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Saving Transitions

Dani Rodrik

This article takes a systematic cross-national approach to identifying saving transitionsdefined as sustained increases in the saving rate of 5 percentage points or more-to study their determinants and to reexamine the question of causality between growth and saving. Countries that undergo saving transitions do not necessarily experience sustained increases in their growth rates. In fact, growth rates typically return to their levels before the transition within a decade. By contrast, countries that undergo growth transitions-arising from improved terms of trade, increased domestic investment, or other sources-do end up with permanently higher saving rates. Hence saving transitions do not appear to be causal with respect to superior economic performance.

Capital accumulation is the proximate source of economic growth. Physical investment is generally the most robust correlate of long-run growth, even though the relationship between investment and growth tends to be weak in the short run.¹ As a matter of accounting, investment has to be financed by saving, from either domestic or foreign sources. In only a few high-investment countries has foreign saving accounted for more than 20 percent of investment over long stretches of time. In an economy investing, say, 30 percent of its gross domestic product (GDP), relying on foreign saving beyond this limit would imply running a persistent current account deficit in excess of 6 percent of GDP, which would be courting disaster. Hence the critical importance of domestic saving in economic growth follows from a few straightforward facts of economic life.

Indeed, differences in saving rates clearly distinguish thriving from stagnant economies. During 1984–94, 31 countries had average annual per capita GDP growth rates of 2.5 percent or higher. In these successful countries the median saving rate was 24 percent.² By contrast, the median saving rate stood at 16 percent in the 59 countries in which per capita income grew at less than 1 percent

1. See Easterly (1997) on the short-run relationship, and Levine and Renelt (1992) on the long-run relationship.

2. Unless otherwise mentioned, all saving rates in this article refer to the ratio of gross national saving to gross national disposable income, as defined in the World Bank's World Saving Database.

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a year. Assuming that all domestic saving translates into domestic investment and that the long-run incremental capital-output ratio is around 5, virtually all of the gap in growth between these two groups of countries can be attributed to the difference in their saving performance.

Such comparisons, however, tell us little about the underlying economics of high growth and the policies that enable it. High-growth countries share many characteristics other than high saving and investment: they tend to have lower inflation rates, smaller budget deficits, better human resources, lower current account deficits, and higher shares of trade in GDP. Which of these factors, if any, are the real determinants of growth? Must a country have them all, or are some the consequence of growth? And even if we accept the causal role played by investment, are increases in saving sufficient and necessary for investment and growth? How likely are saving transitions to result in higher growth? Finally, to the extent that saving is responsible for investment and growth, which policies and institutional arrangements generate increased saving?

The empirical literature on saving has three strands. One line of research focuses on the cross-national determinants of saving, applying econometric techniques to large cross-national or panel data sets (Giovannini 1985, Edwards 1996, Harrigan 1996, and Loayza, Schmidt-Hebbel, and Servén 1998). This research emphasizes factors that can be quantified, in particular demographic conditions, fiscal policy, financial depth, and economic growth itself. Its initial focus was on the role of deposit interest rates in mobilizing saving. Partly because of negative findings, attention has recently turned to a broader set of structural and institutional determinants.

A second strand of the literature focuses on the question of causality between saving and growth (Carroll and Weil 1993 and Attanasio, Picci, and Scorcu 1997). There are strong hints in this research that growth drives saving rather than the reverse, especially over short horizons. This result has led some analysts to suggest that saving should not receive high priority in designing growth strategies: it is thought that once the obstacles to growth are removed, the response of saving could be nearly automatic (see, for example, Gavin, Hausmann, and Talvi 1996).

Finally, several analytical case studies focus on high-saving countries or those that have undergone transitions to become high-saving countries—such as Japan, the Republic of Korea, Taiwan (China), and Chile—to uncover the determinants of saving and growth transitions in specific settings (Marfan and Bosworth 1994, Hayashi 1986, and Rodrik 1995). This strand of research reinforces some of the findings of the cross-national regressions—the importance of demography, for example—and points out idiosyncratic conditions, such as investment subsidies, as in Korea and Taiwan (China), or pension-system reforms, as in Chile.

This article relates to all three strands. I focus on countries that have undergone sustained saving transitions, which I define more precisely below. The objective is to understand the causes and consequences of saving transitions. Thus the article has a natural link to the case study literature. However, I take a systematic cross-national approach to identifying saving transitions and discover many cases that received scant attention in the past. This approach allows me to reexamine the question of causality in the relationship between growth and saving using a different approach and a longer time horizon than earlier studies.

The central message of this article is summarized in figure 1. The top panel of the figure shows the median saving and growth rates in the group of 20 countries identified as having experienced saving transitions. I define a saving transition as a sustained increase in the saving rate of 5 percentage points or more (subject to certain other restrictions discussed later). Saving transitions are associated with only temporary increases in economic growth. After a decade or so growth rates tend to return to their levels before the saving transition, even though saving rates remain high. The analogous picture for growth transitions—a sustained increase in the growth rate of 2.5 percentage points or more—is a striking contrast. Growth booms are associated with permanent increases in saving rates. Taken together, the two pictures underscore the insignificance of saving as a causal factor of long-term growth. High saving rates tend to be the outcome of high growth—regardless of the channel through which high growth is attained and not a determinant of it.

The second half of the article summarizes the evidence from Korea, Taiwan (China), Singapore, Mauritius, and Chile. These cases suggest that idiosyncratic factors often drive sustained transitions in growth and saving. Changes in policies and institutions that enhance the productivity of domestic output and raise the return to domestic investment are frequently the crux of the matter.

I. DEFINING A SAVING TRANSITION

The central problem in the theory of economic development, wrote W. Arthur Lewis (1954: 155), "is to understand the process by which a community which was previously saving and investing 4 or 5 percent of its national income converts itself into an economy where voluntary saving is running about 12 to 15 percent of the national income or more."³ Saving transitions, Lewis thought, are key to economic development. Countries with the most successful records of growth in the postwar period have indeed gone through spectacular saving transitions.

Consider the examples of Korea and Botswana. In Korea the saving rate was barely more than 10 percent in the early 1960s. By the mid-1970s it had risen to more than 20 percent, and by the late 1980s it was more than 30 percent. Botswana's saving rate has been more erratic, although rising from 11 percent in 1971 (the earliest year for which the World Bank's World Saving Database provides a figure) to more than 30 percent in the mid-1980s and reaching 53 percent in 1989 before declining thereafter. Lewis would have been astonished to see saving rates rise so high, but not surprised to learn that these two countries were at the top of the economic growth league in the past three decades.

3. Lewis's answer is based on the classical model, emphasizing the functional distribution of income: as the profit share of national income rises, the rate of aggregate saving rises alongside it.



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Figure 1. Saving and Growth Booms



The term "saving transition" immediately conjures up thoughts of a handful of East Asian countries as well as a few others, such as Botswana and Chile since the second half of the 1980s. In this article I look at saving transitions more systematically by applying a common definition to the cross-national data. By doing so I look beyond the usual suspects and avoid the optical illusions produced by focusing on a narrow set of countries.

My definition of a saving transition is inspired by Lewis. As noted, I define a transition as a sustained increase in the saving rate by more than 5 percentage points of national income. To make this definition operational, I apply the fol-

lowing filter to the saving-rate time series for each country. A country is said to undergo an investment transition in year T if the three-year moving average of its investment rate over a nine-year period starting at T exceeds by more than 5 percentage points the five-year average of its investment rate prior to T. I exclude from the analysis countries that received large resource windfalls, such as the major oil-exporting countries. I also exclude cases in which the saving rate after transition remained less than 10 percent.

More precisely, I define S_T as the three-year moving average of the saving rate with year T as the first year of the average and \hat{S}_T as the five-year moving average with year T as the terminal year. For example, \tilde{S}_{1965} corresponds to the average for the years 1965, 1966, and 1967, while \hat{S}_{1965} is the average for the years 1961– 65. Applying the filter amounts to searching through the data for occurrences of any T such that the following are true:

(1)
$$\tilde{S}_{T+i} > \hat{S}_{T-1} + x \text{ for all } i = 0, 1, ..., n$$

(2)
$$\tilde{S}_{T+i} > 0.10$$
 for all $i = 0, 1, ..., n$

where the parameter x stands for the threshold increase in the saving rate (set to 0.05), and n captures the length of the horizon over which the transition is expected to be sustained. With a nine-year horizon starting at year 0, n = 6.

The first of these conditions checks that the (moving average of the) saving rate after year T exceeds the average prior to T by more than 5 percentage points. The second condition ensures that the average saving rate after the candidate transition year exceeds 10 percent. If these conditions are satisfied for more than a single year in any country, I check to see whether 10 years or more separate the dates. If not, I assume that there is a single transition and designate the earliest year in the sequence as the transition year.⁴

This kind of a definition does a much better job of capturing cases in which the saving rate increases sharply in a relatively short time span than cases in which it rises steadily, but gradually. The advantage of this approach is that I am able to identify instances in which saving behavior exhibits a sharp break with the recent past. Methodologically, it allows me to identify the date of transitions with better precision, getting a better handle on their antecedents and consequences. By setting x sufficiently low, I am able to capture more gradual transitions (see the sensitivity analysis), but at the cost of blurring the meaning of a transition.

The World Bank's World Saving Database covers the years 1960–95.⁵ However, given the leads and lags involved in the definition of a transition, the earliest possible year for a transition is 1965, and the latest year is 1987. I find a total of

^{4.} If I did not do this, countries would be listed with multiple transition years. However, with the values of n and x selected for the central case (x = 0.05; n = 6), I find no multiple transitions.

^{5.} Of course, not all countries have coverage throughout the entire period, and most countries do not have data for 1995. Choosing a definition of saving that is less appropriate theoretically, such as gross domestic saving as a ratio of GDP, would have increased the available number of observations. Preliminary work indicates, however, that this would not affect the qualitative conclusions.

20 transitions (table 1). There are two cases in the 1960s (Portugal 1965, Panama 1968), thirteen in the 1970s (China 1970, Egypt 1974, Jordan 1972, Lesotho 1977, Malta 1975, Pakistan 1976, Paraguay 1972, Philippines 1972, Singapore 1971, Sri Lanka 1976, Suriname 1972, Syria 1973, and Taiwan [China] 1970), and five in the 1980s (Belize 1985, Chile 1985, Costa Rica 1983, Korea 1984, and Mauritius 1984). The list includes many well-known cases, such as Korea, Singapore, Taiwan (China), China, Chile, and Mauritius, as well as several surprises (to me at least).⁶

The transition years generally accord with conventional wisdom regarding the better-known cases. However, Korea's transition date, 1984, is rather late. This is because prior to 1984 Korea's saving rate was increasing at a steady but slow pace, and a filter that requires a jump of 5 percentage points does not pick up such a transition. When the threshold is lowered to 4 percentage points, Korea is listed as having two transitions, one in 1965 and another in 1975.

In general, however, the selection and dating of transitions are not very sensitive to the thresholds used in operationalizing my definition. The remaining columns in table 1 show alternative transition dates for different values of x and n. The second column reduces by two years the horizon over which the increase in saving must be maintained. This change results in a second transition for Mauritius (1971) and Suriname (1972) as well as 12 transitions in previously unlisted countries. Among the additions, the case of Uganda (1988) is particularly intriguing, in view of the significant reforms that this country has undertaken since 1987.

The third column raises the required increase in the saving rate to 7.5 percentage points (while keeping the horizon the same as in the second column). This change reduces the total number of transitions to 16, knocking out some clearcut cases like Taiwan (China) and Pakistan. Finally, the fourth column restores the original horizon but lowers the threshold to 4 percentage points. This change includes a few new countries such as Hong Kong (1971), Malaysia (1973), and Turkey (1984) and also dates Korea's transitions differently.

A certain arbitrariness in the definition of a saving transition is unavoidable. Each version of the filter I use reveals its own anomalies. If the threshold value for the rise in saving is set high, we overlook cases of gradual, but sustained, increases in saving; if it is set low, we include too many instances of simple volatility. If the horizon is kept long, we lose countries with transitions in the 1980s; if it is too short, we pick up many increases in saving that are temporary. In view of these tradeoffs the list of transitions in the first column of table 1 strikes me as a good starting point.

II. THE CONTOURS OF SAVING TRANSITIONS

The usual pattern of a saving transition is represented in figure 2. The typical jump in the saving rate around year 0 (the transition year) is much larger than 5

6. Botswana is not included in the table because the discovery of diamonds classifies it as a resourceboom country.

		Transi	tion year	
-	x = 5 percent,	x = 5 percent,	x = 7.5 percent,	x = 4 percent,
Economy	<i>n</i> = 6	<u>n = 4</u>	n = 4	<i>n</i> = 6
Belize	1985	1985	1985	1985
Chile	1985	1985	1986	1985
China	1970	1970		1970
Costa Rica	1983	1983		1983
Egypt, Arab Rep. of	1974	1974		1974
Jordan	1972	1972	1973	1972
Korea, Rep. of	1984	1984	1985	1965, 1975
Lesotho	1977	1977	1977	1977
Malta	1975	1975		1975
Mauritius	1984	1971, 1984	1984	1984
Pakistan	1976	1976		1976
Panama	1968	1968		1966
Paraguay	1972	1972		1972
Philippines	1972	1972		1972
Portugal	1965	1965		1965
Singapore	1971	1971	1972	1970
Sri Lanka	1976	1976		1976
Suriname	1972	1972, 1986	1972, 1986	1972
Syrian Arab Rep.	1973	1973	1973	1973
Taiwan (China)	1970	1970		1970
Barbados		1979	1978	
Dominican Republic		1973		1973
Gambia, The		1987	1987	
Kiribati		1984	1984	
Malawi		1972	1972	
Mali		1986		
Mauritania		1987		
Mozambique, Rep. of		1986	1986	
Seychelles		1984		
St. Lucia		1985	1985	
Thailand		1987		1965, 1986
Uganda		1988		
Burkina Faso				1984
Cameroon				1976
Hong Kong				1971
Malaysia				1973
Tunisia				1970
Turkey				1984
Morocco				1969, 1984
Number of transitions	s 20	34	16	33

Table 1. Saving Transitions Using Different Filters

Note: x is the threshold increase in the saving rate, and n is the length of the horizon over which the transition is expected to be sustained.

Source: Author's calculations based on data from the World Saving Database.

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Note: Figure shows mean and median saving rates for the 20-country sample. The data are shown in transition time, so that year 0 corresponds to the transition year in each country, year 1 is the first year thereafter, and so on.

Source: Author's calculations.

percentage points. The median saving rate in our sample goes from 14 percent in the five years before the transition, to 23 percent in the next five years, and to 25 percent in the five years thereafter.

The most spectacular cases are those of Belize (an increase from 12 to 24 percent), Lesotho (from 9 to 22 percent), and Suriname (from 20 to 41 percent; table 2). Suriname, however, eventually shows an equally spectacular reversal. Egypt, the Philippines, Portugal, and Syria display similar reversals. In each case the saving rates in years [T + 10, T + 14] fall back to their levels before the transition. Since the reversal takes place after a long lag, however, it makes sense to keep these countries in the sample. In the remaining countries saving rates are substantially higher 10 to 15 years down the line—in some instances by more than 20 percentage points (such as Lesotho and Singapore).

One respect in which this sample seems distinctive is the significant role of workers' remittances in many of the countries. Seven countries in the sample received remittances in excess of 1 percent of gross national product (GNP) over sustained periods: Belize, Egypt, Jordan, Malta, Pakistan, Portugal, and Sri Lanka. Remittances were particularly large in Jordan, Egypt, Pakistan, and Portugal. These countries have supplied significant amounts of labor to booming economies nearby—the oil-rich Gulf states in the case of Egypt, Jordan, and Pakistan; Germany (former West Germany) in the case of Portugal. If balance-of-payments and national income data are to be believed, since the early 1970s, remittances

Economy		Saving"			Investment ^b				Growth ^b				
	Transition year	[T-5, T-1]	[T, T+4]	[T+5, T+9]	[T+10, T+14]	[T-5, T-1]	[T, T+4]	[T+5, T+9]	[T+10, T+14]	[T-5, T-1]	[T, T+4]	[T+5, T+9]	[T+10, T+14]
Belize	1985	11.5	23.5	24.8		-2.0	1.0	6.7		0.4	4.5	2.9	-2.6
Chile	1985	7.8	18.0	25.4	25.8	-5.3	2.0	5.9	5.8	-3.5	4.7	4.0	3.7
China	1970	22.6	29.1	32.6	34.6	0.7	6.3	8.0	10.0	2.6	4.1	1.7	6.8
Costa Rica	1983	13.6	20.9	22.2	23.1	3.2	4.7	4.8	5.9	-4.0	2.3	2.2	1.7
Egypt	1974	11.7	18.6	17.8	12.2	-8.9	3.1	4.7	2.6	-0.7	4.4	5.1	2.6
Jordan	1972	10.2	18.1	24.7	17.0	-7.8	-6.3	0.7	0.2				0.3
Korea, Rep. of	1984	24.7	33.2	35.8	35.0	7.6	9.1	14.6	14.5	3.0	6.9	4.4	5.7
Lesotho	1977	8.5	22.3	22.2	32.8	-11.6	-8.6	-3.2	5.1	8.7	1.8	-0.8	0.7
Malta	1975	19.5	26.6	27.8	25.6	0.0	-2.7	0.8	3.6	2.8	8.0	1.2	1.5
Mauritius	1984	14.5	24.6	26.8	24.9	-1.4	3.5	7.5	9.8	-2.0	4.4	3.0	0.8
Pakistan	1976	10.4	17.7	22.6	21.6	-8.6	-8.5	-7.2	-4.9	-1.0	3.3	4.7	1.4
Panama	1968	15.5	22.8	22.8	21.5	-1.8	6.7	7.8	5.3	3.1	0.1	-2.0	4.6
Paraguay	1972	11.7	18.0	21.4	18.8	-5.4	-2.3	3.9	1.4	-0.6	2.3	7.3	-2.8
Philippines	1972	20.0	26.0	26.9	20.0	-0.3	3.0	5.1	0.3	-0.7	1.6	1.3	-3.9
Portugal	1965	20.3	25.6	28.6	20.9	2.4	1.9	4.2	1.5	1.5	0.9	2.0	-2.0
Singapore	1971	17.4	25.3	33.6	42.3	6.0	19.2	17.3	24.6	6.2	4.6	2.9	5.4
Sri Lanka	1976	11.9	17.0	19.6	18.2	-6.8	-3.4	2.4	-0.1	-1.1	1.0	3.1	0.2
Suriname	1972	20.2	40.6	29.3	11.0	4.8	13.7	3.3	-4.1	5.5	1.9	-0.6	5.3
Syria	1973	12.2	23.2	22.7	14.1	-6.1	-0.9	-2.8	-0.1	4.6	3.9	3.6	-3.4
Taiwan (China)	1970	22.4	30.4	31.9	32.0	2.3	6.9	5.8	3.3	4.5	4.8	5.2	5.1
Median		14.1	23.4	25.1	21.6	-1.6	2.5	4.8	3.3	1.5	3.9	2.9	1.5
Mean		15.3	24.1 [.]	26.0	23.8	-2.0	2.4	4.5	4.5	1.5	3.4	2.7	1.6

Table 2. Contours of Saving Transitions (percent)

Note: T is the first year of transition for each country. a. Gross national saving relative to gross national disposable income. b. Relative to the world average. Source: Author's calculations based on data from the World Saving Database.

have averaged 18 percent of GNP in Jordan, 8 percent in Egypt, 5 percent in Pakistan, and 8 percent in Portugal.⁷

In most of these countries the saving transitions and the initial spurt in remittances were closely synchronized. This was certainly true of Egypt, Jordan, Pakistan, and Sri Lanka, all of which benefited from the boom in the oil-producing states during the 1970s. The case of Portugal, which benefited from the German boom of the 1960s, is analogous. Hence remittances appear to have been an important determinant of saving transitions in a subsample of our countries. Since it is a relatively exogenous factor, the availability of remittances provides a convenient test for determining whether a rapid increase in domestic saving translates into growth.

III. GROWTH, SAVING, AND INVESTMENT

In this section I analyze the three-way relationship among saving, investment, and growth for the whole sample of transition countries. The investment rate refers to gross investment as a ratio of gross national disposable income, while the growth rate is the growth of GNP.

Saving transitions are associated with noticeable increases in both investment and growth rates (figures 3 and 4). The correlation with investment is particularly strong. The median investment rate in the sample is 1.6 percentage points below the world average prior to the saving transition. In the first five years following the transition it increases to 2.5 percentage points above the world average, and in the next five years it rises to 4.8 percentage points above the world average (see table 2). In other words the median investment rate rises by about 6.4 percentage points relative to the world average in countries undergoing saving transitions.

The growth rate also displays a significant spike around the time of the transition year (figure 4), with its median value rising from 1.5 percent (relative to the world average during the five years preceding the transition) to 3.9 percent (during the five years thereafter). So, saving transitions are clearly associated with sharp increases in growth rates.

But the striking message delivered by figure 4 is that the increase in growth tends to be *temporary*. Following the initial spike, the growth rate starts to decline, and 10 years or so into the transition it is back to the level prevailing in the years prior to the transition. The median growth rate in years [T + 10, T + 14] is 1.5 percent, the same as that in years [T - 5, T - 1] (see table 2). The conclusion is that, on average, saving transitions do not seem to produce lasting increases in growth, even when the rise in saving itself is permanent. Excluding the five countries that eventually experience a reduction in saving rates—Egypt, the Philippines, Portugal, Suriname, and Syria—does not affect this conclusion.

7. The source of these data is the World Bank's World Development Indicators 1998. Data are not available for Chile, Costa Rica, Lesotho, Mauritius, Singapore, Syria, and Taiwan (China). Some of these economies also received significant remittances as well.



Figure 3. Saving Transitions and Investment

Note: Figure shows median saving and investment rates for the 20-country sample. The data are shown in transition time, so that year 0 corresponds to the transition year in each country, year 1 is the first year thereafter, and so on. Investment refers to gross investment as a ratio of gross national disposable income. Investment is shown relative to the world average for the relevant year, so as to take out the effect of cycles common to most countries.

Source: Author's calculations.



Figure 4. Saving Transitions and Growth

Note: Figure shows median saving and growth rates for the 20-country sample. The data are shown in transition time, so that year 0 corresponds to the transition year in each country, year 1 is the first year thereafter, and so on. Growth refers to growth of GNP. It is shown relative to the world average for the relevant year, so as to take out the effect of cycles common to most countries.

Source: Author's calculations.

Pakistan may represent the paradigmatic case (figure 5). Pakistan's saving rate went through a sustained increase after 1976, rising from close to 10 percent to more than 20 percent. Until about 1982 this rise was accompanied by a significant increase in Pakistan's relative growth performance—more than 6 percentage points relative to the world average. Throughout the 1980s and early 1990s, however, Pakistan's relative performance steadily slipped, to the point where the gap in its favor was eliminated entirely by 1994. The country's actual growth rates (without the benchmarking) show a similar, if less marked, cycle.

The figures say nothing about the direction of causality between saving and growth, and the language I use ("accompanied by," "correlated with," and so on) reflects that fact. A plausible hypothesis is that causality runs from growth to saving. What we observe around the transition dates could be an increase in saving resulting from an increase in growth, where growth is the product of determinants other than saving.

IV. GROWTH TRANSITIONS AND SAVING BEHAVIOR

One way of gaining more insight into this issue is to reverse the direction of the exercise and look for saving patterns in countries that undergo sustained growth transitions. If saving remains high well into the transition, this would strengthen our suspicions that growth is the driving force behind saving.



Figure 5. Saving and Growth in Pakistan, 1969-93

Note: Growth refers to growth of GNP. It is shown relative to the world (3-year) average. Source: Author's calculations.

I define a growth transition in a manner analogous to a saving transition. A growth transition is a sustained increase in the growth rate of real GNP by more than 2.5 percentage points. In particular, a country is said to undergo a growth transition at year T if the three-year moving average of its growth rate over a nine-year period starting at T exceeds by more than 2.5 percentage points the five-year average of its growth rate prior to T. I exclude from the analysis countries whose post-transition growth rates average less than 4 percent. I also exclude, as before, resource-boom countries.⁸

The resulting list includes 18 countries (table 3). Many of these countries have also had saving transitions, although the dates for the two kinds of transitions do not always coincide There are also several new countries, such as Bangladesh (1974), Brazil (1966), Ghana (1984), and Thailand (1986). The median growth rate of income in these 18 countries rises from 1.1 percent prior to the transition to 7.0 percent in the five years following the transition and to 7.2 percent in the five years following that period (these are actual growth rates, not relative to the world growth rate). The growth rate eventually falls off somewhat (10 years or more after the transition date), even though it remains higher than the rate before the transition on average.

My main interest lies in what happens to the saving rate in the countries experiencing increased growth. Benchmarked against the world norm, the 18 countries are significant underperformers on the saving front before the transition begins: their median saving rate is 7.5 percentage points below the world average. After the growth transition, however, their performance steadily improves. The median saving rate rises to 3.7 points below the world average to 1.2 and 2.5 percentage points above the world average in the three five-year periods following the transition year. Saving performance continues to improve even in years [T + 10, T + 14], when growth slows. The cumulative improvement in median saving (relative to the world average) amounts to a striking 10 percent of national income. The results without benchmarking the saving rate are virtually identical. The conclusion is clear: growth transitions tend to be followed by significant, and *sustained*, improvements in saving performance.⁹

What the data show, therefore, is an interesting asymmetry between saving and growth transitions. A significant increase in either saving or growth is generally accompanied by a contemporaneous increase in the other. But while growth transitions lead to sustained increases in saving rates, saving transitions generate only temporary increases in growth. These findings are in line with the hypothesis that it is mainly growth that drives the time-series relationship between the two variables.

8. I also exclude a few very small island economies: Cape Verde, Dominica, Solomon Islands, St. Vincent, and the Grenadines.

9. I calculate the median (and mean) values reported in table 4 using the whole sample, including countries for which observations are not available in certain time periods. Excluding such countries and using a consistent set of countries throughout does not change the conclusions in this and the previous paragraph.

		Growth			Savingb				Investment ^b				
T Economy	Transition year	[T–5, T–1]	[T, T+4]	[T+5, T+9]	[T+10, T+14]	[T–5, T–1]	[T, T+4]	[T+5, T+9]	[T+10, T+14]	[T-5, T-1]	[T, T+4]	[T+5, T+9]	[T+10, T+14]
Bangladesh	1974	-1.9	4.6	4.8	3.9	-14.4	-17.4	-9.8	-9.0	-13.7	-15.4	-11.1	-9.5
Brazil	1966	4.2	8.0	9.8	6.1	1.0	-1.1	-1.5	-2.0	-2.2	-0.9	1.1	-1.3
Cameroon	1976	3.6	7.2	9.3	-3.2	-12.4	-6.0	1.2	-1.8	-2.9	2.6	4.8	1.0
Chile	1984	-1.1	6.8	8.0	5.7	-8.4	-5.1	6.9	6.8	-4.5	-0.3	5.8	5.8
China	1977	3.0	8.1	10.6	7.8	7.4	13.7	17.1	17.7	5.5	9.4	13.2	14.0
Costa Rica	1983	-1.1	5.0	5.2	4.6	-6.0	2.8	3.5	4.4	3.2	4.7	4.8	5.9
Dominican Republic	1969	2.0	12.3	4.7	3.4	-12.4	-5.9	-3.7	-1.4	-5.0	-2.4	-1.6	-1.2
Ghana	1984	-3.1	5.2	4.3	3.9	-14.3	-11.3	-9.4	-7.6	-19.4	-12.0	-8.3	6.8
Lesotho	1969	6.4	12.0	11.3	3.0		-13.1	-8.8	4.7		-11.3	-11.8	-6.2
Mali	1985	-2.6	5.8	1.2	7.1	-11.9	-6.7	-1.2		-8.6	-2.9	-1.3	
Malta	1966	0.8	8.7	9.3	10.5	4.9	7.5	-1.5	5.9	-1.5	3.3	-1.7	-2.5
Mauritius	1983	0.9	6.3	6.1	4.0	-4.5	4.1	8.3	8.0	0.7	0.9	7.6	9.1
Pakistan	1976	3.4	7.7	6.7	4.6	-11.0	-3.6	4.9	2.7	-8.6	-8.5	-7.2	-4.9
Paraguay	1972	4.6	6.9	11.0	-0.6	-7.5	-3.8	0.8	1.1	-5.4	-2.3	3.9	1.4
Philippines	1986	-1.8	5.2	3.1		3.4	0.8	1.2		1.6	-2.0	-0.1	
Seychelles	1985	-0.7	5.6	5.3		3.2	12.8	2.9		4.4	1.9	0.0	
Syrian Arab Rep.	1969	1.3	7.8	11.3	5.3	-8.0	-5.7	1.8	2.4	-7.7	-6.8	1.1	-2.6
Thailand	1986	5.0	10.0	7.8		6.0	11.0	16.6		6.2	11.5	20.4	
Median		1.1	7.0	7.2	4.6	-7.5	-3.7	1.2	2.5	-2.9	-1.4	0.5	-1.2
Mean		1.3	7.4	7.2	4.4	-5.0	-1.5	1.6	2.3	-3.4	-1.7	1.1	0.2

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Table 3. Contours of Growth Transitions (percent)

Note: T is the first year of transition for each economy. a. Growth of gross national product. b. Relative to the world economy. Source: Author's calculations based on data from the World Saving Database.

V. GRANGER CAUSALITY TESTS

With the preceding analysis I have examined the dynamic relationship between growth and saving over varying time horizons. The standard procedure for examining issues of time precedence is to use some type of Granger causality test. Such tests are better at picking up short-run leads and lags than long-term relationships. Nonetheless, it is instructive to know whether the conclusions reached are borne out by the evidence from more formal tests of this type. In the working paper version of this article I report results of Granger causality tests on saving, investment, and growth using the sample of countries with saving transitions (Rodrik 1998). I run these tests with annual data as well as with five-year averages. The outcomes are revealing. I find strong evidence that growth precedes saving in the pooled annual data for the countries with saving transitions. The evidence using five-year averages is somewhat weaker. As for the reverse relationship, the results indicate, if anything, a negative, perverse effect from saving to growth. Growth Granger-causes saving, while saving (negatively) Granger-causes growth.

Putting all the pieces together, the emerging story emphasizes economic growth as the driving force behind the saving transitions observed. Economic growth tends to have a clear positive effect on the saving rate, both in the short run and in the long run. Increases in saving per se do not seem to produce a sustained rise in growth. The typical pattern for countries that undergo saving transitions is that their growth rates eventually return to their levels before the transition.

What explains these patterns, particularly the finding that saving transitions produce, at best, temporary growth spikes? One possibility is that we are observing the implications of the Solow growth model. According to Solow's model, a permanent rise in saving would increase the steady-state capital stock, but raise the economy's growth rate only temporarily until a new, balanced growth path (equal to the previous rate of growth) is reached. However, the Solow model tends to adjust too slowly to explain the rapid declines in growth observed from our data. For example, under a typical calibration (carried out in Romer 1996: 22), the half-life of convergence is around 18 years. Romer assumes a capital share of one-third in his calibration. If I use a larger capital share, in accordance with conditions in developing countries, the convergence rate would be slower, rendering the gap between Solow's model and my findings even larger. Moreover, the Solow model, with its constant saving rate, cannot explain the sustained rise in saving subsequent to growth booms.

Assume instead that the saving rate is determined endogenously through intertemporal optimization on the part of households, as in the Ramsey-Cass-Koopmans model. In this model adjustment to a new balanced growth path could be much more rapid than in the Solow model because the saving rate tends to overshoot on the way to the steady state, producing more rapid capital accumulation (see Romer 1996: 58–59). A rise in saving brought about by, say, a decline in the discount rate could produce the initial spurt in growth followed by the rapid decline in growth associated with the saving transitions.

Could such a model also explain the saving pattern that follows growth booms? Assume that the growth spurt is produced by an increase in the productivity of capital. The higher productivity of capital would not be associated with a rise in the growth rate or the saving rate in the new steady state, because the marginal product of capital must eventually fall. Another explanation is needed for the seemingly permanent increase in saving that follows growth booms. We might look for an endogenous growth model, which can yield higher saving and growth rates in the long run following a positive productivity shock. Or we might appeal to hysteresis in saving behavior.

Consider, for example, the consequences of persistence in consumption habits or the consequences of a more sophisticated financial system when higher income levels are reached. Under either scenario temporary growth may generate higher saving rates, in the former case because consumption levels do not adjust rapidly enough and in the latter case because high-yield saving instruments are more available. Hence, the observed pattern could be the joint product of hysteresis and of saving being driven by positive productivity shocks.

VI. CASE STUDIES

Not all saving transitions lead to high growth in the long run. Only a small number of our sample countries have managed to sustain increased saving and increased investment and growth. How do these virtuous saving-investment-growth cycles get started? What are the respective roles of external factors, government policies, and institutional determinants?¹⁰ To help answer these questions, I focus in greater detail on a few economies in which such cycles seem to have taken hold.

Korea

The saving rate in Korea increased steadily from the early 1960s, rising from around 10 percent in 1960 to more than 35 percent by the late 1980s (figure 6). But saving lagged behind investment until the second half of the 1980s. My filter does not pick up a saving transition in Korea until 1984, which is fairly late in view of the sharp pickup in growth during the 1960s. Applying the same filter to the investment rate, I find an investment transition date of 1965—two decades prior to the saving transition. Korea is a prime example of a country in which high saving has been largely the product of high growth—itself the result of an investment boom that began in the early 1960s.

10. Fixed-effects panel regressions reveal that the standard determinants of saving apply equally well (or badly) to the sample of saving transition countries. In particular, I find that national saving is affected positively by lagged income growth, public saving, the terms of trade, urbanization, and foreign aid (the results are available on request). These regularities do not go far in explaining the onset of a saving transition in any of the sample countries, which is why case studies are helpful.



Figure 6. Saving and Investment in Korea, 1960-94

Note: Investment is gross domestic investment relative to gross national disposable income. Saving is gross national saving relative to gross national disposable income.

Source: Author's calculations.

What generated the investment boom? In Rodrik (1995) I argue that the boom was largely the result of government policies that substantially increased the private profitability of investment from the early 1960s onward. With the inauguration of President Park, who took power in a military coup in 1961, the investment climate in Korea improved sharply. In addition to eliminating obstacles to investment, the government heavily subsidized investment. The chief form of subsidy was the extension of credit to large business groups at negative real interest rates. Korean banks were nationalized after the military coup of 1961, giving the government exclusive control over the allocation of funds in the economy.

Investment was also subsidized through the socialization of investment risk in selected sectors. This came about because the government—most notably President Park himself—provided an implicit guarantee that the state would bail out entrepreneurs investing in "desirable" activities if circumstances later threatened the profitability of those investments. The government played a direct, hands-on role by organizing private entrepreneurs to make investments that they otherwise may not have made. In the words of Amsden (1989: 80–81), "The initiative to enter new manufacturing branches has come primarily from the public sphere. Ignoring the 1950s, . . . every major shift in industrial diversification in the decades of the 1960s and 1970s was instigated by the state."

Finally, public enterprises played a very important role in enhancing the profitability of private investment. They did so by ensuring that key inputs were available locally for private producers downstream. The government established many new public enterprises in the 1960s and 1970s, particularly in basic industries characterized by high linkages and scale economies (Jones and Sakong 1980). Not only did public enterprises account for a large share of manufacturing output and investment in Korea, but their importance actually increased during the critical takeoff years of the 1960s.

It is true that other countries applied many of the same policies, with much less favorable results. Korea differed in that there was much greater consistency, predictability, and coherence in the application of the investment incentives; the government bureaucracy was less corrupt and more competent; and the educational attainment of the labor force was very high for a country at Korea's level of development. These factors reduced the administrative and rent-seeking costs of the interventions, while enhancing their efficiency.

Taiwan (China) and Singapore

The saving transitions in Taiwan (China) and Singapore (1970 and 1971, respectively) are dated earlier than in Korea, but otherwise the stories are similar. In both economies investment booms that began in the 1960s led growth. Government policies that encouraged and subsidized private investment played a critical role in these booms. And in both countries the saving rate eventually overtook the investment rate, but not until the 1980s.

In Taiwan (China) an important turning point was the Nineteen-Point Reform Program instituted in 1960. This program contained a wide range of subsidies for investment and signaled a major shift in government attitudes toward investment. The most important direct subsidies came in the form of tax incentives. The Statute for Encouragement of Investment (enacted in 1960 in conjunction with the Nineteen-Point Reform Program) significantly expanded the prevailing tax credit system for investment. The government further expanded these incentives in 1965, at which time specified manufacturing sectors (in basic metals, electrical machinery and electronics, machinery, transportation equipment, chemical fertilizers, petrochemicals, and natural gas pipe) were completely exempted from import duties on plant equipment. As in Korea, it was common for the state to establish new plants in upstream industries. These were then either handed over to private entrepreneurs (as in the case of glass, plastics, steel, and cement) or run as public enterprises (Wade 1990: 78).

In Singapore investment was also heavily subsidized. According to Young (1992: 21), in 1968 the Singaporean government dramatically expanded its involvement in investment activities, with the Development Bank of Singapore increasing its financial commitments eightfold over a two-and-a-half year period. The government came to own, directly or indirectly, a substantial share of the economy. The year 1968 also marked the beginning of an investment boom, preceding the saving transition in 1971 (figure 7). The government funded these large investments in part by running surpluses on the current account of its budget and in part by borrowing from the Central Provident Fund. Foreign



Figure 7. Saving and Investment in Singapore, 1965-93

saving also played an important role in closing the investment-saving gap until the early 1980s.

Unlike Korea and Taiwan (China), Singapore focused its incentives on foreign investors. The year 1968 also marked a turning point with regard to foreign investment. Labor legislation passed that year significantly strengthened management's bargaining power over issues of pay, benefits, and other working conditions. A wide range of tax incentives for investors were phased in or expanded after 1967, with exemptions from profit taxes taking the lead. Although these incentives in principle did not discriminate between domestic and foreign investors, "because they are usually linked to sizable investments involving advanced technologies in new (targeted) industries, the overwhelming majority of participants are foreign" (Young 1992: 23).

Young emphasizes that Singapore's Pioneer Industries Ordinance, the source of the most significant tax holidays given to foreign investors, dates from 1959. He notes that the Ordinance failed to attract much foreign investment "until after 1968, when the Singaporean government began to expand its own financial participation in manufacturing and other sectors" (Young 1992: 24). Young suggests that after 1968 the government subsidized foreign investment beyond the tax incentives themselves, at exorbitant rates.

Another factor distinguishing Singapore is the role played by the Central Provident Fund (CPF). Established in 1955 as a compulsory, individualized social secu-

Note: Investment is gross domestic investment relative to gross national disposable income. Saving is gross national saving relative to gross national disposable income. Source: Author's calculations.

rity account, the CPF has played an important role in mobilizing saving in Singapore. The contribution rates to the CPF were initially set at 5 percent of salary (by employee and employer alike). The rates were raised to 6.5 percent in 1968 and then were raised steadily until the mid-1980s, reaching 25 percent in 1984 (Lim, Fong, and Findlay 1993: 118). The assets of the CPF are invested predominantly in government securities. The CPF must be considered an important factor behind the rise in the national saving rate. The accumulation of CPF balances has accounted for more than 20 percent of gross domestic saving since 1971 (Lim, Fong, and Findlay 1993: tables 3 and 4).

The CPF enabled an investment rate that reached almost 50 percent by the early 1980s—higher than that in any other East Asian country. At the same time, the root cause of the increase in investment was not the CPF itself, but other government policies, which resulted in higher levels of public investment and higher private returns to investment in Singapore.

Mauritius

Mauritius has experienced two spurts in saving, one in 1971 and another in 1984. The first spurt, arising from a sugar boom, was short-lived and collapsed in 1974 along with sugar prices. The second spurt (the only one picked up by our filter) has survived so far, with the saving rate hovering around 26 percent (figure 8).

Even though the first saving boom was temporary, it played a crucial role in Mauritius' development because it set the stage for a significant jump in investment, a jump that proved more durable than the saving boom itself. The increase in the saving rate during the early 1970s resulted primarily from an improvement in the island's terms of trade. World sugar prices began to rise in 1971, and the prices received by sugar producers more than tripled between 1972 and 1975 (Wellisz and Saw 1993: 235).

The government established an export-processing zone in 1970, shortly before the sugar boom began. Enterprises operating under the export-processing zone—which entailed no particular geographic designation—were given tarifffree access to imports of machinery and other inputs, free repatriation of profits, a 10-year tax holiday (for foreign investors), and an implicit guarantee of wage moderation. The export-processing zone enabled saving to be channeled into productive, export-oriented investments, in turn setting the stage for an export boom in garments to European markets, where Mauritians could export quota-free.

Without the export-processing zone, there is a good chance that these investments would not have been made or else would have been wasted in high-cost, inward-looking projects. In 1971 there were only nine enterprises in the exportprocessing zone, employing 644 people. Five years later, there were 85 enterprises, employing 17,171 workers and producing 13 percent of the island's exports (Wellisz and Saw 1993: 241). The economy's investment rate rose from less than 15 percent in the late 1960s to 30 percent a decade later.



Figure 8. Saving and Investment in Mauritius, 1965-94

By 1976 the trend in world sugar prices had reversed, and domestic saving began to fall. However, domestic investment remained high, and the government maintained expansionary fiscal policies. This resulted in an increase in foreign borrowing and a deterioration of the balance of payments. A tripling of the country's external debt between 1976 and 1979 brought the country to the verge of bankruptcy and forced the government to turn to the International Monetary Fund and the World Bank for assistance (World Bank 1989: 4). Hit by cyclones and floods, which caused extensive damage to crops and housing, the economy suffered a reduction in real income of more than 10 percent in 1980 (Wellisz and Saw 1993: 245). The saving rate fell to its lowest level in two decades.

During the early 1980s Mauritius followed a classic adjustment program that eventually produced a return to high growth rates after 1984. The currency was devalued, and the fiscal deficit was reduced significantly. The improvement in public saving around the year of the saving transition (1984) amounted to 6.6 percent of national income.

The government also implemented a range of structural reforms: imports were liberalized, price controls on most commodities were removed, and the tax system was reformed. At the same time, growing protectionism in the advanced industrial countries in textiles and clothing led major exporters (notably entrepreneurs from Hong Kong) to look for production sites not yet subject to quantitative restrictions (Wellisz and Saw 1993: 249). These developments resulted in a second wave of investments in the export-processing zone and an export-led economic boom. The rise in saving after 1984 appears to be a clear case of growthled saving.

Note: Investment is gross domestic investment relative to gross national disposable income. Saving is gross national saving relative to gross national disposable income. Source: Author's calculations.

After 1987 a number of reforms enhanced the operation of the financial sector. First, the government liberalized interest rates in July 1988 by abolishing the minimum deposit rate and the maximum loan rate guideline. Second, in 1987 it issued two Bank of Mauritius saving bonds to nonfinancial institutions. Third, the government introduced Mauritius Housing Corporation tax-free saving bonds, which allowed individuals to save for a downpayment on a house. Finally, the stock market developed significantly (World Bank 1989: 70–74). It is possible that these reforms have helped to keep the saving rate up.

Chile

National saving behavior in Chile has been extremely volatile (figure 9).¹¹ The saving rate during the late 1960s stood at around 15 percent. It then declined to 5.6 percent in 1973 and immediately peaked at 24.3 percent in 1974. During the latter part of the 1970s the saving rate eventually leveled out at around 17 percent, while investment steadily rose to more than 25 percent. At the beginning of the 1980s the saving rate once again plummeted to the low single digits. Then in 1985 Chile experienced a sustained saving transition. The average rate between 1989 and 1995 was more than 25 percent.

As in the other countries income growth has played a leading role in raising the level of saving in Chile. The saving transition in 1985 is associated with a turnaround in real income growth from -1.4 to 7.8 percent a year (these figures are averages over five years prior to and following 1984). The correlation coefficient between growth and the saving rate during the entire period is 0.55. Chile's case, however, also provides some evidence that structural economic reforms including financial sector liberalization, social security reform, and the stabilization policy—may have had a positive, if lagged, effect on increasing the saving rate.

During the 1950s and 1960s Chile followed isolationist policies that created a highly distorted economy. The Allende government that took office in 1970 introduced a socialist program that included nationalizing industry, banking, and mining. This plan initially created an economic boom, which, however, "quickly degenerated into an explosion of inflation, shortages, black markets, and huge losses in the state enterprises" (Bosworth, Dornbusch, and Laban 1994: 5). The result was a military coup in 1973, led by General Pinochet.

Pinochet's government implemented a series of radical economic reforms that extended into the 1980s. The budget deficit was reduced from 25 percent of GDP in 1973 to 1 percent in 1975 (Bosworth, Dornbusch, and Laban 1994: 5). This cut was combined with restrictive monetary policy, trade and exchange rate liberalization, and a comprehensive privatization plan. The reforms included extensive financial sector liberalization without adequate provision for prudential regulation of financial markets. The austerity program, in combination with several

^{11.} This account draws extensively on a note prepared by Chad Steinberg from the Kennedy School.



Figure 9. Saving and Investment in Chile, 1965-95

external shocks, resulted in the 1975 recession. To control inflation, the government anchored the currency to the U.S. dollar after 1978.

A strong recovery followed in 1976–82. A domestic investment boom was financed mainly by foreign capital, which began to flow freely into the domestic economy with the removal of capital controls. However, saving remained depressed throughout the late 1970s for a number of reasons: the volatility of the economy in the 1970s created uncertainty about future earnings, consumer saving did not change radically in response to the deregulation of the financial system and interest rates, and the large inflow of foreign capital between 1979 and 1981 pushed up asset prices, generating a consumption boom through the wealth effect (Marfan and Bosworth 1994: 181–87).

The increasing overvaluation of the currency and the growing current account deficit were the weak points of the system. In 1982 foreign commercial banks cut off credit to Chile, and the economy spiraled into a deep recession. In the words of Bosworth, Dornbusch, and Laban (1994: 8):

The major economic crisis was partly a result of several external shocks the drying up of voluntary external financing; the deterioration of the terms of trade; and the major increase in foreign interest rates. But the effect of external developments was exacerbated by the mishandling of several domestic policies: the fixed exchange rate policy coupled with mandatory indexation of wages at 100 percent of past inflation; the sweeping opening of the capital account at the time of the boom; the radical liberalization of the

Note: Investment is gross domestic investment relative to gross national disposable income. Saving is gross national saving relative to gross national disposable income. Source: Author's calculations.

domestic financial markets without the provision of proper regulations and controls; and the belief in the "automatic adjustment" mechanism, by which the market was expected to produce a quick adjustment to the new recessionary conditions without interference by the authorities.

The bankruptcy of the Chilean financial sector required a bailout that eventually cost the public sector more than 30 percent of GDP. The crisis of 1982 caused the saving rate to fully collapse. According to Marfan and Bosworth (1994: 192– 93), the collapse "was due exclusively to reduced saving in the public sector, which was faced with the costs of rescuing the financial sector, a decline in the price of copper, the effects of the recession on tax collections, and the costs of the pension reform."

In the decade that followed, the Chilean economy made a remarkable recovery. The government devalued the currency, tightened fiscal policy, introduced a second round of privatization, and reformed social security. In addition, the central bank was given a greater supervisory role in rebuilding the financial system. Although the rise in saving after 1985 has all the hallmarks of a growth-led recovery, the magnitude and strength of the recovery are arguably attributable to structural changes in the economy. Some of the key changes are listed below.

PRIVATE SECTOR INCENTIVES. Marfan and Bosworth (1994) emphasize the importance of the government's efforts to increase private saving by reducing the private debt burden and reforming the tax system in 1984. The government dealt with the over-indebtedness of the private sector by writing off or rescheduling debts of troubled companies. These programs were "successful in inducing firms to contribute additional resources to debt reduction. The efforts made by productive firms to reduce their debt may have been a significant factor in the rise of private saving during this period" (Marfan and Bosworth 1994: 193). In addition, the tax reform in 1984 lowered both income and corporate tax rates, which may have increased incentives for corporations to retain earnings.

SOCIAL SECURITY REFORMS. Chile's effort in the early 1980s to privatize the social security system has received worldwide attention. The new system is based on a defined contribution plan with a mandatory contribution equal to 10 percent of wages. Workers have individual retirement accounts that are managed by private pension funds and are subject to government regulation and oversight. Nearly a quarter of private savings is in pension funds.

THE COPPER STABILIZATION FUND. The Copper Stabilization Fund was designed to help avoid Dutch disease-type crises resulting from cycles in copper prices. The law establishing the fund forces the public sector to save part of its income from copper sales when the market price of copper exceeds some reference price. With the dramatic rise in copper prices in the late 1980s, this law had a positive effect on public saving. STABILITY AND CONFIDENCE. There were no major changes in financial conditions immediately before and after the saving transition in 1985. However, the stability of the Chilean macroeconomy has improved considerably, in comparison with the high inflation rates of the 1970s and the crisis years of the early 1980s. Confidence in the economy and in the government's economic management has increased greatly. Transition to democracy has gone smoothly, with few changes in the underlying rules of the game in economic policy. These factors may have helped to sustain the higher levels of saving.

Hence, the strength of the new financial system, the commitment of successive governments to stability, and reform of the social security system probably have all played a role in the recovery of saving since 1985. Although income growth is the most immediate stimulus to the increase in saving, the structural changes made in the Chilean economy over the past two decades have likely affected the magnitude and the length of the saving transition. At the same time, however, the Chilean saving rate still remains substantially below that in East Asia.

VII. CONCLUDING REMARKS

The central message of this article is negative: focusing on saving performance does not seem to be a profitable strategy for understanding successful economic performance. An increase in saving appears to be the outcome of economic growth, not a fundamental determinant of it; countries that undergo saving transitions do not necessarily experience sustained increases in their growth rates. In fact, the typical pattern in my sample is that growth rates—benchmarked against world norms—return to their levels before the transition within a decade. Countries that experience saving transitions because of rapid increases in worker remittances exemplify this point: very few have experienced increases in their long-run growth rates. By contrast, countries that undergo growth transitions—arising from improved terms of trade, increased domestic investment, and other reasons—do end up with permanently higher saving rates.

The policy implications are clear. First, policies geared toward raising domestic saving do not deserve priority. The case studies demonstrate that the key to generating virtuous cycles of high growth-high investment-high saving is to kindle the animal spirits of entrepreneurs by increasing the expected profitability of their activities. Enhancing production and investment incentives seems preferable to enhancing saving incentives. Further, there is little reason to believe that encouraging capital inflows from abroad—through liberalization of the capital account, adoption of international financial standards, and so on—will be effective in raising growth rates. The evidence provides no support for the view that domestic saving is the binding constraint to economic growth. High saving is typically the result, not the instigator, of growth spurts.

In the East Asian economies—Korea, Singapore, and Taiwan (China)—the virtuous cycles were started by employing a wide variety of investment subsidies and by undertaking public investments that raised the return to private invest-

ments. Implemented during a time of overall macroeconomic stability, good governance, and superior human resources, these interventions increased enterprise profits, crowded in private investment, and led to a steady rise in corporate and household saving. In Mauritius a temporary saving boom generated by a termsof-trade windfall was put to good use by setting up an export-processing zone unencumbered by the restrictions placed on entrepreneurship in the rest of the economy. The result was an investment boom that proved more durable than the saving boom and set the stage for export-oriented growth. In Chile the rise in saving after 1985 was the result of economic recovery following the crisis of 1982–83 and the restoration of economic stability after a long period of macroeconomic instability.

In all of these cases policies and institutions having a direct bearing on saving performance did make a difference. It is unlikely that the saving rate in Singapore would have risen so high in the absence of the Central Provident Fund and thus that the investment rate would have climbed to 50 percent by the early 1980s. Similarly, it is plausible that financial policies and institutions in Chile boosted the saving rate beyond where it otherwise would have gone, even with a recovery of similar magnitude. But it would be difficult to argue in these and other cases looked at here that saving per se acted as the trigger for economic growth.

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