burundi	33	0.69	0.91	0.27	0.1	0.01	2.18	0.09	OLS
t-statistic			5.93	1.82	0.51	2.2			
Cameroon	33	0.58	0.52	0.03	−0.09	0.01	2.36	2.76	AR(2)
t-statistic			4.97	0.22	−1.07	0.75			
Canada	43	0.67	1.33	0.64	0.08	−0.03	1.99	2.26	AR(1)
t-statistic			7.83	1.37	0.27	−0.36			
Cape Verde	33	0.54	0.7	0.65	−0.23	0.13	2.04	2.37	AR(1)
t-statistic			5.43	0.84	−0.77	0.85			
Central African Republic	33	−0.07	−0.04	0.15	−0.14	0.01	2.09	4.02	AR(1)
t-statistic			−0.26	0.97	−0.96	0.78	0.77		
Chad	33	0.45	0.3	0.61	−0.52	0.01	1.99	3.26	OLS
t-statistic			3.72	3.69	−3.57	3.25			
Chile	43	0.88	0.72	0.91	−0.36	0.09	1.88	0.51	AR(1)
t-statistic			14.85	4.06	−3.86	4.08			
China	33	0.96	0.97	0.4	−0.01	0.002	2.03	44	AR(1)
t-statistic			22.08	0.91	−0.4	0.04			
Colombia	43	0.65	1.27	0.47	0.11	−0.02	2.08	1.17	AR(1)
t-statistic			7.92	0.89	0.66	−0.69			

(continued on next page)

Table 1 (*continued*)

Country	#	R^2	β	γ	δ	α	DW	JB	Process
Comoros	33	0.46	0.32	0.29	− 0.15	0.04	1.93	1.57	OLS
t-statistic			1.58	2.2	− 0.79	2.15			
Congo	33	0.35	− 0.20	0.62	− 0.07	0.06	1.96	1.08	AR(1)
t-statistic			− 1.45	0.07	− 0.07	.07			
Costa Rica	43	0.64	1.06	0.84	− 0.37	0.07	2.01	2.39	AR(2)
t-statistic			6.64	2.43	− 2.2	2.42			
Cyprus	43	0.85	0.97	0.21	0.02	0.01	1.96	0.15	AR(1)
t-statistic			13.24	1.51	0.35	0.49			
Czechoslovakia	31	0.66	0.71	0.3	− 0.28	0.08	1.83	3.12	AR(3)
t-statistic			5.79	1.07	− 1.49	1.46			
Denmark	43	0.51	1.24	− 0.01	− 0.03	0.003	2.03	1.57	OLS
t-statistic			6.34	− 0.1	− 0.25	0.13			
Dominican Republic	43	0.54	0.77	0.42	− 0.02	0.01	1.95	1.71	AR(1)
t-statistic			6.56	1.04	− 0.16	0.83			
Ecuador	43	0.23	0.54	0.27	− 0.11	0.02	1.99	1.41	OLS
t-statistic			2.82	2.21	− 0.92	0.96			
Egypt	43	0.09	− 0.04	0.15	− 0.22	− 5.88	1.98	0.55	AR(1)
t-statistic			− 0.94	1.49	− 1.9	− 1.37			
El Salvador	43	0.15	0.14	0.42	− 0.37	− 0.03	1.87	5.07	OLS
t-statistic			0.73	3.16	− 1.93	− 2.97			
Ethiopia	37	0.71	0.58	0.12	− 0.18	0.01	2.09	0.73	AR(1)
t-statistic			7.65	1.73	− 3.4	3.66			
Fiji	31	0.43	0.58	0.3	− 0.11	0.02	1.83	1.6	OLS
t-statistic			4.6	2.08	− 1.24	1.49			
Finland	43	0.68	1.05	0.7	0.21	− 0.06	1.84	0.68	AR(1)
t-statistic			7.6	1.39	1.21	− 1.06			
France	43	0.76	1.42	0.26	0.04	− 0.005	1.99	2.49	AR(2)
t-statistic			12.89	2.36	0.94	− 0.61			
Gabon	33	0.42	0.79	0.31	0.005	− 0.07	2.05	1.34	OLS
t-statistic			4.14	2.25	0.03	− 1.1			
Gambia	31	0.04	− 0.06	− 0.07	0.02	− 0.004	1.76	5.3	AR(2)
t-statistic			− 0.91	− 0.92	0.34	− 0.7			
Ghana	38	0.02	− 0.04	0.17	− 0.2	0.01	1.97	0.37	OLS
t-statistic			− 0.49	1.77	− 1.64	1.52			
Greece	42	0.75	0.92	0.07	− 0.02	0.01	1.92	0.67	OLS
t-statistic			10.83	0.69	− 0.5	1.07			
Guatemala	43	0.4	0.92	0.41	− 0.34	0.03	1.86	1.59	AR(1)
t-statistic			3.88	1.53	− 1.44	1.53			
Guinea-Bissau	33	0.84	1.25	0.14	0.21	0.01	1.97	1.22	AR(1)
t-statistic			10.76	0.78	1.93	0.35			
Guinea	34	0.4	− 0.09	0.63	− 0.7	0.06	2.01	8.06	OLS
t-statistic			− 2.89	4.19	− 4.25	4.24			
Guyana	41	0.64	0.94	0.31	0.14	0.002	1.97	2.22	OLS
t-statistic			7.04	2.69	1.06	6.23			
Haiti	30	0.18	0.39	0.1	0.02	0.003	2.15	0.2	OLS
t-statistic			2.64	1	0.19	1.23			
Honduras	43	0.4	0.69	0.67	0.02	0.03	1.83	0.01	AR(1)
t-statistic			3.86	1.15	0.1	0.75			

Table 1 (*continued*)

Country	#	R^2	β	γ	δ	α	DW	JB	Process
Hong Kong	33	0.58	0.26	1.01	−0.69	0.13	2.25	3.02	AR(2)
t-statistic			2.5	4.59	−2.87	2.46			
Iceland	43	0.29	0.67	0.46	−0.25	0.07	1.97	8.18	OLS
t-statistic			2.46	3.34	−1.33	1.37			
India	43	0.95	1.04	0.49	−0.01	0.004	1.97	0.72	OLS
t-statistic			25.13	3.63	−0.6	1.47			
Indonesia	33	0.64	1.22	0.19	0.11	−0.04	2	4.92	AR(3)
t-statistic			8.79	0.59	0.63	−0.62			
Iran	38	0.34	0.87	0.25	−0.25	0.04	2.08	43.87	AR(1)
t-statistic			3.29	0.84	0.67	0.56			
Iraq	35	0.38	0.29	0.43	0.69	0.13	1.99	7.13	OLS
t-statistic			0.06	2.95	2.97	2.97			
Ireland	43	0.33	0.99	0.06	−0.16	0.03	2.13	1.35	OLS
t-statistic			4.19	0.65	−1.94	1.48			
Israel	40	0.38	0.6	0.25	0.07	0.02	1.89	0.62	OLS
t-statistic			4.65	2.49	0.61	0.98			
Italy	43	0.74	1.08	0.21	−0.02	0.01	1.89	0.02	OLS
t-statistic			10.7	2.16	−0.42	0.75			
Ivory Coast	33	−0.01	0.2	0.1	−0.21	0.02	1.8	0.45	OLS
t-statistic			0.79	0.95	−0.79	0.68			
Jamaica	39	0.7	0.97	0.34	0.04	0.01	1.91	0.77	AR(2)
t-statistic			10.7	1.42	0.62	0.5			
Japan	43	0.74	1.07	0.16	−0.04	0.01	1.91	0.86	AR(1)
t-statistic			10.65	1.52	−1.4	1.5			
Jordan	37	0.11	−0.33	0.18	0.05	0.04	2.02	0.39	OLS
t-statistic			−2.15	1.89	0.21	1.55			
Kenya	43	0.45	0.7	0.07	−0.11	0.01	2.01	2.78	OLS
t-statistic			4.73	1.16	−0.64	0.7			
Lesotho	33	0.74	0.85	0.07	−0.03	0.01	1.91	16.65	AR(1)
t-statistic			9.21	1.01	−0.44	1.22			
Luxembourg	43	0.7	0.95	0.63	0.01	−0.003	1.94	0.57	AR(1)
t-statistic			7.8	0.39	0.16	−0.16			
Madagascar	33	0.28	−0.05	0.63	−0.6	0.01	1.99	2.25	OLS
t-statistic			−0.81	3.59	−3.5	3.6			
Malawi	39	0.79	1.39	0.17	−0.09	0.01	2.12	0.74	AR(1)
t-statistic			9.62	2.12	−1.62	2.28			
Mali	32	0.48	0.34	0.2	−0.19	0.01	2.06	2.43	AR(1)
t-statistic			4.12	2.08	−1.87	2.34			
Malta	36	0.22	−0.35	1.22	−1.4	0.29	1.92	1.19	AR(2)
t-statistic			−2.07	4.32	−3.9	4.3			
Mauritania	33	0.39	0.62	0.54	−0.46	0.07	1.88	1.06	AR(1)
t-statistic			2.8	1.08	−1.35	1.24			
Mauritius	43	0.42	0.61	0.1	0.22	−0.02	1.94	14.09	AR(1)
t-statistic			3.67	1	1.46	−1.07			
Mexico	43	0.61	1.03	0.33	−0.13	0.02	1.88	39.57	AR(3)
t-statistic			5.91	0.79	−0.69	0.69			
Malaysia	38	0.46	0.94	1.2	−0.04	−0.03	2.01	0.79	AR(2)
t-statistic			7.65	4.16	−0.29	−0.74			

(continued on next page)

Table 1 (*continued*)

Country	#	R^2	β	γ	δ	α	DW	JB	Process
Morocco	43	0.56	0.9	0.75	− 0.17	0.04	2.06	18.33	AR(1)
t-statistic			5.62	2.42	− 0.67	1.83			
Mozambique	33	0.08	− 0.03	0.22	− 0.3	0.003	1.82	53.86	OLS
t-statistic			− 0.32	1.73	− 2.26	1.05			
Myanmar	40	0.58	0.66	0.36	− 0.19	0.02	2.09	1.4	OLS
t-statistic			5.09	2.61	− 1.38	185			
Namibia	33	0.83	0.77	0.78	− 0.1	0.002	2.16	0.54	OLS
t-statistic			11.73	4.19	− 2.74	0.25			
Netherlands	43	0.68	1.18	0.21	0.04	− 0.01	2.05	0.2	AR(1)
t-statistic			8.35	1.13	0.26	− 0.33			
New Zealand	43	0.65	1.05	0.55	0.04	0.01	1.84	1.28	AR(2)
t-statistic			6.07	1.38	0.19	0.15			
Nicaragua	41	0.58	0.93	0.72	− 0.32	0.03	1.92	18.47	OLS
t-statistic			4.85	4.71	− 1.87	1.64			
Nigeria	43	0.4	0.34	0.22	− 0.01	− 0.01	1.8	32.46	AR(1)
t-statistic			4.27	1.76	− 0.12	− 1.08			
Niger	30	0.71	0.51	0.81	− 0.29	0.02	2.04	0.7	OLS
t-statistic			6.07	4.26	− 2.49	1.94			
Norway	43.00	0.10	0.12	0.24	− 0.64	0.21	1.91	2.09	OLS
t-statistic			0.31	1.95	− 2.47	2.43			
Pakistan	43.00	0.37	0.41	0.16	− 0.16	0.02	2.00	16.76	OLS
t-statistic			3.97	1.94	− 2.08	1.95			
Panama	43.00	0.51	0.77	0.12	− 0.10	0.02	1.89	106.40	OLS
t-statistic			5.95	1.59	− 1.07	1.14			
Paraguay	43	0.13	0.18	0.28	− 0.07	0.02	1.9	1.57	AR(1)
t-statistic			2.23	1.65	− 0.92	1.59			
Peru	43	0.86	1.15	0.33	− 0.01	0.004	1.91	1.81	AR(1)
t-statistic			12.25	1.23	− 0.17	0.26			
Puerto Rico	35	0.11	0.02	0.14	0.26	− 0.03	2.03	1.09	OLS
t-statistic			0.11	2.07	1.78	− 1.38			
Philippines	43	0.57	0.80	0.33	− 0.09	0.02	1.96	1.06	OLS
t-statistic			7.07	2.81	− 1.77	2.13			
Portugal	41	0.72	0.73	1.01	− 0.09	0.09	1.91	12.91	AR(2)
t-statistic			8.45	3.05	− 0.7	2.38			
Papua New Guinea	33	0.6	1.19	0.18	− 0.36	0.04	1.88	2.13	AR(1)
t-statistic			4.98	1.28	− 2.07	1.78			
Reunion	30	0.31	− 0.09	0.27	− 0.16	0.06	2.16	0.03	AR(1)
t-statistic			− 1.31	2.77	− 2.33	2.56			
Romania	30	− 0.11	0.05	0.03	0.07	− 0.02	2.18	0.5	AR(1)
t-statistic			0.5	0.25	0.42	− 0.33			
Rwanda	33	0.41	0.75	0.27	0.08	0.004	2.17	0.8	AR(1)
t-statistic			4.68	2.05	0.68	1.56			
South Africa	43	0.26	0.61	0.37	− 0.03	1.56	1.96	0.81	OLS
t-statistic			3.02	2.86	− 0.26	− 0.12			
Saudi Arabia	30	− 0.10	0.02	0.05	− 0.07	0.02	2.16	2.26	OLS
t-statistic			0.16	0.29	− 0.30	0.49			
Senegal	32	0.42	0.25	0.49	− 0.21	0.02	2.15	0.86	OLS
t-statistic			3.78	3.69	− 2.53	3.32			

Table 1 (*continued*)

Country	#	R^2	β	γ	δ	α	DW	JB	Process
Seychelles	31	0.56	0.62	0.18	−0.11	0.03	2.14	1.06	OLS
t-statistic			5.48	1.82	−1.27	2.19			
Sierra Leone	32	0.15	−0.03	0.42	−0.46	0.01	1.90	5.03	OLS
t-statistic			−0.08	2.63	−2.79	2.64			
Singapore	33	0.18	−0.37	0.70	−0.54	0.20	2.05	0.60	AR(1)
t-statistic			−1.39	2.19	−1.51	1.66			
South Korea	39	0.74	1.05	0.97	−0.08	0.04	2.01	1.87	AR(2)
t-statistic			11.82	2.64	−1.11	1.92			
Somalia	30	0.7	0.33	0.31	−0.48	0.03	2.12	7.74	AR(1)
t-statistic			3.78	2.88	−2.99	3.08			
Spain	43	0.66	0.95	0.75	0.24	−0.03	1.9	1.83	AR(2)
t-statistic			7.13	1.6	1.07	−0.6			
Sri Lanka	43	0.52	0.66	0.24	−0.01	0.01	2.08	0.41	OLS
t-statistic			6.50	2.42	−0.38	1.43			
Suriname	30	0.00	0.17	0.16	−0.22	0.02	1.88	7.98	OLS
t-statistic			0.66	0.97	−0.92	0.64			
Swaziland	30	0.72	0.66	0.75	−0.4	0.05	1.93	0.39	AR(1)
t-statistic			6.9	1.62	−1.82	1.71			
Sweden	43	0.51	1.14	0.13	0.1	−0.02	1.99	4.18	AR(1)
t-statistic			5.92	1.05	0.75	−0.63			
Switzerland	43	0.76	1.33	0.23	0.14	−0.04	1.94	1.16	AR(1)
t-statistic			10.1	1.35	1.05	−1.07			
Syria	32	0.58	0.52	0.15	−0.07	0.01	2.09	0.8	AR(2)
t-statistic			5.76	0.73	−0.43	0.46			
Taiwan	40	0.43	0.95	0.3	−0.1	0.02	1.94	16.69	AR(1)
t-statistic			4.81	1.34	−1.2	1.08			
Thailand	43	0.67	0.9	0.36	−0.04	0.02	2.02	1.38	OLS
t-statistic			8.96	3.57	−1.22	2.95			
Togo	33	0.33	0.47	0.37	−0.18	0.03	2.07	9.75	AR(1)
t-statistic			3.28	1.36	−0.95	1			
Trinidad and Tobago	42	0.24	0.23	0.23	−0.32	0.05	1.89	2.04	OLS
t-statistic			2.16	2.26	−2.08	1.86			
Tunisia	33	0.59	0.85	0.31	−0.07	0.02	2.1	2.95	AR(1)
t-statistic			6.09	1.52	−0.84	1.12			
Turkey	43	0.78	1	0.32	−0.06	0.02	1.95	0.31	AR(1)
t-statistic			10.4	1.76	−1.25	1.63			
Uganda	43	0.28	0.03	0.2	−0.2	0.005	1.93	2.5	AR(1)
t-statistic			3.05	1.9	−1.96	2			
Uruguay	43	0.43	0.53	0.91	−0.07	0.03	2.09	2.53	AR(1)
t-statistic			3.71	4.18	−0.48	1.49			
United States	43	0.9	1.04	0.5	−0.22	0.05	1.89	0.58	AR(2)
t-statistic			15.4	2.43	−2.32	2.46			
Soviet Union	30	0.87	0.87	0.38	−0.15	0.05	1.89	0.73	OLS
t-statistic			13.28	2.68	−2.30	2.19			
Venezuela	43	0.24	0.64	0.6	−0.51	0.08	1.99	8.21	AR(1)
t-statistic			3.22	1.92	−2.01	1.65			

(continued on next page)

Table 1 (*continued*)

Country	#	R^2	β	γ	δ	α	DW	JB	Process
West Germany	43	0.73	0.86	0.2	0.06	−0.02	1.87	0.6	AR(3)
t-statistic			8.61	1.34	1.19	−1.26			
Yugoslavia	31	0.90	0.77	0.68	−0.47	0.15	2.22	1.60	OLS
t-statistic			12.51	3.40	−3.21	3.25			
Zaire	40	0.51	0.59	0.14	−0.13	0.006	2.06	2.96	AR(1)
t-statistic			5.19	2.07	−1.92	1.97			
Zambia	37	0.33	0.69	0.14	−0.08	0.02	1.91	4.52	AR(1)
t-statistic			3.42	1.24	−0.53	0.78			
Zimbabwe	39	0.75	0.96	0.11	0.002	0.0004	2.05	1.09	AR(1)
t-statistic			8.7	2.64	0.02	0.02			

For each country, there are two rows of numbers. The first row shows the estimated coefficients of the estimated equation: $\Delta IR_t = \alpha + \beta \Delta SR_t + \gamma(SR_{t-1} - IR_{t-1}) + \delta SR_{t-1} + \varepsilon_t$. The second row shows the value of *t*-statistic for each estimated coefficient. # gives the number of observations (one per year). DW gives us the Durbin–Watson statistic for the equation estimated. JB gives us the Jarque–Bera statistic for each equation. The process column gives us the error process (ε_t) governing the estimated equation. OLS stands for ordinary least square. AR(x) stands for autoregressive error process of order x.

Panama, Portugal, Somalia, Suriname, Taiwan, Togo and Venezuela. Thus, we do not proceed with the analysis for these countries. We find that γ is significant for the following 46 countries: Bangladesh, Belgium, Bolivia, Burkina Faso, Chad, Chile, Comoros, Congo, Costa Rica, Ecuador, El Salvador, Fiji, France, Gabon, Guyana, Hong Kong, India, Israel, Italy, Madagascar, Malawi, Mali, Malta, Malaysia, Morocco, Myanmar, Namibia, Niger, Puerto Rico, Philippines, Reunion, Rwanda, South Africa, Senegal, Sierra Leone, Singapore, South Korea, Sri Lanka, Thailand, Trinidad and Tobago, Uruguay, United States, (former) Soviet Union, Yugoslavia, Zaire and Zimbabwe. Thus, for these countries, there is a long-run relationship between SR and IR. This implies that the intertemporal budget constraint is obeyed.

As noted earlier, δ shows capital mobility. For the following 16 countries, δ is found to be statistically significant: Benin, Botswana, Chad, Chile, Costa Rica, Hong Kong, Namibia, Niger, Norway, Papua New Guinea, Reunion, Senegal, Sierra Leone, United States, the (former) Soviet Union and Yugoslavia. Thus, for these countries, the current account balance does not converge to a constant and there is evidence of capital mobility. We note that exactly three of these can be called developed countries (Hong Kong, Norway and the United States).

The following 84 countries have a short-run relationship between saving and investment rates: Argentina, Australia, Austria, Bangladesh, Belgium, Benin, Bolivia, Botswana, Brazil, United Kingdom, Burkina Faso, Burundi, Cameroon, Canada, Cape Verde, Chad, Chile, China, Colombia, Costa Rica, Cyprus, Czechoslovakia, Denmark, Dominican Republic, Ecuador, Ethiopia, Fiji, Finland, France, Gabon, Greece, Guatemala, Guinea-Bissau, Guyana, Haiti, Honduras, Hong Kong, India, Indonesia, Ireland, Israel, Italy, Japan, Jordan, Kenya, Luxembourg, Malawi, Mali, Malta, Mauritania, Malaysia, Morocco, Myanmar, Namibia, Netherlands, New Zealand, Niger, Paraguay, Peru, Philippines, Papua New Guinea, Rwanda, South Africa, Senegal, Seychelles, South Korea, Spain, Sri Lanka, Swaziland, Sweden, Syria, Thailand, Trinidad and Tobago, Tunisia, Turkey, Uganda, Uruguay, United States, the (former) Soviet Union, West Germany, Yugoslavia, Zaire, Zambia and Zimbabwe. However, for Jordan and Malta, the relationship is negative. If we apply the Feldstein–Horioka criterion, then the results indicate low capital mobility for these countries.

4. Conclusion

We expect that capital will be more mobile for the developed countries than the developing countries. Our empirical results show that there is evidence for capital mobility for only 16 [out of 101 with normal error distribution for Eq. (1)] countries—most of these are developing countries. Thus, capital mobility, measured by the most commonly used method, is not a characteristic of the developed world contrary to what the conventional wisdom says.

Acknowledgements

We are deeply grateful to Alan Heston for clarifying some issues of the Penn World Table. We would also wish to thank Maurice Obstfeld for his comments. Tapen Sinha gratefully acknowledges the financial support provided by Asociación Mexicana de Cultura, A.C. to carry out this research project.

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