The Changing Ingredients in Industrial Policy for Economic Growth

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Industrial Policies in South Korea and Taiwan: Interpretations Galore

When one reads the literature on the industrialization process in South Korea and Taiwan, and about the surge up the value-added chain by Korean and Taiwanese enterprises in the 1960-1990 period, one is reminded of the well-known story of the three blind men who were asked to describe an elephant after touching it. At one end of the spectrum of interpretations, well-known economists like Ian Little (1982) and Anne Krueger (1978) have attributed the dynamic economic growth in these two economies to their "free-trade policy regimes". They identified the fundamental driving force behind the economic success of South Korea and Taiwan to be "getting the prices right" which means allowing domestic price ratios of goods to be set by the international price ratios. (We will define later in this section this specialised terminology of "allowing the domestic relative price of goods to be the same as the international relative price of goods ".). We will call this particular analytical perspective the *1980s Washington Consensus framework*[1] after the famous policy agenda distilled by John Williamson (1989) for the Latin America to adopt in order to catch up with the East Asian tigers.

At the other end of the spectrum of interpretations of East Asian success, leading political scientists like Alice Amsden (1989) and Robert Wade (1990) have attributed the Korean and Taiwanese rush into high-income status to their interventionist industrial policies that succeeded in "getting prices wrong systematically" and in "governing the market to over-ride market allocation of resources". We will call this opposing analytical perspective the *1980s developmental state framework* after the expression coined by Chalmers Johnson (1982) to describe the driving force behind the quick catch-up by Japan to the living standard in Western Europe and North America.

This clash in viewpoints about what happened in South Korea and Taiwan is certainly not a clash in disciplinary perspective because there are many prominent economists typified by Laura Tyson, Dani Rodrik, and Lance Taylor who are enthusiastic proponents of government intervention to accelerate the expansion of selected industries. Then there are the innumerable fearlessly eclectic economists ("soft" industrial policy advocates) like Larry Westphal and Howard Park (1986) who do not see any inconsistency in stating that both types of policy posture are required for successful catch-up. One obvious form of soft industrial policy advocacy is the soft infant industry argument of extending state subsidies to new industries with a pre-announced

[1] We have inserted "1980s" into this category because what constitutes the Washington Consensus has changed over time.

date of termination of subsidies. (As the 1980s developmental state framework rejects the validity of the entire corpus of neoclassical economic theory, we call this school the hardline -- fundamentalist -- industrial policy proponents.)

The basis of the 1980s Washington Consensus framework lies in three sets of cross-country studies conducted by:

1. Ian Little, Maurice Scott and Tibor Scitovsky (1970), hence denoted the LSS study,
2. the National Bureau of Economic Research (NBER) project overseen Jagdish Bhagwati (1978) and Anne Krueger (1978), hence denoted the NBER study; and
3. Bela Balassa and associates (1971 and 1982), hence denoted the BBA study.

These three sets of studies estimated the effective rate of protection (ERP) for each industrial sector in many Asian, Latin American, African, and European economies.[2] Aggregating the ERPs of each country in different ways, these studies read the patterns of national distributions of ERPs to conclude that countries which pursued development strategies based on the neoclassical principle of comparative advantage grew faster and saw improvements in their income distribution compared with the countries with trade regimes that deviated substantially from the comparative advantage principle. These multi-country studies described East Asia (primarily Hong Kong, Singapore, South Korea and Taiwan) as adopting "export promoting (EP) trade regimes" and "outward-oriented (OO) trade strategies", and Latin America (primarily Argentina, Brazil and Mexico) as implementing "import substituting (IS) regimes" and "inward-oriented (IO) strategies." Deepak Lal (1985) has gone on to describe the EP and OO policies as "free-trade policies"; and the World Bank has described them more blandly as "neutral-incentive policies" -- two descriptions which we will show later to be analytically correct only in a special case.

It must be mentioned right away that the terminology used in these three studies is confusing because it violates the symmetry principle in language usage. Specifically, import-substituting bias means encouraging the production of importables over the production of exportables[3], but export-promoting bias does not mean encouraging the production of exportables over the production of importables. An export-promoting bias, instead, means equal encouragement to the production of importables and exportables. The term "export-promoting bias" as coined by the LSS, NBER and BBA studies hence violates the symmetry principle in language usage.

The 1980s Washington Consensus framework is unambiguous in rejecting industrial policy as being helpful to launching successful industrialization. According to Ian Little (1982):

> ".. there has been a lot more work on the open economies, especially on Korea and Taiwan. Starting in the years around 1960, these countries made policy changes that by the middle of 1960s combined selective protection for certain import competing sectors with a virtual free-trade regime for exporters – by which we mean that exporters could obtain inputs (including tradable domestic inputs) at

[2] An excellent discussion of the theoretical issues about ERP is found in Appendix A in Balassa (1971); and of the history of ERP is found in Appendix I in Corden (1971).

[3] A good is an importable if the country is a net importable of that good; and is an exportable if the country is a net exportable of that good.

world market prices, while the effective exchange rate for exporters was close to that which would have ruled under free trade. Overall effective protection for industry was zero for Korea, and, of course, Hong Kong, and low for Taiwan and Singapore. The consequential growth of exports was phenomenal, far exceeding what anyone could have predicted or did predict" (pp.141)

"Many countries in the 1960s and 1970s started to "promote" exports. But generally speaking, this "promotion" was only a partial offset to their overvalued exchange rates and the fact that the prices of domestic tradable inputs into exports were above world prices. Export subsidization was usually selective (unlike Korea and Taiwan, where most exporters got similar treatment). While on average, a bias against exports remained, such selective subsidization could sometimes lead to an export being more profitable than under free trade. Such export protection could be excessive. However, excesses of this kind are certainly much rarer than in the case of protection of the home market, although a few cases have been unearthed." (pp. 141-142)

And, according to Deepak Lal (1985):

".. success [in Korea] has been achieved *despite* intervention. Thus the change in trade policies in the early 1960s from favouring import substitution to broad neutrality between import substitution and exporting – considered to have been a major reason for Korea's subsequent success – entailed the introduction of interventionist export incentives to counteract the effects of import control which, though undesirable from their inception, were not (and have not been) entirely removed. If the inefficient import controls were to be maintained, export incentives were desirable on second-best welfare grounds to restore a position amounting to a virtual free-trade regime for export promotion. But this does not mean that the import controls which made the export incentives necessary were themselves desirable. It would have been best not to have import controls in the first place, that is, no government intervention in foreign trade. To have two sets of intervention, each to neutralise the harm the other would do alone, is hardly a glowing recommendation for government intervention in trade, and certainly not 'the lesson' that can be drawn from the experience of Korea and other East Asian countries. (pp. 46-47)

Deciphering the Terminology of the 1980s Washington Consensus Framework

The above statements by Ian Little and Deepak Lal can be more clearly understood when we consider equation (1) below, which shows the relationship between the domestic prices of, say, a Yuen-currency country and the world prices of importables and exportables:

$$(P_I/P_X) = PW_I(1+t) / PW_X(1+s) \qquad (1)$$

with

- P_I = domestic price of importabless, say in Yuen (Y)

- P_X = domestic price of exportables, say in Yuen (Y)
- PW_I = world price of imports, say in Dollar ($)
- PW_X = domestic price of exports, say in Dollar ($)
- t = effective tariff rate on imports > 0
- s = effective subsidy rate on exports > 0

With

e = the Yuen-$ exchange rate (Yuen per $) (2)

the simple assumption of efficient arbitrage in the prices of good through international trade would produce:

$$P_I = e\,(PW_I)\,(1+t) \quad (3)$$

$$P_X = e\,(PW_X)\,(1+s) \quad (4)$$

Equation (1) is simply the ratio of equation (3) and equation (4). If we now assume that the Yuen-currency country economy, is a small open economy, then

1. the values of PW_I and PW_X (the $-price of goods) are exogenous to the Yuen-currency country; and
2. that the domestic ratio of goods prices are determined by the global ratio of goods prices and by the tariff-subsidy schedules set by the Yuen-currency country

In a free-trade situation, t = s =0, we have

$$(P_I/P_X) = PW_I / PW_X \quad (5)$$

In a market economy where these two goods produced under competitive conditions, the ratio (P_I/P_X) will rise when the government raises t to be above zero (with s remaining zero). And profit-maximizing behavior would cause producers to switch to making importables from making exportables. In general, whenever the state sets t > s, the state is encouraging the production of importables over the production of exportables -- this is the case of import-substituting (inward-orientation) as practiced in Latin American.

Therefore, we apply the symmetry principle to language usage, we would have expected that export-promotion to be the case where s > t > 0. But this case is ignored in these three studies because (as Ian Little noted in above quote), very few instances of s > t were found in the industries of the sample economies.

Instead, the situation where t = s > 0 is called export-promoting (outward-orientation). Export-promoting means that the state has completely offset the anti-trade bias of t >0 by setting s = t. In this situation, equation (1) reduces to the free trade situation of equation (5):

$$(P_I/P_X) = PW_I / PW_X$$

The empirical results in the LSS study, NBER study and BBA study, by the interpretation of the 1980s Washington Consensus framework, could be heuristically summarised by the following three propositions:

Proposition 1: *Latin America (LA) was generally protectionist than East Asia (EA)* because

$$\text{average } (t_{LA}) >> \text{average } (t_{EA}) \qquad (6)$$

Table 1 is constructed from data in Balassa (1982) who constructed 4 measures of the incentive that a producer faces in selling his output in the export market and in the domestic market, which are denoted as s and t. The four measures are (1) the nominal protection rate, (2) the effective protection rate, (3) the effective subsidy rate, and (4) the net effective subsidy rate. Each succeeding incentive proxy refines the previous proxy by taking more policy distortions into account. For example, the effective protection rate refines the nominal protection rate by taking tariffs on inputs into account. Although the net effective subsidy rate (Balassa, 1982, Table 2.6) is the most refined proxy, it appears that Balassa might regard the effective subsidy rate as his preferred proxy because this is the incentive proxy that he uses most often, (Balassa, 1982, Tables 2.1 to 2.5). In Table 1, lines a and b referring to the net effective subsidy rate; and lines c and d referring to the effective subsidy rate.

Table X1 reports that the average t on manufactured products in Argentina, Columbia, Israel, South Korea, Singapore and Taiwan, with line showing that t is, respectively 41%, 10%, 11%, -13%, -2%, and 8%. The EA economies had lower ERPs than the LA economies. This conclusion is supported by the other proxy for t in line b.

Proposition 2: *Compared to East Asia, Latin America had trade regimes that were more distortionary*, i.e. trade regimes that rendered the allocation of domestic resources to be further away from the allocation dictated by comparative advantage, because

$$\text{dispersion}^4 \text{ of } t_{LA} >> \text{dispersion of } t_{EA} \qquad (7)$$

To see this point, take the case of the distribution of the points earned by students in an exam, and consider three interventions to raise the average score by 5 points. In the first intervention, the instructor adds 5 points to every exam. This new ranking of students (called rank 1) would be identical to the original ranking. Note that the result of this uniform intervention is that the variance of the intervention is zero.

In the second intervention, the instructor assigns an extra 10 points to half of the class chosen randomly; and deducts 5 points from the remaining half of the class. This new second ranking (called rank 2) would almost surely differ from the original ranking. In the third intervention, the instructor assigns an extra 20 points to half of the class randomly and deducts 15 points from the remaining half. This new third ranking (called rank 3) would generally differ more from the

[4] The measure of dispersion could be the variance or the standard deviation or the coefficient of variation of a series.

original ranking than rank 2. The variance of the third intervention is greater than the variance of the second intervention which is, in turn, greater than the variance of the first intervention; and, the important observation is that the distortion of the original ranking tends to increase with the variance of the intervention.

In short, the greater the dispersion of ERPs (t's), the greater is the deviation of the composition of production from the market-determined composition of production. Line b in Table 1 reports that the value of t's ranged from -12% to 96% in Argentina; -22% to 161% in Colombia; -24% to 72% in Israel; -29% to 119% in South Korea; -10% to 9 % in Singapore; and -20% to 50% in Taiwan. By this very crude measure of dispersion[5], Singapore and Taiwan have smaller dispersions in ERPs than Argentina and Columbia, but South Korea's dispersion is larger than that of Argentina. The evidence in support of Proposition 2 is not as strong as for Proposition 1.

Line d shows that the ranking of the dispersion of this alternative proxy is (from small to big) Singapore, Taiwan, Colombia, Korea, Israel, and Argentina. Again, the evidence in support of Proposition 2 is not as strong as for Proposition 1.

Proposition 3: *East Asia offset the resource allocation effect of t > 0 with export subsidies but Latin America did not* because

$$\text{average } (t_{EA}) = \text{average } (s_{EA}) \qquad (8)$$

$$\text{average } (t_{LA}) > \text{average } (t_{LA}) \qquad (9)$$

We constructed two measures of how close t and s are to each other to indicate the magnitude of the bias of domestic manufacturers to sell their products in domestic market over the overseas market

- $(t - s)$,
- $(1+t)/(1+s)$

Line a in Table 1 reports that t exceeds s by 91 percentage points in Argentina, 17 percentage points in Colombia, 26 percentage points in Israel, -14 percentage points in South Korea, 5 percentage points in Singapore, and -3 percentage points in Taiwan. It is true that, compared with the situation in LA, t and s are more or less equal in EA. In fact, the export subsidies in South Korea and Taiwan have more than offset the domestic market bias fostered by their import restrictions. The ratio (1+t)/(1+s) is 2.82 in Argentina, 1.18 in Colombia, 1.31 in Israel, 0.86 in South Korea, 1.05 in Singapore, and 0.97 in Taiwan, which confirms that EA is more outward-oriented than LA.

Line b confirms the general pattern seen in line a.

[5] The degree of dispersion is better measured by the standard deviation or the coefficient of variation but Balassa (1982) does not supply the information to allow them to be computed.

The LSS-NBER-BBA finding of equation (8) might appear to suggest that, despite the multiple state interventions in East Asian trade, the composition of importables and exportables made by domestic manufacturers was determined entirely by international market forces. It is this perception of policy ineffectiveness by the South Korean and Taiwanese state that has caused Deepak Lal (1985) and the World Bank (1987) to label their industrialization policies as "free-trade policies" and "neutral-incentive policies" respectively. (We will show later that this perception of policy ineffectiveness is generally wrong.)

The World Bank amplified the LSS-NBER-BBA findings in issues of the *World Development Report* (WDR) released in the 1982-1987 period. The 1983 WDR constructed price distortion indices for 31 developing economies and showed that the degree of price distortion was negatively correlated with the GDP growth rate. The 1985 WDR showed that the greater the price distortion, the lower the export growth rate and the higher the likelihood of debt-servicing difficulties. The 1986 WDR argued that an IS industrialization strategy reduced the income of the agricultural sector, where the bulk of the country's poor are employed. This is because the domestic price of the homogeneous agricultural product equals the exchange rate times the world price (in $) of the agricultural product; and the reduction in the demand for imported industrial goods would strengthen the value of the country's currency exchange, i.e. cause e in equation (2) to fall; and hence lower the domestic price of the agricultural product. The 1987 WDR classified forty-one developing countries by their trade orientation (strongly outward, moderately outward, moderately inward, and strongly inward) in two periods, 1963-1973 and 1973-1985; and found that outward-oriented countries grew quicker, industrialize faster, and have higher agricultural growth.

It is useful to be reminded at this point that the stronger the outward-orientation of a trade regime, the closer is the export subsidy rate (s) to matching the import tariff rate (t); and a strongly inward-oriented trade regime is one where the value of t dwarfs the value of s. The strongly outward-oriented trade regimes in South Korea and Taiwan definitely cannot be described as the outcome of free-trade policies because there can be no denying that South Korea and Taiwan did implement a pervasive array of import barriers and export subsidies in the 1960-1980 period. Instead, the Washington Consensus framework, regards South Korea and Taiwan as practicing *de facto* free trade because it judges their complex policy apparatus to have been a wasted effort in that the individual policies ended up neutralizing each other. This Washington Consensus interpretation is thus a restatement of the well-known French expression that "the more things change, the more they remain the same"! These Confucian Orientals are either inscrutable or confused – and they are better off for it!

The Developmental State Interpretation of Industrialization in South Korea and Taiwan: Hard and Soft Versions

This conclusion of policy ineffectiveness (policy neutrality) is naturally most surprising to anyone acquainted with the extensive intervention of the South Korean and Taiwanese governments in their industrial sectors through instruments like import licenses, subsidized bank loans to exporters, access to duty-free imported inputs by exporters, domestic-bias in government procurement, and import quotas. Naturally, there have been much hooting at this policy

ineffectiveness proposition advanced by the Washington Consensus; and Amartya Sen (1981), Alice Amsden (1989) and Robert Wade (1990) are particularly articulate hoots.

In Robert Wade's (1990) brilliant account of the industrialization of Taiwan, Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization, he derisively called the Washington Consensus interpretation of East Asian success "the simulated free market (SM) theory of East Asian success[6].... [which holds that East Asian] industrial policies merely offset existing market distortions, creating overall neutrality in resource allocation[7]". He argued that a Governed Market (GM) theory of East Asian success was more plausible than either the free-market (FM)[8] theory or the simulated market (SM) theory. Given the considerable acceptance of Wade's analysis by East Asia analysts, it is useful to quote at length his differentiation of the GM theory from the FM theory and the SM theory, and his praise of non-pluralist and non-democratic regimes for their economic effectiveness:

> The FM and SM theories emphasize efficient resource allocation as the principal general force for growth, and therefore interpret superior East Asian performance as the result of more efficient resource allocation than in other LDCS or NICS .... [East Asian] countries show the virtues of "getting the prices right," where "right" means domestic prices in line with international prices. The GM theory, on the other hand, emphasizes capital accumulation as the principal general force for growth, and interprets superior East Asian performance as the result of a level and composition of investment different from what FM and SM policies would have produced .... Government policies deliberately got some prices "wrong" so as to change the signals to which decentralized market agents responded, and also used nonprice means to alter the behavior of market agents. The resulting high level of investment generated faster turnover of machinery, and hence faster transfer of newer technology into actual production. (pp. 29)
>
> The FM and SM theories are silent on the political arrangements needed to support their policies. The GM theory emphasizes the developmental virtues of a hard or soft authoritarian state in corporatist relations with the private sector, able to confer enough autonomy on a centralized bureaucracy for it to influence resource allocation in line with long-term national interest -- which sometimes conflicts with short-term profit-maximizing. The state's steering of resource allocation is the economic counterpart to its political restrictions on "free trade" in interest groups. (pp. 29)
>
> GM policies ..include: maintenance of a post-land reform ceiling on agricultural land ownership, so as to limit wealth accumulation in land and intensify agricultural productivity; control of domestic and cross boarder sources of credit, so that finance remains subordinate to industry and amenable to government

[6] Wade (1990, pp. 23)
[7] Wade (1990, pp. 297)
[8] Free market in this usage is identical *with laissez-faire*. Hong Kong is the poster boy of the FM theory (e.g. Milton and Rose Friedman, 1980); and South Korea and Taiwan are the poster boys of the SM theory.

> direction; stabilization of the main macroeconomic parameters of investment choice; modulation of international competitive pressure in parts of the domestic economy; export promotion; investment in technological capacity; and assistance to specific industries. Under all these headings the governments have gone well beyond the limits of what would be sanctioned by FM and SM approaches, or what pluralist and democratic governments practice. (pp. 297-298)
>
> Corporatist political arrangements have contributed to East Asia's fast growth both directly and indirectly. Compared to more pluralist regimes they helped to limit conflict between major economic groups and promote continuity of institutional forms, both of which help sustain high levels of investment. They also contribute to the power they give to the state to govern the market, especially by protecting the central bureaucracy from all but the most powerful interest groups. (pp. 298)

Robert Wade made the case for his GM theory based, primarily, on his examination of the emergence and fast growth of new Taiwanese industries like steel, semiconductors, and textiles. The sectoral histories of Taiwanese led him to conclude:

> that the government "led" rather than "followed" the private market agents in the heavy and chemical industries in the 1950s and 1960s .... Broadly speaking, government intervention of a leadership kind has focused on industries or projects which are capital-intensive (e.g. steel, petrochemicals), or which use technology that must be imported from a small number of potential suppliers (e.g., semiconductors), and also industries with an intimate relationship to national security (e.g., shipping) ... (pp. 303)
>
> [Many times, public enterprises] were used to undertake big pushes in important industries. They tend to be concentrated in upstream sectors, from where they can create incentives and pressures for growth in downstream industries. And they tend to be strong in industries that would otherwise be dominated by multinational corporations ... (pp. 304)

There are, however, at least two major problems with Wade's contention of above. The first is that the combined state corporate sector and state-directed enterprise sector is very small relative to the size of Taiwan's economy. The case for state-led industrialization is harder to make for Taiwan than for South Korea because the landscape Taiwan's industrial sector is dominated by privately-owned small and medium enterprises (SMEs), and the evidence are overwhelming in support of the conclusion that it was the dynamism of the SMEs that drove overall growth. There can be little dispute that these SMEs, in the main, received very little direct guidance in their investment decisions, and received even less direct financial help (e.g. special bank credit allocation) in financing their investments, if they had ever heeded the government's call to invest in particular new fields.

The second major problem with Wade's conclusion that it was the government that engineered the turning-points in Taiwan's industrial evolution is his inconsistent treatment of views from

different sources. What makes Wade's sectoral histories so appealing to read are the specific details that were gathered from what must have been painstakingly long interviews with many public officials and private entrepreneurs. The big problem that becomes clear with careful reading of the text is that Wade discounted the unambiguous assessment of the business community unjustifiably. The fact is that the business community rejects the heart of Robert Wade's thesis that the economic success of Taiwan was mainly attributable to government initiatives that overcame the fear of the private sector to tread into specific new industrial areas. Robert Wade had to admit that:

> most businesspeople would scoff at the idea that government led the market in a coherent way ... They treat agencies like the Industrial Development Bureau and CETRA [China External Trade Development Council] as a joke" (pp. 305)

Robert Wade rejected this dismissive assessment by the Taiwanese business community with the startling claim that the business community was in willful denial because of hurt feelings!

> The reason why so many Taiwan businesspeople deny that government helps business has to do with basic political facts. Most businesspeople are native Taiwanese, facing a government that they still tend to identify as mainlander-dominated and therefore different, if not still alien. And many senior industrial policy-makers have not altogether concealed their distaste for private businesspeople, in deeds if not in words. These two factors help to explain the "culture of pessimism" about the government to be found in the native Taiwanese business community. (pp. 305)

The wealness in Wade's cultural explanation is that the same logic in his argument would also conclude that public officials would naturally embrace a "culture of optimism" about their technocratic ability to steer the Taiwan economy. It is self-serving for public officials to display the Invictus Complex, which is that the public officials believe themselves be the master of Taiwan's economic fate and the captain of its economic soul.[9] There is, therefore, no basis for Robert Wade to find the official line more plausible than the disparaging observations of the foot soldiers of capitalism.

Furthermore, the alleged "culture of pessimism" that blinded the businesspeople to the government industrial policies being the true drivers of industrial growth would, most likely, also have caused the native Taiwanese business community to also deny that the industrial policies facilitated the path of industrial evolution that that it had chosen. Such is not the case, however, because the strong impression from our fieldwork in Taiwan is that most Taiwanese businesspeople would agree that the state's usual response to private sector-initiated industrial restructuring was to support it (at least, by not hindering it), e.g. re-zoning land use and

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[9] A paraphrase of the masterful passage from Invictus by William Ernest Henley:

> It matters not how strait the gate,
> How charged with punishments the scroll.
> I am the master of my fate:
> I am the captain of my soul.

http://www.poemhunter.com/poem/invictus/

expanding port facilities when production expands. In short, the public officials helped Taiwan's industrial evolution by following the lead of the private entrepreneurs, instead of the other way around.

The hardline position on industrial policy being the primary driver for industrial evolution is also brilliantly made by Alice Amsden"s (1989) Asia's Next Giant: South Korea and Late Industrialization. A priori, it should be easier to argue for the fundamentalist position on industrial policy in the South Korea case than in the Taiwan case because the Korean industrial sector was (and is) dominated by a small group of large conglomerates known as chaebols. And most serious accounts about South Korea in the 1960s and 1970s would agree that the chaebols were in bed with the authoritarian government of Major General (later, President) Park Chung Hee.

In Alice Amsden's (1989) telling, Korea was not the usual case of crony capitalism where a corrupt government and the rent-seeking capitalists formed a symbiotic relationship that was parasitically harmful to the economy at large. In the South Korea of this period, the government held the whip and the chaebols did the ploughing to open new industrial fields for cultivation and the flinging of manure -- enriched with fiscal-financial supplements with the compliments of the state -- to spots ("growth poles") selected by the government.

> In Korea, instead of the market mechanism allocating resources and guiding private entrepreneurship, the government made most of the pivotal investment decisions. Instead of firms operating in a competitive market structure, they each operated with a remarkable degree of market control, protected from foreign competition (p139)
>
> The discipline exerted by the state, and the rise of big businesses, were interactive. Big businesses consolidated its power in response to the government's performance-based incentives. In exchange for stunning performance in the areas of exports, R&D, or new product introduction, leading firms were rewarded with further licenses to expand, thus enlarging the scale of big businesses in general. In exchange for entering especially risky industries, the government rewarded entrants with other industrial licenses in more lucrative sectors, thus furthering the development of the diversified business group in particular. (pp. 14-15)
>
> Discipline [exerted by the state on the chaebols had] .. two interrelated dimensions (a) penalizing poor performers; and (b) rewarding only the good ones ... [And there is considerable hard] evidence of the government's cold-bloodedness towards poorly managed firms in distress in a variety of otherwise prosperous industries ... (p15)

This perceived ability and willingness of the state to punish state-subsidized chaebols that turned out to be poor performers is congruent with Alice Amsden's high regard for Korean technocratic capability. Examples of the adroitness of the technocrats in dealing with many of the negative consequences created by their program to create large private conglomerates are (1) the annually

negotiated price controls to limit the monopoly power of "market-dominating enterprises" (p.18); and (2) the controls on capital outflow to prevent the chaebols from using "public subsidies to build personal fortune abroad" (p. 18).

As one gets deeper into the book, one realizes that Alice Amsden was almost always seeing only the positive aspects of whatever intervention that the South Korean government had undertaken. For example, when the government helped the chaebols by:

1. channeling bank credit to them at subsidized interests, Amsden's alleged positive outcome was that the government's control of the purse "helped orient the chaebols toward accumulating capital rather than toward seeking rents" (p. 17); and
2. limiting the number of firms that could enter new industries; Amsden's alleged positive outcome was that this "ensured the realization of scale economies" (p. 17).

Alice Amsden is so firm in her belief that this type of government-chaebol nexus is synergistic for the economy that she stated without qualifications that financial indicators need not matter very much when evaluating the degree of discipline that the state exerted in a chaebol, and when evaluating performance of a chaebol!

> Of greater importance to the credibility of the disciplinary process in Korea than punishing poor performers, however, has been insuring that the government's friends -- most of whom have undoubtedly been bailed out on at least one occasion -- have generally performed well. This dimension of discipline has been critical because so much of Korean industrialization has involved rewarding the same small group of government friends with favors of expansion ... Good performance is evaluated in terms of production and operations management rather than financial indicators ... The sternest discipline imposed by the Korean government on virtually all large size firms -- no matter how politically well connected -- related to export targets. There was constant pressure from government bureaucrats on corporate leaders to sell more abroad ..." (p.15-16, emphasis added)

The above encomium of bailing out crony capitalists and putting export performance above profitability is surrealistically Panglossian. It is hard to believe that the Korean Ministry of Finance had actually adopted the above criteria in monitoring its fiscal and financial programs to support chaebol investment; and if it did, it would be hard to expect much good from this kind of discipline. How could a chaebol be called successful when its survival was the result of the state having to bail it out at least once? Since the friends of the government were the ones that were bailed out, it seems that causality goes from "being a friend of the government" to "being successfully economically" rather than the other way around. Moreover, Amden's praise for the bailout of friends directly contradicts the impression given in an earlier paragraph that the authoritarian government punished poor-performing chaebols without fear and favor.

Finally, why should export growth (which could be increased with additional export subsidies) be a better of performance than financial indicators like profit? A profit-maximizing firm could increase exports when it receives resources from outside the firm to subsidize exports, but how could it be sustainable for an entire economy to boost exports this way?

The fact is that many of the interventions by Korea had been tried in other countries before, and the result has generally been financial disasters. While it is valuable to learn about the process by which South Korea emerged to become the world's biggest shipbuilder and to become one of the world's biggest steel maker, it would have been equally valuable to know why Malaysia[10], along with Singapore, had failed in both of these sectors. Just like Robert Wade, Alice Amsden saw political authoritarianism as an advantageous political arrangement for objective project evaluation and successful policy implementation. However, since both Lee Kuan Yew of Singapore and Mahathir bin Mohamad of Malaysia were also authoritarian rulers, what were the factors that have made South Korea exceptional? And can these factors be created in other countries? Until the last question can be answered positively in a convincing way, the hope that fundamentalist industrial policies could also work in other countries remains only a hope, and, possibly, an unrealistic one.

Despite the reservations expressed above about Alice Amsden's and Robert Wade's hardline position on industrial policy, there cannot be any doubt that they have shown convincingly that there were key industries in South Korea and Taiwan that owed their fast rise to world-class status to the infant industry policies of their governments.

The brief for soft industrial policy is usually considerably easier to make because the usual proponent is one who accepts neoclassical economics but laces it with a list of exceptions created by market failures of different sorts. For example, Colin Bradford (1987) advocated the "underpricing of investment goods vis-a-vis consumption and government goods .. [through] monetary policies or direct fiscal subsidies ... [because] underpricing of investment goods in dynamic economies is relatively greater than in less dynamic economies."

In a similar vein of exceptionalism to standard neoclassical theory, Howard Pack and Larry Westphal (1986) wrote:

> .. market forces alone are not responsible for the purported 'market successes' of economies like Japan and Korea ... a neutral policy regime may not generally be a sufficient condition for rapid industrialization (pp. 90)
>
> Our argument [that industrial strategy is a matter of managing technological change to achieve dynamically efficient industrialization] .. are premised on .. three central hypotheses: first, industrial products and the elements of technology are only imperfectly tradable ... Second, the acquisition of technological capability happens neither automatically nor costlessly. Third, the organization of economic activity, the extent of markets, and the nature of relative prices for industrial products and the elements of technology evolve together, undergoing major changes as industrialization proceeds. (pp. 125-126)

[10] Malaysia explicitly adopted the Japanese-Korean economic policy framework (the "Look East" policy stance) during the Mahathir bin Mohamad years of 1981-2003.

Challenging the Neutral Policy Interpretation of Industrialization in South Korea and Taiwan on Its Own Data

The uncomfortable fact about the Washington Consensus claim of neutral policy regimes in Taiwan and Korea during their industrialization is that it makes the economic officials there into clowns whose active efforts in different spheres ended up in the neutralization of all individual policies. This complete offset scenario is just too surrealistically coincidental to be truly believable.

On the other hand, the Developmental State claim that Taiwan's superior economic performance was driven by superior technocratic skills is, however, roundly rejected by Taiwan's business community. The similar claim about superior technocratic skill being responsible for pushing Korea into first-world status is weakened by repeated instances of crony capitalism (bailing out chaebols which are friends of the government, and letting others sink) and by the extreme vulnerability of the Korean economy to external financial crises in 1981, 1997 and 2008. The selective case studies offered by Robert Wade and Alice Amsden are not a methodology that can distinguish definitively between whether the impressive growth in both economies was:

- due mainly to the state pushing the timorous private conglomerates into new industrial activities by guaranteeing their profits; or
- due mainly to domestic private firms breaking into new business opportunities (i.e. making "green field" investments) in response to the potential profits generated by the working of the international product cycle, with the state usually responding within a short time fashion to service the infrastructural needs of expanded production.

We have the situation akin to the three blind men describing an elephant because the empirical record reveals few black and white truths, even from the LSS-NBER-BB data. The empirical record actually yields truths with shades of grey, with the tint of the shade depending on the incentive proxy used. Table 2 makes this point very clearly with the data presented in Balassa (1982). The empirical proof presented in Table 1 measured the proxies for the incentive to sell in the export market and in the domestic market by averaging over all manufactured goods, lumping exportables and importables together, but the theory that is being tested is stated in terms of exportables versus importables. So if the cross-region difference seen in Table 1 is not seen in the less aggregated data, the LSS-NBER-BB conclusions could well suffer from the fallacy of composition.

Bela Balassa (1982) classified 3 types of industries:

1. export industries are those with exports accounting for more than 10% of production and with imports accounting for less than 10% of consumption. We call their products extreme exportables;
2. export- and import-competing industries are those with exports accounting for more than 10% of production and with imports accounting for more than 10% of consumption; We call their products switchable exportable-importable; and
3. import-competing industries are those with exports accounting for less than 10% of production and with imports accounting for more than 10% of consumption. We call their products extreme importables

Table 2 reports the s and t for different manufacturing industries. Line a reports the s for the export industries and the t for the import competing industries; and line b reports the s and t for the export- and import-competing industries.

The ranking of (t-s) in line a -- from small to big in percentage points -- is Singapore (0), Colombia (36), Taiwan (42), Israel (47), South Korea (84), and Argentina (164). The ranking of (1+t)/(1+s) in line a is Singapore (1.00), Colombia (1.30), Taiwan (1.35), Israel (1.36), Korea (1.72), and Argentina (2.89). Since by both measures, Colombia is significantly more outward-oriented than Korea, and slightly more outward oriented than Taiwan, it is hard to say East Asia is generally more outward-looking than Latin America.

However, one could dismiss these values of s and t in line a as bad indicators of the effects of a trade regime with many values for t and s because the producers of the extreme exportables would switch to producing extreme importables (or vice-versa) only for a very high tariff rate, t, on extreme importables (for a very high export subsidy rate, s, on extreme importables). So the relevant test of the LSS-NBER-BB conclusions should focus on the cases where manufacturers are most sensitive to changes in the relative prices of exportables and importables and would switch production from one to the other for small changes in relative prices.

Line b reports the s and t of the export-competing and import-competing industries. The ranking of (t-s) is Taiwan (4), Singapore (7), Colombia (13), Korea (46), Israel (65) and Argentina (164); and the ranking of (1+t)/(1+s) is Taiwan (1.03), Singapore (1.07), Colombia (1.12), South Korea (1.42), Israel (1.45) and Argentina (3.93). Taiwan and Singapore are more outward-looking than Colombia, which in turn, is more outward-looking than Korea. So there is weak evidence in the proxies used in line b that East Asia is more outward-looking than Latin America. South Korean manufacturing is the least outward-looking of the 3 East Asia economies.

Comparing the statistical patterns in Tables 1 and 2, we see that the LSS-NBER-BB-World Bank assertion that Singapore, South Korea and Taiwan have neutral incentive trade regimes (when contrasted with Latin America) is supported only when the proxies for import tariff and export subsidy are computed at a highly-aggregative level. When t and s are computed at lower levels of industrial aggregation, only Singapore could really be said to have neutral incentives. The weight of the evidence for the neutral incentive hypothesis is moderate for Taiwan (since Colombia is more outward oriented in line a in Table 2); and is weak for South Korea (since Colombia is more outward-oriented in line a and line b in Table 2). In short, the less aggregative data give some support Robert Wade's conclusions about Taiwan, and strong support to Alice Amsden's conclusions about South Korea.

Challenging the Neutral Policy Interpretation of Industrialization in South Korea and Taiwan on Its Own Theoretical Framework

Given that there are great merits and grave inadequacies in both the arguments of the Washington Consensus proponents and the Development State proponents, and that the data patterns across regions depend on the level of aggregation, it is easy to understand why scholars

are divided in their support of the two schools of thought. Robert Wade conceded quite readily that the FM, SM and GM theories can all explain the major patterns in the data.

> The debate about the role of the state in economic development demonstrates the power of infinite repetition as a weapon of modern scholarship .... [Neither the neoclassical proponents nor the industrial policy proponents have] been noticeably enthusiastic to specify just what evidence would be consistent with its position and what would not. Both have exercised a selective inattention to data that would upset their way of looking at things. So the debate about the role of the state is less a debate than a case of paradigms ("parrot-times") talking past each other. (Wade, 1990, pp. 345)

There has been no knock-out blow in the debate on industrial policy because (a) the main protagonists have not caught logical contradictions within the theoretical framework of the other side; and (b) each side could credibly accuse the other as guilty of data-mining.

The truth is that there is a logical contradiction between the LSS-NBER-BB conclusions and the more generalised LSS-NBER-BB framework, and this was pointed out by Wing Thye Woo (1990). The 1980s Washington Consensus view is based upon an incorrect reading of the evidence presented in the various multi-country studies on the effects of the trade regime choice because an economy produces nontradeable goods as well as the tradeable goods of importables and exportables. This means that a rise in the tariff rate will not just mean the production of more importables at the expense of exportables, it will also mean a decline in the amount of nontradeables produced. Since changes in the tariff rates and subsidy rates will affect the production of nontradeables, this means that the allocation effects of the case where $t = s > 0$ (the outward-oriented trade regime case) will be different from the case where $t = s = 0$ (the free trade case). In short, it was wrong for Deepak Lal (1985) to equate the outward-oriented trade regime with free trade, and it was also wrong for the World Bank to call it "neutral incentive policy."

The preceding discussion can be formalised as follows, by first introducing the following notations:

P_T = domestic price of tradables in Yuen

P_N = domestic price of non-tradables in Yuen

PW_T = world price of tradables in Dollar

and then making the following definitions in equations (10) and (11):

$$P_T = aP_I + (1\text{-}a)P_X \quad \text{where} \quad 0 < a < 1 \tag{10}$$

$$PW_T = aPW_I + (1\text{-}a)PW_X \tag{11}$$

Using equations (3) and (4), we can rewrite equation (10) in the form of equation (12):

$$P_T = e\,[\, aPW_I(1+t) + (1-a)PW_X(1+s)\,] \qquad (12)$$

For the special case when $s = t > 0$ as in the outward-oriented trade regime (OOTR), equation (12) reduces to equation (13):

$$P_T = e\,(1+t)PW_T \quad \text{under OOTR} \qquad (13)$$

When we compare the ratio of price of tradeables to the price of nontradeables under OOTR and with the ratio of these prices under free trade, we find that the former is larger than the latter, as given in equation (14):

$$(P_T/P_N)\ \text{under OOTR} = [\{e(1+t)(PW_T)\} / P_N] > [\{e\,PW_T\} / P_N] = (P_T/P_N)\ \text{under free trade} \qquad (14)$$

The conclusion from equation (14) is that the OOTR increases the production of tradeables at the expense of nontradeables. It means that the alleged salubrious growth effects of the OOTR comes not from the effects of the import tariffs and export subsidies serendipitously canceling each other out (hence producing a free trade outcome) but from the diminution of the nontradeable sector. It is therefore wrong, as have been frequently done, to use the empirical studies of Little et. al., Bhagwati, Krueger and Balassa to justify market fundamentalism.

The interesting question is why has the OOTR been good for growth? Because the largest component of nontradeable activities in many developing economies is subsistence agriculture, OOTR by increasing the profitability of the manufacturing sector accelerates the industrialization process and hence quickens the absorption of surplus agricultural labour. Another possible growth mechanism is that by making activities in the tradeable industries more financially rewarding, it focuses the minds of the entrepreneurs to participate more actively in the international product cycle, resulting in faster diffusion of foreign technology to these developing countries. In short, the Woo (1990) hypothesis is that the speed of economic growth of a developing economy is increased by an expansion in the size of the tradeable sector.

We want to point out that equation (14) provides a very important link between macroeconomic managements and microeconomic deregulation. Equation (14) tells us that when s and t are raised by the same amount, (P_T/P_N) would rise and promote the production of tradeables. It also tells us that, for a small open economy with a fixed exchange rate (e is fixed), domestic inflation would manifest itself entirely in P_N rising, which lowers (P_T/P_N) and discourages the production of tradeables. The important point is that an outward-oriented strategy implemented through the microeconomic policies of tariff and export subsidies could be neutralised if not reversed by inflationary macroeconomic policies in a fixed nominal exchange rate setting.

Similarly, if a country devalues its currency (increases the value of e), (P_T/P_N) will go up and induce an expansion of the tradeable sector. As the GDP growth rate of a developing country is positively related to the size of the tradeable sector, this means that currency undervaluation is likely to be salubrious for growth.

In a careful case study of Korea, Taiwan, Argentina, Brazil and Chile, Ching-yuan Lin (1989) concluded that subsequent inflation in Latin America had nearly always offset the liberalization measures undertaken during each crisis. He also found that the typical response of Latin American countries to an inflation-induced deterioration in their balance of payments was to protect the import-substituting industries even more. The result of Latin American import-substituting industrialization policies interacting with inflation policies was this the steady escalation of ERP in the tradeable sector.

Lin (1989) found a different style of macroeconomic management in East Asia. Taiwan kept inflation flow in order to keep (P_T/P_N) stable, and Korea devalued its nominal exchange rate occasionally to keep (P_T/P_N) constant. It is, in fact, likely that competitive exchange rate management by East Asia might have been more important to promoting the production of tradeables (hence, growth) than the use of export subsidies to offset import tariffs.[11]

To sum up *a la* Woo (1989), the correct interpretation of the LSS-NBER-BB empirical findings is that "getting prices right" consists of providing uniform positive trade-based incentives to encourage production of tradeables plus preventing overvaluation of the exchange rate, i.e.

$$\text{getting prices right} = \{ \text{set } s = t > 0 \} + \{ \text{a non-overvalued } e \} \qquad (15)$$

The Temporary Triumph of the Washington Consensus, and the Simultaneous Discrediting of the Two Schools of Thought

By the early 1980s, the LSS-NBER-BB free-market view of economic management had triumphed over the industrial policy view in most Latin American countries. Aggressive economic deregulation was undertaken many times by economic technocrats from North American universities, e.g. Chile had the "Chicago boys". The results were unfortunately not great. The removal of interest rate ceilings and entry barriers into the banking system turned out to be very costly in many countries. The explosion in the number of banks and the total loan value often fueled excessive speculation and created large amounts of nonperforming loans, developments that bankrupted the banking system. In almost every case, the government stepped in to refund the depositors in order to prevent a meltdown of the economy, of social order, and of its political status.[12] Equally egregiously, the privatisation of state assets many times meant sales at heavily discounted prices to political cronies of the ruling party, and the replacement of public monopolies by private monopolies. Basically, in some countries, the

[11] Another study that found empirical support for the Woo (1990) hypothesis of a positive link between GDP growth and the size of the tradeable sector is Dani Rodrik (2008). The problem with this Rodrik study is his proxy for "undervaluation". His measure for the equilibrium exchange rate is not identical to the only meaningful definition of it, which is the exchange rate generated when there are no interventions in the foreign exchange markets by any central bank. The equilibrium exchange rate is the market-clearing exchange rate, which is the value of the exchange rate that is consistent with the zero balance of payments position without central bank intervention.

[12] This financial explosion ignited by neoclassical economists has been immortalised in the playful title of Carlos Diaz-Alejandro's (1985) article "Good-bye financial repression, hello financial crash".

Washington Consensus was used to camouflage the looting of the state, and the embezzlement of the general public.

Another fatal blow to the Washington Consensus school of thought came when the much-lauded East Asian economies went into an unexpected collective collapse in 1997-1998, an event now called the Asian Financial Crisis. Because the intellectual prestige of the Developmental State school rested on its state-centered economic management recipes, the Developmental State school of thought also because a casualty of the Asian Financial Crisis.

The Marriage of Washington Consensus and Development State Produced Institution Fundamentalism (aka Washington Consensus Mark 2)

Crony capitalism has been identified by both the Washington Consensus school and the Developmental Sate school to have been the primary cause of the Asian Financial Crisis. In particular, the lack of arm-length transactions between the Asian banks and their biggest shareholders and borrowers (a situation enabled by the patronage practices of the political systems in these countries) resulted in irrationally large amounts of investments directed to high-risk projects, prestige projects, and projects kept viable by regulations. The meltdown of the Asian Financial Crisis came when investors fled into foreign assets upon recognition that the contingent losses had exceeded the fiscal ability and political willingness of the state to bail out these projects. The claim, in short, was that the absence of market infrastructural institutions (e.g. an honest, capable state financial supervisory body) had caused the East Asian economies to implode in the same way that the Soviet Union earlier.

The intellectual respectability of this new policy wisdom has been vouched for by Dani Rodrik, a supporter of the Developmental State interpretation. Rodrik and his co-authors have produced empirical evidence to show that only institutions mattered for economic growth ("the quality of institutions 'trumps' everything else"); not trade regime, and not geography.[13] This unearthing of the one variable that explains all that is about growth is certainly startling, especially since Dani Rodrik had always been on the forefront of reminding the development economics profession about how very much more remains to be understood, and how complex the world really is.

John Williamson, the primogenitor of the Washington Consensus, has also modified his doctrine to reflect this intellectual convergence in the discipline of development economics:

> I have a somewhat different view [from my critics e.g. Joseph Stiglitz] of what should be added to the Washington Consensus to make it a policy manifesto supportive of egalitarian, environmentally sensitive development ..... [My] emphasis would have been different; I would have focused much more generally on institutions .... The major advance of the 1990s stemmed from recognition that the central task of the transition from communism to market-based economies involved building the institutional infrastructure of a market economy. This

[13] Rodrik, Subramaniam and Trebbi (2002) wrote: ""We estimate the respective contributions of institutions, geography, and trade in determining income levels around the world .... Our results indicate that the quality of institutions 'trumps' everything else."

realization was complemented by a growing recognition that bad institutions can sabotage good policies." (Williamson, 2000, pp. 260-261)

This convergence in view between the two schools has produced a body of thought that could be called Institution Fundamentalism. Because "get the institutions right" is now the new mantra of the Washington-based World Bank and International Monetary Fund, another appropriate name for Institution Fundamentalism is Washington Consensus Mark 2. What is most startling about Institution Fundamentalism, but which has received surprisingly little attention, is that it has now reversed the role of the government. The 1980s Washington Consensus framework (aka Washington Consensus Mark 1) had concentrated on jettisoning the government out of economic life, but Institution Fundamentalism (aka Washington Consensus Mark 2) now brings it back to the center stage to be the director of the economic orchestra, providing and maintaining the institutional infrastructure that enables a private market economy to operate effectively.

A Critique of the Logical and Empirical Foundations of Institution Fundamentalism

We think that it is reasonable to start with the premise that economic growth is difficult to understand. If this were not the case, the whole world would be rich already. One enduring lesson that painful experience has taught scholars of economic growth is that the dazzlingly bright idea of the moment about what specific factor really causes economic growth will inevitably turn out to be just another blinding insight, where the cleverness of the idea blinds us temporarily to the partial nature of the correctness of the explanation—it being applicable only to a small sub-sample of countries, and then only for a limited sub-period in their history. The one thing about economic growth that we can be reasonably sure about, despite our admittedly incomplete understanding of the phenomenon, is that no single variable, or two—or even three—variables, can constitute an adequate explanation. The most optimistic and kind remark that one can make about any big idea currently in vogue is that it deserves incorporation into the melting pot of ideas.

Assuming that we know at least four of the variables that influence economic growth, then one simple characterization of economic growth could be equation (16):

$$y = \alpha_1 x_1 + \alpha_2 x_2 + \alpha_3 x_3 + \alpha_4 x_4 + \varepsilon \qquad (16)$$

where y = trend growth rate of output; x_i = factor i; α_i = (relative) impact that factor i exerts on the growth rate; and ε = residual factors (a measure of our ignorance).

However, because many examples suggest that economic growth could be a more complex process than the simple weighted sum of each individual factor, economic growth could well be a non-linear function of the four variables, as given, for example, by the sum of three composite terms in equation (17):

$$y = \left[\sum_{i=1}^{4} \alpha_i x_i\right] + \left[x_4 \sum_{i=1}^{3} \beta_i x_i\right] + \gamma\left[x_1 x_2 x_3 x_4\right] + \varepsilon \qquad (17)$$

where β_i and γ are technical coefficients, and ε is the new measure of our ignorance.

Specification (17) is interesting because it allows large output changes to occur for a tiny change in any one of the x_i; it also imposes prerequisites in order for a high growth rate to occur. The second and third composite terms become influential only when x_4 switches from zero to a positive value; a real world equivalent of x_4 could, for example, be "law and order." The third composite term has no influence on growth when any one of the x_i is zero, denying economic growth the "synergy effects" from virtuous circle type of interactions.

In a context where many (say, n) variables determine the growth rate, one way that any single variable can be said to 'trump' all other variables is when the growth specification is of the form in equation (18):

$$y = x_{institution}\left[\sum_{i=1}^{n} b_i x_i\right] + \varepsilon \qquad (18)$$

As long as $x_{institution}$ is zero, y will always be zero regardless of the values of any of the x_i. On *a priori* grounds, we reject equation (10) as lacking in intuitive appeal. On *a posteriori* grounds, we reject equation (10) on our past dismal experiences with single-variable explanations of growth, e.g. we have now gotten over the confusion that Confucian values constituted the cause of higher growth in East Asia vis-a-vis Latin America, and that class struggle is the only driver of history. In any case, it is certainly too early and imprudent to allow the single study by Rodrik, Subramaniam and Trebbi (2002) to resolve this single-variable issue.

How about the "inadequate institutions (soft rot)" explanation for the Asian Financial Crisis? Well, there is an alternative to it: the financial contagion (speculative mania) explanation. The claim of this alternative explanation is that just as external creditors had been excessively optimistic about economic prospects earlier in 1994-1996,[14] they became overly pessimistic at the end of 1997. If irrational exuberance exists as warned by Alan Greenspan, then irrational melancholia must also occur occasionally.

The simultaneous nature and the regional nature of the financial crisis suggest that weak internal economic fundamentals cannot be the only significant explanation of the crisis. It is hard to believe that the soft rot in the different countries would coincidentally cause these neighbouring economies to collapse within a few months of each other. Such coincidence would be as plausible as the facetious suggestion that the warranties for Asian capitalism had simultaneously expired in mid-1997. We think that it is more reasonable to conclude that while soft rot existed

[14] The facts are that foreign capital inflows into these four countries had been increasing every year since 1991, and heavy capital outflows from Indonesia, Malaysia and Korea started only in the last quarter of 1997. The outflow was so large in the last quarter that the net inflow for the whole year was negative. The reversal in capital flows between 1996 and 1997 amounted to about 10 percent of their pre-crisis GDP.

in different degrees in all Asian countries, it was a financial contagion that brought about the crisis.[15]

Enough time has passed that we can now say with greater certainty that financial panic is a better explanation for the Asian financial crisis than the soft rot explanation. This is because if the crises were caused by soft rot, then economic rebound would occur only after fundamental economic restructuring has been largely accomplished. In short, the soft rot explanation would necessitate a U-shape movement in GDP. On the other hand, if financial contagion were the primary reason for the economic collapse in these countries, then their output would rebound right after the panic is over. This has been the experience of Argentina in 1995, Mexico in 1995, and Turkey in 1994 when they experienced financial panics. The financial contagion explanation would predict a V-shape in GDP movement, and this is exactly what happened in Korea, Malaysia, and Thailand in 1999-2000.[16]

We have examined the flawed institutions explanation for the output losses in the Asian Financial Crisis, and we have found a more convincing alternative explanation. This implausibility of Institution Fundamentalism at the intuitive *a priori* level, and as the explanation for the Asian crises of the 1990s leads us to conclude that the complexity of the world cannot be usefully understood by constantly searching for the single truth that would set us free in a richer, fairer and greener world.

Beyond Institution Fundamentalism

It is a rather big mystery that economists have generally not paid much attention to the role of geography in economic development even when, on a global scale, the wealth of nations is well characterized by two geographical divides. The first geographical divide emphasizes differences in ecological conditions: the temperate zone versus the tropical zone. The second geographical divide emphasizes differences in the ability to conduct international trade: the coast versus the interior.

The empirical validity of the temperate–tropical divide is supported by the fact that over 90 percent of the world's poor lives between the Tropic of Cancer and the Tropic of Capricorn. The result is a GDP per capita (PPP-adjusted) of $3,326 in 1995 for tropical economies, and $9,027 for nontropical economies. This strong correlation between ecological zone and income level is not a new observation in economics, e.g. Lee (1957) and Kamarck (1976), but it has not been a major analytical organizing principle in development economics.

The coast–interior dichotomy highlights the importance of transportation costs in determining a country's participation in the international division of labor. In the industrial age, water transportation has the lowest cost for moving goods over extended distance. The growth effects

[15] The existence of speculative mania does not mean the violation of the rational expectations assumption (that agents exploit their information sets optimally and know the economic structure). Woo (1987) gives evidence of rational speculative bubbles in foreign exchange markets.
[16] See Woo (20000), Woo, Carleton and Rosario (2000), and Woo, Sachs and Schwab (2000) for details on the Asian financial crisis.

of trade are well known, beginning with Adam Smith's observation that productivity improvements are enabled by the greater division of labor that, in turn, is enabled by the expansion of the market. The clear policy lesson here is that investments in physical infrastructure and transportation technology can change the comparative advantage of a region.

The above configuration of spatial inequality suggests to us the possibility that both of these geographical divides are a combination of independent causes of economic wealth and of proxies for some important determinants of economic prosperity. For example, there could be a "biological" dimension to the growth phenomenon as proposed by natural scientists. In the book, Guns, Germs and Steel, the physiologist Jared Diamond (1997) has demonstrated that many types of innovation (especially those in agriculture and construction) are not transferable across ecological zones. So, in ancient times, while improved varieties of crops and beasts of burden could spread from northern Asia in the East to Europe in the West (and vice versa), they could not be transmitted from the temperate zone in North America to the temperate zone in South America because of the intervening tropics. Biological endowments also matter. Most areas of Asia and Europe have more naturally pliable livestock (horses and cows) that can be harnessed to help in war and production. The African-equivalent of those animals, for example, zebras, hippopotamuses, antelopes, and wildebeests, have proved themselves, up to today, resistant to efforts to turn them into beasts of burden. Even the African elephant is temperamentally uncooperative compared to its Asian cousin.

Some economists, Landes (1998), Engerman and Sokoloff (1997), and Gallup, Sachs, and Mellinger (1999), have begun to incorporate the new insights on physical geography to explore whether physical geography was an overarching explanation of economic performance. For example, Bloom and Sachs (1998) presented rigorous statistical testing to conclude that the virulence of diseases and the limited potential for large gains in agricultural productivity in the tropics to be the key obstacles to economic development in most areas of Africa.[17]

This biology-based analysis is of course not the only recent attempt to explain the upward income gradient that begins at the equator. Institutional mania has struck here as well. Hall and Jones (1999) have suggested instead that the distance from the equator proxies for the relative penetration of European economic institutions and that European-style economic institutions are the ultimate engines of growth.[18]

How plausible is the explanation of the institutional fundamentalists? Well, if they are right, then it is quite inscrutable that Japan is considerably richer than Nigeria and Mexico. Japan is further away from Europe and North America than Nigeria is from Europe, and, furthermore, Nigeria, being a former British colony, had direct transfer of institutions from Britain. Mexico is

[17] It is therefore noteworthy that the southern border of China extends only a few miles beyond the Tropic of Cancer. Is it more than coincidental that after one thousand years, 800 B.C. to 200 A.D., of aggressive southward expansion from the Yellow River valley, the Chinese southern border has not changed for about one thousand eight hundred years? The borders stooped at approximately where the tropical zone, i.e. the malaria zone begins.

[18] For more details of the lively debate on the role of geography and institutions in economic development, see Acemoglu, Robinson and Simon (2001 and 2002) and Sachs (2003).

right next to the United States, and it had also undergone a total transformation to European institutions three centuries before the 1868 Meiji Restoration in Japan.

There is clearly no shortage of explanations for spatial income disparity and its durability. The great surfeit of views is suggestive of inadequate understanding about this phenomenon and of confusion about what to do about it. What is clear, however, is that the successful development strategies of some countries cannot produce the same salubrious results when implemented in other national settings. When China opened some coastal pockets for foreign direct investment, these Special Economic Zones (SEZs) quickly blossomed into vibrant export platforms and created backward linkages with the immediate hinterland. When landlocked Mongolia turned the entire country into a free trade and investment zone in the late 1990s, however, the inflow of foreign capital was a mere trickle compared to China's experience. The specific lesson in this case is that the time-tested effective growth policy package for a coastal economy, and minor modifications of it, are unlikely to work for an interior economy.

Hereby, we see another fundamental flaw in the Institution Fundamentalism touted by the international financial and development institutions. Their development paradigm is most effective for small economies like Hong Kong and Singapore and for mid-sized economies like Korea, Malaysia, and Taiwan which (with easy access to shipping) can participate fully in the international division of labor, and which had earlier accumulated relatively high level of human capital stocks (measured in education and health terms). When we review, in the context of Swiss economic history, the largely dismal growth performance of landlocked Bolivia, Burundi, Laos, Mongolia, Nepal, Rwanda, and Zambia, it appears that their fates are very much dependent on the growth rates and prosperity levels of their surrounding neighbors. But then these countries are all surrounded by other poor countries. In the absence of high demand by the neighbors for their products, we think that dealing successfully with the developmental changes arising from physical isolation and local disease vectors are just as important as "getting the prices right" and "getting the institutions right."

However, it is also clear from history that geography need not be destiny. Our guarded optimism is based on the fact that every geographically large country in the world has enduring pockets of regional poverty, e.g. Northern Shaanxi in China, Chiapas in Mexico, Madura in Indonesia, but the United States has been successful in reducing this problem. Despite the great geographical diversity of the United States, the per capita income in different states have actually been converging to a common income level; or, in technical parlance, there is unconditional convergence of income within the United States. Even more optimistically for the developing world, the process of unconditional convergence of income has also been verified for western Europe.

Our optimism however is tempered by the knowledge that the process of absolute convergence of income is not operating within China. Most studies on China's regional growth have found the existence of conditional convergence instead, which is that China could be described as a collection of regions each with a different long-run equilibrium income level, and provinces within each region are converging to it's own region-specific equilibrium income level. There are, however, also studies, e.g. Démurger, Sachs, Woo, Bao, Chang, and Mellinger (2002), that

found no reliable evidence of any kind of income convergence, whether unconditional or conditional.

There was nothing automatic about the catching up phenomenon in the United States, it occurred because of the massive state investments in the poor regions e.g. rural electrification, an extensive national transportation system, large-scale water works projects implemented through the Army Corp of Engineers, the widespread land grant university system at the state level. The establishment of land grant universities in the poorer states was particularly important because it not only increased human capital formation but also mobilised science to overcome the ecology-specific barriers to higher productivity yield in agriculture and to better health within the local populations.

This comparative regional development experience in the United States and China reveals one fundamental flaw in the development prescriptions of Institution Fundamentalism, the non-recognition of the poverty trap phenomenon.[19] Both Washington Consensus Mark 1 and the Developmental State school believe mostly in self-help, it has no mention of foreign aid at all. To see why this position is wrong, we ask: why hasn't China already undertaken the same large-scale regional investments that the U.S. did in the early parts of the 20th century? The answer is straightforward: China has not been able to afford to make these investments until recently. China had to wait until the economic deregulation, and the resulting integration of the coastal provinces into the international division of labor had created so much new wealth (not at the expense of the inland provinces) that it finally had the fiscal ability do so. China is solving its regional poverty through self-help only in the sense that the richer provinces are subsidising the poorer ones (just like what the U.S did in the past), it is not relying on each province to pull itself up by its own bootstrap solely through the tonic mix of right prices and right institutions.

If we now consider an extremely destitute medium-size country that has no vibrant income growth in any of its provinces, the scope for cross-region subsidies is non-existent. It is therefore conceivable that some desperately poor countries are caught in poverty traps that they cannot escape from because they are too poor to make the critical amount of investments that will free them from the interlocking vicious cycles of illiteracy and poverty, and of disease and poverty.[20] Unless the rich nations are willing to live up to their moral obligations and grant sustained aid to stop the vicious cycle in these penurious societies, these societies will remain mired in misery.

We suspect that many sub-Saharan countries, especially the landlocked ones like Malawi, Burkina Faso, and Zambia, are caught in the bind of poverty traps. Good internal governance (with both prices and institutions being right) alone will not generate a satisfactory rate of sustained growth, it has to be supplemented by adequate external aid in order for faster growth to

[19] Evidence for the existence of poverty trap are presented in Sachs et al (2004)

[20] One side of the disease-poverty circle is that people fall sick, incur expenses that thrust them into debt, possibly lose their jobs because of sickness-induced low performance or absenteeism, and finally sink into poverty. The other side is that poor people cannot afford the required medical care and preventive screening, and fall sick more frequently (and, possibly also become sick more seriously) compared to the non-poor. The illiteracy-poverty vicious cycle can operate across generations rather as well as within a generation. The extremely poor cannot afford to educate their children, and in the absence of work skills these children obtain only the lowest -paying jobs or become subsistence farmers.

happen. The self-help logo of Institution Fundamentalism, when used indiscriminately, can serve as a cover for moral callousness.

In conclusion, it needs to be re-emphasized that the causes of underdevelopment are many. The realities are that countries differ in structure and in the international economic constraints they face; many combinations of different shocks produce similar readings on a number of economic indicators; and country characteristics and the international situation could change abruptly. The frequent focus on the role of poor governance and inappropriate economic institutions (e.g. over-regulation, ignorance and corruption) is correct but not sufficient. Démurger, Sachs, Woo, Bao, Chang, and Mellinger (2002), for example, have found that geographical factors have been quantitatively just as important as deregulation policies in the growth of the coastal provinces of China, and Bloom and Sachs (1998) have found poor health conditions to be absolute barriers to African development. Physical capital formation to overcome geographical and health barriers is, however, unlikely to be the final nail into the coffin in which poverty would be laid to rest.

For many of the least developed economies, where agricultural would continue to be the mainstay of their economies, employing the bulk of the population, the developed countries should focus a large part of their increased aid to raise agricultural productivity and demand for the agricultural output through the application of science, establishing regional agriculture research centers for each of the distinct ecosystems in the least developed countries (e.g. tropical monsoon region of East Asia, high plateau area of Latin America, and tropical grassland territory of Africa) to:

- conduct research on new seed varieties (including agro biotechnology), new approaches to water and environmental management, and new approaches to agricultural mechanization.
- improve the local livestock through cross-breeding, and through better access to veterinarian services.
- enhance agriculture extension services to assist farmers in adopting new technologies.
- develop new processed food products (e.g. new fruit drinks, new vegetable stuffing) from the agricultural products of these least developed countries.

A key component of a science-led growth strategy for the developing countries is the mobilisation of their universities to be drivers of growth. The donor community should expand and upgrade these universities, especially their agricultural, scientific and technical departments. The universities should adopt incentive schemes to promote university-business partnerships that improve production techniques, and develop new products, especially those that are based on the regional resource base. The universities in the poorest nations must of course give high priority to agricultural development by working collaboratively with the new regional agricultural research centers to effect technology transfers to farmers.

In short, we must now add the principle of "getting the science right" to our list of operational principles of "getting the prices right, interpreted as $t = s > 0$ plus no overvaluation of the currency" and "getting the institutions right". Our prediction is that we will be adding many

more principles to our recipe book for growth as we understand more about the development process in different growth stages and in different time periods.[21]

Final Remarks

To return, to the issue of industrial policy, the dispute is not whether there were any industries that were created by the industrial policies but whether most of the key turning points in their industrial evolution could be classified as:

- private sector successes only because the government performed the required obstetric-equivalent of life-saving Caesarean operations to overcome the market barriers to their births; or
- private sector initiatives with the state performing the usual midwife functions in standard uncomplicated births.

The reality is that both types of business emergence were present in both countries. The question is which side a properly-weighted average of these two kinds of emergence would fall, and how far away from the zero line. Our guess is that the answer would be country-specific, and would change over time as conditions within a country change and as international trading arrangements change. Our reading of the evidence in East Asia to date is that industrial policies have failed in Malaysia (as in Latin America), played a significant but not dominant role in Taiwan, and were a strong force for industrial change in South Korea. The conclusion of over-arching importance is that the contents of effective industrial policies, in fact, of the overall national economic growth strategy, have to change as domestic conditions and the international environment evolve.

[21] Woo (2011) has argued that there is just not the low-income trap but the middle-income trap as well, and that the escape from each kind of trap requires not only growth-stage-specific policies but also country-specific policies.

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Table 1

The Entire Domestic Manufacturing Sector: Incentive to Sell in the Export Market vs the Domestic Market

s = ERP for all manufactured goods sold in export market (in percent)
t = ERP for all manufactured goods sold in domestic market (in percent)

line a and line b
ERP here refers to the "net effective subsidies" in Table 2.6 in Balassa (1982)
which is the effective subsidy rate adjusted for the extent of currency overvaluation

line c and line d
ERP here refers to the "effective subsidy rates" in Table 2.5 in Balassa (1982)
which is the effective protection rate adjusted for subsidies from indirect trade instruments

	s	t	(t - s)	$\frac{(1+t/100)}{(1+s/100)}$	s	t	(t - s)	$\frac{(1+t/100)}{(1+s/100)}$	s	t	(t - s)	$\frac{(1+t/100)}{(1+s/100)}$
	Argentina, 1969				**Colombia, 1969**				**Israel, 1968**			
line a	-50	41	91	2.82	-7	10	17	1.18	-15	11	26	1.31
line b	*(t ranged from -12 to +96)*				*(t ranged from -22 to +161)*				*(t ranged from -24 to +72)*			
line c	-29	116	145	3.04	10	32	22	1.20	38	82	44	1.32
line d	*(t ranged from +71 to +131)*				*(t ranged from +10 to +56)*				*(t ranged from 43 to +162)*			
	South Korea, 1968				**Singapore, 1967**				**Taiwan, 1969**			
line a	1	-13	-14	0.86	-7	-2	5	1.05	11	8	-3	0.97
line b	*(t ranged from -29 to +119)*				*(t ranged from -10 to +9)*				*(t ranged from -20 to +50)*			
line c	14	7	-7	0.94	-1	4	5	1.05	21	17	-4	0.97
line d	*(t ranged from -15 to +100)*				*(t ranged from -6 to +6)*				*(t ranged from -18 to +61)*			

Table 2

Effective Subsidy Rate Received by Manufactured Products in Different Industries: The Incentive toSell in the Export Market versus the Domestic Market

* an export industry = (greater than 10% of domestic production is exported) + (less than 10% of domestic consumption is imported)
* an export- and import-competing industry = (greater than 10% of domestic production is exported) + (greater than 10% of domestic consumption is imported)
* an import-competing industry = (less than 10% of domestic production is exported) + (greater than 10% of domestic consumption is imported)

ERP here refers to the "effective subsidy rates" in Table 2.5 in Balassa (1982)

line a
s = ERP for manufactured goods produced by the export industries and sold in the export market (in percent)
t = ERP for manufactured goods produced by the import-competing industries and sold in the domestic market (in percent)

line b
s = ERP for manufactured goods produced by the export- and import-competing industries and sold in the export market (in percent)
t = ERP for manufactured goods produced by export- and import-competing industries and sold in the domestic market (in percent)

	s	t	(t - s)	$\frac{(1+t/100)}{(1+s/100)}$	s	t	(t - s)	$\frac{(1+t/100)}{(1+s/100)}$	s	t	(t - s)	$\frac{(1+t/100)}{(1+s/100)}$
	Argentina, 1969				**Colombia, 1969**				**Israel, 1968**			
line a	-20	131	151	2.89	20	56	36	1.30	32	79	47	1.36
line b	-44	120	164	3.93	12	25	13	1.12	43	108	65	1.45
	South Korea, 1968				**Singapore, 1967**				**Taiwan, 1969**			
line a	16	100	84	1.72	-1	-1	0	1.00	19	61	42	1.35
line b	9	55	46	1.42	-1	6	7	1.07	23	27	4	1.03