



**THE NICS, GLOBAL ACCUMULATION AND  
UNEVEN DEVELOPMENT:  
IMPLICATIONS OF A SIMPLE THREE-REGION MODEL**

**Amitava Krishna Dutt**

**Working Paper #180 - August 1992**

**Amitava Krishna Dutt** is Professor of Economics at the University of Notre Dame and a Departmental Fellow of the Kellogg Institute. He works on growth and distribution theory, post Keynesian economics, the macroeconomics of development, and international trade and uneven development. He is the author of *Growth, Distribution and Uneven Development* (Cambridge University Press, 1990), coauthor of *Keynes's Third Alternative?* (Edward Elgar, 1990), and coeditor of *New Directions in Development Economics* (Edward Elgar, 1992), and he has published numerous articles in such journals as *American Economic Review*, the *Cambridge Journal of Economics*, the *Journal of Development Economics*, the *Journal of Development Studies*, the *Journal of Post Keynesian Economics*, *Oxford Economic Papers*, the *Review of Radical Political Economics*, and *World Development*.

The author is grateful to three anonymous referees and the Managing Editor of *World Development*, and to Robert Blecker and Anthony Thirlwall, for their useful comments on an earlier draft. He also thanks José Cordero for research assistance. This paper is forthcoming in *World Development*.

## **ABSTRACT**

This paper develops a simple three-region model of the global economy along structuralist lines, with the North, NICs, and the (rest of the) South. The North produces an investment-cum-consumption good while the NICs and the South produce two different consumption goods. The North grows with excess capacity along Kalecki-Keynes lines; the NICs are modelled along Marxian lines with a given rate of exploitation and the South along Lewis lines with a given subsistence wage. The short-run and long-run dynamics and equilibrium properties of the model are analyzed. It is shown that parametric shifts that result in a relative growth of NIC capital (as compared to the North and the South) in the long run usually result in uneven North-South development.

## **RESUMEN**

Este trabajo desarrolla un modelo sencillo de tipo estructuralista en el que la economía mundial se desagrega en tres regiones: el Norte, los países de industrialización reciente (NICs) y el (resto del) Sur. El Norte produce un bien tanto de consumo como de inversión mientras que los NICs y el Sur producen dos bienes de consumo diferentes. El crecimiento del Norte se da con exceso de capacidad al estilo de los modelos de Kalecki y Keynes; el modelo que se aplica a los NICs es, en cambio, de inspiración marxista con una tasa dada de explotación, mientras que el Sur sigue una pauta de crecimiento a la Lewis con un salario dado de subsistencia. El trabajo analiza la dinámica de corto y largo plazo así como las propiedades de equilibrio del modelo. Se muestra que cambios paramétricos que dan lugar a un crecimiento relativo del capital de los NICs (comparado con el Norte y el Sur) generalmente dan como resultado en el largo plazo un desarrollo desigual entre Norte y Sur.

## 1. INTRODUCTION

The rapid growth of the newly industrialized countries (or NICs) has posed many important questions for development economics. One question relates to the implications of the phenomenon for the nature and consequences of North-South relations. In particular, does the growth of the NICs imply that there are no significant international obstacles to the development of poor nations? A related question concerns the likelihood of other less developed economies emulating the performance of the NICs.

The actual growth performance of the North, NICs, and the South can be expected to shed some light on these issues. During 1965-88, high-income OECD economies (which we may identify with the North) experienced average annual GNP per capita growth of 2.3 percent, compared to 2.7 for low- and medium-income countries. This may be taken to imply that development has tended to narrow North-South differences. But a closer look presents a different picture. The growth rate has been 0.2 for Sub-Saharan Africa, 1.8 for South Asia, and 1.9 percent for Latin America and the Caribbean (regions we may identify as comprising the South), all lower than the Northern rate. In comparison, the NICs have grown at high rates: South Korea at 6.8, Hong Kong at 6.3, Taiwan at 6.7, and Singapore at 7.2 percent.<sup>1</sup> It appears, then, that the rapid growth of the NICs has been accompanied by the North growing faster than most of the South. While this is suggestive, it cannot be used to argue that the high growth of the NICs *caused* uneven development between the North and the South, since growth rates are affected by a variety of other influences (including policy changes). A theoretical framework is needed to analyze these questions.

In some quarters it is suggested that the behavior of the NICs shows that there are no (significant?) international obstacles to the development of poor countries.<sup>2</sup> Less developed countries are poor not because of their 'dependent' role in the world economy but because of their internal inward-looking policies which have in fact been implemented because of the erroneous belief in dependence. It is argued that the NICs, by changing their internal policies and becoming more outward oriented and market oriented, have been successful in growing rapidly, and if only other less developed economies would do the same they too could enjoy the fruits of growth. This view, of course, is in sharp contrast to the theories of uneven international

---

<sup>1</sup> The data are taken from World Bank (1990) for all countries except for Taiwan, for which the rate has been calculated from *Statistical Yearbooks of the Republic of China*, and refer to GDP growth rate between 1970 and 1989. The high growth rate for the low-income countries as a whole is explained by the rapid growth of China (at 5.4 percent) which, as a socialist economy undergoing radical policy changes, is a special case.

<sup>2</sup> See, for example, Little (1982) and Lal (1985).

development due to dependence, as propounded by Marxist and structuralist writers such as Frank, Wallerstein, Amin, Prebisch, and Singer, among others.

The view, however, is by no means unanimous. While the experience of the NICs undoubtedly shows that it is possible for less developed economies to break out of economic stagnation and experience rapid rates of growth, and to this extent their experience certainly contradicts some strong forms of the dependency and uneven development theses, it has been argued (see Bienefeld 1981 and Browett 1985) that this does not undermine radical approaches to development and underdevelopment which emphasize the relations between the center (or North) and the periphery (South), and in particular the problems faced by the latter because of their dependence, in some form or other, on the former. The policy implications of the NIC experience according to this view have also been challenged: it has been argued that inward orientation laid the foundations of rapid NIC growth and also that judicious state intervention and not free markets were behind the growth miracles.

Any respectable attempt to answer these questions definitively would require a careful analysis of the growth experience of the NICs, a comparison of the structures of other Southern economies and the NICs, and an examination of the functioning of the international economy. While it would be foolhardy to attempt to do all this, especially in one paper, it would be less so to attempt to see what can be learnt about these questions by using simple models of North-South trade.

This paper will attempt to examine the consequences of the growth of the NICs for the rest of the South by using North-South models, and thereby suggest a method by which the questions raised above may be answered. It will also answer the questions using this method, although because the model used is cavalierly simple, such answers must be treated as being of a highly provisional nature.

The paper will therefore contribute to the burgeoning literature on North-South models.<sup>3</sup> These models typically examine the interaction between two regions, the North and the South, and are not readily usable for analyzing the types of questions in which we are interested here. There have also been some models that consider a three-region world,<sup>4</sup> but there have been very few attempts to consider a three-region North-South model with the NICs as a region separate from the South. Dominique (1985) considers a short-run model with the NICs as a

---

<sup>3</sup> For a survey see Dutt (1988a).

<sup>4</sup> We mention three examples. Taylor (1981, 1983) introduces a third region, OPEC, which, however, plays hardly any role in the model. Darity's (1982) model of Atlantic slave trade is specific to the historical period he considers. Marjit (1987) considers a model with two Souths and a North, but since all final goods are produced in the North, it is apparently not applicable to the North-South-NIC case. Further, growth (in the labor force) in one South results in the immiserization of both souths, clearly not what appears to have happened in the case of the NICs.

separate region to examine whether the NICs are 'dependent' on the North in the way the rest of the South is; his concern is not with the long-run implications of the growth of the NICs on the rest of the South.<sup>5</sup> Mainwaring (1990, 1991) has introduced the NICs in a North-South model with perfectly mobile capital to show how a part of the South can emerge (as NICs) to compete with the North in the production of manufactured goods when labor shortages increase the wages in the North and make manufacturing production in the former profitable; his concern, however, is not with the effects of these developments for the rest of the South.<sup>6</sup>

To develop a three-region model with the NICs as a separate region one has to specify whether, and how, the structures of the three regions differ, and the nature of interaction between them. Regarding the first issue, we will generally follow the structuralist framework pioneered by Taylor (1981, 1983),<sup>7</sup> but also introduce some differences between the two parts of the South. Some key features of this approach are that the North alone produces investment goods and it sets the pace of global accumulation;<sup>8</sup> Northern growth is demand-constrained, and Southern growth is constrained by the availability of savings. Regarding the second issue, we assume that each region engages in balanced trade. The model is deliberately kept very simple to illustrate the method used here in a simple way; additional complications can be added on if the method is found to be of any use. Its features are drawn partly from traditional assumptions in the structuralist literature, and partly from a sweeping view of some relevant data rather than from any systematic empirical analysis.

Before discussing the model itself it should be pointed out that it assumes a given structure of the international economy which already takes it for granted that the NICs have 'emerged.' The emergence of the NICs can informally be assumed to occur starting from a situation in which the NICs and the rest of the South have an identical structure, with the NICs

---

<sup>5</sup> Dominique's model is actually a model with four regions, the fourth region being OPEC. The sense in which his model is short run, and the relation between his model and ours, will be discussed in footnotes below.

<sup>6</sup> Other differences between these two models and ours will be noted below in footnotes.

<sup>7</sup> Taylor's approach is also used by Dominique (1985), although the latter's characterization of the NICs is different from ours.

<sup>8</sup> The assumption that only the North produces investment goods is an extreme assumption. What is crucial for our results is that the rest of the world cannot produce an inelastically given core of investment goods, given their lower level of development. The available data suggests that the proportion of GDP contributed by the machinery and transport equipment is higher for the North. For instance, from various issues of the *World Development Report* it can be seen that for 1987 this percentage was 16 for Japan, 18 for West Germany, 12 for South Korea, 5 for Hong Kong, 9 for Brazil, 8 for India, 3 for Peru, and less than 1 for Tanzania and Bangladesh. A fuller account is found from figures for the composition of exports. According to World Bank (1990) machinery and transport equipment exports as a percentage of total merchandise exports in 1988 was 1 for low-income countries other than India and China, 10 for India, 19 for middle-income countries, 38 for South Korea, 25 for Hong Kong, and 41 for OECD countries. However, only 19 percent of OECD imports from South Korea (the corresponding figures were 1 for India, and 16 for Hong Kong) were in this category, suggesting that much of these exports was to the South and NICs.

then growing relative to the rest of the world due to a shift in the location of consumer goods industries from the North to the NICs because of rising labor costs in the North and the growing internationalization of capital.<sup>9</sup> The growth in exports of the NICs allowed them to grow faster, and this growth caused their structures to change from that of the rest of the South in ways to be discussed later. The fact that we are assuming that the NICs have already emerged has two implications. First, our formal analysis does not discuss the reasons for the emergence of the NICs. It is difficult to analyze structural change using simple dynamic models of the type we consider here, and it is also not clear to what extent the analysis of the macroeconomic framework of North-South models—as opposed to a detailed understanding of the specific historical characteristics of the period in which the NICs emerged—is particularly useful for analyzing this question. Second, we are not concerned with the macroeconomic consequences of NIC emergence but rather the continued growth of the NICs *after* they have been differentiated from the rest of the South.

The rest of this paper proceeds as follows. Section 2 describes the North-South model with NICs. Sections 3 and 4 examine the short- and long-run behavior of the model. Section 5, the crux of the paper, examines the implications of faster NIC growth for North-South development patterns. Section 6 summarizes the discussion, relates it to the questions raised at the beginning of the paper, and briefly discusses the policy implications of our analysis for the South.

## 2. A THREE-REGION MODEL OF THE WORLD ECONOMY

We consider a model of the world economy with three regions: the North, the NICs, and the rest of the South (henceforth the South), which we denote by  $n$ ,  $m$  (for middle), and  $s$ .<sup>10</sup> Each region is completely specialized in the production of one good (which may be thought of as a composite commodity) with given technology.

In the North firms produce an investment-cum-consumption good with capital goods and labor using a fixed coefficients production function. The industrial structure in the North is oligopolistic, and firms set the product price as a markup on labor costs, so that

$$P_n = (1 + z)W_n b_n \tag{1}$$

---

<sup>9</sup> See Frobel, Heinrichs, and Kreye (1979) for a discussion of these phenomena, and Mainwaring (1990, 1991) for a formal analysis.

<sup>10</sup> We depart from Taylor (1981, 1983) and Dominique (1985) in ignoring the OPEC region and the use of oil as an imported intermediate in the rest of the world.

where  $P_i$  is the price of the product,  $W_i$  the money wage,  $b_i$  the labor-output ratio (all for region  $i$ ), and  $z$  the Northern markup which is given by the Northern degree of monopoly à la Kalecki (1971). Firms do not utilize their capital fully and adjust their output to meet demand rather than change price which, according to (1), is cost-determined. Firms plan to invest more when the rate of profit is higher (reflecting higher profit expectations or easier financial conditions) and when the degree of capacity utilization is higher. We write the investment function in the form

$$I_n / K_n = g_n(r_n, X_n / K_n) \quad (2)$$

where both partials are positive,  $I_i$  is investment,  $K_i$  is capital,  $X_i$  is output, and  $r_i$  the rate of profit, all for region  $i$ , and the rate of profit for the North is defined as

$$r_n = (P_n X_n - W_n b_n X_n) / P_n K_n. \quad (3)$$

There are two classes in the North, capitalists who own the capital and receive profit income (which the firms distribute to them without retaining any portion of it), and workers who provide labor and earn wage income. Capitalists save a fraction  $s_n$  of their income. Workers are available in unlimited supply at a given money wage  $W_n$ ,<sup>11</sup> and consume all their income. Workers and capitalists spend constant fractions of their consumption expenditure on the Northern, NIC, and Southern goods, where the expenditure shares are given as  $\alpha_n$ ,  $\beta_n$ , and  $\tau_n$ , with  $\alpha_n + \beta_n + \tau_n = 1$ .<sup>12</sup>

The NICs and the South have several features in common. In both regions firms produce a consumption good with capital goods and labor, using fixed coefficients production functions. They operate in competitive markets in the sense that the price of their product varies to clear the market with their production at full capacity, which implies that

$$X_i = a_i K_i \quad (4)$$

where  $a_i$  is the output-capital ratio for region  $i$ . Firms invest all the savings they can lay their hands on, propelled to do so perhaps by government policy. Like the North, both regions have two classes: capitalists and workers. Capitalists save a fraction of their income,  $s_i$ , and workers consume all of theirs.

However, because of the higher level of development of the NICs, the structures of the two regions differ in two respects. First, unlimited supplies of labor imply a subsistence wage in

---

11 This enables us to abstract from the problem of wage and price changes in the model.

12 The structure of the North basically follows Taylor's (1981, 1983) formulation, which is also followed by Dominique (1985). In Mainwaring's (1990, 1991) analysis for the relevant stage, Northern growth is constrained by labor supply rather than by effective demand as assumed in Taylor's framework. With high levels of unemployment in many advanced countries, the former framework seems to be more appropriate; but see below.

the South (in terms of the Southern good, the only good consumed by Southern workers),  $V_s$ , fixed, as in Lewis (1954), in a subsistence sector not considered explicitly in the model. In the NICs, however, although there is still a reserve army of workers, real wages have increased dramatically as a result of growth. In this context, rather than assuming that the real wage is fixed, it is more appropriate to assume that the labor share in the value of output is given, in a Marxian manner, by the state of class struggle between workers and firms. Denoting the given rate of exploitation or the profit share by  $\varepsilon$ , we have

$$(P_m X_m - W_m b_m X_m) / P_m X_m = \varepsilon . \quad (5)$$

This shows that a rise in labor productivity in the NICs increases the product wage of workers (which is invariant with respect to productivity change in the South). Second, only domestic goods are consumed in the South, while in the NICs workers and capitalists spend on Northern, NIC and Southern goods in the fixed ratios  $\alpha_m$ ,  $\beta_m$ , and  $\tau_m$ , where  $\alpha_m + \beta_m + \tau_m = 1$ . In the South the consumption of imported goods is prevented by government restrictions, but in the NICs, improved export performance has allowed the liberalization of imports of consumption goods.<sup>13</sup>

The three regions engage in trade with each other. For simplicity we assume away the international borrowing and lending and the international mobility of capital, and deal with the situation of balanced trade.<sup>14</sup> This is to deal with the problem of North-NICs-South trade in the simplest possible environment, without introducing the complication of international factor movements. We also assume a regime of fixed exchange rates, setting all exchange rates equal to one.

### 3. THE SHORT RUN

---

<sup>13</sup> Dominique (1985) assumes that the NIC structure is similar to that of the North, with the NIC firms practice markup pricing and operating with excess capacity. Given the high levels of demand for NIC goods and the nature of government policy there, it seems to us more appropriate to assume full capacity utilization in the NICs. We also depart from Dominique by assuming that the NICs import investment goods from the North and by ignoring intermediate good imports by the NICs from the North.

<sup>14</sup> Dominique (1985) follows Taylor (1981, 1983) in allowing the North to have a trade surplus, which is given exogenously by political considerations in the North. In their models this implies that the Northern growth is determined in the North, and that Southern growth is dependant on Northern growth. This feature is maintained in our model, which can be seen as a special case of their model taking the Northern trade surplus to be exogenously given at zero. Mainwaring (1990, 1991) introduces international capital flows in a Sraffian manner, assuming that the rates of profit are internationally equalized.



We assume that in the short run the stocks of capital are given in each region, and that the three commodity markets clear: the Northern goods market through variations in Northern capacity utilization, and the NIC, and Southern goods markets through variations in their prices.

Market clearing for the Northern, NIC, and Southern goods, respectively, implies,

$$P_n X_n = \alpha_n [1 + (1 - s_n)z] W_n b_n X_n + \alpha_m (1 - s_m \varepsilon) P_m X_m + P_n (I_n + I_m + I_s), \quad (6)$$

$$P_m X_m = \beta_n [1 + (1 - s_n)z] W_n b_n X_n + \beta_m (1 - s_m \varepsilon) P_m X_m \quad (7)$$

and

$$P_s X_s = (1 - \alpha_n - \beta_n) [1 + (1 - s_n)z] W_n b_n X_n + (1 - \alpha_m - \beta_m) (1 - s_m \varepsilon) P_m X_m + [V_s b_s + (1 - s_s)(1 - V_s b_s)] P_s X_s \quad (8)$$

Balanced trade in the three regions, which in the absence of capital movements always holds, implies

$$(1 - \alpha_n) [1 + (1 - s_n)z] W_n b_n X_n = \alpha_m (1 - s_m \varepsilon) P_m X_m + P_n (I_m + I_s) \quad (9)$$

$$P_n I_m + (1 - \beta_m) (1 - s_m \varepsilon) P_m X_m = \beta_n [1 + (1 - s_n)z] W_n b_n X_n \quad (10)$$

$$P_n I_s = (1 - \alpha_n - \beta_n) [1 + (1 - s_n)z] W_n b_n X_n + (1 - \alpha_m - \beta_m) (1 - s_m \varepsilon) P_m X_m \quad (11)$$

It may be noted that equation (9) may be derived from equations (10) and (11), which shows that these last three equations are not independent equations: if trade is in balance for two regions in a three-region world, so will it be for the third region.

Equations (6) and (9) can be used to show that

$$s_n [z / (1 + z)] X_n / K_n = I_n / K_n \quad (12)$$

which shows that in equilibrium under conditions of balanced trade, Northern saving is equal to Northern investment, both as a ratio of Northern capital stock. Similar saving-investment equalities can also be derived for the NICs and the South, from equations (7) and (10), and (8) and (11), respectively, given by

$$s_m \varepsilon (P_m / P_n) a_m = I_m / K_m \quad (13)$$

$$s_s (1 - V_s b_s) (P_s / P_n) a_s = I_s / K_s \quad (14)$$

The determination of short-run equilibrium may now be shown as follows. Substituting (1), (2), and (3) into (12) we get

$$s_n [z / (1 + z)] u = g_n (zu / (1 + z), u) \quad (15)$$

where  $u = X_n / K_n$ . Substitution of (12), (13), and (14) into (6) implies

$$\begin{aligned} s_s (1 - V_s b_s) a_s k_s p_s + [s_m \varepsilon + \alpha_m (1 - s_m \varepsilon)] a_m k_m p_m \\ = (1 - \alpha_n) [1 - s_n z / (1 + z)] u \end{aligned} \quad (16)$$

where  $k_i = K_i / K_n$  and  $p_i = P_i / P_n$ , for  $i = m, s$ . Finally, (7) implies

$$[1 - \beta_m (1 - s_m \varepsilon)] a_m k_m p_m = \beta_n [1 - s_n z / (1 + z)] u. \quad (17)$$

Equation (15) solves for the short-run equilibrium value of  $u, u^*$ . Sufficient conditions for an economically meaningful solution to exist are  $g_n(0,0) > 0$  (which is satisfied if there is a positive, autonomous part to Northern investment), and  $s_n z (1 + z) > g_{n1} z (1 + z) + g_{n2}$ , where  $g_{ni}$  is the  $i$ th derivative of the  $g_n$  function (which requires that saving is more responsive to changes in capacity utilization than is investment, and is a standard stability condition for all Keynesian quantity-adjustments models).<sup>15</sup> We assume that these conditions are satisfied, and also that the saving and investment functions in the North, and  $z$ , are such as to yield  $u^*$  less than the maximum possible degree of capacity utilization possible with the given technology. Once  $u^*$  is thus solved for, its value can be substituted into (17) to solve for

$$p_m^* = \quad / k_m \quad (18)$$

where

$$= \beta_n [1 - s_n z / (1 + z)] u^* / [1 - \beta_m (1 - s_m \varepsilon)] a_m$$

Finally, these values can be substituted into (16) to find

$$p_s^* = \quad / k_s \quad (19)$$

where

$$= \frac{\{1 - \alpha_n\} [1 - \beta_m (1 - s_m \varepsilon)] - [s_m \varepsilon + \alpha_m (1 - s_m \varepsilon)] \beta_n \{1 - s_n z / (1 + z)\} u^*}{s_s [1 - \beta_m (1 - s_m \varepsilon)] (1 - V_s b_s) a_s}$$

Since  $a_i$ ,  $\varepsilon$ , and  $s_i$  are all fractions, economically meaningful short-run equilibrium values of  $p_m^*$  and  $p_s^*$  will be obtained. It can be shown, assuming that  $u$  responds positively to excess demand for the  $N$ -good, and  $p_i$  responds positively to excess demand for the  $i$ -good for  $i = m$  and  $s$ , that given that the conditions for the existence of short-run equilibrium are satisfied, the equilibrium will also be stable.

#### 4. THE LONG RUN

In the long run we assume that the stocks of capital,  $K_i$ , change according to the level of investment in each region, and assume away complications due to depreciation. As mentioned above, technology is assumed to be given in each region. We also assume that the short-run equilibrium conditions are always satisfied when the economy moves over the long run.

The long-run dynamics of the world economy can be examined by analyzing the movement over time of the two short-run state variables,  $k_m$  and  $k_s$ . By definition,

$$\hat{k}_i = \hat{K}_i - \hat{K}_n \quad (20)$$

for  $i = m$  and  $s$ , where overhats denote time-rates of growth. Since  $K = I_i / K_i$  this implies, using (12) through (14) and (18) and (19), that

$$k_m = s_m \varepsilon a_m / k_m - s_n [z(1+z)] u^* \quad (21)$$

and

$$k_s = s_s (1 - V_s b_s) a_s / k_s - s_n [z(1+z)] u^* \quad (22)$$

where  $\hat{k}_i$  have been defined above.

Equations (21) and (22) show that over the long run the rate of growth of  $k_i$  ( $i = m, s$ ) depend only on its own level. Since  $k$  falls with  $k_i$  it follows that  $k_i$  will converge to a position at which  $\hat{k}_i = 0$ , and we may call this the long-run equilibrium position of the world economy.<sup>16</sup> At it, we see from (18), (19), (21), and (22) that

$$k_m^* = \{1 + (1 - s_n)z\} s_m \varepsilon \beta_n / \{[1 - \beta_m(1 - s_m \varepsilon)] s_n z\} \quad (23)$$

and

$$k_s^* = \frac{\{(1 - \alpha_n)[1 - \beta_m(1 - s_m \varepsilon)] - [\alpha_m + s_m \varepsilon(1 - \alpha_m)] \beta_n\} [1 + (1 - s_n)z]}{[1 - \beta_m(1 - s_m \varepsilon)] s_n z} \quad (24)$$

where the starred levels denote long-run equilibrium levels. From the definitions of  $k_m$  and  $k_s$  it also follows that

---

<sup>15</sup> If the stability condition is not satisfied, the Northern economies would be poised on a knife edge, either going to full capacity utilization or to zero production. Since this seems unrealistic, we assume stability.

<sup>16</sup> Note that since the rate of growth of the North is fixed in this model independently of what happens in the rest of the world, we could replace our Keynes-Kalecki structure of the North with a neoclassical structure along the lines pursued by Findlay (1980), where growth is determined by the rate of growth of labor supply, without fundamentally changing our analysis. We would then have  $\hat{K}_n = n$  where  $n$  is the exogenously given rate of growth of Northern labor supply. The effects of changes in NIC and Southern parameters would be similar to the ones discussed in the next section.

$$K_m^*/K_s^* = s_m \varepsilon \beta_n / \{(1 - \alpha_n)[1 - \beta_m(1 - s_m \varepsilon)] - [\alpha_m + s_m \varepsilon(1 - \alpha_m)]\beta_n\} \quad (25)$$

These levels are the long-run equilibrium levels of ratios of capital stocks of the three regions. If a parametric shift occurs to increase one of these ratios we may conclude that the region for which the capital stock is given in the numerator of the ratio has grown faster, as a result of the shift, than the region for which the capital stock is given in the denominator.

It should be remarked that we have forced the long-run outcome of this model to a steady state by abstracting from (for instance) changes in preferences (or income-inelastic demand for Southern goods) and endogenous technological change and economies of scale. The simplifying assumptions in fact load the dice in favor of the South in this model: if as a result of NIC growth consumers in the North and the NICs increasingly switched towards the more sophisticated NIC good (at the expense of Southern goods), or if NIC growth generated economies of scale that had a similar effect on spending patterns (as Southern products increasingly lost market shares to NIC products that became more competitive), the model would imply a cumulative process favoring the NICs at the expense of the South.<sup>17</sup> By abstracting from such issues we have forced the world economy to come to a steady state and thus not raised the question of uneven development till the next section.

## 5. THE GROWTH OF NICS AND UNEVEN DEVELOPMENT

In this section we examine the possibility of uneven development between the North and the South due to the growth of the NICs in two ways. First, we consider the impact of changes in the parameters of the model to explore what implications parametric shifts that cause NIC growth (increases in the long-run equilibrium values of  $k_m$  and  $K_m / K_s$ ) have on the evenness of North-South development (as measured by  $k_s$ ). Second, and for illustrative purposes, we consider a simple modification of our model to show how North-South uneven development and NIC growth can go hand in hand as a cumulative process.

### (a) Effects of Parametric Changes

In considering parametric changes, we consider the effects of changes in the savings parameters of the three regions,  $s_i$ , the distributional parameters in the three regions,  $z$ ,  $\varepsilon$ , and  $V_s$ , the consumption parameters,  $\alpha_i$ ,  $\beta_i$ , and  $\tau_i$ , and the technological parameters  $a_i$  and  $b_i$ . The short-run effects of these parametric shifts on  $u$ ,  $p_m$ , and  $p_s$  are shown by (15), (18), and

---

<sup>17</sup> See, for example, Dutt (1988a, 1990).

(19), and the effects on the rates of growth of the three regions can then be seen from equations (12) through (14). Their long-run effects can be found from equations (23) through (25) and the equations just mentioned above.

### (i) Changes in Savings Rates

An increase in the Northern savings rate,  $s_n$ , reduces the rate of Northern capacity utilization and the Northern rate of growth. This occurs due to the paradox of thrift: a higher savings rate implies a lower consumption rate, and given balanced trade this implies a reduced demand for the Northern good, in turn implying a lower rate of capacity utilization and hence investment rate. The lower level of Northern activity reduces the demand for both NIC and Southern goods, and the redirection of Northern demand towards Northern investment goods reduces the demand for these goods further; in the short run there is therefore a reduction in both NIC and Southern terms of trade,  $p_m$  and  $p_s$ . This results in a reduction in NIC and Southern rates of growth. In the long run, the world economy will grow at a slower rate because the Northern economy's growth rate is reduced. The long-run equilibrium values of  $k_m$  and  $k_s$  are affected as follows:

$$dk_n^*/ds_n = -s_m \varepsilon \beta_n (1+z) / [1 - \beta_m (1 - s_m \varepsilon)] z s_n^2$$

$$dk_s^*/ds_n = -\{[(1 - \alpha_n)[1 - \beta_m (1 - s_m \varepsilon)] - [\alpha_m + s_m \varepsilon (1 - \alpha_m) \beta_n]\} (1+z) / [1 - \beta_m (1 - s_m \varepsilon)] z s_n^2$$

but  $d(K_m^*/K_s^*)ds_n = 0$ . NIC and Southern capital as a ratio of Northern capital both fall in the long run because of the shift in Northern (and hence, total world) demand towards the investment good which is a Northern good. Note that these results do not depend on the North being the only producer of investment goods, but only that the North is a relatively more important producer of investment goods. Given our assumption that preferences are homothetic the NICs and the South will be affected similarly, leaving their long-run ratio of capital stock unchanged. Thus a fall in the Northern savings rate can explain the relative growth of the NICs; however, by itself it cannot explain why the NICs performed better than the South.

An increase in the NIC savings rate,  $s_m$ , leaves the Northern rate of growth and capacity utilization rate unaffected. In the short run it reduces the equilibrium value of  $p_m$  by shifting NIC demand away from the NIC good. The fall in NIC demand for the Southern good as a result of the terms of trade loss and the lower level of consumption spending also reduces  $p_s$ . The rise in the NIC savings rate, despite the fall in the NIC terms of trade, increases the rate of NIC rate of accumulation, but the fall in the Southern terms of trade implies a reduction in its rate of accumulation. Consequently, in the long run there is a rise in  $k_m$  and a fall in  $k_s$ , as confirmed by the derivatives

$$dk_m^*/ds_m = [1 + (1 - s_n)z] \varepsilon \beta_n (1 - \beta_m) / s_n z [1 - \alpha_m (1 - s_m \varepsilon)]^2$$

$$dk_s^*/ds_m = -[1 + (1 - s_n)z]\varepsilon\beta_n\tau m / s_n z [1 - \beta_m(1 - s_m\varepsilon)]^2.$$

It immediately follows that an increase in  $s_m$  also reduces the long-run equilibrium level of  $K_m / K_s$ . The higher savings rate makes the NICs save and invest more, and therefore grow faster than the rest of the world. The higher savings rate also shifts the world composition of demand towards the investment good, which is the Northern good, and thus makes the North grow relatively faster than the South. Note again that we do not require the assumption that the North produces and exports only investment goods to obtain this result. It follows from all this that if NIC growth has been caused by a rise in its savings rate (and there certainly is evidence of this increase: the gross domestic savings rate increased from 20 to 32 for Taiwan and from 8 to 26 in South Korea between 1965 and 1983),<sup>18</sup> NIC growth led to uneven North-South development.

An increase in the Southern savings rate,  $s_s$ , leaves the Northern rates of growth and capacity utilization unchanged, but reduces consumption demand for the Southern good, thereby worsening its terms of trade (leaving the NIC terms of trade unchanged because the South does not import the NIC good). The deterioration in the Southern terms of trade exactly offsets the higher savings rate and there is no increase in the Southern growth rate. The difference between this result and that obtained for the NICs arises due to the fact that the NICs also consumed imported goods, the level of which could be reduced by increasing the savings rate, while for the South this is not possible since there are no imports of consumption goods. Since none of the growth rates are affected by the change in  $s_s$ , there is no effect on  $k_m$  and  $k_s$ .

## (ii) Changes in Distributional Parameters

A change in the Northern markup, reflecting a change in the degree of monopoly in the North, has an impact similar to a change in the Northern savings rate, since the higher markup essentially redistributes income from workers to capitalists, implying a higher propensity to save. A rise in  $z$  reduces  $u$  and  $g_n$ . In the short run it reduces  $p_m$  and  $p_s$ , which implies lower  $g_m$  and  $g_s$ . In the long run,

$$dk_m^*/dz = -s_m\varepsilon\beta_n / [1 - \beta_m(1 - s_m\varepsilon)]s_n z^2$$

$$dk_s^*/dz = -\{(1 - \alpha_n)[1 - \beta_m(1 - s_m\varepsilon)] - [\alpha_m + s_m\varepsilon(1 - \alpha_m)]\beta_n\} / [1 - \beta_m(1 - s_m\varepsilon)]s_n z^2,$$

and  $d(K_m^*/K_s^*)dz = 0$ . There is a reduction in the world rate of growth at long-run equilibrium, but in terms of capital stock the North gains in relation to both the NICs and the South.

A change in the NIC rate of exploitation has the same effects as a change in the NIC savings rate. The Northern growth rate is unaffected. In the short run both the NICs and the

---

<sup>18</sup> See Kuznets (1988).

South experience terms of trade deterioration in relation to the North, but the NICs grow faster and the South slower. In the long run,

$$dk_m^*/d\varepsilon = [1 + (1 - s_n)z]s_m\beta_n(1 - \beta_m) / s_nz[1 - \beta_m(1 - s_m\varepsilon)]^2$$

$$dk_s^*/d\varepsilon = -[1 + (1 - s_n)z]s_m\beta_n\tau_m / s_nz[1 - \beta_m(1 - s_m\varepsilon)]^2.$$

Since  $k_m^*$  rises with  $\varepsilon$  and  $k_s^*$  falls, it follows that  $K_m^*/K_s^*$  rises with  $\varepsilon$ . A rise in the rate of exploitation in the NICs results in a shift in the distribution of income towards higher-saving groups, speeds up the NIC rate of accumulation, and makes them grow faster than the rest of the world, so that in the long run they accumulate relatively more capital than both the North and the rest of the South. The result of this is uneven North-South development: the North accumulates more capital relative to the South because the increase in the rate of exploitation in the NICs shifts income towards high-saving capitalists, and hence shifts the pattern of world spending towards investment goods, therefore relatively increasing the demand for the Northern good. If NIC growth is mainly explained by a rise in the NIC rate of exploitation, the implications for the South are thus not favorable.<sup>19</sup> It should again be obvious that this result does not require the North to be the only producer of investment goods; what is necessary for our result is that the North's production structure be more biased towards the production of investment goods than is the case for the rest of the world.

A rise in the Southern real wage,  $V_s$ , leaves unchanged the Northern rates of capacity utilization and growth, as well as the NIC-North terms of trade. By increasing the demand for Southern goods, however, in the short run it improves the South-North terms of trade. The favorable effect of this on the Southern rate of growth is exactly compensated by the lower profit share and hence saving, so that the Southern growth rate is unaffected. Consequently, in the long run there are no effects on relative stocks of capital.

### (iii) Changes in Consumption Expenditure Shares

Turning next to changes in expenditure shares, the relative growth of the NICs can be explained by shifts in the patterns of spending favoring the NICs, that is, by increases in  $\beta_n$  and  $\beta_m$ . Such increases can come about as a result of reductions in  $\alpha_i$  (at the expense of Northern goods) or  $\tau_i$  (at the expense of Southern goods), or both.

---

<sup>19</sup> It may appear that the improvements in income distribution that have occurred in Korea and other NICs is inconsistent with a rise in the rate of exploitation as a cause of growth. This is not so. An improvement in income distribution has already been taken care of in our model—the labor share has increased from its subsistence level. There is a great deal of evidence that the success of the NICs is at least in part explained by the ability of NIC capitalists to raise their rates of exploitation when they have needed to, and that this is explained by the weaknesses of labor movements there.

A rise in  $\beta_n$  can be taken to occur as a result of successful export-promotion policy by the NICs. (The question as to whether free markets or active state involvement brought about such changes need not detain us). If it is accompanied by a compensating fall in  $\tau_n$  which leaves  $\alpha_n$  unchanged, it shifts demand from the Southern good to the NIC good. In the short run there is an improvement in the NIC terms of trade, and a deterioration of the Southern terms of trade; these are translated into a higher growth rate for the NICs and a lower growth rate for the South. Since the Northern growth rate, which depends only on its saving and investment parameters, remains unchanged, the long-run effect is an increase in NIC capital stock relative to the North's and a fall in the Southern capital stock relative to the North's. This is confirmed by

$$dk_m^*/d\beta_n = [1 + (1 - s_n)z]s_m\varepsilon / s_nz[1 - \beta_m(1 - s_m)\varepsilon]$$

$$dk_s^*/d\beta_n = -[\alpha_m + s_m\varepsilon(1 - \alpha_m)][1 + z(1 - s_n)] / [1 - \beta_m(1 - s_m)\varepsilon]s_nz.$$

There is clearly a rise in the long-run equilibrium value of  $K_m / K_s$ . If, on the other hand, the increase in  $\beta_n$  is accompanied by a fall in  $\alpha_n$ , leaving  $\tau_n$  unchanged, so that there is a shift in demand from the Northern to the NIC, there is a short-run improvement in the NIC terms of trade, and also an improvement in the Southern terms of trade due to greater demand from the NICs. Thus both NIC and Southern growth rates increase in the short run, so that both  $k_m$  and  $k_s$  increase in the long run. The change in  $k_m^*$  is given by the expression for the previous case, while the change in  $k_s^*$  is given by

$$dk_s^*/d\beta_n = \tau_m(1 - s_m\varepsilon)[1 + z(1 - s_n)] / [1 - \beta_m(1 - s_m)\varepsilon]s_nz.$$

This will be negligible if the NICs import very little from the South. Though both  $k_m$  and  $k_s$  increase in the long run,  $K_m / K_s$  increases in this case as long as  $\tau_n > 0$ . In both cases, therefore, the NICs will grow faster than the North and South; what happens to the South relative to the North depends on whether the increase in NIC exports to the North is primarily the result of a reduction in Northern spending on Northern or Southern goods;  $k_s$  is more likely to fall in the long run if the shift towards the NIC goods is mainly at the expense of the Southern good. If  $\tau_m$  is small (the NIC imports from the South are negligible), and there is *some* reduction of  $\tau_n$  when  $\beta_n$  rises, it follows that  $k_s$  must fall in the long run.

A rise in  $\beta_m$  can represent successful import promotion in the NICs. If the increase in  $\beta_m$  is accompanied by a fall in  $\tau_m$  but no change in  $\alpha_m$ , along the lines discussed in the previous paragraph there is a short-run increase in  $g_m$  and decrease in  $g_s$ . Since  $g_n$  is unchanged, the long-run equilibrium value of  $k_m$  rises and  $k_s$  falls, as confirmed by the expressions

$$dk_m^*/d\beta_m = [1 + (1 - s_n)z]s_m\varepsilon\beta_n(1 - s_m\varepsilon) / s_nz[1 - \beta_m(1 - s_m)\varepsilon]^2 > 0$$

$$dk_s^*/d\beta_m = -[1 + (1 - s_n)z]\beta_n[\alpha_m + s_m\varepsilon(1 - \alpha_m)] / s_nz[1 - \alpha_m(1 - s_m)\varepsilon]^2 < 0$$



and the ratio  $K_m / K_s$  also increases. If, on the other hand, the increase in  $\beta_m$  is accompanied by a fall in  $\alpha_m$  and no change in  $\tau_m$ , in the short run both NIC and Southern growth rates would increase, so that in the long run  $k_m$  will increase as shown in the above expression for  $dk_m^* / d\beta_m$ , and  $k_s^*$  will rise as shown by

$$dk_s^* / d\beta_m = \tau_m \beta_n (1 - s_m \varepsilon)^2 [1 + z(1 - s_n)] \beta_n / s_n z [1 - \beta_m (1 - s_m \varepsilon)]^2 > 0.$$

$K_m / K_s$  will rise with a rise in  $\beta_m$  in this case if  $\tau_n > 0$ . Our conclusions here are similar to that obtained for the case of a rise in  $\beta_n$ .

Two factors determine whether a rise in  $\beta_i$  will increase or reduce  $k_s^*$ . First, it depends on whether the increase comes about primarily as a result of a reduction in  $\alpha_i$  or that in  $\tau_i$ . On this issue, one view is that the NICs compete mainly in the production of industrial goods, in which they have a comparative advantage, so that they are mainly in competition with the North, and not the rest of the South which has a comparative advantage in the production of an export of primary goods. This implies that increases in  $\beta_i$  are primarily reflected in decreases in  $\alpha_i$ . While there is certainly some truth in this claim, the idea that non-NIC less developed economies are specialized in the production of primary goods is an exaggeration, with these economies increasingly exporting manufactured products.<sup>20</sup> The main argument in favor of the alternative view, that increases in  $\beta_i$  are mainly reflected in reductions in  $\tau_i$ , is that the growth of exports is not so much explained by comparative advantage, but by marketing, product standardization, and quality, and countries that have greater experience in exporting are more difficult to compete against.<sup>21</sup> Thus, NIC export growth is likely to relatively crowd out, especially in the later stages (when they have already 'emerged'), other Southern exporters of manufactured goods.<sup>22</sup> Which of these two effects is stronger can only be ascertained after a detailed empirical investigation of the question. Second, it depends on the size of  $\tau_m$ : with a negligible  $\tau_m$ , if a rise in  $\beta_i$  is accompanied by even some reduction in  $\alpha_i$ , there will be a fall in  $k_s^*$  (because with a small  $\tau_m$  we have found that the increase in  $k_s^*$  due to a fall in  $\alpha_i$  is small). In fact the NICs have relatively small imports from the rest of the South. Overall, therefore, we may expect that an increase in  $\beta_i$  is accompanied by a fall in  $k_s^*$ .

---

<sup>20</sup> According to World Bank (1990), in 1988, 53 percent of the exports of low-income economies consisted of manufactures. Leaving out China and India from this group, the percentage falls considerably to 25, but is still clearly substantial.

<sup>21</sup> This is consistent with the views of Chenery and Keesing (1981, p. 111).

<sup>22</sup> Further, if changes in these expenditure shares reflect taste changes due to 'modernization,' they are likely to be at the expense of inferior Southern products.

#### **(iv) Technological Change**

Technological improvements in this model can be represented directly by increases in  $a_i$  (representing increases in output-capital ratios) and reductions in  $b_i$  (representing increases in labor productivity). We first consider the effects of these assuming that no other parameters are changed, and then briefly discuss how technological change can affect the world economy by changing other parameters as well.

Changes in  $a_n$  and  $b_n$  have absolutely no effects on growth rates, terms of trade, and relative stocks of capital. The only effect of changes in them is to influence the potential level of capacity utilization and the absorption of labor in the North. In the NICs a fall in  $b_m$  also only affects employment there, but a rise in  $a_m$  increases NIC output and thus reduces the NIC-North terms of trade. However, the fall in these terms of trade is compensated by the higher output, leaving the Southern profit rate, and hence the growth rate, unchanged (because of the assumptions regarding homothetic preferences). In the South a fall in  $b_s$  and a rise in  $a_s$  reduce the South-North terms of trade by reducing excess demand; since the changes in technological parameters and terms of trade compensate each other (due to the assumptions made about homothetic preferences), there is no effect on the Southern rate of growth. Thus the changes in none of the technological parameters have any effect on the rates of growth and relative stocks of capital.

If changes in the technological parameters change other parameters in our model, however, there could be some effects. For instance, greater unemployment in the North and the NICs due to lower labor absorption could increase  $z$  and  $\varepsilon$ . Moreover, if workers are unable to increase their wages when labor productivity increases in the NICs,  $\varepsilon$  may increase. Technological change in the North may increase the demand for investment goods, and shift up the Northern investment function. Technological change in the NICs can reduce the monopoly power of Northern firms and reduce  $z$ . Technological changes involving the production of new commodities in some region can also change consumption expenditure shares (remembering that the three goods in the model represent composite commodities). The effects of these changes have already been considered and need not be repeated here.

#### **(b) Uneven Development as a Cumulative Process**

Here we present a simple illustration of how the relative growth of the NICs can go hand in hand with uneven development in North-South growth. To do so, we modify the basic model by assuming that expenditure shares in the North and the NICs change over time, bringing our model, which assumed constant shares, closer to reality. We also simplify our earlier model and

assume that the North only produces investment goods, so that only the NICs and the South produce consumption goods.

To endogenize consumption shares we assume that as the 'gap' between the North and the South widens, Northern consumers will want to consume more sophisticated products, and therefore switch to relatively more sophisticated NIC products, and as the 'gap' between the NICs and the South increases, Northern consumers will also find the NIC goods more attractive since the relative ability of the South to produce sophisticated goods will fall. Also, and for similar reasons, as the 'gap' between the NICs and the South widens, NIC consumers will spend a greater fraction of their consumption expenditure on relatively more sophisticated consumption goods produced in the NICs and a smaller fraction on less sophisticated Southern goods. If we measure the 'gaps' by ratios of capital stocks, we can write<sup>23</sup>

$$\beta_n = \beta_n(k_m / k_s, k_s) \quad (26)$$

where  $\beta_{n1} > 0$  and  $\beta_{n2} < 0$ , and

$$\beta_m = \beta_m(k_m / k_s) \quad (27)$$

where  $\beta'_m > 0$ .

Remembering that we have assumed that  $\alpha_i = 0$ , substituting these equations in (21) and (22) we get

$$k_m = \{[1 - s_n z / (1 + z)]u^* \theta(k_m, k_s)\} / k_m - s_n u^* z / (1 + z) \quad (28)$$

$$\hat{k}_s = \{[1 - s_n z / (1 + z)]u^* [1 - \theta(k_m, k_s)]\} / k_s - s_n u^* z / (1 + z) \quad (29)$$

where

$$\theta(k_m, k_s) = s_m \varepsilon \beta_n / [1 - \beta_m (1 - s_m \varepsilon)]$$

with  $\theta_1 > 0$  and  $\theta_2 < 0$ . The magnitude of these last derivatives depend on how responsive the  $\beta_i$  are to changes in their arguments.

The dynamic behavior of this model can be examined using the phase diagrams in Figs. 1 and 2. The  $\hat{k}_i (i = m, s)$  lines show combinations of  $k_m$  and  $k_s$  at which  $k_i$  is stationary. If we assume that  $\theta_1 k_m / \theta < 1$  and  $-\theta_2 k_s / (1 - \theta) < 1$ , so that the responsiveness of  $\theta$ , and hence  $\beta_i$ , to changes in  $k_i$  are 'small,' the  $\hat{k}_i = 0$  lines will have a positive slope. If the sign of the determinant of the dynamic system given by equations (28) and (29), given by

$$Det = (1/ k_m k_s) \{[\theta (1 - \theta) / k_m k_s] - [\theta (1 - \theta) / k_s] - [\theta \theta_2 / k_m k_s]\}$$

---

<sup>23</sup> This follows the approach used in Dutt (1988b). The changes in expenditure shares are a simple way of incorporating Engel-like features into the analysis keeping the simplifying assumption of constant expenditure shares in the short run.

is positive, the phase diagram will be as shown in Fig. 1. Long-run equilibrium, at the intersection of the two lines, will be stable. If, however,  $\theta_i$  are large enough to make the determinant negative (which is still possible given the conditions mentioned above), the phase diagram will be as shown in Fig. 2. If the world economy finds itself on a trajectory above the separatrix  $SS$ , that is, if  $K_m / K_s$  is large enough, the world economy will eventually be on a path on which  $k_m$  increases over time and  $k_s$  falls: thus NIC growth will be accompanied by North-South uneven development. Such tendencies will be stronger if the  $\theta_i$  are so large that the bounds mentioned above are violated.

It should be emphasized that this model should be treated as an illustrative one, which shows how uneven development *may* accompany NIC growth but is not the inevitable consequence of it. In particular, it should be noted that this model assumes that a rise in  $\beta_i$  implies a fall in  $\tau_i$  (since  $\alpha_i = 0$ ), that is, that the North does not produce any consumption goods. If we allowed  $\alpha_i > 0$ , and a rise in  $\beta_i$  was accompanied by a fall in  $\alpha_i$  we would not obtain such clear-cut results, as should be obvious from the discussion in section (a)(iii) above.

## 6. CONCLUSION

This paper has developed a simple model of global trade and accumulation which can capture the role of the NICs in the world economy. The model is a very simple and specific one, and its main virtue, if any, is to suggest a method that can be used for examining the role of the NICs in the world economy, and for the fortunes of less developed economies in particular. However, to the extent that the model does not grossly misrepresent the central features of the world economy, it has some specific implications of NIC growth for the rest of the South.

Our model implies that several of the changes that may explain the relative growth of the NICs in recent years have the result of increasing the gap between the advanced North and the less developed remainder of the South. While it is beyond the scope of this paper to analyze the precise reasons behind the NIC success stories, our theoretical analysis of possible parametric changes that push the NICs ahead relative to the North and the South do conform to some of the macroeconomic explanations of NIC growth that are popular in the literature, which include successful import substitution and export promotion policies, labor repression and increasing the rate of exploitation, and high and increasing savings rates.<sup>24</sup> These explanations, in terms of our model, involve increases in the value of the parameters  $\beta_n$ ,  $\beta_m$ ,  $\varepsilon$ , and  $s_m$ , all of which imply the relative growth of the NICs, but *also* generally imply uneven development of the North and the South in the sense of a falling ratio of Southern capital to Northern capital.

This conclusion has obvious implications for the questions raised at the beginning of this paper. The growth of the NICs may be increasing the gap not only between the NICs and the rest of the South, but also between the North and the latter. In other words, NIC growth and uneven development may well be going hand in hand,<sup>25</sup> as suggested also by our simple model of cumulative causation. If this gap grows, it becomes more difficult for the rest of the South to 'catch up.' If the ability of the South to develop depends at least in part on its present position compared to the more developed regions—and arguments based on increasing returns in production and export growth certainly support this idea—the obstacles to the development of the South may

---

<sup>24</sup> Such stories are told even in orthodox accounts. See, for example, Kuznets (1988) and Lin (1988). Note that the wage repression argument used here is different from the orthodox one. The orthodox account links low wages to greater competitiveness and hence export growth, while in this model a high rate of exploitation results in a high investible surplus.

<sup>25</sup> It needs to be stressed that uneven development does not necessarily occur in our model, but it may well. There is also no claim being made that the NICs should be 'blamed' for uneven development, since uneven development could be occurring for other reasons (for example, a rise in  $z$ ), and even if it is occurring because of NIC growth, uneven development is an unintended outcome.

well be growing with the development of the NICs.<sup>26</sup> Our analysis does not imply that new NICs may not emerge from the ranks of the South. But if they do so, perhaps by managing to divert world expenditure towards them away from the rest of the South (as noted above, this may be far easier to do than divert it away from the more developed economies), they will tend to widen the gap between the North and the rest of the South. A corollary of this is that the longer it takes for some other part of the South to grow, the more likely it is that the NICs will have transformed themselves into the North, with a production structure primarily geared towards investment goods production (the stylized facts reveal that the NICs increasingly enter into investment good production), and hence the more likely that the new NICs will expand their consumption goods exports at the expense of the rest of the South.

We conclude by briefly commenting on the policy implications of this analysis for the South. Our analysis has shown that there are not very many options open to the South, given the structure of global trading relations, to increase its rate of growth in the short or the long run. Attempts to increase the savings rate, squeeze real wages below already low levels, or to improve its technology, are going to be neutralized by changes in its terms of trade. As already noted above, successful export promoting policies can help, but success will probably come at the expense of other Southern countries.<sup>27</sup> This does not mean, of course, that individual Southern economies cannot profit from these measures, since small Southern economies can grow without adversely affecting their terms of trade. However, the combined attempt by all or the majority of Southern economies to grow will result in the terms of trade problem noted above.<sup>28</sup> Moreover, this implies that it may be more difficult for the larger Southern economies to develop than it is for the smaller economies.

It appears, then, that while individual less developed Southern countries can gain to some extent through export promotion strategies, technological change, and increases in savings rates, for sustained and widespread development the South will have to change the structure of global trading relations and its dependant status in it. This pattern of dependency is captured in our model with the North monopolizing the production of investment goods; Northern growth is determined by parameters within the Northern economy, while growth in other regions

---

<sup>26</sup> This view is different from Mainwaring's. For Mainwaring, Northern growth eventually implies rising wages due to labor scarcity in the North, and this leads to the shift of manufacturing production to the NICs. Rapid growth in the NICs, in turn, may then lead to rising wages there, and manufacturing production could move to other labor-abundant regions, and in this way larger and larger parts of the South would grow more rapidly. We are less certain that the spread of industrialization around the South, in a world of labor-saving technological change, would cause labor scarcity as required in Mainwaring's analysis.

<sup>27</sup> Given the successes of the NICs, the South may have to engage in successful export promotion just to maintain its shares on world markets.

<sup>28</sup> There is also the possibility of protectionist responses. See Cline (1982).

depends on internal *and* external factors. A long-run change in this structure calls for the development of efficient investment goods production in the South. Given Northern and NIC competition, the most practical way of achieving this may be with protection from North and the NICs industries, and with the promotion of careful competition amongst Southern producers.

### References

- Bienefeld, M. 1981. "Dependency and the Newly Industrializing Countries (NICs): Towards a Reappraisal" in D. Seers, ed., *Dependency Theory: A Critical Assessment*. London: Pinter.
- Browett, J. 1985. "The Newly Industrializing Countries and Radical Theories of Development," *World Development*, Vol. 13, No. 7, pp. 789-803.
- Chenery, H. and D. Keasing. 1981. "The Changing Composition of Developing Country Exports" in S. Grassman and E. Lundberg, ed., *The World Economic Order: Past and Prospects*. New York: St. Martin's.
- Cline, W.E. 1982. "Can the East Asian Model of Development Be Generalized?" *World Development*, Vol. 10, No. 2.
- Darity, W.A. Jr. 1982. "A General Equilibrium Model of the Eighteenth-Century Atlantic Trade," *Research in Economic History*, 7, pp. 287-326. Greenwich, Conn.: JAI Press, 1982.
- Dominique, C.-R. 1985. "Trade Links and Dependency Theory: An Addendum to Taylor's Assessment," *Trade and Development. An UNCTAD Review*, Vol. 6, pp. 241-54.
- Dutt, A.K. 1988a. "North-South Models: A Critical Survey," mimeo. Notre Dame, Indiana: University of Notre Dame.
- \_\_\_\_\_. 1988b. "Inelastic Demand for Southern Goods, International Demonstration Effects and Uneven Development," *Journal of Development Economics*, Vol. 29, No. 1 (July), pp. 111-22.
- \_\_\_\_\_. 1990. *Growth, Distribution and Uneven Development*. Cambridge: Cambridge University Press.
- Findlay, R. 1980. "The Terms of Trade and Equilibrium Growth in the World Economy," *American Economic Review*, Vol. 70, No. 3 (June), pp. 291-99.
- Frobel, F., J. Heinrichs, and O. Kreye. 1979. *The New International Division of Labour*. Cambridge: Cambridge University Press.
- Kalecki, M. 1971. *Selected Essays on the Dynamics of Capitalist Economies*. Cambridge: Cambridge University Press.

- Kuznets, P. 1988. "An East Asian Model of Economic Development: Japan, Taiwan and South Korea," *Economic Development and Cultural Change*, Vol. 36, No.3 Suppl., (April), pp. S11-43.
- Lal, D. 1985. *The Poverty of "Development Economics."* Cambridge, Mass.: Harvard University Press.
- Lewis, W.A. 1954. "Economic Development with Unlimited Supplies of Labour," *The Manchester School*, Vol. 22, No. 2, pp. 139-91.
- Lin, C.-Y. 1988. "East Asia and Latin America as Contrasting Models," *Economic Development and Cultural Change*, Vol. 36, No. 3 Suppl., pp. S153-97.
- Little, I.M.D. 1982. *Economic Development: Theory, Policy and International Relations.* New York: Basic Books.
- Mainwaring, L. 1990. "Endogenous NIC-formation in a North-South Growth Model," mimeo. Swansea, UK: University College of Swansea.
- \_\_\_\_\_. 1991. *Dynamics of Uneven Development.* Aldershot, UK: Edward Elgar.
- Marjit, S. 1987. "Trade in Intermediates and the Colonial Pattern of Trade," *Economica*, Vol. 54 (May), pp. 173-84.
- Taylor, L. 1981. "South-North Trade and Southern Growth: Bleak Prospects from a Structuralist Point of View," *Journal of International Economics*, Vol. 11, pp. 589-602.
- \_\_\_\_\_. 1983. *Structuralist Macroeconomics.* New York: Basic Books.
- World Bank. 1990. *World Development Report, 1990.* New York: Oxford University Press.