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DOES CAPITAL ACCOUNT LIBERALIZATION RAISE LONG-RUN ECONOMIC GROWTH?

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ABSTRACT

This paper investigates the growth effects of the restrictions on capital account payments as a measure of financial openness. Estimation results show that restrictions on capital flows are weakly and negatively correlated with growth and more importantly, regression results for this measure are mainly distorted by the reverse causation. Our results indeed fail to provide any conclusive evidence on the issue of capital account liberalization. However, these results do not either support the further implementations of controls on capital flows, especially on long-term capital flows.

Key Words: *Financial Openness, Capital Aaccount Liberalization, Capital Controls, Economic Growth*

1. Introduction

Although a number of theoretical studies have reported an ambiguous relationship between capital controls, capital flows, and economic growth, the general view among the researchers and policy makers within governments and multinational institutions such as the World Bank and the IMF, is that capital account liberalization is positively and strongly related to economic growth. In the wake of the latest East Asian financial crisis, it is even harder to understand the great optimism for capital account liberalization as a whole. The theoretical literature on the growth effects of capital controls suggests that there is no simple and general relationship between capital controls and growth. More importantly, there are neither elaborate theoretical models that analyze the growth effects of these restrictions nor good measures of these restrictions across countries to be used in regression analyses. Thus, it is not hard to understand why extremely different opinions about the growth effects of capital restrictions exist. For example, one side of the discussion has argued that controls on capital flows are certain remedies for financial and currency crises and the other side has claimed that capital account liberalization is a natural step to follow after a certain degree of current account liberalization. Needless to say, neither side has enough empirical evidence to support their views.

Although a number of empirical studies reported relatively strong results in favor of long-term capital flows, there is compelling evidence against

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short-term capital flows. In this paper, we use a measure of restrictions on capital account payments to assess the effects of these restrictions on growth. Our results are consistent with the findings of earlier studies and fails to provide any substantial evidence to support either view.

The outline of this paper is as follows. Section 2 reviews the theoretical and empirical literature on capital controls. Section 3 describes a standard growth equation and the data sources and definitions. Section 4 reports the estimation results for restrictions on capital flows. In this section, we further address the potential problems of the cross-country growth framework. Finally, Section 5 concludes the paper.

2. Literature Survey

In the 1960s, growth theory consisted mainly of the neoclassical model. The basic problem with this theory is that it explains growth with only exogenous variables. Thus, since the early 1980s a large number of studies (e.g., Romer 1986, 1987, and 1990, Lucas 1988, Young 1991, and Grossman and Helpman 1990, 1991a, b) have developed theoretical models in an attempt to endogenize growth. These contributions to the analyses of economic growth and development are called "endogenous" growth theory. The new growth theory provides this missing explanation for long-run growth by identifying a number of channels such as R&D, human capital accumulation, externalities, and learning by doing through which economic agents can affect long-run growth. Consequently, in the light of new growth theory, various studies have established a link between controls on capital flows and growth.

Unlike trade openness, the effects of capital controls as a measure of financial openness on growth rates remain largely unexplored. Note that there is a striking similarity between the growth effects of capital account restrictions and the growth effects of current account restrictions. Like trade barriers, the theoretical literature is largely ambiguous on the relationship between the restrictions to capital flows and growth. Despite this ambiguity, the idea of capital account convertibility is by no means a new idea. There have been many authors who argued that, as with the case of free trade in goods and services, free capital mobility would benefit the world economies through several different channels. One likely channel is that capital mobility leads to a more efficient allocation of resources, especially the allocation of capital, and also provides numerous tools for risk diversification. Another likely channel is that free capital flows can enhance economic growth through financial development. In other words, to the extent that countries liberalize their capital accounts, they can achieve a higher level of financial development. This idea is the "Schumpeterian view" that financial markets, by providing a number of financial services, lead to technological innovation and economic

development.[1] Then there are a number of studies that have established a positive link between financial development and growth (e.g., King and Levine 1993, Levine and Zervos 1996 and 1998, and Klein and Olivei 1999).

Episodes of liberalizing capital flows preceded the massive capital flows to developed as well as developing countries. As argued by many authors, this phenomenon could be detrimental to the growth of these countries by transmitting crises in financial and currency markets and even affecting the international financial system as a whole, as in the cases of Mexico and East Asia in the 1990s. Although numerous studies claimed that capital account liberalization is likely to lead to financial crises for certain reasons, they mostly focused on the effects of short-term capital flows. It seems to us that it is very important to distinguish the different types of capital flows and examine the growth effects of controls on each type separately. Although some studies presented compelling cases against short-term capital flows, it is difficult to defend restrictions on foreign direct investments (FDI) and foreign portfolio equity investments (FPEI), at least on empirical grounds. The major problem researchers face at this point is that it is almost impossible to get detailed data on capital controls for a large number of countries. Thus, some studies used general, aggregated measures of capital controls and obtained mixed results.

Although the benefits of free trade are established thoroughly, at least on theoretical grounds, the benefits of capital account convertibility have not been demonstrated through elaborate theoretical models. Some have argued that the benefits of free capital flows are not as obvious as the benefits of free trade, if there are net benefits. For example, Bhagwati (1998, p. 7) stated that "the claims of enormous benefits from free capital mobility are not persuasive." He even went further and claimed (p. 11) that "(t)he pretty face presented to us is, in fact, a mask that hides the warts and wrinkles underneath." Therefore, opponents of capital account liberalization claim that the costs associated with free capital flows far outweigh the benefits. After citing the East Asian financial crisis in the late 1990s, Rodrik (1998, p. 57) stated that "(w)e have no evidence that it will solve any of our problems, and some reason to think that it may make them worse." He also reported that, given the fact that crises in financial and currency markets have not been unusual but rather have occurred in almost every decade, having less restrictions on capital flows might intensify the negative effects of crises on the world economies since they are closely integrated to the global financial system through the liberalization of capital accounts. Thus, the frequently suggested common remedy for financial crises is that there should be some controls on capital flows to alleviate the negative

[1] See, Levine (1997) for a complete review of this literature.

effects of financial crises even though many predicted that it is impossible to prevent financial crises from occurring.

Specifically, there is a widespread belief that controls on short-term capital flows are most likely to be beneficial to the countries that are receiving high volumes of short-term capital flows. For example, Rodrik and Velasco (1999, p. 2) argued that "there is a strong case for discouraging short-term inflows during the upswing in the cycle." This is because controls on short-term flows are most likely to reduce the effects of financial crises. Krueger (1987) argued, however, that highly expansionary domestic economic policies financed through capital inflows have caused Mexico's debt crisis rather than the massive capital inflows itself in late 1970s. After all, the major problem with the idea of controlling crises with capital controls is there is no consensus about the types of controls would work best under certain conditions.

In addition to limiting extremely volatile short-run capital flows, which are intended to stabilize foreign exchange markets and help structural reform programs, Mathieson and Rojas-Suarez (1994) discussed two other reasons for capital controls: retention of domestic savings and maintenance of the domestic tax base. The natural question to ask is now how successful capital controls are in preventing crises or minimizing their effects. Edwards (1999) considered two types of capital controls: controls on capital outflows and inflows. He argued (p. 24) that "(t)he existing historical evidence suggests, quite strongly, that controls on outflows--and, in particular quantitative controls on outflows--, have been largely ineffective." This is because there are huge incentives for evading capital controls and in fact many channels are available to circumvent them. Although there have been several countries that used capital controls on inflows, the literature largely focused on the experience of Chile. It is probably the case that Chile has been the most successful among them. Therefore, Edwards argued that the success of Chile's controls on capital inflows has often been overstated. He (p. 26) concluded that

> (c) ontrols on capital inflows may sometimes be a partial stop-gap. However, the long-term solution for a nation concerned with its vulnerability to flows of international capital is for countries to pursue sound macroeconomic policies, to avoid overly rigid exchange rates, and to implement banking supervisory systems that reduce moral hazard and corruption.

Furthermore, Singh and Weisse (1998) argued that in order for a country to maximize the benefits of capital inflows, it is crucial to have appropriate and coordinated government policies in a number of different ways, such as encouraging long-term flows and discouraging short-term equity flows. Unlike its non-interventionist policy stance on capital flows which is largely responsible for its total failure during the late 1970s, Chile, for example, pursued interventionist policies towards capital inflows in the mid-1980s and experienced relatively higher growth later on than that of other Latin American countries.

As discussed, there have been reservations about the arguments for capital account liberalization among the economics profession. Especially, the size and the costs of short-term capital flows are the main focus of the opponents of the capital account liberalization. However, there is a large number of theoretical and empirical studies that reported that long-term capital flows is related to growth positively. We believe that the lack of empirical studies, which can help settle the issue, at least on empirical grounds, has created more skepticisms against the liberalization of capital accounts. The lack of empirical studies in this area is largely due to data limitations. In other words, similar to the measurement of trade restrictions but much more severely, it is difficult to measure capital account restrictions and probably this is because not many of those measures are available for researchers to use. Moreover, the available measures on capital controls have serious limitations in that they are mostly general and do not account for the intensity of controls.

The IMF's Annual Reports on Exchange Restrictions (AREAER) have, for example, provided a measure of restrictions on payments for capital transactions. It is available for a large number of countries and years despite their limitations.[2] For instance, since this measure is a dummy variable, it does not allow us to assess the differences in the intensity of these restrictions across countries. Another disadvantage of this measure is, as described in Tamirisa (1999, p 79), that it does not explicitly consider "the supervision and enforcement of exchange and capital controls and hence reflect legal (de jure) rather than actual (de facto) incidence of controls." Rodrik (1998) used this variable as a measure of capital account liberalization for almost 100 countries from 1975 to 1989. He then concluded that there is no evidence that countries without restrictions have grown faster than those with restrictions. Nevertheless, Klein and Olivei (1999) chose a two-step approach to establish the link between capital account liberalization and growth. Using the same data as Rodrik (1998)

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[2] Tamirisa (1999) described and discussed this measure as well as controls on current account transactions and their major weaknesses and strengths in detail.

but for a different time period, 1986-1995, they first showed that there is a positive relationship between capital account convertibility and financial depth, and then found that the level of financial development affects growth positively.[3] Similarly, we use the same indicator for over 100 countries and over the period 1970-1997. A negative but marginally significant coefficient for this variable fails to provide any conclusive evidence on the issue of capital account liberalization.

Since more detailed data regarding controls on capital flows are not available, it is practically impossible to test the growth effect of controls on each type of capital flow. It is evident from the theoretical literature that, on the one hand, controls on short-term capital flows are largely perceived as beneficial. On the other hand, it is probably safe to conclude that controls on FDI and FPEI flows are likely to have negative repercussions on growth. To test these hypotheses, we also use the interaction of capital controls with FDI and FPEI. None of these interaction terms is significantly different from zero. Thus, our results reveal no evidence that restrictions on payments for capital transactions are likely to reduce the growth effects of FDI and FPEI.

3. Model and Data

We use the following empirical framework to investigate long-run growth. In general form, this model can be characterized as

$$\gamma_{yt} = F\left(y_t, k_t, h_t; Z_{(t)}\right), \qquad (1)$$

where γ_{yt} is a country's per capita growth rate in period t, y_t is initial GDP per capita, k_t is the physical capital stock per person, h_t is initial human capital per person. We use telephone mainlines per worker and life expectancy rates as rough proxies for the stock of physical and human capital, respectively. Although the initial GDP per capita level is employed to assess the issue of conditional convergence, it is also possible to interpret it as a proxy for the stock of capital for a country. The variable Z represents a vector of control and environmental variables that are primarily determined by decisions of governments or individuals. These variables include financial openness measures, war deaths and type of regime. We also use two geographical factors, a variable that measures whether a country is in a tropical climate and a variable that measures whether a country has access to international waterways. At the same time, we examine the growth effects of various other macroeconomic variables including inflation rates, government consumption,

[3] We also use M2/GDP as a measure of financial depth in cross-country regressions. A statistically insignificant and positive coefficient for this variable implies a weak relationship between financial development and growth.

the black market premium, budget surpluses, terms of trade, and investment ratios as well as various measures of schooling. However, we do not include these measures in the base regressions in some cases due to simultaneity problems and in some cases due to insignificant coefficients for these variables.

While GDP growth (GRWB) is calculated using the national accounts data from the World Development Indicators 1999 CDROM (WDI 1999), initial GDP per capita levels (GDPSH) are from the Penn World Tables 5.6.[4] Data for telephone mainlines (TELPW) come from Easterly and Lu[5] and life expectancy figures (LIFE) are taken from WDI 1999. Data on political regime type (REGIME), used to measure the level of democracy in a country, also come from Easterly and Yu. Data on war deaths (WAR) are taken from Easterly (1999). Data on tropical climate (TROPIC) and physical access to international waters (WATER) are taken from the Sachs and Warner data set published on the Center for International Development Web site.

We use a measure of restrictions on capital account payments (CAPITAL), which are defined as restrictions that exist on payments with respect to capital transactions in the form of quantitative limits or undue delay

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[4] Nuxoll (1994) investigated whether the Summers and Heston (SH) data have been distorted due to data construction techniques. Distortion may occur because changes in relative prices, caused by different rates of technological progress in different sectors within the countries, exert two distinct effects on measured growth rates. First, the "Gerschenkron effect" that is the selection of base prices affects growth rates. The second effect is the spurious-correlation effect that any income index using fixed prices underestimates the growth rates of less developed countries and introduces a spurious correlation between income levels and growth rates. Nuxoll argued the Gerschenkron effect suggests that if those prices are similar to the prices of "some moderately prosperous country", then the data using those prices are likely to produce quite misleading numbers. While Nuxoll did not challenge the argument that the Summers and Heston (1991) method is more reliable than using exchange rates to adjust for differences in purchasing power parities, he claimed that the Gerschenkron effect is quite obvious in the International Comparison Project. However, he concluded that current versions of the Penn World Table do not systematically distort the data due to the very high level of aggregation. Based on this evidence, Nuxoll suggested that using national accounts for measuring growth rates is more reliable since economic agents actually act according to domestic prices when they face trade-offs. Furthermore, he concluded that growth researchers should use the SH data set for income levels because international prices are more reliable to adjust GDP estimates for differences in price levels.

[5] They maintain a database called "Global Development Network Growth Database" on the World Bank Web site.

on other than restrictions imposed for security reasons and official action directly affecting the availability or cost of exchange. Tabular data on CAPITAL are taken from the AREAER and are available starting from 1967. Foreign direct investment (FDI) is net and includes flows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. Foreign portfolio equity investment (FPEI) consists of non-debt-creating portfolio equity flows and portfolio debt flows. Data on these flows are taken from WDI 1999.

The cross-country regressions apply to a panel of over one hundred developed and developing countries observed from 1970 to 1997.[6] Socialist countries (or formerly socialist) are excluded from the sample as well as the oil exporting countries. Moreover, the number of countries is limited by the availability of data. The system is a three-equation system. The dependent variables are the average growth rates of real per capita GDP over three periods: 1970-1979, 1980-1989, and 1990-1997. The system of equations is estimated by using the seemingly unrelated regression method (SUR) as in Barro (1997).

4. Empirical Results

This section examines the growth effects of CAPITAL. The regression result in column 1 of Table 1 shows a negative and marginally significant coefficient, -0.72 (1.49), for CAPITAL. Further regressions suggest that this result is driven by the developed countries. While estimation results in column 3 for developing countries obtains a insignificantly negative coefficient, -0.67 (0.96), for CAPITAL, the estimated coefficient, -0.81 (1.75), for CAPITAL for developed countries in column 5 is statistically significant and negative. While these results imply that capital controls have negative repercussions on growth of developed countries, they are not significantly correlated with growth of developing countries. Given the fact that the great majority of capital flows have occurred among developed countries, capital controls are more likely to affect the growth of these countries compare to that of developing countries. Moreover, this is probably due to no or little variation in CAPITAL for developing countries because almost every developing country employs

[6] Our dataset includes 106 countries. Based on the World Bank country classification, 79 of them are developing countries and 27 of them are developed countries.

Table 1: Capital Controls and Per Capita GDP Growth Rates: Panel of Three Decades (1970-1997)

Variable	1	2	3	4	5	6
Log(GDPSH)	-3.60	-4.26	-2.50	-3.36	-7.64	-5.62
	(4.85)	(5.03)	(2.87)	(3.21)	(4.74)	(3.11)
Log(LIFE)	15.51	19.00	13.03	16.39	3.68	-18.34
	(4.77)	(5.10)	(3.81)	(4.07)	(0.28)	(0.96)
TELPW	0.0076	0.012	0.009	0.012	0.0035	0.0031
	(1.95)	(3.01)	(1.11)	(1.50)	(0.77)	(0.69)
TROPIC	-1.78	-1.78	-1.91	-1.91	2.15	2.54
	(3.92)	(3.55)	(3.88)	(3.41)	(1.95)	(2.42)
WATER	-0.49	-0.54	-0.36	-0.49	0.18	0.34
	(1.00)	(1.12)	(0.72)	(0.89)	(0.17)	(0.43)
WAR	-0.0009	-0.0009	-0.0009	-0.0009	-0.0004	-0.0002
	(3.84)	(3.70)	(3.52)	(3.35)	(0.05)	(0.31)
REGIME	-0.87	-0.73	-0.84	-0.65	1.33	1.83
	(2.48)	(2.05)	(2.17)	(1.64)	(0.31)	(0.41)
CAPITAL	-0.72	0.074^{*}	-0.67^{d}	0.25^{d*}	-0.81^{dd}	-0.31^{dd*}
	(1.49)	(0.17)	(0.96)	(0.39)	(1.75)	(0.69)
R2, for each	.26, .32	.25, .40	.27, .22	.24, .29	.50, .54	.40, .55
eq., (# of obs)	.21, (106)	.25, (95)	.26, (79)	.31, (68)	.37, (27)	42, (27)

The system has 3 equations, where the dependent variables are the per capita growth rate over each decade. Each equation has a different constant term. Other coefficients are restricted to be the same for all periods.

* The column uses the five-year lagged value of the variable.

d (dd) Only for developing (developed) countries. t-statistics are in parentheses.

these restrictions.[7] Although our results imply the marginally significant and negative association between contemporaneous CAPITAL and growth, as emphasized by many studies, it is important to explore the possibility of reverse causation between growth and CAPITAL. To test whether or not the simultaneity problem is strong enough to drive this relationship, we use CAPITAL over the five previous years for each equation instead of contemporaneous values. Although, admittedly using the lagged values is not the perfect solution for endogeneity, it gives us some sense of understanding of

[7] While CAPITAL takes the value of 0.90 for the averages of 1970-1997 for developing countries, the number assigned to CAPITAL for developed countries is only 0.60 for the same period.

the issue. We address this problem once again later in the section by presenting the results from three-stage least squares (3SLS, with instrumental variables used). Column 2 shows insignificantly positive coefficient, 0.074 (0.17), for the lagged CAPITAL. While the estimated coefficient, 0.25 (0.39), for lagged CAPITAL for developing countries is insignificantly positive in column 4, estimated coefficient, -0.31 (0.69), for developed countries is insignificantly negative in column 6.

Thus, the insignificant coefficients for lagged values indicate that the negative relationship might be the result of simultaneity running through poor growth performance to the erection of these restrictions. In other words, the marginally significant and negative association between CAPITAL and growth can be due to reverse causation running from financial crises to restrictions on capital flows. However, an investigation of the raw data fails to support this view. For example, the annual average growth rates for the 1970s, 1980s, and 1990s for the developed countries were 3.64%, 2.63%, and, 1.97% respectively. Consequently, this drop in growth rates was accompanied by a decrease in average CAPITAL to 0.45 in the 1990s from 0.80 in the 1970s. Developing countries have followed roughly the same path even though the value of CAPITAL in the 1980s was slightly higher than that of the 1970s. While simple look at the data does not support the existence of endogeneity, nor does it challenge the suggestions of the lagged variables. These findings are consistent with conclusions of Rodrik (1998).

Further, since CAPITAL is a dummy variable, it has little variation across countries. Thus, countries with extremely high or low growth rates could drive these results. For this reason, we drop ten countries with remarkably high or low growth rates in one or more decades from the country sample,[8] and estimate the same specifications as in columns 1 and 2. Without the ten countries with extreme growth rates, the regression results obtain following coefficients, -0.43 (1.01) and 0.20 (0.51), for contemporaneous and lagged CAPITAL, respectively. These results suggest that the result for contemporaneous CAPITAL is affected by existence of outliers.

Although, overall, our results fail to provide strong support for capital account liberalization, it is difficult to defend capital account restrictions on empirical grounds, either. Perhaps we need better and more disaggregated data for these restrictions to settle this issue empirically. As discussed above, there is substantial theoretical and empirical evidence that restrictions on short-term

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[8] These countries are Botswana, China, Cyprus, Jordan, Malta, Romania, Sierra Leone, Singapore, and Zaire. Their annual average growth rates in one decade range from 13.6 to –9.3 %.

capital flows can be growth enhancing. However, restrictions on the flows of FDI or FPEI can certainly hurt growth because the empirical evidence presented here[9] and elsewhere clearly shows a positive association between these capital flows and growth. For this purpose, we look at the interaction of CAPITAL with FDI and FPEI inflows and report the results in Table 2. Columns 1 and 2 show insignificantly negative coefficients, -0.26 (1.41) and -1.40 (0.99), for CAPITAL*FDI and CAPITAL *FPEI, respectively. However, in column 3, the estimated coefficient, -0.85 (2.17), for the joint effect of CAPITAL with FDI for developing countries is significant with a negative sign. This coefficient suggests that developing countries with capital controls are likely to benefit less from FDI and in turn grow at a slower rate. Note that the statistically insignificant coefficient for CAPITAL for developing countries is probably due to the fact that almost every developing country employs capital controls, while the statistically significant coefficient on the interaction term supports the idea of capital account liberalization. Moreover, the estimated coefficient, 0.12 (0.47), for the interaction of CAPITAL with FDI for developed countries is not statistically significant. Thus, this indicates that existence of controls does not lessen the growth effects of FDI for developed countries.

4.1. Sensitivity Analysis

The regressions results presented here may be subject to simultaneity problems. Thus, we test the sensitivity of our results by taking into account the endogeneity. There are two common proposed remedies for this problem. The first remedy is to use lagged values of the exogenous variables, which we have already applied to our results. Second, the endogeneity problem can also be addressed appropriately by using instrumental variables techniques. However, the major problem with this technique is that it is difficult to find good instruments that are correlated with the exogenous variables but are not correlated with the error terms. The estimation results for the specifications used contemporary values along with instruments used in estimation are presented in the last three columns of Table 2. The estimation results are similar to those from the SUR estimations although the coefficient for developed countries now is not statistically significant.

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[9] The significantly positive estimated coefficients, 0.75 (4.48) and 2.64 (2.13), for the FDI and FPEI inflows, respectively, in the columns 1 and 2 of Table 2 indicate the strong and positive relationship between growth and these capital flows.

Table 2: Capital Controls and Per Capita GDP Growth Rates: Panel of Three Decades (1970-1997)

Variable	1	2	3	4	5[a]	6[a]	7[a]
Log (GDPSH)	-3.93	-2.86	-3.01	-6.43	-4.18	-3.14	-5.98
	(5.84)	(2.87)	(3.66)	(3.72)	(4.70)	(2.91)	(3.16)
Log (LIFE)	14.43	14.98	13.47	(-4.07)	18.20	15.64	16.37
	(4.91)	(4.07)	(4.19)	(0.25)	(4.77)	(3.78)	(0.84)
TELPW	0.007	0.008	0.003	0.006	0.009	0.016	0.0012
	(1.94)	(1.19)	(0.36)	(1.15)	(2.34)	(1.45)	(0.25)
TROPIC	-2.19	-2.29	-2.09	-1.11	-1.85	-1.97	2.32
	(5.35)	(4.61)	(4.56)	(0.59)	(3.67)	(3.50)	(2.14)
WATER	-0.62	-0.46	-0.54	0.26	-0.58	-0.43	-0.049
	(3.84)	(0.84)	(1.12)	(0.23)	(1.12)	(0.77)	(0.05)
WAR	-0.0009	-0.0008	-0.0009	0.00008	-0.001	-0.001	-0.0006
	(3.84)	(2.99)	(3.50)	(0.10)	(4.01)	(3.69)	(0.09)
REGIME	-0.97	-0.72	-0.88	1.26	-0.71	-0.67	1.99
	(3.05)	(1.74)	(2.47)	(0.31)	(2.04)	(1.67)	(0.46)
CAPITAL	0.044	-0.45	0.71[d]	-0.54[dd]	-0.55	-0.31[d]	-0.56[dd]
	(0.08)	(0.65)	(0.81)	(0.96)	(1.01)	(0.38)	(1.13)
FDI	0.75		1.30	0.42			
	(4.48)		(3.41)	(1.99)			
FPEI		2.64					
		(2.13)					
CAPTL*FDI	-0.26		-0.85	0.12			
	(1.41)		(2.17)	(0.47)			
CAPTL*FPEI		-1.40					
		(0.99)					
R2, for each	.39, .46	.26, .32	.38, .37	.58, .51	.25, .39	.24, .27	.41, .56
eq., (# of obs)	.27, (104)	.41, (72)	.28, (77)	.36, (27)	.28, (93)	.35, (67)	.44, (26)

a For the last three columns, estimation is done by the 3SLS technique.
The instruments are five-year earlier log of (GDPSH) (forexample, for 1965 in the 1970-1979 equation); five-year lagged values of log (LIFE) and CAPITAL (for example, for 1965-1969 in the 1970-1979 equation); actual values of TELPW, TROPIC, WATER, WAR, and REGIME. Note: See Table 1.

Next, to test the sensitivity of our results to different data sets, we reestimate the regressions in Table 1 using the growth rates from the Summers and Heston (SH) data (GRSH) instead of the World Bank and present the results in Table 3. Comparing Table 3 with Table 1 shows that the estimation results from GRSH and GRWB are consistent with an exception of the coefficient for developed countries. In almost all cases, they have the same statistical significance level as before with the same signs.

Table 3: Capital Controls and GRSH: Panel of Three Decades (1970-1997)

Variable	1	2	3	4	5	6
Log (GDPSH)	-3.75	-4.12	-3.44	3.63	-2.98	-5.93
	(5.30)	(5.54)	(4.62)	(4.03)	(1.80)	(4.47)
Log (LIFE)	16.54	16.88	14.19	14.33	49.51	-17.86
	(5.37)	(5.23)	(4.95)	(4.21)	(3.03)	(1.43)
TELPW	0.010	0.014	0.015	0.019	0.0032	0.0018
	(2.68)	(4.14)	(2.14)	(2.47)	(0.68)	(0.48)
TROPIC	-1.59	-1.59	-1.72	-1.70	2.68	3.09
	(3.76)	(3.58)	(4.05)	(3.47)	(2.46)	(3.84)
WATER	-0.65	-0.58	-0.47	-0.52	-0.57	0.199
	(1.46)	(1.33)	(3.13)	(1.08)	(0.55)	(0.34)
WAR	-0.0008	-0.0008	-0.0008	-0.0007	-0.0009	-0.0017
	(3.18)	(3.44)	(3.13)	(2.92)	(1.11)	(1.61)
REGIME	-0.73	-0.72	-0.66	-0.61	-3.45	1.147
	(2.15)	(2.30)	(2.00)	(1.78)	(0.47)	(0.54)
CAPITAL	-0.62	0.011*	-0.68d	0.12d*	-0.12dd	-0.445dd*
	(1.33)	(0.03)	(1.10)	(0.23)	(0.27)	(1.25)
R2, for each	.18, .38	.24, .43	.29, .26	.23, .30	.30, .42	.82, .49
eq., (# of obs)	.22, (106)	.25, (95)	.25, (79)	.30, (68)	.29, (27)	.43, (27)

Since, the SH data set is only estimated for years until 1992, the 1990-1997 equation uses growth rates from the World Bank. Note: See Table 1.

5. Conclusions

This paper examines the growth effects of restrictions on capital account payments as measures of financial openness. Restrictions on capital account payments are weakly and negatively correlated with growth. However, estimated coefficients on lagged values of CAPITAL show that our results for these measures are distorted by the endogeneity of these variables. On the one hand, the regression results for capital controls fail to provide any conclusive evidence on the issue of capital account liberalization. On the other hand, it is hard to defend the capital controls based on these regression results.

Further, this study has also addressed potential statistical problems inherent to this sort of estimation and to interpreting these results. In addition to using lagged values, we first test the sensitivity of our results by taking into account the endogeneity problems using instrumental variables techniques. Secondly, to address the issue of outlier countries. Lastly, we test the sensitivity of our results to a different data set. All these robustness checks indicate that our results are basically sensitive to these problems.

ÖZET

Bu çalışmamızda sermaye hareketlerinin önündeki engellere ait sayısal verileri kullanarak ekonomik büyüme ile finansal liberalleşme arasındaki ilişkiyi ampirik olarak analiz ettik. Regresyon sonuçlarımız genel olarak sermaye hareketlerinin önündeki engellerin büyümeyi negatif fakat zayıf olarak etkilediğini göstermektedir. Fakat, duyarlılık testlerinin sonuçları ise bu ilişkinin yönü üzerinde çelişkili sonuçlar vermektedir. Her ne kadar, sonuçlarımız finansal liberalleşmenin büyümeye etkisinin yönü hakkında kesin sonuçlar vermese de, bu sonuçlar en genel şekliyle sermaye hareketlerine ait kontrollerin büyümeyi güçlü ve negatif olarak etkilediği yönündeki yaygın görüşün aksine sonuçlar vermektedir. Belirtilmelidir ki, bu sonuçlar sermaye hareketlerini, özellikle uzun dönemli sermaye hareketlerini, kısıtlayıcı politikaları kesinlikle destekleyici nitelikte değildir.

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