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Capital controls re-examined: the case for 'smart' controls.

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Abstract.

The global financial crisis which began in east Asia in 1997 is not over, neither is the inquest into its implications for adjustment policy. In the wake of this crisis, we focus here on the role of capital controls, which formed a much publicised part of the crisis-coping strategy in one country (Malaysia) and, less openly, were also deployed by other crisis-afflicted countries. Evaluation so far has examined different target variables with different estimation methods, generally concentrating on efficiency and stability indicators and ignoring equity measures; it has also typically treated 'control' as a one-zero dummy variable, ignoring the 'quality' of intervention and in particular the extent to which efficiency gains are obtained in exchange for controls. Partly because of these limitations, the literature has reached no consensus on the impact of controls, nor therefore about where they fit within the set of post-crisis defence mechanisms. We propose an approach in which the government plays off short-term political security against long-term economic gain; the more insecure its political footing, the greater the weight it gives to political survival, which is likely to increase the probability of controls being imposed. The modelling of this approach generates a governmental 'policy reaction function' and an impact function for controls, which are estimated by simultaneous panel-data methods across a sample of thirty developing and transitional countries between 1980-2003, using, for the period since 1996, the 'new' IMF dataset which differentiates between controls by type.

We find that controls appear to cause increases in income equality, and are significantly associated with political insecurity and relatively low levels of openness to trade. They do not, in our analysis, materially influence the level of *whole-economy* productivity or GDP across the sample of countries examined, although they do influence productivity in particular sectors, in particular manufacturing. But the dispersion around this central finding is wide: the tendency for controls to depress productivity by encouraging rent-seeking sometimes is, and sometimes is not, counteracted by purposive government policy actions to maintain competitiveness. Whether or not this happens – whether, as we put it, controls are 'smart', and the manner in which they are smartened - is vital, on both efficiency and equity grounds. We devise a formula for, and make the case for capital controls which are time-limited, and contain an inbuilt incentive to increased productivity, as a means of improving the sustainability and equity of the adjustment process whilst keeping to a minimum the cost in terms of productive efficiency.

JEL classification: O16,O19, P16, D63.
Keywords: Capital controls, income distribution,political economy.

1.Introduction: cross-country and case-study evidence. The global financial convulsion which began with the 'east Asian crisis' is still not over, as recent events in Argentina, Bolivia and other countries bear witness. Still less do we know the institutional and policy lessons which should be drawn from it: which supplements to the existing international financial architecture are necessary to make it stable, and how the threats to that stability can be minimised. As is well documented (e.g. Williamson, 1999) the crisis, for the most part, afflicted economies whose macro-economic fundamentals (budget deficit, inflation etc.) were relatively sound[1]; consequently, the 'stabilisation plus structural adjustment' prescription of the 1980s, whatever merits it may have had in relation to the global recession of that time, could not be expected on its own to form a large part of the remedy for the capital-account crises of the early twenty-first century. For the same reasons, preventive measures against crises of this type have not been easy to identify. In varying degree, governance problems relating to the exposure of the *private* sector to default risk, and to the regulation of the private sector, have surfaced in a number of the countries hit by such crises, and it can be claimed (Stiglitz 1998, 2003, etc.) that regulatory action to manage these risks has helped the return to normality for the majority of afflicted countries. However, (1) regulatory reform has no means constituted the entire solution to crisis, which in a number of cases has much deeper-seated economic and political causes; (2) regulatory reform takes time, and even in those countries where it is helpful, is often not a feasible short-term remedy for protecting liquidity in face of a large-scale haemorrhage of hot money. The question therefore arises what else is needed, beyond the lender-of-last-resort support which the IMF already provides.

In this context, we here re-evaluate the case for controls on inflows and outflows of capital in developing countries. In the long term, there exists a theoretical presumption in favour of free capital movements[2]; but in the short term, at least since Keynes' *Treatise on Money* (Keynes 1930: chapter 37), the volatility and unpredictability of short-term capital movements has been identified as a major potential cause of macro-economic crisis and inefficiency in global resource allocation, and this awareness, mixed with less reputable political pressures, has encouraged many countries to keep controls in position even in face of the widespread trends towards liberalisation of the 1980s and 90s (Cooper, 1999: 97). When controls were removed, this was often unwisely timed, and the East Asian crisis itself has been blamed by many commentators on the over-rapid removal of controls under IMF auspices (e.g. Stiglitz 2003); meanwhile, several countries afflicted by the crisis have either, like Malaysia, imposed controls pre-emptively in order to obviate being forced into choosing from the IMF's policy menu, or, like Argentina, imposed them in the form of a short-term tourniquet until bought out by an IMF stand-by arrangement. The question of what, if any, role to

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[1] The average budget deficit at the time of crisis onset, in Asian countries afflicted by the crisis, was around 2 per cent (0.8, 0.5 and 2.0 per cent of GDP for Korea, Malaysia and Thailand, respectively). The size of the budget deficit was rather worse in Latin American countries (Argentina, Brazil and Mexico have average deficits of 3.0, 6.9 and 7.4 per cent of GDP, respectively, between 1996-2000).

[2]Many commentators have supported this view by emphasising the poor performance of the inter-war global economy in the 1920s and 30s, at a time when pervasive capital controls were in force.

allocate to capital controls thus lies at the heart of the post-East Asian 'international financial architecture' debate.

There is as yet little resolution to this debate at either a theoretical or an empirical level. Conceptually, there is a conventional presumption in favour of openness, but more specifically it is clear that the type and timing of control matters, as previously discussed: one argument of this type states that indirect (tax-based) controls, of the kind imposed e.g. by Chile throughout the 1990s, are 'superior' to direct controls as a means of thwarting a balance of payments crisis. Eichengreen (1999). for example, argues that outflow controls inevitably act as an artificial sticking-plaster designed to relieve a government from having to undertake fundamental surgery[3]; however, as Cooper (1999:124) and Irwin et al. (2004) have emphasised, where the conditions for effective liberalisation (low barriers to international trade, well-developed financial markets, and a tax regime for capital that does not differ markedly from world norms) are not present, capital account liberalisation may do serious damage.

Empirically, most of the literature has not caught up with these qualitative concerns, and typically uses only an 'on-off' one-zero dummy variable on the right-hand side of the estimating equation to capture the effect of controls. On the left-hand side, a range of indicators of efficiency and stability have been used, but none as yet which reflect the distribution of income between particular beneficiary groups, or the related political payoff. There is consensus (Table 1) that controls lower the level and instability of interest rates, but with some evidence (Edison and Reinhart, 2000) that this impact varies between countries. There is no consensus on the impact of controls on investment and productivity, with some authors, such as Quinn, finding evidence of a negative impact of controls, and others discovering a neutral impact; thus the question of whether there is a stability-efficiency tradeoff is unresolved[4]. Maybe most disturbingly of all, there is no evidence at all on what controls deliver in terms of equity and, relatedly, in terms of what may be called political effectiveness, that is on the government's ability to survive.. As a consequence, not only can the available data can be used to support many stories (Table 1), but the story which matters for many of the users of controls, including the most idealistic as well as the most politically motivated, remains untested.

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[3] 'The first-best solution in this case is not to impose capital controls but to eliminate the distortions conducive to excessively expansionary monetary and fiscal policies… To say that an economic emergency such as the current crisis in emerging markets justifies the use of emergency controls such as Malaysia's is an admission that the political will to follow through with more fundamental reforms is not there.' (Eichengreen 1999, pp. 55-58)

[4] One reason for this discrepancy may be that the study by Quinn is restricted to an earlier time period, from 1964 to 1989, thereby excluding consideration of the effectiveness of controls during the 'East Asian crisis' and indeed during the whole of the 1990s.

Table 1. Empirical studies on impact of capital controls

	GDP	Interest rates:		Capital flows	Productivity, etc
		Level	stability		
Rodrik(1998)	.. Insignificant correlation				
Quinn(1997)	-				
Duasa(2004), Chapter 4 & 5			+	+	-[5]
Doriasami(2004)		+	-		
Grilli and Milesi-Ferretti(1995)	.. Insignificant correlation				
Edison and Reinhart(2000)			+ in Malaysia (nb not in Thailand)		
Kaplan and Rodrik(2001)	+ in Malaysia				
IMF: Otker-Robe(2000)				+	
Tamirisa (2001)				Generally + (- in Malaysia)	
Athukorala(2001)		+		+	

Notation: +,controls cause an 'improvement ', (e.g. higher GDP, *lower* interest rates);
-,'negative' influence of controls, …neutral impact.

This paper seeks to resolve some of these ambiguities, and in particular to estimate the impact of controls in a way that treats the decision to impose them as endogenous to political conditions. A simple model which incorporates these considerations is therefore presented in the next section, and tested in Section 3. The conclusions are presented in Section 4, and provisionally are:

(i) capital controls may be an important device for protecting a government's constituency – increasingly including the economically vulnerable. In particular, they appear overall, both across countries and within them, to have the effect of making the distribution of income more equal.

(ii) Hence, the more politically vulnerable a country is, the stronger the case for controls, as there is evidence from the east Asian crisis that the prompt imposition of controls may protect countries from political turbulence which wipes out potential efficiency gains.

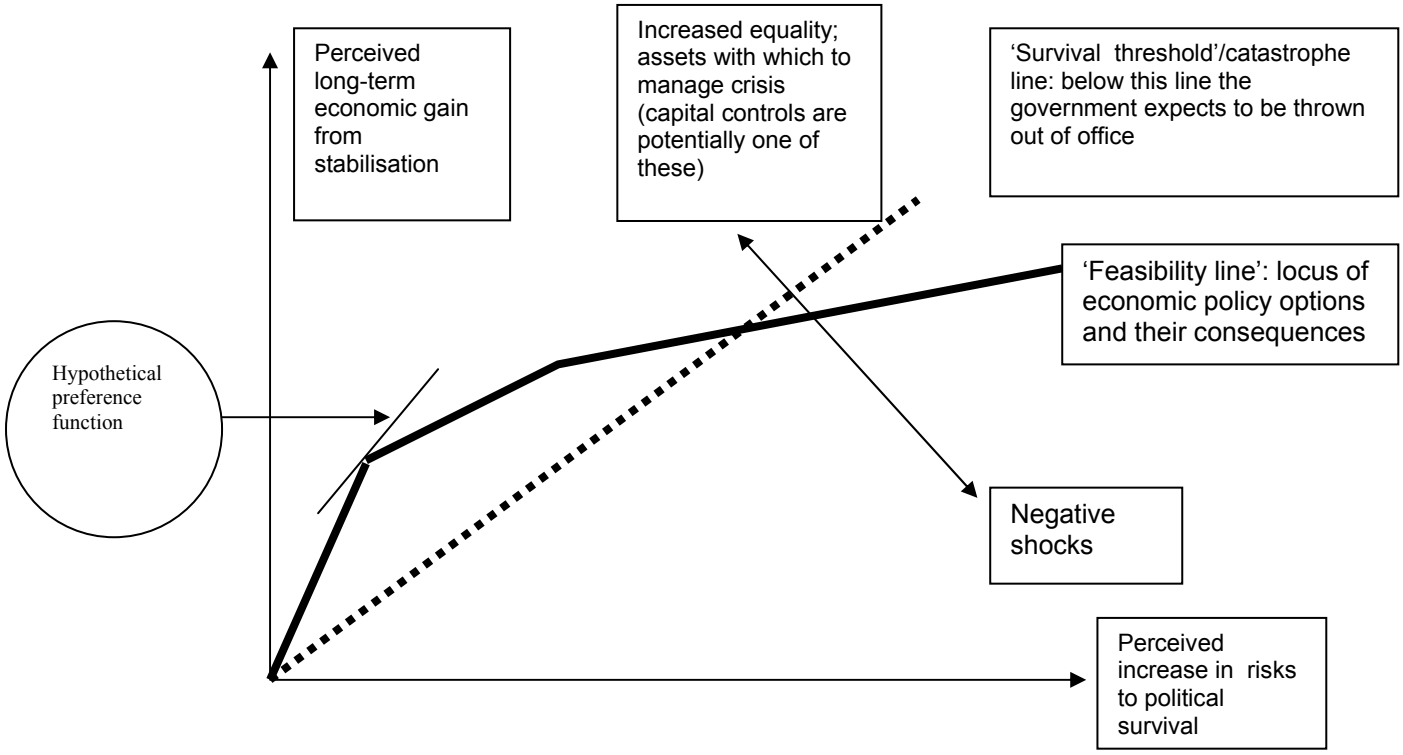
[5] But this effect disappears for high-growth firms, suggesting that competition effects come into play.

(iii) However, as generally acknowledged, they may have productivity-depressing effects, and the more effectively pacing mechanisms ('smart' controls, as we call them) can be built in which offset these effects, ensure that controls are temporary and do not block necessary progress towards necessary regulatory reform, the stronger the overall case for controls.

2. The model: political risk minimisation vs. long-term economic advantage

Economic policy is operated by governments first and foremost, we assume, to achieve the objective of political survival. If hit by crisis, they therefore seek to extract themselves from that crisis in whatever way will minimise the political damage to them. This is visualised, in Figure 1, in terms of a trade-off between economic benefit in the specific sense of perceived long-term gains from stabilisation (measured on the vertical axis) and short-term political loss in the sense of vulnerability, as measured by some indicator such as government popularity. In a general sense, the government wishes to move north-west, in other words to escape from economic crisis in the medium term and at the same time to minimise the risks to its own short-term survival. However, the two objectives need to be balanced: too rapid an attempt to move on to a sustainable economic recovery path, which throws the costs of adjustment on to groups in a position to overthrow the government, may push the government into a 'coup trap' (Londregan and Poole 1990) and cause the escape attempt to be itself frustrated. Indeed, we can imagine that any government pictures policy options, and states of the economy, in terms of a 'survival threshold' (the thick dotted line in Figure 1) that may not be crossed without the likelihood of losing office. Each economic policy option has consequences which can be mapped in terms of their expected economic and political payoffs; if these consequences are visually connected together, the result is the continuous black line on Figure 1, which we may call the *opportunity locus*; only options to the southeast of this line are feasible. Clearly no rational government will choose options below the survival threshold, and so its task reduces to that of finding 'the best' option on the opportunity locus above the survival threshold. Conventionally, this is done by superimposing a preference function, as illustrated on Figure 1; a mathematical working-out is in the Appendix.

Figure 1. Stabilisation decisions as seen by government: stylised view



The opportunity locus can be somewhat likened to a production function: it is the set of economic and political economic outcomes which a given policy mix will 'produce'. It will move downwards (i.e. increase the government's likelihood of losing office) if there is an unanticipated negative shock (for example, the price of exports collapses, or an aid flow is lost) and it will move upwards if the 'productivity ' of the policy mix can be in some way increased. We believe that, *at least potentially*, capital controls can be seen in this sense in a 'productivity-increasing' role, reducing for any given level of economic performance the risk that the government will be forced out of office[6].

How do they achieve this? Through two channels, we would argue – first through giving the government's constituencies the impression that it is ' 'in control of', rather than the captive of, the stormy seas of global finance , and secondly by giving those constituencies that are in a position to hurt it a breakwater against those forces. As long as controls are effective at the most direct level, that of stopping the haemorrhage of short-term funds, this can be claimed by the government as a necessary victory of 'national' over 'global' interests – and the making of the claim will win support from nationalist interests, especially in the fields of labour and non-tradable economic activities. Controls are in fact usually successful at this level (Table 1) and, certainly on Malaysian evidence, this brings a political dividend with it[7]. The

[6] For supporting evidence from the recent 'East Asian' crisis, see in particular Table 3 below.

[7] According to a series of national polls by the Malaysian National University, there was a very clear jump in Dr. Mahathir's popularity from 1989-90 to 1994-96 (Malaysians satisfied with his leadership were 91% in 1996, compared to 87% in 1995, 86% in 1994, 66% in 1990 and 52% in 1989). Less is

basic argument is that if countries are politically vulnerable, this tips the balance of the argument in favour of controls, by reducing the risk of political instability, of the kind which hit, for example, Indonesia in 1999, Argentina in early 2002, and Bolivia in February and October 2003. By imposing controls relatively early within their respective crises, Malaysia and Thailand may have prevented the violence which occurred in the former group of countries.

More broadly, controls may improve not only chances of political survival, but also equity, because controls protect jobs, and thus very possibly, if the elasticities are right, increase the share of labour in the economy. Those who benefit are those whose incomes would have been lower, or whose jobs would have been lost, but for the imposition of controls – typically in companies whose managers would have taken their money out of the country but for control[8]. It is natural to think of these as being companies which are marginally competitive, but as the literature on herd behaviour (Scharfstein and Stein 1990) illustrates, the connection between competitiveness and the behaviour of investors may be lost in a panicky environment, and highly productive companies may be stripped of their capital irrespective of performance if members of the herd of inward investors decide to repatriate their capital as a group – because the *country* is perceived as being a poor risk even though the *company* is competitive [9]. Essentially, the companies which gain from control are the companies most exposed to speculative pressure, which for the reason mentioned has a loose connection with productive efficiency. There is some evidence from Malaysian data (Duasa 2004) that giving them temporary protection via capital controls has reduced the value of the Gini coefficient and Theil index of inequality (in other words that capital controls may be progressive) – partly for the traditional reason that they protect employment, but partly for the highly non-traditional reason that they appear to bring about a reallocation of production in favour of faster-growing companies and women workers in the manufacturing sector[10]. This proposition is tested on our cross-section sample in section 3 below. The broader significance of this result is that capital controls may as a consequence be increasingly consistent with the kind of pro-poor development policies being increasingly advocated to achieve, for example, the International Development Targets[11]. If it is right that through the judicious use of capital controls the entire international financial architecture can be made *globally* more progressive ,not only in the country imposing the controls

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known about opinion polls after 1996, but the McKeever Institute of Economic Policy Analysis, in Fall 2003, rates Malaysian capital controls policy at 4.0 and a pegged currency at 5.0 (on a scale from from 1.0,(perfectly obstructionist) to 5.0,(perfect facilitation of wealth creation), which lifted the popularity of government after the turmoil of crisis.

[8] It has also been argued that controls redistribute income from capitalists to workers (Alesina and Tabellini 1989), thereby equalising the distribution of income.

[9] It will be recalled that Keynes (1930) likened the criteria of international investors to those applied in 'a beauty contest, but one in which the judges are asked to select not the most beautiful contestant, but rather the one that the other judges would choose as the most beautiful'(see Cooper 1999:107)

[10] See note 16 below.

[11] We have suggested (Mosley 2004) that with increasing democratisation, the payoff to redistributive pro-poor policies is increasing, through a number of channels: pro-poor policies increase the number of people that can be reached, reduce inequality and thereby increase social capital and finally are capable, in poor countries, of levering aid finance under HIPC and similar initiatives.

but in all countries– and the evidence is by no means conclusive -, this warrants a particularly thorough search to see whether the supposed negative effects of controls on allocation can be finessed or escaped.

The effects on productive efficiency are highly uncertain. It has been an axiom of the Bretton Woods institutions, ever since their foundation, that in the absence of trade distortions global resource allocation will be optimised in the absence of controls on capital movements, but any one country will not necessarily gain if it reduces controls in an imperfect environment. A country imposing controls will suffer in terms of productivity if the existence of the controls raises costs or diminishes effort to increase productivity[12] – the standard moral-hazard argument against protection of any sort; but this response to protection is not automatic, and, as observed earlier, the firms hurt by speculative outflows are not necessarily the uncompetitive ones[13]. The interesting question in political economy is whether there is any way of designing in an offset to this diminution of effort, so that a country is able to enjoy the political benefit of controls without suffering the economic loss of reduced productivity through giving encouragement to rent-seekers.

The obvious answer is to take inspiration from the approach of countries such as South Korea and Mauritius to targeted subsidies, and to impose either a *performance contract* or a *selective exposure to competition* to industries which benefit from capital controls, so that pressure to increase productivity persists even while temporary relief from herd behaviour is granted. We call this a 'smart' capital control. An additional important way of sustaining productivity is to make it known that controls are to be kept in force only for a limited period, by analogy with an infant-industry subsidy, and will then be removed. To the extent that this is done, productivity in sectors which are given such a stimulus may not decline and may even increase[14]. There is some evidence from Malaysia that offsetting measures of this kind were implemented at least in manufacturing, with the consequence that in that sector productivity marginally rose after the imposition of controls in 1998, whereas in other sectors it fell (Duasa 2004, chapter 5)[15]. The general

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[12] It may not do so, because of the 'herd behaviour' arguments introduced above.

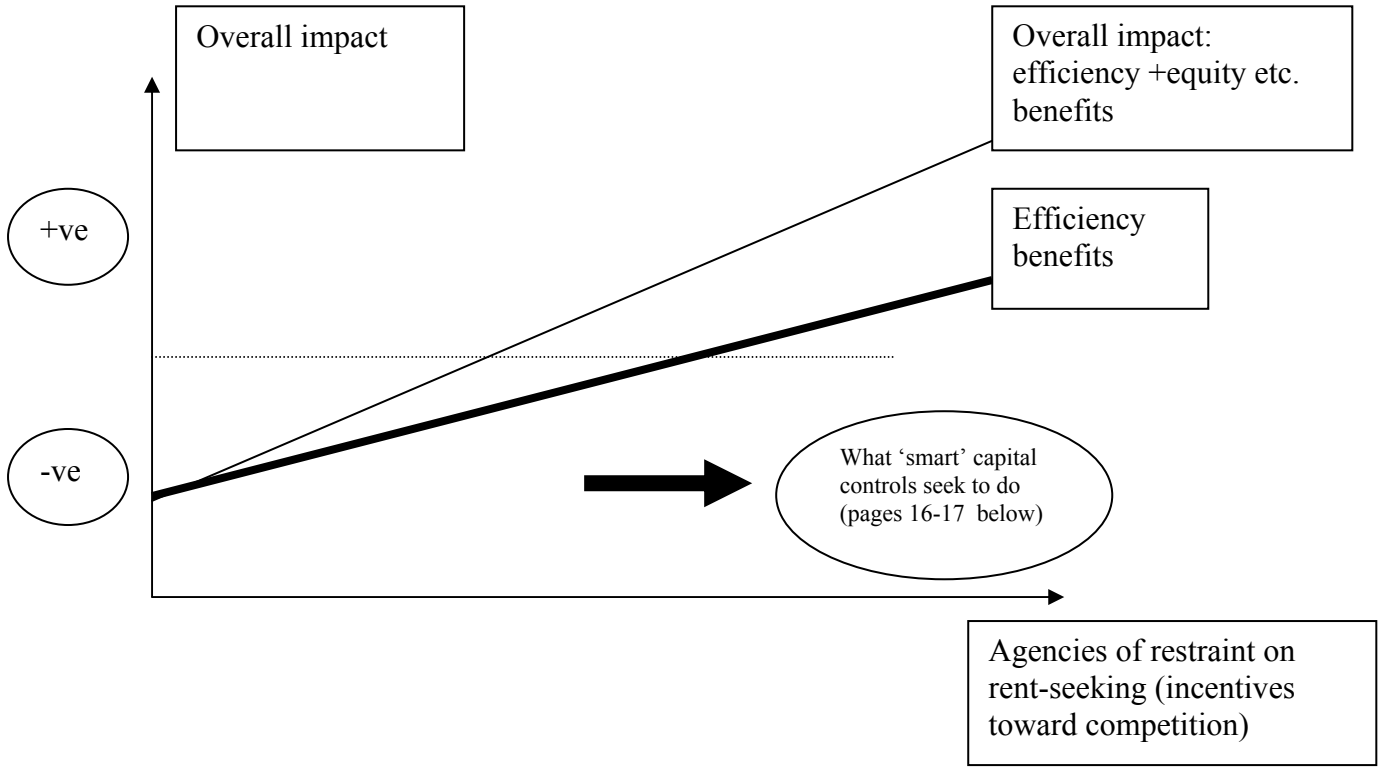
[13] There is an analogy with the literature on overseas aid. This literature presented, especially during the 1980s, the argument that aid flows presented the recipient with an incentive to minimise tax effort and investment in order to maximise the case for further aid inflows which would buy off political opposition; and appeared to be supported by negative correlations between aid and growth, especially in Africa. But if aid conditionality can be made 'smart' enough, then the effects of aid on growth and poverty become positive (Mosley, Hudson and Verschoor, 2004); and most aid now appears, on balance, to be growth-increasing (Hansen and Tarp, 2001).

[14] One may compare the arguments for and against minimum wages. Minimum wages have traditionally been seen as an interference with the market mechanism which costs jobs, but recent experiments with the reintroduction of minimum wages, in the US and Britain in particular, has shown that in an environment of imperfect markets where stimuli to productivity improvement are given, minimum wages may act as an 'efficiency wage' and stimulate increased productivity and even increased employment. The same applies to capital controls, with the same caveats, *in an environment of imperfect markets where stimuli to productivity improvement are provided.,*

[15] This took the form partly of encouraging competition (even among firms whose managers were known allies of the Prime Minister) and partly the form of training subsidies for firms expected to be exposed to high levels of competition, particularly in the manufacturing sector. As a result, the manufacturing sector marked higher productivity growth with 9.11% and 11.05% in 1999 and 2000 respectively, as compared to low productivity growth in the non-manufacturing sector which grew at an average rate of 0.7% in 1999 and 2.3% in 2000.

argument is conveyed by Figure 2. The overall benefits to capital controls are measured on the vertical axis. Considering for the moment only the efficiency impacts, these can be expected to be negative (thick line on Figure 2) if no countervailing measures against rent-seeking by protected industries are taken; but as the level of countervailing measures (measured along the horizontal axis) increases, so the net efficiency cost to the economy of countervailing measures diminishes and eventually, in the diagram, becomes positive. Estimates of the empirical dividend to be derived from countervailing measures of this kind are presented in the next section.

Figure 2. Efficiency and composite impacts of capital controls



Putting together the two parts of the argument,

(i) to the extent that rent-seeking effects on productivity are counteracted by appropriate measures which sustain the degree of competition within the economy, the negative welfare impact of controls diminishes.

(ii) If other effects of controls, in particular on interest rates, investment and income distribution, and thence on political stability, are positive, the 'feasibility locus' of the incumbent government (from Figure 1) will be pushed up by the imposition of capital controls. In the diagram above, we represent this set of effects – on the evidence of Table 1 - as being consistently positive, as a net benefit of controls regardless of the level of performance incentives.

Thus the overall effect of controls is the resultant of these two effects. We now seek to estimate the empirical magnitudes of the effects, both across a small sample directly affected by the east Asian crisis for which we have political-response data and across a broader sample, of all developing countries for which data are available, which encompasses this crisis group.

3. Empirical strategy

From the model of the previous section (set out in mathematical form in the Appendix) we derive a reduced form in the shape of the following two equations:

From equation (10) of the appendix, the *optimal level of controls* is:

$$C^* = \frac{a_{10}}{\phi a_5} - \frac{\phi}{a_5} \qquad \textbf{(1)}\ ;\ ((10) \text{ in appendix})$$

where $\phi = \dfrac{-a_3 a_5 a_8 - a_5^2 a_8(\sigma(Y))}{a_5 a_8 I}$

and from equation (7) of the appendix, the *impact of controls* is

$$\frac{dW}{dC} = (\partial W_1/\partial C) + (\partial W_2/\partial C) = a_1 + a_2\,(\partial R/\partial C) + a_5 a_8 \qquad \textbf{(2)};\ (11 \text{ in appendix})$$

Table 2 sets out the meaning of these terms and the way in which we represent them in the empirical estimations of this section.

Table 2. Factors affecting the optimal level and effectiveness of capital controls

Variable or parameter	Meaning	Indicator variable used in regressions for testing
a_2	Response of economy to 'offsetting incentives'	
a_3	Country-specific level of political risk	Bank of England country risk score
a_5	Impact of income inequality on political risk/conflict risk	Sachs-Warner political instability indicator
a_8	Impact of shocks on political risk	Income instability measure
$\partial R/\partial C$	'Offsetting incentives' established by government to encourage competitiveness	(Changes in) real exchange rate; SMART variables (see pp. 15/16).
I	Intensity of reform	(Changes in) Sachs-Warner openness index
G(Y)	Gini coefficient of inequality	Gini coefficient of inequality

a. Large-sample analysis

We test hypotheses **(1)** (determination of level of controls) and **(2)** (impact of controls) by two methods, one large-sample and extending back over the entire last twenty years, the other confined to the small sample of those severely affected by the 'East Asian crisis' and to the years since 1999. The large-sample results, which report the influence of the variables listed in table 2 on controls, equity and efficiency measures, are reported in Table 3. By our previous argument the decision to impose controls is endogenous to political and social conditions, and social conditions, in the shape of the Gini coefficient, are themselves endogenous to growth rates and political conditions. Hence the model is estimated by the simultaneous-equation technique, GMM (generalised method of moments)[16], with an additional equation to determine the causes of the Gini coefficient of inequality.

[16] GMM estimation is based on the assumption that the disturbances in the equations in the equations are correlated with a set of independent variables. The GMM estimator selects parameter estimates so that the correlations between the instruments and disturbances are as close to zero as possible.

Table 3. Determination and impact of capital controls: simultaneous-equations estimation

Panel data estimation for period 1980-2003 : data averaged over five-year periods (see note 4). Student's t-statistics in parentheses: * denotes significance at 5% level, ** denotes significance at 1% level.

	Dependent variable							
	(1)Rate of change of GDP				(2)Incidence of controls(C)		(3)Gini coefficient of inequality (G)	
Estimation method	OLS	OLS	GMM	GMM	OLS	GMM	OLS	GMM
Regression coefficients on independent variables:								
Constant	5.12* (2.07)	2.34* (2.00)	2.12 (.50)	1.33 (0.54)	9.00** (10.30)	3.53 (1.17)	60.8** (22.2)	63.5** (4.80)
Per capita income in 1980(INITINC)	-0.0006* (2.39)	-0.0008** (2.81)	-0.0005 (1.28)	-0.0009* (-2.40)				
Investment rate(INV)	0.16** (6.09)	0.15** (5.72)	0.007 (0.03)	0.06 (0.62)			0.021 (0.23)	
Primary school enrolment rate	-0.0089 (0.57)	-0.018 (1.22)		-0.0003 (-0.01)				
Gini coefficient of inequality	-0.04 (1.43)							
Sachs-Warner openness index		1.12* (2.30)	1.39 (1.44)		- 1.50** (2.58)			12.2 (1.36)
Controls indicator	.-0.04 (0.38)		-0.43 (0.09)				-1.76** (6.96)	-2.54* (1.98)
'Smart controls' indicator (i)		0.0004* (1.89)	0.02 (1.85)					
'Smart controls' indicator (ii)				0.009* (2.39)				
Real exchange rate index(1995=100) (RER)	-0.007* (1.39)							
Rate of growth of GDP					0.16 (1.60)	0.35 (1.11)		
Bank of England country risk score					-1.78* (2.18)			

Sachs-Warner political instability measure (PI)	-1.15* (2.35)	-1.06* (2.17)			1.98** (3.20)	7.87* (2.30)	-0.87 (0.38)	
Number of observations included in regression	116	132	118	75	115	111	131	131
R^2	0.399	0.314	NA	0.366	0.163		0.317	NA
Instrumental variables			RER, PI, INITINC, GINI			C, RER, GINI, INITINC, OPEN-NESS, SCHOOL, GROWTH		PI, INV
J-statistic for adequacy of instruments			0.014			0.002		6.22E-24

Sources: Measure of capital controls: from IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions,* various issues. Dataset for this variable is displayed in Appendix 2,pp. 29-31 below.
Openness index and political instability indicator: from Sachs and Warner(1995), table A1,p.69: 'Variables used to construct the POL variable', and appendix, pp. 72-95.
Notes: (1) The 'capital controls' indicator has a minimum value of 0 and a maximum value of 13. The thirteen possible categories of controls which may enter into the index are restrictions on trading in: capital market securities; money market instruments; collective investment securities; derivatives and other instruments; commercial credits; financial credits; guarantees and other financial backup facilities; direct investment; liquidation of direct investment; real estate transactions; personal capital transactions; also provisions specific to commercial banks and institutional investors. For data on controls indicator see Appendix 2.
(2) 'Smart controls' indicator (i) = controls indicator x(200 – real exchange rate)
(3) 'Smart controls' indicator (ii) = (control2. (80-current competitiveness index rank). The index rank is the rank of country competitiveness (out of 80 countries) made up of two subindices, the quality of the national business environment and the degree of 'company sophistication', indicating the strength of within-company deterrents to rent-seeking. Competitiveness data from Asian Development Bank website, http://www.adb.org. 'Control2' is the thirteen-point scale measure from Appendix 2 (see columns relating to years from 1997-2002 inclusive).
(4) Country sample: Argentina, Bangladesh, Botswana, Brazil, Bolivia, Chile, China, Ecuador, Ethiopia, Ghana, India, Kenya, South Korea, Malawi, Malaysia, Mexico, Mozambique, Nigeria, Pakistan, Peru, Philippines, Poland, Russian Federation, Sri Lanka, Thailand, Turkey, Uganda, Venezuela, Zambia, Zimbabwe. 150 observations based on five-year averages (1980-85 to 2000-2003) for each variable for each of these 30 countries.
(5) The *J*-statistic is used to test the validity of overidentifying restrictions when we have more instruments than parameters to estimate. Under the null hypothesis that the overidentifying restrictions (number of instruments minus number of parameters) are satisfied, the *J*-statistic times the number of regression observations is asymptotically χ^2 with degrees of freedom equal to the number of overidentifying restrictions.

The basic story of Table 3 may be told as a triangle of simultaneous relationships:

(1) Inequality, as measured by the Gini coefficient or the Theil-index, is significantly and positively influenced by the presence and strength of capital controls[17] (equation 3 in the table). This finding positively influences the likelihood that capital controls can push upwards the government's 'feasibility line', as depicted on figure 1, since greater equality broadens the government's potential constituency of support. The controls in this equation – the investment rate and the political vulnerability indicator – are not significant.

(2) The intensity of control is endogenous – not only to indicators of economic weakness, as in the paper by Grilli and Milesi-Ferretti(1995), but also to measures of *political* vulnerability (the political instability indicator and Bank of England risk index), as per the model of our Figure 1. Governments particularly fearful of the consequences of a sudden outflow of capital on their power base may be particularly apt to impose capital controls as a relatively secure way of achieving short-term protection of reserve levels.

(3) As in the analysis of Rodrik (1998) the impact of controls on GNP is insignificant once standard 'new growth theory' influences on the growth rate – in particular initial income, investment, school enrolments, openness of the economy and political vulnerability – are controlled for. Hence it is not inevitable that the imposition of controls will inflict on government a trade-off between increased equity and a lower growth rate – whether or not there is a trade-off of this kind depends on the policy environment and in particular, as we have argued in Figure 2, the extent to which competitiveness is maintained in face of the potential encouragements to rent-seekers offered by controls. In Table 3, we have used two indicators of the smartness of controls: (SMART(i)) the intensity of control weighted by the real exchange rate and (SMART(ii)) an interaction term between control and competitiveness[18]. Both measures of smartness score well:, as illustrated by Figure 3,

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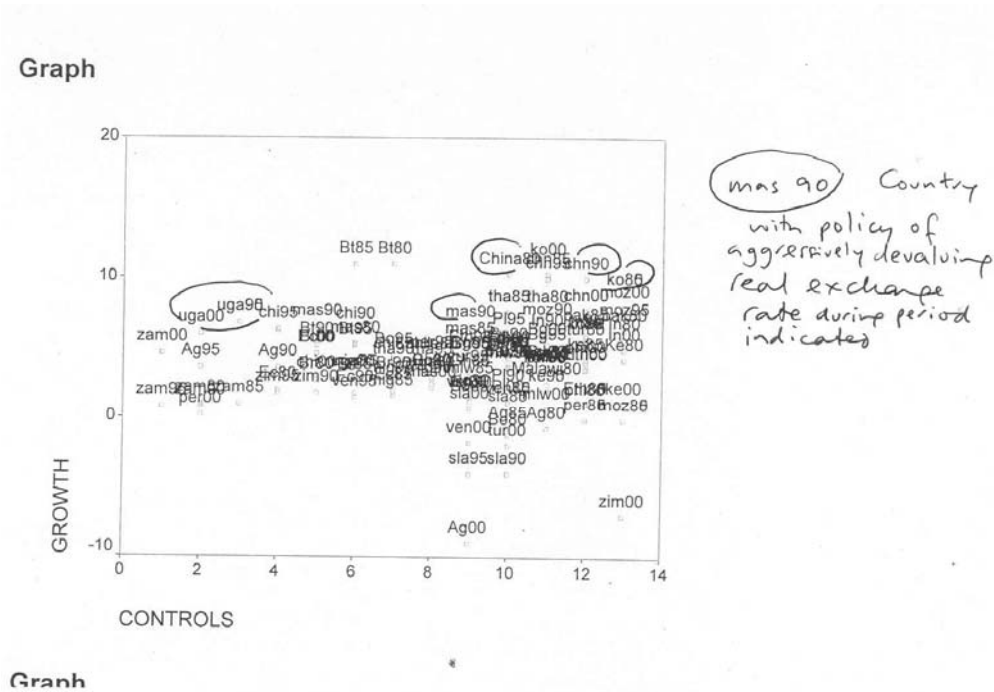
[17] Duasa (2004) has already obtained this result on a time-series basis for Malaysia between 1980 and 2003.

[18] The logic underlying the two SMART indicators in Table 3 is as follows:
SMART(i): This is the intensity-of-control variable multiplied by an indicator of competitiveness, in this case the real exchange rate. The logic is that one of the most effective ways of countervailing the featherbedding effect of capital controls is to keep the real exchange rate competitive, and thus expose local businesses to the global market as much as possible; hence the more competitive the exchange rate, the 'smarter' any controls that are in force will be.
SMART(ii):is (control2. (80-current competitiveness index rank). The index rank is the rank of country competitiveness (out of 80 countries) made up of two subindices, the quality of the national business environment and the degree of 'company sophistication', indicating the strength of within-company deterrents to rent-seeking (see note 3 to table 3).

countries which keep their real exchange rate competitive even whilst controls are in force tend not to suffer net negative impacts of controls on growth and, as illustrated in Table 1, the interaction term between controls and competitiveness (SMART(ii)) is a significant influence on the growth rate of GNP. In the countries, in other words, where there is sufficient political and institutional ingenuity to be able to neutralise the feather-bedding effect of control, what results is not only short-term protection of jobs but long-term improvement of average productivity. We find that if either of the SMART indicators of capital controls is inserted into the growth equation, it becomes significant (SMART (i)at the 10% level and SMART(ii) at the 5% level), whereas the raw controls variable, as we earlier saw, had no significant impact on growth, as per the findings of Rodrik and others.

Figure 3. Real exchange rate, controls and growth



b. Small-sample analysis

The panel-data analysis of Table 3 tells us relatively little about patterns of causation, and in particular about the causation from controls to the distribution of income to political security which is the driver behind Figure 1. In order to gain more purchase over these mechanisms of causation, specifically in relation to the countries most severely affected by the global crisis from 1997 onward, we now present case-study analysis of the incidence

and apparent impact of controls in six countries implicated in that crisis: Thailand, Malaysia, Argentina, Brazil, Bolivia and Turkey.

The determinants of controls : as shown by equation 2 in Table 3, the propensity to impose controls is endogenous to 'perceived insecurity', which is a blend of economic instability and the fragility of the regime. The case studies illustrate that insecure governments, in many cases, are particularly to avoid the risk of additional political instability entailed in accepting an IMF reform programme . In Malaysia, it was quite clear that avoidance of an encounter with the IMF was a key motivation behind the Prime Minister's imposition of controls in 1998 (Thirkell-White, 2005), after a whole year of attempting to shelter the economy via the orthodox route of budgetary cuts and interest-rate increases.
The impact of controls on economic efficiency (equation 1): as in the analysis of Rodrik(1998) the imposition of controls has a neutral impact on productivity averaged across the entire sample, but as we saw in Figure 3 there is a wide scatter of outcomes around this result, with controls having the effect of reducing, having no effect on or even being consistent with a increase in productivity depending on the incentives to competitiveness being given at the same time. We can now explore some of these incentives. In Malaysia, the imposition of controls was accompanied by increases in subsidies for training, specifically aimed at the manufacturing sector (which had a relatively high ratio of local ownership) and not at the services sector, especially the financial sector (which had a higher ratio of foreign ownership). Within the manufacturing sector, particular favours were shown to the small-enterprise sector, which was less likely than the large-enterprise sector to seek to exert reverse leverage on government in terms of demands for patronage (Malaysia 2003). And within the large-enterprise sector, although controls were quite clearly imposed to protect powerful supporters of the Prime Minister, Dr Mahathir, competition was nonetheless sustained and encouraged between these supporters, with the consequence that in the manufacturing sector, by contrast with the primary and tertiary sectors – notably the financial sector -, productivity did not fall in the post-control period (Duasa 2004, chapter 8)[19]. By contrast, In Brazil and Thailand, fewer countervailing measures were put in place (e.g. the SMART index was lower – Table 4), and the growth of the manufacturing sector, in which technical external economies were able to be realised, was less. We see this as the main reason for Edison and Reinhart's

[19] Among the performance incentives deployed in the Malaysian manufacturing sector during 1998-2000 were:

(i) training and directed credit for small enterprises;
(ii) instructions by manufacturing industry to businesses to cluster production in higher yield plants;
(iii) financial support for upgrading technology, enhancement of automation and deepening of local linkages in the electronics and electrical products and IT industries, especially within the Multi-Media Super Corridor(MSC);
(iv) government financial support for diversification into export-industries with high local content, together with instructions to banks to favour these industries;
(v) supplementation of the budget of the Malaysian Industrial Development Authority for the promotion of export industries.

Detail of these measures is provided by Duasa(2004), chapter 8, and online from the National Economic Action Council at http://www.mir.com.my/lb/ econ plan/.

finding(2001:533) that, in terms of desired growth and interest-rate impacts in Brazil and Thailand , 'the controls which were in force did not deliver much of what was intended' . They did not deliver, we argue, because they were not 'smart' enough in defending against the inevitable bias of controls in favour of rent-seekers.

Equity impacts and their consequences (equation 3)

As has been observed on a time-series basis in Malaysia (Duasa 2004; chapter 6) and on a cross-section basis in Table 3 above, the imposition of controls tends to reduce income inequality[20], and this gives it additional political appeal, by enabling it to justify controls in the eyes of a group (the urban working class) with increasing political influence, and also (in lower-income countries) in the eyes of aid donors. This equity impact operates through a variety of channels. One is by protecting employment, and increasing the share of labour's to capital's earnings . A second, as Table 4 illustrates, is by inserting a fire-retardant door which limits the extent to which economic crisis turns into political crisis, and thus sustaining the level of investment, which exists in a two-way positive relationship with equality of income (Alesina and Perotti 1996). In Malaysia and Thailand, the imposition of controls (most of them very short-term in Thailand's case), gave the government short-term protection against the accusation of being powerless to cope with the impacts of sudden withdrawals of hot money[21], and because the government was seen as being as being pro-active in face of socially divisive impacts of globalisation, its political security was protected (in terms of Figure 1, its survival line was 'pushed down' by controls) and there was little civil violence, and relatively little capital flight, and no vicious circle linking inequality to loss of investment. In Bolivia, by contrast, the centre-right government of Gonzalo Sanchez de Losada disdained to intervene during 1999-2003 in face of growing demands for capital controls and other measures to 'control globalisation in the interests of the poor', notably by securing a higher price or added value for natural gas exports; a 'multiplier' of increasing civil violence, capital flight and inequality was superimposed on to the initial impact of the global recession, and in riots in February and October of 2003, over one hundred people were killed, leading eventually to the resignation of the Sanchez de Losada government. Indonesia and Argentina represent intermediate cases, in which short-term increases in controls were imposed in the midst of violence (not as serious or pervasive as that which

[20] The Prime Minister of Malaysia, Mahathir Mohammed, was well aware of this. 'More than any other country', he wrote, 'Malaysia needed to have control over its economy. Malaysia's economic focus was not only on GDP growth, but also the distributive effects of growth' (Mohammed 2000:19-20, quoted in Abdelal and Alfaro 2003).

[21] It is also suggested by Grilli and Milesi-Ferretti(1995) and Rohmer(2004) that the costs of losing political support and thus the 'need' for controls are higher in dictatorships (and in limited democracies such as Malaysia) than in democratic regimes.

occurred in Bolivia) and were then partially ‘bought out’ by IMF rescue operations.

Table 4. Six 'crisis' countries; Economic and political response to capital control

	*Crisis period**	*Gini coefficient 2003*	*Capital controls*		*Economic consequences: annual growth during crisis period of:*		*Political violence:*	
			Type and intensity *(see Note)*	Countervailing measures	GDP	Manufacturing	Nature	Apparent consequences for investment
Brazil	1999-2002	63%	Minimum holdings of government bonds by banks increased, March 1999. Average IMF score during crisis period:11.0	Some,mostly in manufacturing sector	2.9	3.3	Minor: no civil deaths during crisis period	Combined direct and portfolio inflow during crisis period:$92.8bn
Malaysia	1997-2000	44%	Initially imposed September 1998, relaxed progressively Feb 1999 – Feb 2001. Average IMF score during crisis period:9.5	Flexible exchange rate policy maintained. Subsidies and training launched in favour specifically of small industries, especially in manufacturing sector (see note 20)	2.1	5.1	Minor: no civilian deaths	Combined direct and portfolio inflow during crisis period:$92.8bn

Thailand	1997-8	43%	Imposed May 1997, eased Jan 1998, until IMF agreement. Average IMF score during crisis period:9.5	Few	-0.8	2.4	Minor: no civilian deaths	Combined direct and portfolio inflow during crisis period: $21.0bn
Argentina	2000-03	58%	Generally moderate, but severe Dec 2001-April 2002, when personal savings were blocked. Average IMF score during crisis period: 12.5	Few			Moderate: violent protests against freezing of savings – 10-15 deaths In early 2002	Severe esp. Oct 01 – Mar 02
Bolivia	1999-03	59%	No significant restrictions since 1996. Average IMF score during crisis period:4.0	Not applicable: no capital controls	1.8	3.1	Severe: at least 95 deaths in Feb. and October 2003	Severe – dramatic fall in 2003, particularly during episodes of violence Combined direct and portfolio inflow during crisis period: $3.6bn
Indonesia	1997-2000	32%	Severe, during 1998, loosened after IMF agreement. IMF score in 2003:12	Few	-2.7	-0.8	Moderate: looting of shops and police repression: c. 30 deaths during 1999	Capital flight 1999-, eventually reversed. Combined direct and portfolio inflow during crisis period:- $10.8bn

Sources: as for table 3 plus, *for columns 6-7*: World Bank, *World Development Indicators 2003,* Country economic time series (indices 1995=100). Post-2001 data for Argentina and Bolivia from Bolivia, Instituto Nacional de Estadistica (www. ine.gov.bo); *for column 8:* H. Strand, L. Wilhelmsen and N. P. Gleditsch, *Armed Conflict Dataset Codebook,* International Peace Research Institute Oslo in collaboration with Department of Peace and Conflict Research Institute, Uppsala University.

Note. 'IMF score' is the arithmetic sum of types of controls in force as assessed by the IMF, minimum 0 and maximum 13: for a categorisation of these controls, see note 1 to table 3.

4. Policy implications. The case for 'smart' capital controls

We have attempted to make three specific contributions. First, as already acknowledged by some authors, the decision to impose capital controls is endogenous to the state of the domestic economy; what we believe we have also shown is that it is also endogenous to the state of the domestic political system, represented here by the country's political instability rating. For a regime which believes itself fragile and in need especially of shoring up its support from domestic lower-income groups, capital controls, on our evidence, represent a politically effective way of 'throwing sand in the wheels of international finance' – as our case-study work illustrates in relation to the countries which did and did not impose controls during the recent recession.

Second, beyond their much-researched influences on the level and stability of interest rates and investment, capital controls also have an apparently positive influence on the level of income equality which has been little documented. This operates not only directly by protecting segments of local industry and employment in them, but also indirectly by pre-empting what, in the absence of any shelters against damaging influences of globalisation, have in some cases become disastrous rifts between government and the losers from its crisis-coping strategy. By preventing conflict, in other words, controls have prevented a multiplier being added, via the deterrent effects of political violence, to the outflows of capital which caused the controls to be imposed in the first place.

Third, even if capital controls are politically effective, economically they may be inefficient, notably in terms of their effects on incentives: they may encourage rent-seeking and thereby lower productivity, and clearly have done so in some countries. However, this effect is neither uniform nor unpreventable: as illustrated by our Figures 2 and 3, governments' capacity and willingness to counterbalance the featherbedding effects of protection (in the model below, the coefficient a_2) has varied across countries, and with it the overall cost to benefit ratio of imposing controls. In some parts of the literature (eg. Eichengreen 1999) this featherbedding effect has been accepted as part of life: an inevitable opportunity cost of control. We argue, by contrast, that this is not the case. The extent to which controls have been made 'smarter' by countervailing measures varies enormously across countries, and these differences in the policy environment of control have been reflected in growth rates, through the crises which we have examined, not only of overall GDP but also of the composition of output; in general countries with smarter controls have higher rates of growth of manufacturing output. We conclude that considerable and as yet unexploited scope exists for making capital controls 'smarter' still by embedding into them devices which counteract incentives to rent-seek, and push them rightwards along the horizontal axis of Figure 2 . In conclusion, we consider the possibilities for achieving this.

The first possible approach is what was done in Malaysia: *countervailing expenditures*, explicitly in support of small-scale, locally owned

manufacturing enterprises with high local content which offer the possibility of both a political and a productivity bonus. Keeping controls as a strictly temporary crisis measure, as was done in Malaysia during but was not done in industrialised countries during the 1960s and 1970s, also helps[22].The second possibility is a *performance contract,* which ties government resources such as subsidised credit or training support to achieved levels of productivity (or, as appropriate, exports) within firms which are protected by capital controls. This simulates the effect of exposure to competition. A third option is not to simulate, but to execute, the opening up of markets which are protected by capital controls to competition – in other words to *intensify liberalisation in product markets*, at the same time as it is being resisted in capital markets. This harmonises with the often-affirmed principle (e.g. Gibson and Tsakolotos 1994) of getting the sequence of liberalisation right, and in particular liberalising product markets in advance of capital markets.

Although it is commonplace that policy learning and policy convergence have been, in general, a positive consequence of the globalisation process (e.g. Simmons and Elkins 2004) many opportunities for such learning are not being taken, in part for want of evidence about what particular policies achieve, or because of suspicions about how well policy innovations will transplant (e.g. Abdelal and Alfaro 2003). This paper has sought to argue that the adoption of measures to make capital controls 'smarter' in the sense above described might be an important way in which governments could learn from one another to adapt the international financial architecture to their own needs in a manner which does not reduce global welfare.

[22] Initially, in September 1998, non-residents were required to wait one year before converting ringgit proceeds from the sale of Malaysian securities. In February 1999 this regulation was replaced with a sliding scale of exit taxes on capital gains, ranging from 10 to 30%, and this was further softened in September 1999 to a flat 10 per cent exit tax, which was withdrawn in February 2001.

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Appendix 1. The model

Notation

W = government's welfare function
Y = income
G(Y) -= Gini coefficient of inequality of income
σ(Y) = instability of income
P = 'political costs' of reform
I = 'intensity' of reform
(a measure of the rate of deflation of personal income of 'politically sensitive' groups)
N = workforce
C = a measure of the intensity with which controls are applied (dummy variable)
R = investment in encouragement of competition, 'agencies of restraint' etc.
S = a vector of 'shock parameters' which are able to disturb the feasibility frontier

Total impact

$W = W_1 + W_2 = F(Y/N, P)$ (1)

Government welfare depends on an economic measure (productivity) and a measure of political risk

The 'efficiency component' of the model (2)

$W_1 = \frac{Y}{N} = a_0 + a_1C(P) + a_2R(C)$

Whence $(\partial(Y/N)/\partial C) = a_1 + a_2\,\partial R/\partial C$; positive if $a_1 > a_2\partial R/\partial C$ (3)

Note: controls are endogenous, i.e. are more likely to be imposed by organisations operating at high levels of vulnerability (P)

The 'equity'/''political stability' component of the model

Political risk is defined by the relationship

$W_2 = -P = a_3 + a_4I + a_5\sigma(Y) + a_6\mathbf{S}$ (4)

Instability of income and interest rates is reduced by controls

$\sigma(Y) = a_7 - a_8C,\ a_8<0$ (5)

Economic gains from reform are defined by

$\frac{Y}{N} = a_9 + a_{10}I \qquad a_{10}>0$ (6)

Government maximises the net benefit from reform, i.e. the difference between economic gains and political costs from reform:

$$W = W_1 + W_2 = \frac{Y}{N} - P = (a_9 - a_3) + (a_{10} - a_4)\, I - a_5(a_7 - a_8 C) - a_6 \mathbf{S} \qquad (7)$$

Subject to the survival constraint: $Y/P > (Y/P)^*$ (8)

Minimising the Lagrangean: $L = (a_9 - a_3) + (a_{10} - a_4)\, I - a_5(a_7 - a_8 C(a_3 + a_4 I + a_5\sigma(Y) + a_6 \mathbf{S})) - a_6 S - \lambda\, [\, (Y/P) - (Y/P)^* \,]$,

$$\partial L / \partial C = a_5 a_8 (a_3 + a_4 I + a_5 \sigma(Y)) = 0 \qquad (9a)$$

$$\partial L / \partial I = a_{10} - a_4 (1 - a_5 C) = 0 \qquad (9b)$$

$$\partial L / \partial \lambda = (Y/P) - (Y/P)^* = 0 \qquad (9c)$$

Solving the set of equations (9a) to (9c) for the optimal level of controls C*,

$$C^* = \frac{a_{10}}{\phi a_5} - \frac{\phi}{a_5} \qquad (10)$$

where $\phi = \dfrac{-a_3 a_5 a_8 - a_5^2 a_8 (\sigma(Y))}{a_5 a_8 I}$

and from (7) the impact of controls is

$$\frac{dW}{dC} = (\partial W_1 / \partial C) + (\partial W_2 / \partial C) = a_1 + a_2 (\partial R / \partial C) + a_5 a_8 \qquad (11)$$

This overall impact varies according to the extent of the disincentives to rent seeking ($\partial R/\partial C$) ; the influences of controls on instability of income and thence on political risk (a_5, a_8), the extent to which productivity is reduced by controls (a_1), the extent to which that impact can be offset by efficiency-enhancing measures (a_2) and the relative weight put by the government on productivity in relation to political risk (F; not specified formally in (11).

Appendix 2. Data on capital controls

The source of these data is IMF, Annual Report on Exchange Arrangements and Exchange Restrictions, various issues. *Until 1997* information is provided only on a one-zero basis in response to the question: 'Do any restrictions exist on payments in respect of capital transactions? (There are also questions on related matters, such as whether a special exchange rate regime exists on capital transactions.) *After 1997* the question on capital controls is disaggregated: eleven types of capital control are distinguished (on capital market securities, money market instruments, collective investment securities, derivatives and other instruments, commercial credits, financial credits, guarantees, direct investments, liquidation of direct investments, real estate transactions, and personal capital transactions) and two types of 'specific provision' (related to commercial banks and to institutional investors). For a given country, the 'pervasiveness of control' can thus after 1997 be given a score of one to thirteen.

Hence entries for each country are on a one-zero scale until 1996,and on a scale of 1-13 after 1997. Continuous one-zero scales for each country are formed in two different ways:

(1) *Reducing all values to a one-zero scale:* by setting an arbitrary cut-off of nine controls in force, and (for years after 1997) allocating a score of 1 to countries with more than nine controls in force, and 0 to countries with less than nine controls.

(2) *Expanding all values to a thirteen-point scale*: by deriving disaggregated measures of control, for years before 1997,from the reports of World Bank/IMF financial-sector missions.

Results using each of these composite scales are reported in the regression analyses of table 3 above.

The raw IMF data for each country are reported in the table below.

Country	1979	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03
Argentina	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	6	7	8	8	8	10	9
Bangladesh	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	13	13	13	13	12	12
Bolivia	0	0	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	2	3	4	4	4	4	4
Botswana	Nd	nd	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	12	4	4	5	5	5
Brazil	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	11	12	12	12	12	9
Chile	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	13	13	13	13	6	6
China	Nd	nd	nd	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	11	12	11	12	12	12
Ecuador	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	5	5	6	5	5	5	5
Ethiopia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	8	10	10	10	10	12
Ghana	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		10	10	10	10	10	10
India	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		13	13	13	13	13	13
Indonesia																				11	11	11	11	11	11
Kenya	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		6	6	6	6	6	6
(South) Korea	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		12	11	12	12	11	11
Malawi	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		11	11	11	11	11	11
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		12	12	12	12	12	12
Mexico	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1		10	10	10	11	11	10
Mozambique	Nd	nd	nd	nd	nd	nd	1	1	1	1	1	1	1	1	1	1	1	1		13	13	13	13	13	13
Nigeria	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	5	7	6	6	6	6
Pakistan	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	11	11	11	12	12	12	12
Peru	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	4	2	2	2	2	2	2
Philippines	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	12	12	12	12	12	12
Poland	Nd	nd	nd	nd	nd	nd	nd	nd	1	1	1	1	1	1	1	1	1	1	10	12	12	12	12	12	10
Russian Federation	Nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	1	1	1	1	10	12	13	13	13	12	10
Sri Lanka	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	12	13	13	13	13	13
Thailand	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9	10	10	10	11	11	11
Turkey	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	10	10	10	10	10	10
Uganda	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8	2	2	2	2	2	2
Venezuela	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	5	9
Zambia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Zimbabwe	Nd	Nd	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10	11	11	13	13	13	13
Sample mean																									

From 1979-1996, information given consists of a yes/no answer to the question: are restrictions on payments for capital transactions in force? After 1997 (shaded area) it consists of the number of types of restrictions on capital movements in force (minimum 0 maximum 13)