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November 2004

Staff Paper No. 480

**International Trade and the Natural Resource ‘Curse’ in  
Southeast Asia: Does China’s Growth Threaten Regional  
Development**

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**AGRICULTURAL &  
APPLIED ECONOMICS**

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**STAFF PAPER SERIES**

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## International trade and the natural resource ‘curse’ in Southeast Asia: does China’s growth threaten regional development?

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### Abstract

China’s growth, along with its increasing integration with world markets through WTO accession, abolition of Multifiber Arrangement (MFA) quotas, and reduced trade barriers with ASEAN, is expected to have significant effects on the structure of regional production and trade. Through bilateral trade growth as well as through competition with China in global markets, Southeast Asia’s resource-abundant economies will become more intensive in natural resource-based exports and much less so in low-end, labor-intensive manufacturing such as garments. Both these effects will tend to increase demand for natural resources, one through a direct product market effect, the other by driving down the price of a complementary input, low-skill labor.

A question that then arises is how these trends will interact with the other major phenomenon currently sweeping through Southeast Asia, namely decentralization. With reduced national government power and little or no accountability at the local level, the potential for disastrous rates of resource exploitation is high. If sufficiently severe, the combination of increased demand for natural resources and diminished constraints on their use could expose the region to reduced rates of economic growth, a variant of the “natural resource curse” argument, which maintains that resource-abundant economies grow more slowly than others.

Keywords: resource curse, trade, deforestation, Indonesia, Southeast Asia

JEL: F18, O13, O4, Q0.

## The “curse” of natural resource abundance

The “natural resource curse” is one of the more colorful phrases to be coined about a major subject in development economics, alongside the ill-fated “East Asian Miracle”. The “curse” is of slow growth due to a failure to sustain efficient factor use, especially in industrial sectors where the potential for productivity gain is highest. According to Sachs and Warner, “there is virtually no overlap between the set of countries with large natural resource endowments—and the set of countries that have high levels of GDP” (2001:828). Moreover, “extremely resource-abundant countries such as the Oil States in the Gulf, or Nigeria, or Mexico and Venezuela, have not experienced rapid economic growth... resource intensity tends to correlate with slow economic growth” (ibid).

If these predictions are generally true, then students of Southeast Asian economic development face two puzzles. First, are resource-abundant Southeast Asian economies that have experienced periods of sustained high rates of economic growth different in some way from the group of countries from whose past experiences the Sachs and Warner statement is derived? Second, is there anything in current market and policy trends that might predispose resource-abundant economies to lower growth in the future?

Two concurrent phenomena challenge the continued economic success of Southeast Asia’s resource-rich economies. First, the continued growth and structural transformation of China, along with its increasing integration in world markets through actions such as WTO accession, abolition of the Multifiber Arrangement (MFA) garment export quotas, and reduced trade barriers with Japan, East Asia and ASEAN, is expected to have significant effects on the structure of Southeast Asian production and trade. Recent World Bank estimates indicate that China’s increasing size and involvement in global and regional trade will cause Southeast Asia’s resource-abundant economies to become more intensive in resource-based exports, and less so in low-end, labor-intensive manufacturing such as garments. These trends will increase exploitation rates of natural resources directly through product market changes, and indirectly by driving down the price of low-skilled labor.

The second phenomenon is decentralization of control over natural resource stocks and their disposal in the countries of Southeast Asia. Decentralization, while it has many positive attributes, has a distinctly mixed record where management of ‘national’ wealth (forests, fisheries, water resources, etc) is concerned. A theme of this paper is that if decentralization undermines the management and protection of natural resource stocks, the China trade effect could lead to a lower-welfare outcome.

The chapter begins with a discussion of the ‘curse’ and a review of related evidence. We then consider briefly the relevant data from resource-rich Southeast Asian countries, an analysis leading to the question, what effect will China’s expansion and increasing integration with world markets have on the structure of Southeast Asian production and trade? Subsequently, we explore possible ways in which the hypothesized structural changes might interact with a new policy and institutional setting in decentralizing Southeast Asian resource-rich economies. The chapter concludes with some more speculative thoughts on possible future growth paths, welfare results and environmental outcomes for Southeast Asia.

### What is the curse?

Resource abundance, it is argued, contributes to low growth rates and thus to divergence in per capita incomes between resource-rich and resource-poor economies. Figure 1, from

Sachs and Warner (2001), plots GDP growth rates against a measure of natural resource wealth for a large sample of countries; in this bivariate comparison at least, a negative association is clearly implied.

More than one explanation can be offered for this. First, the “Dutch disease” effects of natural resource exports inhibit growth in manufacturing, a sector whose growth is commonly believed to confer positive productivity externalities, giving rise to increasing returns at the sectoral level. Slower growth of manufacturing, due to competition for labor and capital from resource sectors and secondary growth in non-traded sectors, reduces the gains available from manufacturing growth.<sup>2</sup>

Second, it has been argued that exploitation of natural resource wealth reduces the return to human capital, and thus diminishes incentives for educational attainment (Gylfason 2001). Resource-rich countries therefore encounter a form of low-level equilibrium trap when attempting to climb product variety or quality ladders in manufacturing, where human capital inputs are increasingly intensively employed.

Third, a variety of political economy arguments present some form of the case that resource wealth promotes the ascendance of the ‘predatory state’ over the ‘developmental state’, either by actively encouraging the former through corruption related to resource rents, or by undermining the latter when revenue flows associated with resource extraction reduce the efficiency of policy and administration (Auty 2001). This set of arguments has been made with particular force in case studies of Latin American and sub-Saharan Africa (Acemoglu et al. 2002, 2004).

Fourth, lower growth has also been attributed to the destabilizing consequences of Dutch disease, which causes relative shrinkage in non-resource tradable sector output. The greater relative prominence of non-tradable sectors in GDP due to the spending effects of a boom increases aggregate vulnerability to terms of trade shocks or global market volatility, since the burden of adjustment, rather than being distributed between a combination of intersectoral resource movements and expenditure effects, falls on expenditure effects alone, creating real exchange rate instability (Hausmann and Rigobon 2002).

Despite the intuitive appeal of these arguments, the natural resource curse hypothesis has also attracted considerable critical attention. A number of arguments can be made to the effect that what may appear to be slow growth caused by natural resource wealth is instead the product of other phenomena not directly related to resource exploitation. In particular, it is important that the slow growth observed by Sachs and Warner and others in a sample of developing economies is not consistent over time; rather, growth rates in many resource-abundant economies were very high in the 1960s and 1970s, but decelerated in the 1980s. The structural stability of regression results in which growth rates (the endogenous variables) are averaged over fairly long periods is questionable. Slower growth rates in the 1980s, in particular, were not unique to resource-abundant economies, and could instead have been the products of debt overhang or other post-oil shock imbalances and incomplete adjustment (Manzano and Rigobon 2001), in addition to the effects of the global commodity price collapses of the early 1980s.

Other criticisms have focused on the econometric strategies from which empirical conclusions about the existence of the curse have been derived. One such argument distinguishes between measures of resource *abundance* and resource *dependence*. Sachs-Warner and others mainly use *dependence* measures (e.g. trade intensities), but these are

vulnerable to claims of endogeneity, especially when the effects of policies affecting exchange rates or the growth of other tradables sectors are taken in to account.

Another question concerns the definition of abundance (or dependence) and the stability of the group of countries defined as such. This debate is analogous to that over ‘openness’, in which a country might be classed as ‘open’ by one set of measures but not by another (Rodriguez and Rodrik 1999). By contrast with the approach taken in the trade and growth literature, Sachs and Warner (1995, 2001) do not offer a firm criterion for resource ‘abundance’ or ‘dependence’; their conclusions, however, beg the question of how much resource wealth is ‘too much’.

Finally, it is of interest to note that in the empirical growth literature, there are very few instances of regression models *not* focused specifically on the resource curse hypothesis in which resource abundance emerges as a significant factor affecting long-run growth rates (for a survey, see Li and Coxhead 2004).

A reasonable conclusion to draw from this review is that while there are strong theoretical grounds to suspect a broad correspondence between natural resource wealth and low rates of economic growth, the causal link, if it exists at all, is neither direct nor simple. Rather, the negative association requires one or more distortions, market failures, or perhaps institutional failures. It may be that each resource-abundant country experiences its own resource wealth-growth relationship, based on unique institutional and economic characteristics, but that all such experiences lead to similar outcomes.<sup>3</sup>

### How Southeast Asia averted the curse

All of the above symptoms of the ‘curse’ can be seen in some form in each resource-abundant Southeast Asian country. Paradoxically, however, the region’s resource-rich economies have in fact grown very rapidly by world standards. Therefore, if the curse does apply to developing countries in general, the economies of this region have undergone (or are undergoing) some other development experience unique to them (and perhaps a very few other economies, such as Botswana) that more than compensates for its effects. The most obvious candidate explanation is the post-Plaza Accord boom in Japanese and East Asian FDI into the region, a trend whose intensity kick-started labor-intensive industrialization and ensured the inclusion of Thailand, Malaysia and Indonesia in the World Bank’s group of eight “East Asian Miracle” economies, alongside the much richer Northeast Asian industrial economies and Singapore. Not only did these three economies grow very rapidly and in sustained fashion over more than a decade after 1986; they also underwent structural changes that dramatically reduced their relative reliance on natural resources. By the early 1990s, all of Southeast Asia’s market economies exported far more manufactures by value than agricultural and natural resource products. For these economies, then, we may hypothesize that the rapid expansion of labor-intensive manufacturing employment in the mid-late 1980s, caused by heavy inflows of foreign investment, forestalled the onset of the resource curse by inducing rapid structural change.

For virtually all other resource-abundant developing economies, the 1980s was a “lost decade” in which export price crashes, high and rising debt service costs, and net capital outflows led to sustained low or negative rates of GDP growth. Southeast Asia’s resource-rich economies, except the Philippines, experienced very mild recessions or slowdowns in 1985 followed by a decade of historically rapid expansion. Since the late 1990s, however, the region has seen a significant reversal: declining FDI inflows, increased demand for

natural resource exports, and intensified competition in global markets for labor-intensive manufactures— all three trends driven in large part by the emergence of China in the global economy. Given these trends, could Southeast Asia still succumb to the resource curse?

Barring wars and catastrophic policy reversals, a *necessary* condition for the emergence of China to threaten the continued growth of the semi-industrialized, resource-abundant Southeast Asian economies is that their comparative advantage shifts dramatically back in the direction of natural resources. Such a shift clearly is not a *sufficient* condition, however; it will hurt growth only if it interacts with market failures or other distortions. Distortions make it possible, in principle, for specialization in resource exports to lead to over-rapid depletion of resource stocks, as well as slower growth of manufacturing output and jobs, reduced human capital investments, and the loss of productivity spillovers associated with manufacturing industry growth. In the next two sections we first explore the shift in comparative advantage, then examine some ways in which such a shift might interact with known market and institutional failures to produce a “new” resource curse outcome.

### Southeast Asian responses to Chinese growth

Intra-East Asia<sup>4</sup> trade volumes have expanded enormously since the 1980s. At 15% per year in 1985-2001, trade growth within East Asia far exceeded that for any other region (for NAFTA the corresponding figure is 9.1%). East Asia-China trade is an increasingly important component of intraregional trade, rising from less than 1% of the total in 1975 to 7% in 2001 (Ng and Yeats 2003). China, with 43% of regional GDP in 2001, accounts for 30% of the region’s exports (ibid: 9). China’s growth, sustained at a rate of about 7% per year for many years, is a major driver of increased regional trade. At the same time, the Chinese economy has also become far more trade-dependent since the late 1980s, a shift caused by many factors, not least of which are the country’s accession to the WTO and the liberalization of trade with regional neighbors, including ASEAN.

ASEAN’s share in China’s total imports rose from 6% to 9% in the 1990s, a 390% increase in value terms (Ianchovichina and Walmsley 2003:4). ASEAN economies saw big increases in the share of their regional trade going to China, and the value of their exports to China rose much faster than total exports (Table 1, and see Ng and Yeats 2003, Table 6.1). This pattern of growth is expected to continue, albeit not necessarily at the same rate, for at least the next decade.

#### Competition in global markets

In manufacturing industries, China’s expansion is expected to have mixed effects. Implementation of the Agreement on Textiles and Clothing (ATC), the process for an orderly dismantling of the Multifiber Arrangement (MFA), will be highly influential. By eliminating the MFA’s national quotas on apparel exports to the US and EU, the ATC will remove a serious distortion that has worked against the lowest-cost producers, notably China.<sup>5</sup>

At the same time, ASEAN-China competition has intensified in third country markets, mainly but by no means exclusively in labor-intensive, low-tech products. China’s WTO accession, which increased its market access and reduced the cost of imported intermediates for its manufacturers, undermined the international competitiveness of key Southeast Asian manufacturing sectors (Ianchovichina and Walmsley 2003, Ianchovichina and Martin 2004). Furthermore, if new FDI flows match the shifting pattern of production, then China’s lead in these sectors can be expected to widen further in the longer run.

How important are these trends? The answer depends, in part, on the extent to which China and Southeast Asian countries compete or complement one another in trade. One measure of this, the extent of overlap in export product categories, reveals a high overlap between China's exports and those of Indonesia, and rising overlap between China and exports from other Southeast Asian economies except the Philippines (Table 2). The degree of overlap has been increasing as the Chinese manufacturing sector expands (increasing the number of product lines exported) and becomes more capital-intensive (Kwan 2003, Weiss and Gao 2002).<sup>6</sup>

Measures of revealed comparative advantage (RCA, Balassa 1965) provide more detailed indications of multilateral trade intensity. The RCA measures the intensity of a country's exports of a good relative to the intensity of world exports of that good.<sup>7</sup> By convention, values of  $RCA_{jkt} > 1$  ( $< 1$ ) are inferred to mean that country  $j$  has comparative advantage (disadvantage) in production of good  $k$  in year  $t$ .<sup>8</sup> Table 3 reports RCA measures computed from the most recent data for major product categories in China and several Southeast Asian countries (values greater than one are shown in bold). China shows low RCA values for most agricultural sectors (product categories 00-23; 41-43) and natural resource sectors (24-32), and very high values for all kinds of assembly (71-81; notably electrical equipment, electronics, computers and components and office equipment) as well as in furniture (82), and garments, footwear and accessories (83-85). In Southeast Asia, Indonesia, Thailand and Vietnam have the greatest range of high RCA values in agriculture and resource sectors. These economies, like China, also show evidence of comparative advantage in labor-intensive industries like furniture, garments, footwear, bags and accessories, electrical appliances, and electronics.

#### Trends in bilateral comparative advantage

The RCA measures compare country export intensities with global data. Rising bilateral trade shares between ASEAN countries and China motivate a comparison of bilateral comparative advantage, as a means of evaluating the likely impacts of China's growth on Southeast Asian trade patterns. These comparisons can be made by subtracting the China RCA value from that of each Southeast Asian country, and are shown for Indonesia and Vietnam in figures 2 and 3.<sup>9</sup> The bilateral data display a very clear pattern in which these countries have a relative advantage in agricultural and natural resource industries, and in a few processing sectors intensive in the use of natural resource or agricultural inputs, while China dominates in heavy industry and most light assembly operations. The extent to which Southeast Asian economies, particularly Indonesia and Vietnam, are, or are becoming, complementary with China is revealed also by correlation coefficients of the RCA measures (Table 4). Negative values of this measure indicate a tendency for countries to specialize in exports of products other than those in which China is specialized; positive numbers indicate greater overlap. The trends in the table suggest that Malaysia is complementary with China and Thailand's overlap is diminishing; Vietnam has high overlap and Indonesia shows a trend from weak complementarity to more overlap.

On current trade trends, Southeast Asian countries can expect to become major suppliers of natural resource products to the Chinese market, importing a wide range of manufactures in return, and with continued growth of the size of the China market, these patterns will become increasingly dominant in overall Southeast Asian trade.

The drivers of shifts in the structure of Southeast Asian production and trade are potentially large and operate both directly and indirectly. Direct effects on exporters of many manufactures will be measured through negative terms of trade shifts, though these will be offset in some industries by cheaper imported intermediates. Indirect effects will be felt through adjustments in the markets for labor and other factors, and possibly also through shifts in the sectoral composition and national distribution of FDI flows. A very large fraction of the Southeast Asian manufacturing labor force is employed in garments, textiles and other labor-intensive low-tech industries identified as under threat from Chinese competition. In Indonesia, textile and apparel production accounts for 20% of non-oil exports by value, and 25% of employment in large and medium manufacturing industries (James et al. 2003). In Vietnam, garments are 14% of exports by value and the industry employs more than 24% of a manufacturing labor force of 4.6 million workers; in Cambodia, garments account for 80% both of exports and of the manufacturing labor force (UNIDO).<sup>10</sup> Loss of these sources of export revenue, and the lower wages (or reduced wage growth) that this will cause, will tend to reduce labor costs in natural resource industries, contributing indirectly to increased profitability over and above the *direct* effects from growth of Chinese demand for their products.<sup>11</sup> Another indirect driver will be foreign direct investment (FDI) flows; the evidence is ambiguous, but one likely trend is to reduced FDI in Southeast Asian industries where competition with China is intense, perhaps offset somewhat by increased FDI in medium-tech or high-tech sectors (Ng and Yeats 2003; Krumm and Kharas 2003).

Another important area in which China's growth, trade expansion and huge FDI inflows all combine to affect Southeast Asian trade is in forest products. China's imports of forest products—logs, lumber, pulp and paper, plywood, veneer, woodchips and other products—have more than doubled since 1997 (Sun et al. 2004). Flows have increased faster since China imposed a ban on domestic logging in 2001. Much of the new trade has been met by increased imports from Russia, but Indonesia, Malaysia and Thailand continue to supply a large fraction of total imports. Moreover, the rapid industrialization of the Chinese economy has seen relative declines in imports of the more highly processed forest products in favor of logs and lumber, as domestic processing capacity has expanded (Sun et al. 2004). Indonesia, for example, has increased its forest product exports to China by about 60% since 1997, but the largest increases by far have come in logs and lumber; plywood, once the major export, has declined, and Malaysia and Thailand have similar experiences (*ibid.*).

In summary, China's growth and globalization is likely to cause Southeast Asian countries to experience negative terms of trade shocks for their manufactures and positive shocks for primary products. The countries most obviously affected will be Indonesia and Vietnam. Domestic adjustment to China's growth, if it occurs, will increase Southeast Asia's output of products that are intensive in their use *both* of natural resources and low-skilled labor. In the short to medium run this shift could stimulate aggregate economic growth; but the longer-run growth and welfare effects will be contingent on more unknowns, including the continued growth of China; other world market and policy trends,<sup>12</sup> and the domestic policy and institutional environment.

## Decentralization and the management of natural resources

### Local government mandates and motives

Conventional wisdom in the development community has turned decisively in favor of devolved approaches to economic growth and even to environmental and natural resource



management (e.g. World Bank 2000). The devolution trend has been welcomed in principle by many development specialists, especially as it coincides with and is reinforced by a general trend towards democratization at the sub-national level.

There are, however, clear problems with decentralized management. Paramount among these is that local administrations are far more motivated to raise revenues and create jobs than to protect the environment, especially when the benefits may be exported beyond local boundaries and planning horizons to communities downstream, elsewhere, or yet unborn.

Several other problems are also frequently observed. Incomplete democratization of local governments is a critical constraint on the effectiveness of local management: where local administrations are not accountable to their constituents, devolving authority may merely result in accelerated degradation. Capacity constraints bedevil the efforts even of the best and most sincere local administrations; most are simply too small to cover the fixed costs of specialists in resource management, legislative design, enforcement, or other critical areas. Moreover, the question of optimal policy 'control areas' for local administrations whose resource management activities affect production of transboundary externalities (both downstream, nationally, and in the cases of biodiversity and atmospheric carbon releases, globally) has yet to be seriously confronted (Rola and Coxhead 2004). The cards are thus stacked against effective local management of natural resources.

Lastly, ill-conceived administrative rules on decentralization undermine capacity for policy or action at all levels of government. In most countries, decentralization includes a shift of personnel away from central government offices, and the power of local branches of central government environmental agencies is frequently subordinated to that of local jurisdictions. If local administrations are weak, however, or compromised by conflicting goals and/or corrupt practices, the result of this shift is that control is exerted neither at the center, nor at the local level.

#### Legal and institutional frameworks

The period of decentralization has seen central governments commit to giving more power over environmental and natural resource management to local governments and communities, but the legal basis for such actions is only weakly established, and the practical issues of implementation are far from being worked out (Rola and Coxhead 2004).

Indonesia, unfortunately, exemplifies the range of ways in which decentralization can undermine effective resource management. Under the New Order regime, forest management policies and processes were codified, for the most part, in the 1967 Basic Forestry Law (BFL). This established a legal and institutional framework for state-supported commercial forest exploitation. The central government was paramount; in particular, tensions between commercial/industrial rights and rights of communities over forest use were resolved by "categorically excluding" the latter and denying legitimacy to *adat* (traditional law) (Colfer and Resosudarmo 2002: 215). Laws passed in 1999 amended the BFL, while others in 2000 devolved substantive powers to local government. However these initiatives, which mark the country's first genuine attempt at decentralized forest management, are unclear on state versus local powers and responsibilities. They are, moreover, laws enacted in a transitional moment during which regional and village elites, freed from the strictures of centralized New Order governance, began themselves to initiate a *de facto* decentralization of local development policy. Lacking either a strong (though arbitrary) central state or a clear

set of rules for decentralized forest management, “policy implementation has depended to a great degree on personalities and place. The lack of certainty in the law, combined with the lack of a legal structure linking the forest resource to its users, has created a free-for-all in which forest management has become the responsibility of no-one” (Colfer and Resosudarmo 2002:24). Virtually the only certainty is that Indonesian timber removal rates, at about 80 million cubic meters per year, exceed even Jakarta’s own ‘sustainability criterion’ by a factor of more than three (ibid., p. 216).

### Fiscal policies

Other design faults in Southeast Asian decentralizations have helped to create conditions under which local governments are likely to tolerate high rates of resource depletion. In general, local governments have very limited capacity for revenue-raising through taxation, charges, or user fees. In Indonesia, the general purpose equalization transfer (DAU) to sub-national governments applies a formula for ‘fiscal capacity’ that counts only a fraction of natural resource revenues. There is, in other words, a reduced fiscal penalty to resource-rich sub-national administrations that choose to increase resource extraction rates, and “[t]his is a significant windfall gain for those local governments that receive large amounts of shared revenues from natural resources” (Lewis 2001:333; see also Brodjonegoro and Martinez-Vazquez 2002). Under Law No. 25/1999 (fiscal decentralization), Indonesia’s regions retain 15% of oil revenues, 30% of gas revenues, and 80% of revenues from other forms of natural resources (Hill 2002:26).

National government expenditures on environment in Indonesia are low by regional standards, and during the crisis of 1997-98 were shown to be especially vulnerable to cuts, falling relative to both GDP and the national budget (Vincent et al. 2002). If these data are indicative of central government commitments to environmental protection, local administrations bent on raising revenues through environmentally damaging (or resource-depleting) means need not worry unduly that Jakarta will call them to task.<sup>13</sup>

Vietnam’s recent experience is similar. Its major exports by value in 2003 were dominated by textiles and garments (18%), but all the other major categories are resource products: marine products (11%), and rice, coffee, wood products and rubber (11%); and China is a key trading partner (Table 1). Decentralization in Vietnam is stimulating a race for resources similar to that in Indonesia, with inadequate legal sanctions for violators of laws on land, forest and water use. As in Indonesia, an increase in Vietnam’s comparative advantage in natural resource products relative to its enormous neighbor and trading partner will lead to increased demand for land, forest conversion and related resource-depleting trends. In this setting local administrations— even those with significant pro-environment constituencies— will be hard-pressed to enforce limitations on resource depletion or pollution.<sup>14</sup>

### Localization, globalization and the resource curse

The shifts in Southeast Asian economic structure caused by China’s expansion and increasing global integration are potentially huge, and seem systematically to involve expansion of natural resource-intensive industries and contraction of many labor-intensive assembly sectors. As was pointed out earlier, however, these changes can only *reduce* growth or economic welfare in the way predicted by the resource curse hypothesis if they encounter distortions that inhibit an optimal policy response. In Southeast Asia, there is a high

probability that such a distortion will be encountered in the form of incomplete controls over exploitation of natural resource stocks. Moreover, recent steps toward decentralization appear greatly to have reduced the probability that resource stocks will be managed in a socially optimal manner in the future. With resource management powers poorly defined and imperfectly or corruptly exercised, the economies of the region are coming to resemble ever more closely the hypothetical economy in Brander and Taylor (1997), in which an economy having comparative advantage in an open-access natural resource reduces its own welfare by entering into trade. In the absence of effective controls on resource depletion, and with no guarantee of future control over resource rents, such an economy experiences a race by all actors to liquidate natural resource wealth in the short term; in the longer term, therefore, it grows more slowly or not at all. China's expansion could well fuel such a sequence of events in Southeast Asia. If it does, the real problem will lie not in China's voracious import demand, but in the failings of Southeast Asian domestic policies and institutions.

## Conclusions

Southeast Asian countries' past experience contradicts the resource curse hypothesis, but will continuing globalization render the region's most resource-abundant economies vulnerable to a new variant? In particular, will China's growth deliver slower growth to the economies that escaped the crisis of the 1980s?

The trade and investment effects of China's expansion are predicted to have slightly negative overall effects on the region, moderating the generally positive predicted effects of global trade liberalization and growth. Countries like Vietnam and Indonesia, whose industry sectors are less diversified, will suffer relatively more than those such as Malaysia, especially given the latter's strength in high-tech sectors. The all-important apparel, footwear and related industries are especially vulnerable, and their decline may have economy-wide consequences through labor market adjustments. Growth in demand for natural resource products, accompanied by declining or at least less rapidly growing real wages, will stimulate output in extractive industries such as forestry and mining, in rubber, oil palm and other and other industrial crops, and in specialized horticultural crops (tropical fruit, coffee) as well as in fisheries. The growth of these sectors' output will reflect shifts in Southeast Asia's comparative advantage associated with the China effect.

The long-term consequences of this possible reorientation of Southeast Asian economies will be slight, if legal and economic institutions exist to account for the true opportunity costs of the new mix of activities. However, to the extent that additional demand for timber, fisheries, and agricultural land is unrestrained by legal safeguards or externality-correcting economic instruments, higher commodity demands and lower labor costs may spark an acceleration in resource-extracting activities, including the conversion of forests to industrial agriculture. In some areas of the region, these changes, being difficult if not impossible to reverse, could spell long-term reductions in earnings power and increased vulnerability to environmental disasters. I have argued in this chapter that the likelihood of such outcomes is higher where incomplete decentralization has devolved powers over resource use without commensurate responsibilities.

Some caveats should of course be borne in mind. Continued rapid growth in the Chinese economy will eventually begin to drive wages up, a trend that will reduce the competitiveness of China's most labor-intensive sectors in global markets. Revaluation of the yuan, fixed for a decade relative to the US dollar, would have an analogous effect, with

the most import-intensive Chinese industries and those serving mainly the domestic market gaining relative to others— both trends that will undercut labor-intensive, high valued-added industries such as garments and furniture. In Southeast Asia, niche-market producers of specialized product lines will undoubtedly survive and thrive, even in an era of general decline of the industries to which they belong. Finally, economies with greater complementarity or diminishing overlap, such as Malaysia and Thailand, will stand to gain from freer trade with a rapidly growing Chinese economy, and the growth of specialized sectors such as computer components and other high-end electronics should offset some of the more harmful effects described in this chapter (these prospects are not especially strong in the most resource-abundant economies, however, especially Indonesia and Vietnam). Each of these possibilities merits careful attention and more detailed research.

Turning to policy implications, it remains to be seen whether the possible changes identified in this chapter will merit the term “curse”. First, these changes will take place in a context of overall (predicted) gains from globalization, from which the China effect could shave perhaps 25% (Ianchovichina and Walmsley 2003; Strutt and Anderson 2000). Sustained economic growth, as is well known, simultaneously raises demands for the conservation of resources, and creates the capacity to implement such demands— mechanisms captured in the idea of an environmental Kuznets curve. Second, the resource curse depends on market or institutional failures, including the effects of weak institutions of governance. Where such institutions are strong, property rights (including those of consumers of pollution) are generally better-protected, thereby inhibiting race-to-the-bottom resource exploitation strategies. On this score, the uplands of Vietnam and the other Indochinese countries, and the outer islands of Indonesia— areas in Asia where the restraining hand of central government is weakest— appear to be the most vulnerable. Other countries and regions display more heterogeneous experiences, some of which may be relevant to more vulnerable areas. How the interactions of decentralization and global market trends affect natural resource management in these areas will be a critical factor determining the future of their forests, soils and other natural resource stocks and, ultimately, the welfare of their human populations.

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Table 1: Southeast Asia: China trade shares (per cent) and rank among trading partners

Country		1990	1995	2000	2001	2002	2003
Malaysia	Export	2.10	2.56	3.09	4.33	5.63	10.78
	<i>Rank</i>	<i>10</i>	<i>9</i>	<i>9</i>	<i>6</i>	<i>5</i>	<i>3</i>
	Import	1.92	2.20	3.94	5.19	7.74	6.82
		<i>7</i>	<i>7</i>	<i>5</i>	<i>4</i>	<i>4</i>	<i>4</i>
Indonesia	Export	3.25	3.83	4.46	3.91	5.08	7.43
	<i>Rank</i>	<i>5</i>	<i>5</i>	<i>5</i>	<i>5</i>	<i>5</i>	<i>4</i>
	Import	2.97	3.68	6.03	5.95	7.76	11.72
		<i>7</i>	<i>8</i>	<i>5</i>	<i>5</i>	<i>4</i>	<i>2</i>
Philippines	Export	0.75	1.20	1.74	2.47	3.85	12.00
	<i>Rank</i>	<i>10</i>	<i>10</i>	<i>10</i>	<i>10</i>	<i>8</i>	<i>3</i>
	Import	1.40	2.34	2.28	2.95	3.54	6.99
		<i>9</i>	<i>8</i>	<i>9</i>	<i>7</i>	<i>7</i>	<i>4</i>
Thailand	Export	1.16	2.87	4.07	4.40	5.16	7.09
	<i>Rank</i>	<i>10</i>	<i>6</i>	<i>6</i>	<i>5</i>	<i>5</i>	<i>4</i>
	Import	3.31	2.84	5.45	5.98	7.61	8.00
		<i>6</i>	<i>7</i>	<i>4</i>	<i>3</i>	<i>3</i>	<i>3</i>
Vietnam	Export	0.31	6.44	10.61	9.44	6.45	6.40
	<i>Rank</i>	<i>6</i>	<i>3</i>	<i>2</i>	<i>2</i>	<i>4</i>	<i>4</i>
	Import	0.16	3.94	8.96	9.91	11.82	14.06
		<i>8</i>	<i>6</i>	<i>4</i>	<i>4</i>	<i>2</i>	<i>1</i>

Source: ADB



Table 2: Southeast Asian competition with China in the US market (per cent overlap in product categories, aggregated using value weights)

Country	1990	1995	2000
Singapore	14.8	19.2	35.8
Indonesia	85.3	85.5	82.8
Malaysia	37.1	38.9	48.7
Philippines	46.3	47.8	46.1
Thailand	42.2	56.3	65.4

Source: Kwan (2002), Table 2.

Table 3: RCA values (2000-03 average) for China and Southeast Asia

Name	Code <sup>a</sup>	CHN	IDN	MYS	PHL <sup>b</sup>	THA	VNM <sup>c</sup>
Live animals	00	0.78	0.39	0.72	0.06	0.23	0.18
Meat and meat preparations	01	0.58	0.06	0.04	0.01	<b>1.77</b>	0.29
Dairy products and birds' eggs	02	0.06	0.27	0.23	0.19	0.27	1.85
Fish, crustaceans, etc	03	<b>1.83</b>	<b>3.47</b>	0.51	<b>1.44</b>	<b>7.59</b>	<b>13.60</b>
Cereals and cereal preparations	04	0.70	0.16	0.20	0.12	<b>3.12</b>	<b>5.54</b>
Vegetables and fruit	05	<b>1.14</b>	0.46	0.20	<b>1.62</b>	<b>1.67</b>	<b>2.78</b>
Sugars, sugar preparations	06	0.43	0.43	0.44	0.75	<b>4.78</b>	<b>1.08</b>
Coffee, tea, cocoa, spices	07	0.46	<b>4.28</b>	0.84	0.09	0.26	<b>10.41</b>
Feeding stuff for animals	08	0.34	0.49	0.36	0.27	<b>1.29</b>	0.06
Misc. edible products	09	0.68	0.83	0.98	0.52	<b>1.64</b>	<b>1.72</b>
Beverages	11	0.27	0.04	0.23	0.08	0.26	0.10
Tobacco and tobacco manufactures	12	0.40	<b>1.26</b>	0.70	0.32	0.32	0.44
Hides, skins and furskins, raw	21	0.03	0.03	0.05	0.01	0.03	0.45
Oil-seeds and oleaginous fruits	22	0.59	0.09	0.04	0.02	0.05	<b>1.32</b>
Crude rubber	23	0.14	<b>10.92</b>	<b>4.41</b>	0.29	<b>15.08</b>	<b>7.12</b>
Cork and wood	24	0.28	<b>1.25</b>	<b>2.58</b>	0.13	0.47	0.54
Pulp and waste paper	25	0.01	<b>3.47</b>	0.00	0.28	0.55	0.00
Textile fibres (not yarn or fabric)	26	0.95	0.78	0.27	0.17	<b>1.23</b>	0.15
Crude fertilizers and minerals nes	27	<b>1.66</b>	0.78	0.19	0.22	<b>1.81</b>	0.35
Metalliferous ores and metal scrap	28	0.07	<b>4.25</b>	0.11	0.84	0.23	0.37
Crude animal & veg. materials n.e.s	29	<b>1.34</b>	0.58	0.16	0.82	0.69	<b>1.49</b>
Coal, coke and briquettes	32	<b>2.84</b>	<b>7.26</b>	0.00	0.00	0.00	<b>1.93</b>
Petroleum & petroleum products	33	0.24	<b>1.98</b>	0.96	0.15	0.42	<b>3.42</b>
Gas, natural and manufactured	34	0.06	<b>8.68</b>	<b>3.14</b>	0.09	0.26	0.00
Electric current	35	<b>1.17</b>	0.00	0.02			0.07
Animal oils and fats	41	0.09	0.08	0.02	0.02	0.07	0.07
Vegetable fats & oils, refined	42	0.11	<b>13.02</b>	<b>13.44</b>	<b>4.51</b>	0.42	<b>1.28</b>
Animal or veg fats & oils, proc'd	43	0.07	<b>3.38</b>	<b>15.22</b>	0.78	0.88	0.08
Organic chemicals	51	0.54	0.83	0.65	0.05	0.53	0.10
Inorganic chemicals	52	<b>1.62</b>	0.57	0.23	0.19	0.24	0.07
Dyeing & tanning materials	53	0.73	0.34	0.38	0.08	0.29	0.07
Medicinal & pharmaceutical prod.	54	0.30	0.07	0.04	0.03	0.08	0.02
Essential oils and resinoids	55	0.25	0.72	0.36	0.15	0.71	0.45
Fertilizers (other than group 272)	56	0.56	<b>1.10</b>	0.62	0.52	0.12	0.13
Plastics in primary forms	57	0.17	0.62	0.70	0.07	<b>1.78</b>	0.04
Plastics in non-primary forms	58	0.27	0.57	0.49	0.20	0.58	0.17
Chemical materials & products, nes	59	0.53	0.30	0.57	0.13	0.61	0.26
Leather, leather manufactures nes	61	<b>1.34</b>	0.44	0.11	0.04	<b>1.73</b>	0.33
Rubber manufactures, n.e.s.	62	0.74	0.96	0.52	0.27	<b>1.54</b>	0.31
Cork & wood manuf excl. furniture	63	<b>1.22</b>	<b>8.83</b>	<b>3.11</b>	0.81	<b>1.08</b>	<b>1.21</b>
Paper & paperboard	64	0.31	<b>2.10</b>	0.22	0.15	0.53	0.25
Textile yarn, fabrics & articles n.e.s	65	<b>2.51</b>	<b>2.11</b>	0.45	0.31	<b>1.12</b>	0.92
Non-metallic mineral manuf, n.e.s.	66	0.91	0.63	0.36	0.26	<b>1.19</b>	0.60
Iron and steel	67	0.55	0.34	0.37	0.02	0.52	0.13

Table 3, cont'd

Name	Code <sup>a</sup>	CHN	IDN	MYS	PHL <sup>b</sup>	THA	VNM <sup>c</sup>
Non-ferrous metals	68	0.71	0.98	0.47	0.52	0.29	0.09
Manufactures of metals, n.e.s.	69	<b>1.67</b>	0.41	0.44	0.19	0.76	0.26
Power-generating machinery	71	0.40	0.28	0.29	0.08	0.64	0.15
Machinery specialized for particular industries	72	0.31	0.10	0.27	0.18	0.18	0.19
Metalworking machinery	73	0.37	0.04	0.23	0.13	0.25	0.06
Industrial mach & eqpt, n.e.s.	74	0.71	0.19	0.36	0.15	0.88	0.06
Office & data processing machines	75	<b>2.00</b>	0.72	<b>3.52</b>	<b>3.72</b>	<b>2.19</b>	0.55
Telecoms apparatus and equipment	76	<b>1.98</b>	<b>1.19</b>	<b>2.57</b>	0.70	<b>1.23</b>	0.14
Elect mach and appliances, n.e.s.,	77	<b>1.05</b>	0.46	<b>2.76</b>	<b>5.12</b>	<b>1.60</b>	0.32
Road vehicles	78	0.26	0.10	0.05	0.22	0.45	0.09
Other transport equipment	79	0.30	0.07	0.12	0.13	0.19	0.04
Prefab buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.	81	<b>2.45</b>	0.37	0.22	0.36	0.64	0.18
Furniture, and parts thereof	82	<b>1.88</b>	<b>2.44</b>	<b>1.51</b>	0.93	<b>1.28</b>	<b>1.69</b>
Travel goods, handbags & similar	83	<b>5.12</b>	0.87	0.06	<b>2.48</b>	<b>2.00</b>	<b>4.33</b>
Articles of apparel & clothing	84	<b>4.12</b>	<b>2.28</b>	0.68	<b>2.15</b>	<b>1.61</b>	<b>3.88</b>
Footwear	85	<b>4.59</b>	<b>3.02</b>	0.13	0.24	<b>1.51</b>	<b>13.42</b>
Prof'l & scientific instruments	87	0.55	0.06	0.62	0.20	0.25	0.07
Photographic apparatus & watches	88	<b>1.25</b>	0.29	0.79	0.99	<b>1.05</b>	0.21
Misc manufactured articles, n.e.s.	89	<b>2.10</b>	0.55	0.58	0.42	<b>1.06</b>	0.54
Special transactions & commodities	93	0.09	0.01	0.42	0.01	<b>1.09</b>	0.83
Coin (other than gold coin)	96	0.78	0.01	0.07	0.12	0.27	0.01
Gold, non-monetary	97	0.00	<b>1.67</b>	0.36	0.80	0.51	0.06

Notes: <sup>a</sup> SITC 3 product categories. <sup>b</sup> 2000-02 only. <sup>c</sup> 2000-01 only. <sup>d</sup> Automatic data processing.

Source: UN COMTRADE data.

Table 4: Correlation coefficients of RCA measures between China and Southeast Asian economies

Country	1989-1994	1995-1999	2000-2003
Indonesia	-0.036	-0.015	0.010
Malaysia	-0.141	-0.127	-0.144
Philippines	0.147	0.049	0.173
Thailand	0.311	0.125	0.078
Vietnam	N/A	0.379	0.408

Source: Author's computations from Comtrade data.

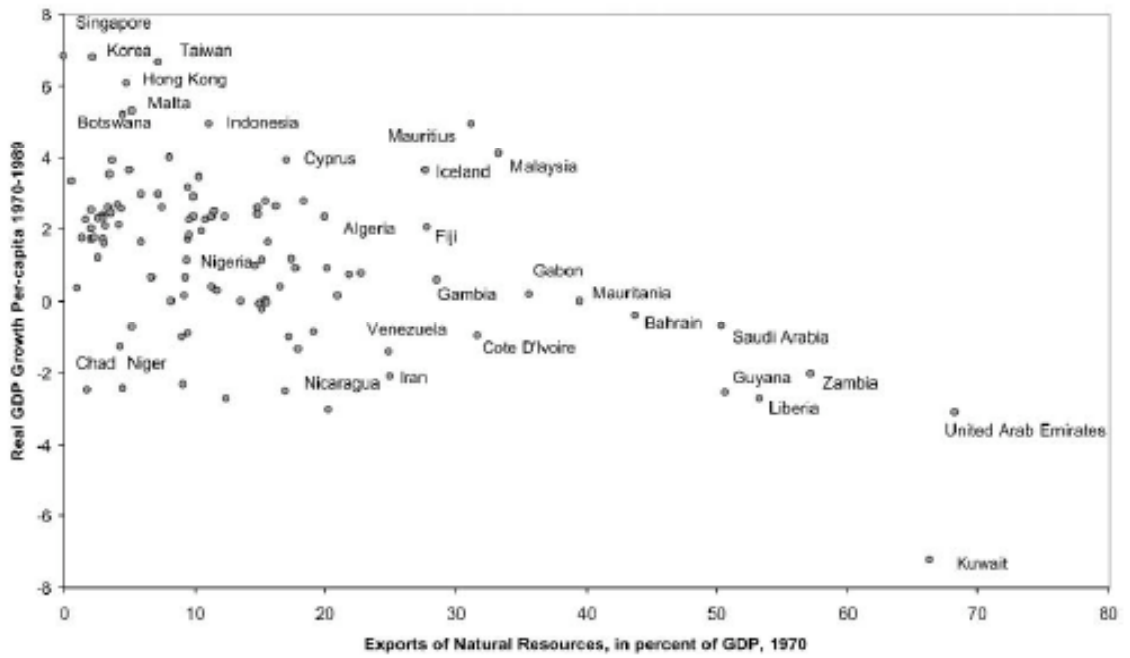


Figure 1: Economic growth and natural resource dependence: the Sachs-Warner data

Bilateral RCA and trends: Indonesia - China

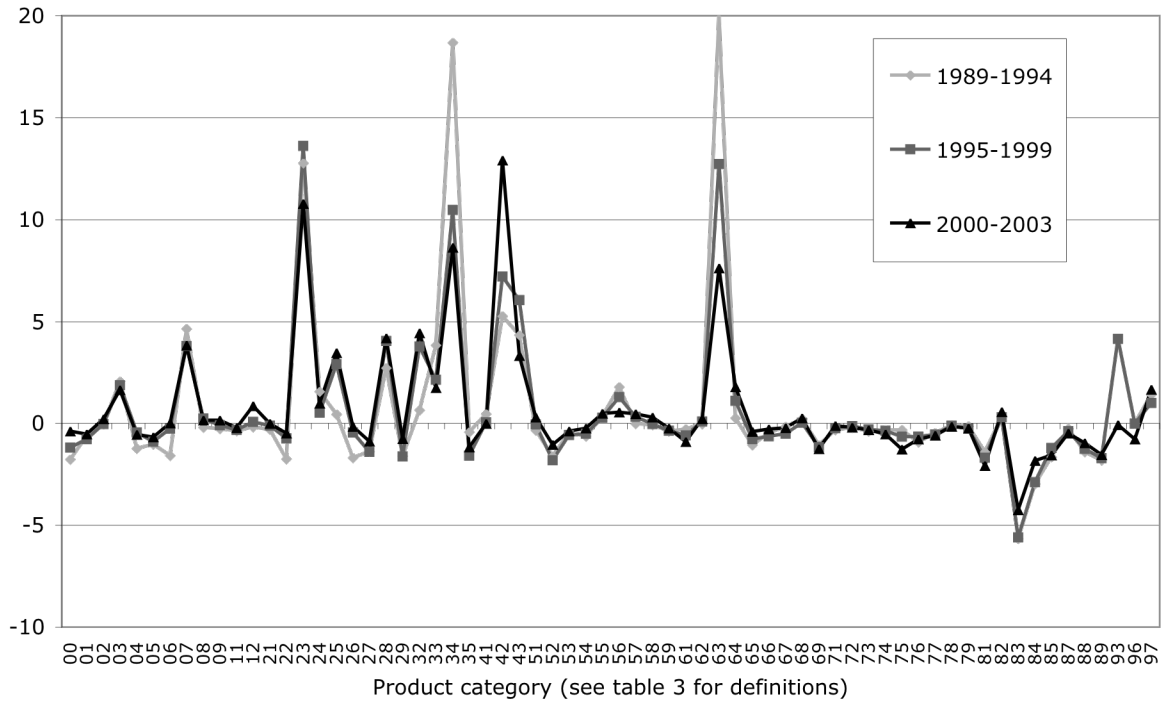


Figure 2: RCA differences, Indonesia minus China (Source: author's computations from Comtrade data)

Bilateral RCA and trend: Viet Nam - China

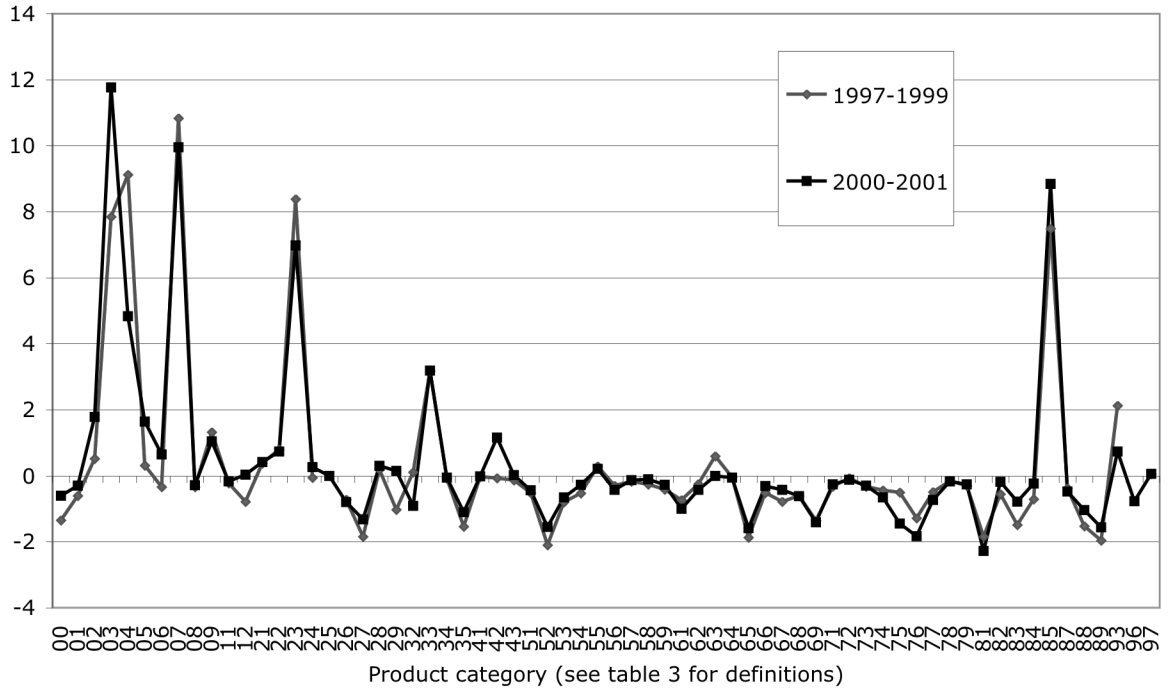


Figure 3: RCA differences, Vietnam minus China (Source: author's computations from Comtrade data)

## Notes

<sup>1</sup> University of Wisconsin Department of Agricultural and Applied Economics, Staff Paper Series No. 480. Presented at the 22<sup>nd</sup> annual Indonesia Update, Australian National University, Canberra, September 24-25 2004. I am indebted to Update participants for helpful comments, and to Muqun Li and Aksarapak Wongcharoen for excellent research assistance. Send comments to coxhead@wisc.edu

<sup>2</sup> These negative trends, it is stressed, are independent of endogenous terms-of-trade explanations for low growth in resource-abundant countries, as posited by the Prebisch-Singer hypothesis.

<sup>3</sup> This may be analogous to the biological concept of convergent evolution, in which (for example) birds and bees both have wings not because they have a common ancestor, but because they have adapted to their environment in similar ways. More formally, observation of a negative relationship between resource wealth and growth does not imply that all the data points are generated by a common underlying process. A test of this would involve searching for significant differences and dividing the data accordingly, as has been done for the empirical growth literature (Durlauf and Johnson 1995; Brock and Durlauf 2001).

<sup>4</sup> Defined to include ASEAN.

<sup>5</sup> To see this, it is necessary only to compare China's market share in the US and EU markets with that in the non-quota constrained Japanese market (James et al. 2003).

<sup>6</sup> Some of the increasing similarity in structure of manufacturing production is reflected not in competition in third markets but in intraregional inter-industry trade (Athukorala 2003), though these potential gains are countered by apparent diversion of FDI from ASEAN to China.

<sup>7</sup> For country  $j$ , good  $k$  and time period  $t$ , the RCA is defined as  $RCA_{jkt} = \frac{X_{kt}^j / X_{Kt}^j}{X_{kt}^W / X_{Kt}^W}$ ,

where  $K$  denotes the sum of all exports from country  $j$  or the world respectively.

<sup>8</sup> Of course, these *ex post* measures are subject to distortion from several sources, most obviously trade policies. The calculations presented below ignore these sources of inaccuracy.

<sup>9</sup> Similar computations for other countries (excluded here to save space) are available from the author on request.

<sup>10</sup> Simulations using the GTAP global trade model indicate that the cumulative effects of China's WTO accession over the 2001-10 period will be negative for real GDP growth in developing Southeast Asian countries, though with mixed sectoral and country stories. The two big winners are natural resource sectors and high-tech industries. The clear losers are apparel, textiles, and some industries of medium capital intensity, such as automobiles; apparel exports are predicted to fall by 20-25%, depending on the country (Ianchovichina and Walmsley 2003). Vietnam, heavily dependent on apparel and with few complementary manufacturing sectors, is predicted to experience the greatest loss, about 0.4% of GDP. For Indonesia, an economy-wide analysis of the effects of China's WTO accession predicted marginally slower growth of GDP as a whole, but faster growth in forestry, minerals and agriculture and in some secondary industries using these as inputs. This analysis also



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predicted a spectacularly large decline (23.4%) for textiles, clothing and leather sectors (Strutt and Anderson 2000).

<sup>11</sup> The extent to which labor is mobile from urban manufacturing-sector jobs to agriculture is of course an empirical question. Labor market adjustments during the recent Asian economic crises provide helpful pointers: in Indonesia, an official labor market data survey in August 1998 found that among workers leaving jobs in manufacturing and construction the previous year, 39% shifted to agriculture (Manning 2000:126), contributing to a net gain of 4.7m farm jobs, a 13.3% year-on-year increase (Hugo 2000).

<sup>12</sup> Within many US producer groups, growing concern about the expansion of China trade is motivating calls for additional restrictions. See *NYT* September 11 2004.

<sup>13</sup> For excellent recent analyses of decentralization and forest management in Indonesia, see Colfer and Resosudarmo 2002. Papers in this volume also provide insightful coverage of the complex issue of the distribution of resource management powers between central and local agencies in the Indonesian context.

<sup>14</sup> Just as has been documented among local governments within China itself: “[T]he countryside, home to two-thirds of China's population, is increasingly becoming a dumping ground. Local officials, desperate to generate jobs and tax revenues, protect factories that have polluted for years. Refineries and smelters forced out of cities have moved to rural areas” (*NYT*, “Rivers Run Black”, September 12 2004). See also *FT* July 27 2004.