Sustained investment surges

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Abstract

Existing empirical studies have focused on determinants of investment. We focus instead on the factors promoting *episodes* of accelerated capital stock growth that last seven years or longer. After identifying 190 such episodes we employ econometric analysis to explore: (i) the conditions that precede episodes, (ii) structural changes during episodes, and (iii) the characteristics that distinguish episodes that are sustained beyond the final year from those that are not. Turning points in investment tend to be preceded by stable and undervalued real exchange rates, low inflation, and net capital outflows, especially on the portfolio account. We also find some evidence for a positive correlation with large increases in natural resource rents and trade openness. Finally, we find that the economies typically experience a shift in economic structure toward the manufacturing sector during periods of accelerated investment.

JEL Codes: E22, F41, E20

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1 Introduction

Economists have recognized the central role of capital accumulation in determining output growth since at least the early nineteenth century. Indeed, any discussion of growth or development-related issues is incomplete without investment. The country-level determinants of investment, however, remain controversial. While earlier studies tended to focus on variables such as the cost of capital and aggregate demand, the literature since the eighties has been dominated by models based on intertemporal optimization in the presence of capital market imperfections, irreversibility, convex adjustment costs, and financial constraints. More recent literature has explored the role of economic and political institutions broadly defined. This paper takes a different approach to the question. Instead of focusing on correlates of investment, we direct our attention to identifying national-level episodes of *sustained* capital stock growth. After some informal analysis, we then use probit regressions to identify variables that significantly affect the probability of an investment episode taking place. We then explore the dynamics of the identified episodes after classifying these in terms of their profiles over time.

The existing theoretical and empirical literature identifies several determinants of investment. One could alternatively locate these determinants in financial markets, in the markets for goods and services, or in the broader landscape of institutions and economic stability. In a closed economy, investment and saving are ex-post identical. One would then expect to see periods of high investment coincide with periods of high saving. However, the determinants of the two are typically different even in the simple textbook model. The classical approach emphasizes the profit rate. In the simple Keynesian approach to business cycles, expectations of future aggregate demand conditions play a central role along with uncertainty and the cost of capital. Investment and saving can, therefore, diverge ex-ante. Neoclassical models, as elaborated by Jorgenson (1963) and later work, are based typically on firms that choose capital and labor inputs to maximize the net present value of future cash flows, and assign a central role to relative factor prices in determining the long-run value of capital. Diminishing returns to capital ensure that the rate of capital stock growth is similar across long-run steady states. This is true regardless of whether the saving rate is exogenous, as in the Solow model, or endogenous, as in the Ramsey model.

In more recent micro-founded models with intertemporally optimizing rational agents, the path of investment over time is determined by the consumption-smoothing behavior of utility-maximizing agents, and often, convex capital stock adjustment costs. Permanent shocks to lifetime income can influence the trajectory of saving and investment. Other complications incorporated in the recent literature include the irreversible nature of investment in capital goods, uninsurable idiosyncratic risks, and the lumpiness of investments, among others. Empirical studies such as Benhabib (2000) have also incorporated the level of financial and institutional development as a determinant.[1]

Open economy considerations add further complications since now investment need not be financed solely by domestic saving. A positive terms of trade shock, for example, could boost investment not simply by increasing wealth (and hence saving), but also by increasing the value of the marginal product of capital in an economy and attracting foreign capital flows as a result. Domesting saving and investment need not be strongly correlated anymore. Empirical studies since Horioka and Feldstein (1980), however, have found robust support for a continued strong correlation between investment and domestic saving.

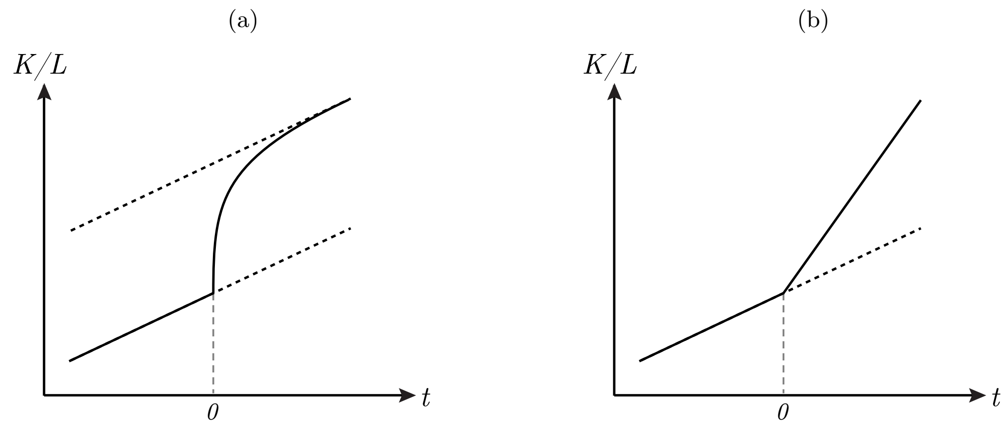
Table 1: Investment and saving across regions as a percent of GDP, 1960-2014

	Gross domestic savings	Gross fixed capital formation
East Asia & Pacific (all income levels)	31.7	28.4
Latin America & Caribbean (all income levels)	20.9	19.7
High income: OECD	23.6	23.7
Middle East & North Africa (all income levels)	29.0	22.1
South Asia	18.7	19.8

Investment and saving across regions, 1960-2014: Source: World Bank's World Development Indicators

[1]See Lim (2014) for a survey.

Figure 1: Capital stock growth in the (a) Solow framework and the (b) AK growth framework



As valuable as existing theoretical and empirical studies are, most of these do not appear to give adequate weight to the unstable nature of investment, even though the role of investment fluctuations over the business cycle tends to be widely recognized. Indeed, extended upturns and downturns in investment appear to be a fact of life, while periods of high investment sustained over decades tend to be relatively rare. Moreover, these tend to be geographically dispersed and differences in investment rates among seemingly similar countries tend to be persistent. Table 1 highlights some of these facts. For example, while East Asia experienced investment-GDP ratios of 31.7 percent over the period 1960-2014, accumulation in Latin American and Caribbean countries stagnated at 20.9 percent, while South Asia experienced an even lower average rate. Moreover, countries appear to experience phases of high and low investment, and similar saving rates across countries tend to give rise to different investment rates. Identifying the nature of the turning points could, therefore, yield interesting insights into the growth process.

Let's think, for example, in terms of the Solow growth model with exogenous technological change. In the steady state, the capital to output ratio (in terms of the effective labor force) is constant, as is the capital to labor ratio. Factors that affect savings could affect the steady state level of output per capita but only through the transitional dynamics. This is illustrated by Figure 1 where a change, such as a policy-induced increase in the saving rate at time 0, leads to level effects but no growth effects in the long-run. These inter-steady state dynamics, however, could last for significant periods of time. For example, employing the Cobb-Douglas version of a general form production function, assuming a one-third income share of capital, and assuming the rates of capital depreciation, labor force growth, and technological progress to be 4%, 1%, and 2%, respectively, yields a half-life of approximately 15 years.[2] Incorporating human capital to increase the capital share to 0.66 changes the number to approximately 29 years. Given the rather long time horizons involved, identifying the determinants of trend changes therefore becomes an interesting exercise.

In models with endogenous growth,[3] such as the AK family of models, policy changes that shift investment behavior lead to permanent changes in steady state rates of capital and output growth even in the absence of exogenous technological progress. This situation is illustrated in Figure 1b, where a policy shock increases the growth rate at time 0. Rodrik (2008), which we refer to in more detail later, argues, for instance, that the tradable sector in developing countries is more affected by market imperfections and externalities. A policy of sustained real exchange rate undervaluation, in this second-best world, can act to counter these externalities by boosting tradable sector profitability.

In models with multiple equilibria, the relationship between policy variables and investment is not linear since small movements across thresholds can cause switching from a low investment state to a high investment one and vice versa. Thus, identical initial economic conditions could give rise to different growth rates of

[2]Specifically, $-\ln(0.5)/((1-0.33)(0.04+0.01+0.02)) \approx 14.8$.
[3]In the sense that policy can affect steady state growth rates *permanently*.

capital stock, and a country could be stuck in low or high capital accumulation equilibria for extended periods of time. The factors that push economies on to high accumulation trajectories, therefore, attain particular salience. Benhabib (1995) provides a survey of these kinds of models.[4]

On a broader note, models which incorporate deviations from full employment over extended periods of time naturally generate endogenous growth, even in the presence of constant returns to scale and even when technological progress is absent. The famous Harrod-Domar model, and in the context of a developing economy with underemployment and dual labor markets, the Arthur Lewis model, are well-known examples. The endogenous nature of the steady state rate of capital accumulation in these models provides another reason to focus on sharp historical break points in investment rates.

The focus in this paper is on turning points that lead to a sustained upsurge in investment. In order to explore the nature of these turning points, we zoom in on long-term trends rather than short-run fluctuations. We then econometrically investigate conditions before, during, and after episodes. We employ several criteria for identifying an investment surge, as discussed in the next section. This approach minimizes the role of volatility, irreversibility, and lumpiness and other factors that are likely to render open to question empirical specifications based on smooth distributions of underlying variables. It also helps separate temporary/cyclical investment booms from sustained surges. Our aim is to focus on such surges at the national level and, unlike most empirical studies, we include data for both advanced and developing economies. For this purpose, we use capital stock data from the Penn World Tables 8.0, which is comparable across countries.

A body of analysis has appeared in recent years that identifies turning points in macroeconomic aggregates. Hausmann et. al. (2005) identify episodes of acceleration in output growth. Freund and Pierola (2008) carry out a similar exercise for export surges while Montiel (2000) and Rodrik (2000) analyze consumption booms and saving transitions, respectively. To the best of our knowledge this is the first attempt to identify determinants of sustained investment surges.

The next section describes our episode identification methodology. Section 3 describes our empirical approach and the results of our analysis of the factors that precede investment accelerations. Section 4 then explores changes that typically occur in economic structures during episodes of acceleration. Section 5 examines the characteristics of accelerations that are sustained beyond the episode years. Finally, Section 6 concludes.

2 Episode Identification

In this section we describe the filter used to identify investment acceleration episodes. To be identified as an investment surge, an episode must satisfy the following criteria: a) annual per capita capital stock growth over a seven-year period must be over 3.5 percent; b) annual per capita capital stock growth must have accelerated by at least 2 percentage points during the seven-year period; and c) the level of capital per worker seven years after the beginning of the acceleration episode must exceed its historical peak.[5]

Criteria (a) ensures that the capital stock grows at a rapid rate. Criteria (b) ensures that the growth rate deviates significantly from it's pre-episode average. Criteria (c) avoids picking investment surges that are pure recoveries from periods of capital stock destruction due to events such as war, major political upheavals, and natural disasters. In light of these criteria, the first step is to obtain the fitted growth rate of capital per worker over each 7-year window. Specifically, we estimate the following rolling regression for every country individually:

$$ln(k_{it}^w) = \alpha_{it}^w + g_i^w t + u_{it} \quad (1)$$

Where k_{it}^w is the capital-population ratio, t is a time-trend, and w denotes the 7-year rolling estimation window. The coefficient estimate $\hat{g^w}$ is therefore the fitted 7-year growth rate of capital per capita. We define an investment acceleration episode as one where both the fitted growth rate $\hat{g^w}$ and the acceleration of the capital stock ($\Delta\hat{g^w}$) exceed certain thresholds. For our baseline filter, as already noted, we consider

[4]The idea of growth traps appears in variants of the traditional big push model such as Rosenstein-rodan (1943), Murphy et. al. (1989), and Skott and Ros (1997), where it is the *level* of capital stock that varies between multiple steady states.

[5]Using the criteria "the level of capital per worker seven years after the beginning of the acceleration episode must exceed its pre-episode level" yields a very similar result (almost the same list of episodes is selected).

the case where capital per capita must grow more than 3.5 percent a year on average over a 7-year window and accelerate by at least 2 percentage points during the same period.

Having calculated the fitted growth rates and applying the filtering criteria, it is still necessary to identify the beginning year of each episode. This is because in most cases a number of contiguous years will satisfy the growth and acceleration thresholds. For example, a country's capital to worker ratio may grow on average more than 3.5 percent and accelerate more than 2 percent over the 7-year windows beginning in 1973, 1974, and 1975. It is therefore important to rule out two of these three candidate episode start years. This is accomplished using Chow tests to test each candidate year separately and then compare the goodness of fit for each year. Formally, we estimate:

$$ln(k_{it}) = \alpha_{1i} + \beta_{1i}t + \alpha_{2i}\mathbb{1}(t > \tau) + \beta_{2i}\mathbb{1}(t > \tau) \cdot t + u_{it} \tag{2}$$

where $\mathbb{1}(t > \tau)$ is an indicator function that is equal to one for years greater than the candidate start year τ and zero otherwise. Our routine runs (2) for every candidate year and every country and obtains the regression F-statistic. We then choose the candidate year that yields the maximum F-stat as the starting year of the investment acceleration episode.

In order to ensure the robustness of the empirical results presented below we also apply our episode filter using increasingly "stricter" growth and acceleration thresholds. The "strict" filter considers the case where the average annual growth rate of capital per worker exceeds 5 percent and accelerates by at least 3 percentage points. The "very strict" filter then raises the thresholds to $g_i^w > 7$ and $\Delta g_i^w > 4$.

The application of the filter yields a large number of episodes (selected episodes are shown in Figure 2); however, the unconditional probability of the occurrence of an episode of 2.23% is slightly below the 2.68% reported by Hausmann et. al. (2005) for GDP growth. This number looks reasonable, and we should keep in mind that we are using a different data sample and our variable of interest is capital accumulation and not per capita output.[6] While the first filter picks up 190 episodes, the second picks 100 and the third a total of 38. The next two tables (2 and 3) display the unconditional probability of the occurrence of episodes, by decades and regions, using the first filter. These probabilities were calculated by simply taking the ratio of the number of episodes in each region during a particular decade divided by the total number of years an episode could take place. To obtain the latter, it is important to subtract ineligible years ruled out by the filter criteria. Specifically, we subtract the 5 years after the second year of every episode since, by definition, an episode cannot take place during those years.[7]

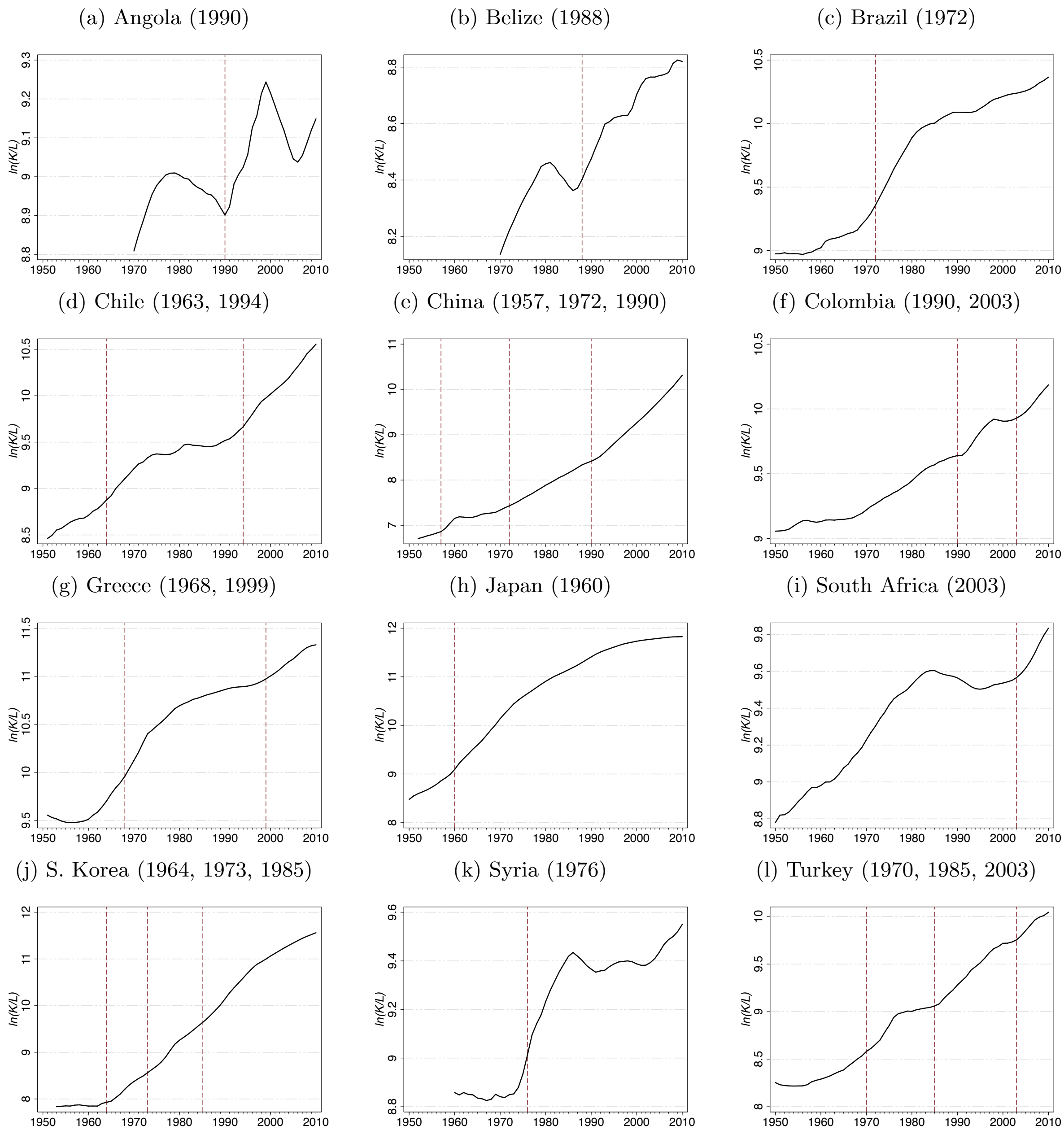
Overall, the Developed countries (Europe and North America) have the lowest probability (a little bit more than one per cent) of experiencing an episode while East Asia has the highest (3.95 per cent). The former is what one would expect if there are diminishing returns to capital accumulation in the Solow sense. Among middle and low-income countries, Sub-Saharan Africa has the lowest probability (2.06 per cent). In terms of decades, the 1970s and the 2000s have the highest probability of an investment surge for any region.

We also looked at the probability of an episode occurring across different quintiles of global income. As reported in Table 3, countries in the middle quintile of global income are the most likely to experience an investment surge. The 1970s and the 2000s were an especially fruitful decade for these countries in this regard with a probability of 2.99 and 4.5 per cent. Not surprisingly, the upper-most income quintile has the lowest probability. This apparent nonlinear relationship between the probability of having an investment acceleration episode and the level of development is also illustrated in Figure 3.

[6]We find a probability of 2.96% using GDP per capita instead of capital stock per capita.

[7]Later on we will define a window that includes one year before and one year after the "official" starting date of each episode in order to estimate the triggering factors.

Figure 2: Log capital stock per worker in selected episode countries



Note: The first year of an investment episode is indicated by a red dashed line.

3 Data and Empirical Approach

Our goal is to explain what variables are associated with fast capital accumulation. To do this, we analyze what variables can explain the turning points in the series of per capita capital stock, what happens during an episode, and why growth is sustained after some episodes and not after others. As control variables we use covariates that reflect external and internal factors, policy and institutional aspects that may trigger a

Table 2: Unconditional Probabilities by Region

Decade	1950s	1960s	1970s	1980s	1990s	2000s	Total
East Asia and Pacific	0.0286	0.0362	0.0574	0.0311	0.0403	0.0430	0.0395
Latin-American and the Caribbean	0.0089	0.0259	0.0357	0.0160	0.0287	0.0432	0.0269
Middle East and North Africa	0.0508	0.0067	0.0833	0.0216	0.0196	0.0690	0.0367
South Asia	0.0000	0.0156	0.0556	0.0385	0.0172	0.107	0.0352
Sub-Saharan Africa	0.0000	0.0164	0.0280	0.0201	0.0180	0.0380	0.0206
Developed	0.0000	0.0102	0.0062	0.0020	0.0162	0.0394	0.0111
Total	0.0092	0.0168	0.0299	0.0152	0.0211	0.0450	0.0223

Table 3: Unconditional Probabilities by Region

Decade	1950s	1960s	1970s	1980s	1990s	2000s	Total
1st Quintile	0.0351	0.0230	0.0271	0.0180	0.0240	0.0373	0.0250
2nd Quintile	0.0141	0.0229	0.0420	0.0217	0.0233	0.0382	0.0280
3rd Quintile	0.0500	0.0563	0.0647	0.0221	0.0244	0.0536	0.0407
4th Quintile	0.0000	0.0253	0.0432	0.0298	0.0234	0.0785	0.0357
5th Quintile	0.0000	0.0000	0.0122	0.0061	0.0133	0.0206	0.0119
Total	0.0092	0.0168	0.0299	0.0152	0.0211	0.0450	0.0223

structural change in the rate of capital accumulation. This section describes the main explanatory variables, while section 3 presents a probit analysis to explain factors that trigger episodes, section 4 analyses the structure of an episode, and section 5 analyzes sustainability issues.

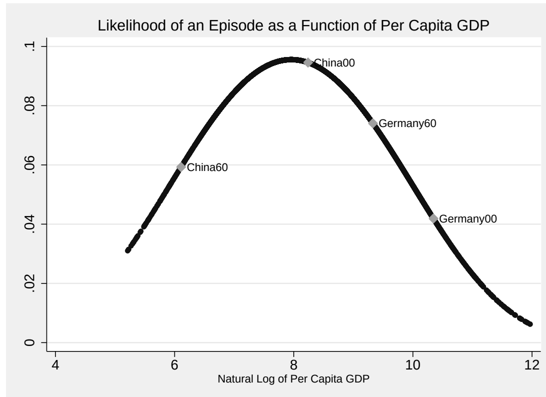
1. **Policy variables:** we include Rodrik's undervaluation index (*Underval81*)[8], the degree of fiscal procyclicality (*Fiscal*), the rate of inflation (*Inflation*), and an index of exchange rate stability (*XR_Stability*). The expected sign of the undervaluation index is positive, as a recent literature suggests that real exchange rate undervaluation may favor growth (Rodrik 2008, Razmi, Rapetti and Skott, 2012). Regarding fiscal procyclicality, we expect a negative sign, as more pro-cyclical policies increase the volatility of the economy. The relation between inflation and growth is non-linear, so the expected sign is positive when inflation accelerates from very low levels, but negative once inflation hits a threshold that the literature places somewhere between 20-40 percent (Bruno and Easterly, 1998). Finally, exchange rate stability can favor investment, but a stable exchange rate may reflect the adoption of a hard peg which are notorious for exhibiting a tendency towards real exchange rate overvaluation and crisis. However, we also control for crisis and real exchange rate undervaluation, so more exchange rate stability should have a positive effect on capital accumulation and growth, once these effects are taken into account by our other control variables.

2. **External factors:** we include a variable that captures capital flows (*NET_Inflows*), the FED reserve Federal Funds interest rate (*FFend*), an index of world stock markets volatility (*Global_uncertainty*), an index of terms of trade (*TOT*), the de facto degree of trade openness (*Trade*), and the degree of capital account openness (*KA_open*). The expected sign of capital inflows is ambiguous, as they could increase total investment, or they could crowd-out productive investment if flows are mainly portfolio flows (that can appreciate the real exchange rate). To gain further insights, we replace capital inflows by the variables (*Port_Inflows*) and (*FDI_Inflows*) that represent portfolio and FDI net inflows.[9] For the same reasons, the sign of the degree of capital account openness is also ambiguous. Increases in Federal

[8]We follow Rodrik's three step procedure here: i) we construct a real exchange rate index using relative prices from Penn World Table 8.1; ii) we regress our real exchange rate index on per capita GDP and a set of time fixed effects; iii) we estimate the residuals from the previous regressions to construct the undervaluation index.

[9]The variables *Port_Inflows* and *FDI_Inflows* are constructed using a similar logic than *NET_Inflows*, but they include the 3 year average of net portfolio and net FDI inflows divided by the trend of nominal GDP.

Figure 3: Episode likelihood conditional on the level of development



Note: The conditional probability was obtained by fitting a probit model where the dependent variable is a dummy for the beginning of an episode and the independent variables are the natural log and the natural log squared of per capita GDP.

Funds interest rate and in the volatility of stock markets may increase financial constraints and reduce credit, thus we expect them to have a negative effect on capital accumulation. Higher terms of trade can boost investment in favored sectors, but they can also have negative repercussions due to "Dutch-Disease" effects. Finally, countries that are more open to trade can exploit the economies of scale of the world market, so they are more likely to experience a structural break in capital accumulation, but in the past some in-ward oriented strategies also featured a very fast growing and protected manufacturing sector (i.e., Brazil in the 1960s and 1970s), so the expected sign of the variable is ambiguous.

3. **Internal factors:** we include a variable that reflects the presence of crisis (banking, currency, debt, etc.) in the 5 years before an episode (*Crisis_5y*), the share of natural resource rents on GDP (*Rents*), and per capita GDP (*Capita_GDP*). The expected sign of the crisis variable is negative, as the presence of crisis may severely disrupt long-term prospects, depressing investment. Notice that any positive effect from a recovery is basically excluded by construction, since the third criteria in our filter specifies that capital stock per capita at the end of an episode should be higher than the historical peak. The variable (*Rents*) proxies for natural resource availability, and as such it can have opposite effects on capital accumulation; an increase in the stock of natural resource that can be exploited profitable may enhance investment in natural-resource intensive sector, but it may also generate "Dutch-Disease" effects on the manufacturing sectors. Finally, the expected sign of per capita GDP is ambiguous, as the relation between income and the likelihood of an episode is non-linear.

4. **Institutional factors:** we include a human capital index (*Human_Capital*), and the durability of the political regime (*Durable*).[10] We expect an ambiguous effect of the human capital index on the likelihood of an episode; the reason being that the relationship between income and education and growth is notably non-linear; positive if we start from a low level of development, but possibly negative after some middle-income threshold. Regarding the durability of the political regime, the expect sign is also ambiguous, as political and institutional stability can favor growth, but it can also lock-in policies that are not conducive to economic growth.

The next tables (4 and 5) define the explanatory variables and presents their summary statistics as well as their expected effects on the likelihood of an episode.

[10]We also examined a wide range of other variables capturing the quality of institutions (prevalence of civil wars, indexes of the quality of democracy) but the results were largely inconclusive.

Table 4: Variable Descriptions

	Description	Source
POLICY VARIABLES		
Underval81	Undervaluation index	PWT 8.1
Fiscal	5 year corr. of GDP and Gov. Cons (dev. from trends)	WDI
Inflation	Rate of Inflation	WDI
XR_Stability	Chin-Ito-Aizenmann Exchange Rate Stability Index	Aizenmman et. al.
INTERNAL VARIABLES		
Crisis_5y	Dummy for a crisis episode in any of the previous 5 years	Laeven and Valencia
Rents	Share or natural resource rent on GDP	WDI
Capita_GDP	Per Capita GDP	PWT 8.1
EXTERNAL VARIABLES		
NET_Inflows	Net capital Inflows / Trend GDP (3 year avg.)	Broner et. al.
FFend	Federal Funds Rate (end of period)	FRED
Global_uncertainty	Volatility of World Stock Market Index	FRED
TOT	Log of Terms of Trade	Spatafora and Tytel
Trade	De Facto Trade Openness	PWT 8.1
KA_open	Chin-Ito-Aizenmann Capital Account Openness Index	Aizenmman et. al.
INSTITUTIONAL VARIABLES		
Human_Capital	Years of education adjusted by the return of schooling	PWT 8.1
Durable	Political Regime Durability (years)	Polity IV Dataset

Table 5: Summary Statistics

	Observations	Mean	SD	Max / Min	Expected Sign
POLICY VARIABLES					
Underval81	8275	0.0000	0.4086	2.1638 / -2.2791	+
Fiscal	4609	0.3498	0.5085	1 / -1	-
Inflation	5852	0.3192	3.9813	237.73 / -0.1764	+/-
XR_Stability	7333	0.6939	0.3282	1 / 0.0013	+/-
INTERNAL VARIABLES					
Crisis_5y	3963	0.0664	0.2489	1 / 0	-
Rents	6591	10.0348	14.3107	89.3287 / 0	+/-
Capita_GDP	8275	8.4326	1.2324	5.2112 / 11.9692	+/-
EXTERNAL VARIABLES					
NET_Inflows	2769	0.0080	0.0759	0.8167 / -0.5092	+/-
FFend	9686	5.2991	3.3649	16.38 / 0.1	-
Global_uncertainty	5678	20.2568	6.4431	40.82 / 9.8	-
TOT	3493	4.6615	0.2871	5.8793 / 3.0576	+/-
Trade	6767	0.7675	0.5010	5.6206 / 0.0531	+/-
KA_open	5595	0.0000	1.5244	0.24390 / -1.8640	+/-
INSTITUTIONAL VARIABLES					
Human_Capital	6927	0.6913	0.3115	0.0180 / 1.2861	+/-
Durable	7499	22.1756	28.9124	202 / 0	+/-

4 Episode Determinants

To analyze the determinant of episodes, we regress a dummy that takes the value of one on the episode start year, as well as the prior and next year, on the set of explanatory variables described in the previous section. Including the year prior and immediately after the beginning of the episode minimizes the chance that the results are driven by uncertainty surrounding the precise episode timing.

The main empirical results are presented in Table 6. The most salient results can be summarized as follows:

1. The degree of real exchange rate undervaluation (*Underval81*) correlates positively with the likelihood of experiencing an investment surge episode. A one percent increase in the undervaluation index raises the probability of an episode by between 2.5 to 6.1 percent, depending on the specification.

2. The ratio of net capital flows to the nominal trend of GDP (*NET_Inflows*) significantly decreases the likelihood of an investment surge.[11] The marginal effect in the probit regression varies between -0.201 to -0.425, a very large effect. A 1 per cent increase in capital flows seems to reduce the likelihood of an episode between 20 and 42.5 percent.

3. The occurrence of a banking, balance of payments or debt crisis, captured by *Crisis_5y*, as well as increases in the Federal Funds rate (*FFend*) and the world stock market volatility index (*Global_uncertainty*) lowers the likelihood of an episode, provided that we do not include time fixed effects (as in columns 6 and 7). This may suggest that these variables are capturing changes in the international context; this is not obvious for the crisis variable. The absolute magnitude varies between -0.020 to -0.029, -0.001 and -0.005, and from -0.002 to -0.003, for crisis, the Federal Funds rate and the stock market index. Put differently, a crisis makes an episode around 2-3 percentage points less likely, while a 1 percentage point increase in the Federal Funds rate or a 1 percentage increase in the uncertainty index reduces the likelihood of an episode by about 1 to 5 and 2 to 3 percentage points.

4. Higher inflation, captured by (*Inflation*) seems to reduce the probability of an episode. The effect ranges from -0.035 to -0.069. In words, a 1 percentage increase in the rate of inflation makes an episode about 3.5 or 6.9 percentage point less likely.

Could reverse causation be an issue? We should note first that the structure of our exercise minimizes this possibility. We are looking for correlates from data for the years that *precede* investment episodes. Strictly along the time dimension then reverse causality is not an issue. Next, let's take a look at the highly significant variables, starting with $Underval81$. An investment boom that increases domestic spending in the non-tradable sector should *appreciate* the real exchange rate through the spending channel in a simple Mundell-Fleming framework. The baseline monetarist framework that incorporates purchasing power parity and some version of the quantity theory should also predict a similar effect through the real balances channel. Moreover, analysis in a portfolio framework with imperfect substitution between money and other assets should lead to qualitatively similar expectations. In all these cases, reverse causality works in a direction that leads us to believe that the effect of $Underval81$ is, if anything, biased downwards.[12]

[11] The data on the balance of payments from Broner et. al. is calculated as a ratio to the trend of GDP, to reduce the influence of short-run fluctuations and presumably the effects of price and exchange rate changes (because the balance of payments data is current dollars, GDP at current prices should be used).

[12] One could construct a scenario where an *unanticipated* and *permanent* productivity shock in the non-tradable sector leads to both a real depreciation and a boost to investment. We plan to examine this possibility in future extensions to this paper.

Table 6: Baseline Probits - Marginal Effects

Dependent variable: Episode start indicator (*EpiI*)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Policy variables							
Underval81	0.025***	0.061***	0.057***	0.047**	0.046**	0.045*	0.041*
	(0.008)	(0.015)	(0.022)	(0.021)	(0.020)	(0.024)	(0.023)
Fiscal		0.021**	0.001	0.006	0.003	-0.000	-0.002
		(0.009)	(0.010)	(0.009)	(0.009)	(0.008)	(0.008)
Inflation		-0.035*	-0.069***	-0.055***	-0.056***	-0.054***	-0.054***
		(0.019)	(0.011)	(0.010)	(0.009)	(0.007)	(0.008)
XR_Stability		0.022	-0.009	-0.024	-0.026	-0.022	-0.022
		(0.014)	(0.017)	(0.016)	(0.016)	(0.016)	(0.015)
Internal factors							
Crisis_5y			-0.029**	-0.028**	-0.025**	-0.024*	-0.020
			(0.011)	(0.012)	(0.012)	(0.014)	(0.013)
Rents			0.001	-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Capita_GDP				-0.028**	-0.026**	-0.026**	-0.022*
				(0.011)	(0.011)	(0.013)	(0.012)
External factors							
Trade			-0.020*	-0.013	-0.011	-0.013	-0.012
			(0.012)	(0.012)	(0.012)	(0.012)	(0.011)
KA_open			-0.005	0.002	0.000	0.001	0.000
			(0.005)	(0.004)	(0.004)	(0.003)	(0.003)
NET_Inflows			-0.201*	-0.425***		-0.351**	
			(0.105)	(0.150)		(0.161)	
FDI_Inflows					-0.001		0.001
					(0.002)		(0.002)
Port_Inflows					-0.003***		-0.002**
					(0.001)		(0.001)
TOT			-0.076**	-0.002	-0.005	0.007	0.002
			(0.032)	(0.023)	(0.023)	(0.022)	(0.021)
FFend			-0.005**	-0.004*	-0.004*	0.001	-0.004
			(0.002)	(0.002)	(0.002)	(0.004)	(0.003)
Global_Uncertainty			-0.003**	-0.002*	-0.002*	-0.003	-0.003
			(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Institutional factors							
Human_Capital				0.030	0.026	0.019	0.015
				(0.027)	(0.026)	(0.025)	(0.023)
Durable				-0.000	-0.000	-0.000	-0.000
				(0.000)	(0.000)	(0.000)	(0.000)
Time Fixed Effects	No	No	No	No	No	Yes	Yes
Observations	6,129	3,114	1,023	982	970	860	848

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.1 Booms

In this subsection we adopt a different approach to analyze the determinants of an episode. Instead of the levels of the covariates, we introduce "covariate-booms" that capture abnormally favorable or unfavorable periods (i.e. extremely high terms of trade, large changes in the degree of capital account openness, etc). The next table summarizes the new variables. All the expected signs are ambiguous, since for all the variables drastic change may reflect both very favorable conditions but they can also have nefarious side effects (as in the "Dutch Disease") or reflect the occurrence of crises (i.e. large changes in the undervaluation index, changes in the Reinhart and Rogoff index, or changes in the Polity IV index of democracy).

Table 7: Variable Descriptions

	Description	Expected Sign
POLICY VARIABLES		
Underval_change	Fifth quintile dummy of the 3 year change in undervaluation	+ / -
Regime_change	3 year change in Reinhart and Rogoff exchange rate regime classification[13]	+ / -
INTERNAL VARIABLES		
Rents_boom	Fifth quintile dummy of the 3 year change in the share of natural resource rents	+ / -
EXTERNAL VARIABLES		
NET_boom	Fifth quintile dummy of the 3 year change in NET capital inflows	+ / -
TOT_boom	Fifth quintile dummy of the 3 year change in the terms of trade	+ / -
Trade_boom	Fifth quintile dummy of the 3 year change in trade openness	+ / -
KAopen_boom	Fifth quintile dummy of the 3 year change in the capital account openness	+ / -
INSTITUTIONAL VARIABLES		
Fiveregime	Changes of more than three points (up and down) in the polity index[14]	+ / -

These results are reported below in Table 8. Four variables stand out:

1. A change in the exchange rate regime (*Regime_change*) correlates negatively with the likelihood of experiencing an investment surge episode. As the index classifies countries into hard pegs (1), soft pegs (2), intermediate (3), freely floating (4) and "freely falling"[15] (5), moving up one category reduces the likelihood of an episode by around 1-2 percentage points.

2. Large capital portfolio inflows (*Port_Boom*) significantly decreases the likelihood of an investment surge. The marginal effect varies between -0.041 to -0.029, an important effect. A "portfolio inflow boom" reduces the likelihood of an episode by between 2.9 to 4.1 percentage points. Notice that when we include net inflows only the coefficient is not significant at standard confidence levels (columns 3 and 5), indicating that the result is driven by specific characteristics of portfolio flows and not capital flows in general.

3. Large natural resource discoveries, captured by (*Rents_boom*) increase the likelihood of an episode. The absolute magnitude varies between 0.044 to 0.056 depending on the specification.

4. Large increases in the degree of trade openness, captured by (*Trade_boom*) increase the likelihood of an episode, provided that we do include time fixed effects (as in columns 5 and 6). The absolute magnitude varies between 0.035 to 0.044 depending on the specification.

[15] This category represents currency crisis, and it is associated with observations with more than 40 percent of inflation.

Table 8: Large Changes Probits - Marginal Effects

VARIABLES	(1) EpiI	(2) EpiI	(3) EpiI	(4) EpiI	(5) EpiI	(6) EpiI
Underval_change	0.008	-0.004	-0.018	-0.015	-0.030**	-0.029**
	(0.007)	(0.010)	(0.014)	(0.013)	(0.014)	(0.014)
Rchange		-0.010*	-0.017**	-0.014**	-0.019***	-0.018**
		(0.005)	(0.007)	(0.007)	(0.007)	(0.007)
KA_open_boom		0.019*	-0.000	-0.005	-0.004	-0.007
		(0.010)	(0.013)	(0.013)	(0.014)	(0.014)
Trade_boom		0.035***	0.035**	0.030**	0.044***	0.042***
		(0.011)	(0.015)	(0.014)	(0.016)	(0.016)
TOT_boom		-0.012	-0.005	-0.002	0.009	0.007
		(0.010)	(0.013)	(0.013)	(0.016)	(0.016)
Rents_boom		0.044***	0.056**	0.044**	0.049**	0.043*
		(0.016)	(0.024)	(0.022)	(0.024)	(0.023)
NET_boom			-0.008		-0.004	
			(0.013)		(0.014)	
FDI_boom				0.016		0.002
				(0.014)		(0.015)
Port_boom				-0.041***		-0.029**
				(0.012)		(0.013)
Fiveregime		-0.010	-0.003	-0.004	-0.004	-0.005
		(0.014)	(0.024)	(0.024)	(0.024)	(0.025)
Time Fixed Effects	No	No	No	No	Yes	Yes
Observations	5,826	2,615	1,557	1,532	1,409	1,384

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.2 Lags

We introduce up to five lags for explanatory variables that may not have a contemporaneous effect on capital accumulation. These are: the undervaluation index, the terms of trade, the share of rent, and the net capital flows. We report the results including only 1, 3 and 5 lags. The results are reported in Tables 9, 10, and 11. While the estimated standard errors tend be larger, the signs are consistent with the previous results.[16]

[16]Including only the lags shows that the effect of undervaluation is significant and positive, while the effects of capital flows are negative, but usually not significant. Full results are available from the authors' upon request.

Table 9: Probits with lag 1 - Marginal Effects

VARIABLES	(1) EpiI	(2) EpiI	(3) EpiI	(4) EpiI	(5) EpiI	
Underval81	0.040	-0.037	-0.035	0.007	0.008	
	(0.033)	(0.063)	(0.065)	(0.059)	(0.061)	
l1Underval81	-0.013	0.130**	0.130**	0.096*	0.096*	
	(0.032)	(0.061)	(0.062)	(0.056)	(0.058)	
TOT		0.032	0.033	0.032	0.038	
		(0.081)	(0.082)	(0.083)	(0.085)	
l1TOT		-0.127*	-0.122	-0.137*	-0.131	
		(0.076)	(0.077)	(0.079)	(0.082)	
Rents		0.002	0.001	-0.002	-0.002	
		(0.003)	(0.003)	(0.003)	(0.003)	
l1Rents		-0.001	-0.001	0.002	0.003	
		(0.003)	(0.003)	(0.003)	(0.003)	
NET_Inflows		-0.403		-0.507		
		(0.316)		(0.342)		
l1NET_Inflows		-0.009		0.204		
		(0.329)		(0.362)		
FDI_Inflows			0.005		0.006	
			(0.008)		(0.007)	
l1FDI_Inflows			-0.007		-0.006	
			(0.008)		(0.008)	
Port_Inflows			-0.001		-0.003	
			(0.002)		(0.003)	
l1Port_Inflows			-0.001		0.001	
			(0.003)		(0.003)	
Time Fixed Effects	No	No	No	No	Yes	Yes
Observations	6,032	1,105	1,088	1,009	992	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Probits with lag 3 - Marginal Effects

VARIABLES	(1) EpiI	(2) EpiI	(3) EpiI	(4) EpiI	(5) EpiI	
Underval81	0.042**	0.046	0.053	0.075	0.085*	
	(0.020)	(0.049)	(0.050)	(0.046)	(0.048)	
l3Underval81	-0.008	0.059	0.055	0.037	0.028	
	(0.020)	(0.044)	(0.046)	(0.041)	(0.043)	
TOT		0.028	0.025	0.032	0.036	
		(0.067)	(0.068)	(0.066)	(0.066)	
l3TOT		-0.089*	-0.095*	-0.108**	-0.114**	
		(0.054)	(0.055)	(0.055)	(0.057)	
Rents		0.001	0.001	-0.001	-0.001	
		(0.002)	(0.002)	(0.002)	(0.002)	
l3Rents		-0.002	-0.001	0.001	0.002	
		(0.002)	(0.002)	(0.002)	(0.002)	
NET_Inflows		-0.498***		-0.551***		
		(0.168)		(0.177)		
l3NET_Inflows		-0.007		0.126		
		(0.185)		(0.190)		
FDI_Inflows			-0.002		0.001	
			(0.005)		(0.005)	
l3FDI_Inflows			-0.001		-0.003	
			(0.004)		(0.004)	
Port_Inflows			-0.002*		-0.003**	
			(0.001)		(0.001)	
l3Port_Inflows			-0.001		0.001	
			(0.002)		(0.002)	
Time Fixed Effects	No	No	No	No	Yes	Yes
Observations	5,826	938	923	872	857	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 11: Probits with lag 5 - Marginal Effects

	(1)	(2)	(3)	(4)	(5)	
VARIABLES	EpiI	EpiI	EpiI	EpiI	EpiI	
Underval81	0.051***	0.039	0.042	0.057	0.062	
	(0.017)	(0.050)	(0.050)	(0.050)	(0.051)	
l5Underval81	-0.012	0.030	0.030	0.017	0.014	
	(0.016)	(0.045)	(0.045)	(0.042)	(0.043)	
TOT		0.105	0.092	0.122*	0.120*	
		(0.067)	(0.069)	(0.066)	(0.067)	
l5TOT		-0.062	-0.061	-0.099**	-0.107**	
		(0.051)	(0.053)	(0.050)	(0.052)	
Rents		-0.001	-0.000	-0.004**	-0.004*	
		(0.002)	(0.002)	(0.002)	(0.002)	
l5Rents		0.000	-0.000	0.004*	0.004*	
		(0.002)	(0.002)	(0.002)	(0.002)	
NET_Inflows		-0.572***		-0.561***		
		(0.183)		(0.191)		
l5NET_Inflows		0.129		0.241		
		(0.193)		(0.197)		
FDI_Inflows			-0.009**		-0.007	
			(0.004)		(0.005)	
l5FDI_Inflows			0.006		0.004	
			(0.005)		(0.005)	
Port_Inflows			-0.003**		-0.003*	
			(0.002)		(0.002)	
l5Port_Inflows			-0.000		0.003	
			(0.002)		(0.002)	
Time Fixed Effects	No	No	No	No	Yes	Yes
Observations	5,618	765	755	700	690	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5 Episode Structure

An important related question is: how do the structural characteristics of an economy change during the course of an investment episode? Specifically, how do the employment and value added shares of the manufacturing and tradable goods sectors change between the start and end of an episode? To answer these questions, we compare the change during 7 years of the share of value added and employment of manufacture and tradable sectors broadly defined (including manufacturing, agriculture and mining) during episodes and during normal times. We repeat the same exercise for the 7 year change in the share of exports, imports and the trade balance on GDP. The 7 year change in these variable are explained by a time trend, and a full set of country and time fixed effects, and the episode dummy (that includes one year before and one year after the estimated starting date). More precisely, we estimate:

$$SHARE_{i,t+6} - SHARE_{i,t} = \beta_0 + \beta_1 Trend_{i,t} + \beta_2 EpiI_{i,t} + f_t + f_i + u_{i,t} \quad (3)$$

The sign of β_2 captures the effect of an episode on the share of each of these variables. The results are reported in Table 12. Take for instance the share of manufacturing employment from column 2. The negative time trend suggest that employment in the manufacturing sector falls at a rate of around 0.1 percentage points a year on average. A positive and statistically significant dummy associated with the episodes using the filter I (*EpiI*) is reported. The coefficient of 0.007 suggest that at the end of an episode, the share of manufacturing employment is over total employment is around 0.7 percent higher than otherwise.

Overall, the result suggest that episodes are associated with factor re-allocation towards manufacturing, but not necessarily with re-allocation towards the tradable sector. Since agriculture is not always tradable, another plausible explanation is that the acceleration in capital accumulation is accompanied by a shift from the traditional sector towards the modern sector. Finally, notice that exports tend to increase, but imports increase by more, so the trade balance tends to worsen. This is precisely what we should expect, as presumably investment tends to increase by more than savings during an episode.

Table 12: Episode Structure - Effects after 7 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Manshare	Manemp	Tradshare	Tradaemp	Tbshare	Exposhare	Imposhare
EpiI	0.003	0.007**	-0.012***	-0.012***	-0.023***	0.017***	0.040***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.006)	(0.007)	(0.007)
Trend	-0.000***	-0.001***	-0.000	-0.000	0.000	0.000*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.011	0.008	-0.013	-0.036***	-0.062***	-0.018	0.044***
	(0.009)	(0.006)	(0.008)	(0.008)	(0.017)	(0.015)	(0.014)
Time and Country Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,018	1,934	2,009	1,934	7,219	7,219	7,219
R-squared	0.224	0.396	0.223	0.218	0.108	0.157	0.150

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

To gain further insights on the structure of a typical episode, we modify the previous exercise to examine if systematic differences exist between episode and non-episode periods at the *start* of an investment acceleration. Specifically, we now regress the change in the share of manufacturing and other sectors during the 7 years prior to the episode on the episode start dummy. That is, we estimate:

$$SHARE_{i,t} - SHARE_{i,t-6} = \beta_0 + \beta_1 Trend_{i,t} + \beta_2 EpiI_{i,t} + f_t + f_i + u_{i,t} \tag{4}$$

Notice that now the variable of interest, the change in the share $SHARE_{i,t} - SHARE_{i,t-6}$ is lagged by 6 periods. The coefficient β_2 indicates whether the variable of interest at the beginning of an episode is different than in the rest of the sample. The results are shown in Table 13. The most noticeable effect is that now the share of tradables (in value added) change its sign and becomes significant. This may suggest that accumulation in the tradable sector may take the lead at the beginning of an episode, but non-tradable sectors take their place towards the end. The previous caveat applies (agriculture is not always tradable). The manufacturing sector shows a similar behavior (although value added and employment switch their coefficients), suggesting that manufacturing accumulation may precede an episode. Notice how the balance of payments is displays a larger surplus in the pre-acceleration period compared to "normal times"; interestingly, exports are not significantly higher (and in fact they seem to be lower), but imports are significantly below by about 3.5 percentage points.

Table 13: Episode Structure - Effects at the begining

VARIABLES	(1) Manshare	(2) Manemp	(3) Tradshare	(4) Tradaemp	(5) Tbshare	(6) Exposhare	(7) Imposhare
EpiI	0.007***	0.003	0.007*	-0.000	0.029***	-0.007	-0.035***
	(0.002)	(0.002)	(0.004)	(0.004)	(0.008)	(0.007)	(0.008)
Trend	0.000	-0.000***	-0.000**	-0.000	-0.001**	0.000	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.016	-0.004	0.002	-0.027***	-0.031*	-0.006	0.025*
	(0.024)	(0.006)	(0.006)	(0.005)	(0.017)	(0.016)	(0.015)
Time and Country Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,885	1,843	1,882	1,843	6,832	6,832	6,832
R-squared	0.257	0.407	0.226	0.217	0.113	0.157	0.151

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6 Sustainability of Capital Accumulation After Episodes

To analyze sustainability, we extend our filter to account for the behavior of capital accumulation during the 7 years after the end of an episode. We define "sustainable capital accumulation" to each observations that satisfies the original definition of an episode, plus: annual per capita capital growth stock over a seven-year period after an episode must be over 3.5 percent. Likewise, we define "unsustainable capital accumulation" to each observation that satisfies the original definition, but per capita capital growth stock over a seven-year period after an episode is less than 3.5 percent. According to the first filter, 123 cases are classified as "sustainable episodes" (out of a sample of 190), while the second and third filters classify 58 and 18 cases as sustained (out of a total of 100 and 38).

The results examining the sustainability of episodes are reported in Table 14 while Table 15 reports results examining unsustainable episodes. Many of the results discussed above translate over to the case of sustainable episodes. As above, real exchange rate undervaluation is positively correlated with sustainable investment episodes. Similarly, inflation and capital inflows decrease the likelihood of having a sustained episode. The results for unsustainable episodes are largely inconclusive. This may reflect the small number of unsustainable episodes actually observed in our sample, which would limit the available variation to properly estimate the effects.

Table 14: Sustainability Probits - Marginal Effects

Dependent variable: Sustainable accumulation episode ($SusI$)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Policy variables							
Underval81	0.020***	0.044***	0.041**	0.030*	0.029*	0.038*	0.034
	(0.007)	(0.013)	(0.020)	(0.016)	(0.016)	(0.022)	(0.022)
Fiscal		0.009	0.003	0.008	0.005	0.001	-0.001
		(0.007)	(0.010)	(0.008)	(0.008)	(0.009)	(0.008)
Inflation		-0.029*	-0.057***	-0.042***	-0.043***	-0.046***	-0.045***
		(0.017)	(0.011)	(0.009)	(0.008)	(0.008)	(0.007)
XR_Stability		-0.007	-0.004	-0.020	-0.022	-0.019	-0.020
		(0.010)	(0.016)	(0.014)	(0.014)	(0.016)	(0.015)
Internal factors							
Crisis_5y			-0.018*	-0.016*	-0.014	-0.016	-0.013
			(0.010)	(0.009)	(0.009)	(0.012)	(0.011)
Rents			0.001	-0.000	-0.000	-0.001	-0.001
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Capita_GDP				-0.027**	-0.025**	-0.033**	-0.028*
				(0.011)	(0.011)	(0.016)	(0.015)
External factors							
Trade			-0.020*	-0.011	-0.011	-0.018	-0.017
			(0.012)	(0.011)	(0.010)	(0.015)	(0.014)
KA_open			-0.006	0.002	0.000	0.000	-0.001
			(0.004)	(0.003)	(0.003)	(0.004)	(0.003)
NET_Inflows			-0.137	-0.335**		-0.350**	
			(0.097)	(0.136)		(0.170)	
FDI_Inflows					0.000		0.001
					(0.002)		(0.002)
Port_Inflows					-0.003**		-0.003*
					(0.001)		(0.001)
TOT			-0.059**	0.023	0.018	0.034	0.026
			(0.030)	(0.019)	(0.019)	(0.026)	(0.023)
FFend			-0.007***	-0.006*	-0.006*	-0.007	-0.006
			(0.003)	(0.003)	(0.003)	(0.005)	(0.005)
Global_Uncertainty			-0.003**	-0.002*	-0.002*	-0.005	-0.004
			(0.001)	(0.001)	(0.001)	(0.003)	(0.003)
Institutional factors							
Human_Capital				0.029	0.025	0.023	0.019
				(0.023)	(0.023)	(0.027)	(0.024)
Durable				-0.000	-0.000	-0.000	-0.000
				(0.000)	(0.000)	(0.000)	(0.000)
Time Fixed Effects	No	No	No	No	No	Yes	Yes
Observations	6,129	3,114	1,023	982	970	802	790

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15: Unsustainbility Probits - Marginal Effects

Dependent variable: Unsustainable accumulation episode ($UnSusI$)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Policy variables							
Underval81	0.004	0.014**	0.002	0.000	0.000	0.000	0.000
	(0.004)	(0.007)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
Fiscal		0.011*	-0.000	0.000	-0.000	0.000	0.000
		(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inflation		-0.006	-0.001	-0.000	-0.000	-0.000	-0.000
		(0.005)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
XR_Stability		0.030***	-0.000	0.000	0.000	-0.000	-0.000
		(0.009)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Internal factors							
Crisis_5y			-0.001	-0.000	-0.000	-0.000	-0.000
			(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Rents			-0.000	-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Capita_GDP				0.000	0.000	0.000	0.000
				(0.000)	(0.000)	(0.000)	(0.000)
External factors							
Trade			-0.000	-0.000	-0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
KA_open			0.000	0.000	0.000	0.000	0.000
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
NET_Inflows			-0.005	-0.000		0.000	
			(0.007)	(0.000)		(0.000)	
FDI_Inflows					-0.000		0.000
					(0.000)		(0.000)
Port_Inflows					0.000		0.000
					(0.000)		(0.000)
TOT			-0.001	-0.000	-0.000	-0.000	-0.000
			(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
FFend			0.000	0.000	0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Global_Uncertainty			0.000	0.000	0.000	-0.000	-0.000
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Institutional factors							
Human_Capital				-0.000	-0.000	-0.000	-0.000
				(0.000)	(0.000)	(0.000)	(0.000)
Durable				-0.000	-0.000	0.000	0.000
				(0.000)	(0.000)	(0.000)	(0.000)
Time Fixed Effects	No	No	No	No	No	Yes	Yes
Observations	6,129	3,114	1,023	982	970	243	243

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

7 Concluding Remarks

This paper has attempted to uncover the characteristics of sustained episodes of investment acceleration at the country level. The likelihood of an episode occurring varies non-linearly with per capita GDP. Advanced economies have a low probability of experiencing an episode while low- to middle-income countries have higher probabilities. Our preliminary empirical exercises indicate that sustained surges in investment tend to be preceded by stable and undervalued real exchange rates, low inflation, and net capital outflows. We also find some evidence for a positive correlation with large increases in natural resource rents and trade openness. In our future work, we plan to include additional variables, investigate intermediate mechanisms, explore differences across countries and time periods, and subject our preliminary analysis to rigorous robustness tests.

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