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**THE MYTHS ABOUT THE SUNRISE INDUSTRY IN
DEVELOPING COUNTRIES:
THE CASE OF ELECTRONICS INDUSTRY IN THAILAND
THE INDUSTRY**

■ THE MYTHS.

■ THE CAUSES.

■ THE SUGGESTIONS.

THE MYTHS

- Mastering High Technology.**
- Obtaining High Value Added.**
- Growing from OEM.**
- Gaining Trade Surplus.**

■ Exploiting FDI Flow.

Mastering High Technology

- It is true to say that electronics is both an advanced technology and industry.
- However, it is not true to conclude that technologies in the electronics industry are all high technology; or in making electronics products, all technologies required are all advanced.

Mastering High Technology

- Many developing countries provide favourable investment incentives and even, sometimes, protection to attract FDI in electronics with expectation of mastering high technologies and skills eventually.
- Truly, only few are realized but with strong Government intervention and business effort.

Mastering High Technology

- For those passive countries such as Thailand, only low value added product lines and down stream production technologies are located.
- Studies by TDRI (1989) and Tiralap (1992a, 1996a, 1998) confirm the following points:

Mastering High Technology

- Technology transferred to local firms and local workers in foreign firms is minimal.
- For technology get transferred, it is confined to management technology required in the production lines such as QCC, TPM, ZD, SPC, and JIT.

Mastering High Technology

- Transfers of process, product-specific, and design technologies are virtually none.
- Screw-driving industry is, probably, the most appropriate description for the electronics industry in Thailand, despite almost 40 years old.

Obtaining High Value Added

- There is evidence to say that electronics products are high value added.
- Nevertheless, it is no evidence to believe that high value added of electronics products falls in the manufacturing stage, in particular for contracted manufacturing and product assembly.

Obtaining High Value Added

- Most of the value added is belonged to the product owners or sometimes brand owners who design and market the products.
- By and large, total manufacturing costs of electronics products range between one-fourth to one-third of the selling price.

Obtaining High Value Added

- Of course, some products cost only one-tenth; however, those products are not

manufactured in developing countries at all.

- For some products which are high value added and manufactured in developing countries, value added gained is very marginal.

Obtaining High Value Added

- This is due to the high import content and the pre-determined margin (transfer pricing) assigned by the manufacturing contractors.
- Study on cost structure of electronics products in Thailand (Tiralap 1996b, 1997a) show the following results:

Obtaining High Value Added

- Value added gained at the firm level (measured by company margin) is about 2-5 percent.
- Value added gained at the product level (measured by local content) is about 2-27 percent.

Obtaining High Value Added

- The high local content (27 percent value added) is from hard disk manufacturing having a group of foreign subcontractors in Thailand; however, when measuring company margin of the company manufacturing hard disks itself, value added is down to only 5 percent.

Growing from OEM

- It is correct to say that electronics industry provides a wide range of opportunity for an OEM to grow up to ODM and OBM along its multi-layer contracting system.
- But it is not correct to assume that OEM capability would eventually give rise to OBM calibre.

Growing from OEM

- By doing day after day, many planners in developing countries see the lean margin OEM as an entry point to high profit OBM.
- Lessons indicate that very few have, hitherto, accomplished and those who achieved are not by learning by doing (Okimoto 1989, Tiralap 1994, Hayashi 1996).

Growing from OEM

- Evidence in Thailand point out that none OEM grow up to ODM, not mentioned OBM (Tiralap 1992, 1998).
- Although there are some local OBMs, they neither grow up from ODMs nor OEMs.
- They design and build their own brand right from the beginning.

Growing from OEM

- Including foreign firms, OEMs have clear view that their mission is to manufacture according to contractors' specifications and orders.
- Attempts in competing in designing and branding would jeopardize their own business.

Growing from OEM

- Of course, this excludes technical support services (minor corrections or modifications) for cost effective production.
- Till now, Thai OBMs are counted for only 2 percent in terms of total production value and 10 percent in terms of number of firms in the Thai electronics industry.

Gaining Trade Surplus

- It is reasonable to say that with high unit value, mass production, and global supply, electronics provides a great opportunity for the producing economy to gain surplus on trade through either import substitution or export promotion.

Gaining Trade Surplus

- However, it is not reasonable to accept that with simply more electronics production, the country's trade balance would be better off.
- It is a matter of fact that electronics is considered as one of the most strategic industry in many developing countries in order to improve their balance of trade.

Gaining Trade Surplus

- Most of developing countries start with import substitution in order to reduce the country's deficit, then, go on for export promotion to earn foreign currency.
- Unfortunately, majority of them fails to achieve trade surplus in both strategies (Tiralap

1992 and Takahashi 1998).

Gaining Trade Surplus

- TDRI (1994) and Tiralap (1996c) provides evidence that almost four decades of trade in the electronics sector in Thailand, either through import substitution or export promotion, the sector's balance of trade has never been positive.

Gaining Trade Surplus

- Although imports of consumer electronics reduced to a minimum level for sometimes, imports of parts and components for electronics assembly rose equally.
- Export values were over imports from 1990 onwards when Thailand started producing some parts and components locally.

Gaining Trade Surplus

- Nevertheless, when taking into account raw materials for making parts and components (not mentioned machinery and testing equipment), the ratio of total import values to exports has remained over 1.

Exploiting FDI Flow

- It is convincing to say that the hollow-out effect of major developed countries created the need for new production bases in the less developed economies, and hence the flow of FDI in electronics.

Exploiting FDI Flow

- Nevertheless, it is not convincing to hold that the flow of FDI to a particular economy would be continued and sustained.
- Many developing countries believe that they are still attractive and advantageous to developing countries in terms of production costs, and hence continuous flow of FDI.

Exploiting FDI Flow

- Even nothing else, FDI still provides a very good source of employment and economic growth.
- Therefore, the economies still could benefit and should continue exploiting FDI flow of the labour intensive electronics industry.

Exploiting FDI Flow

- These statements would be correct provided that the particular economies remain fertile.
- Bello and Rosenfeld (1992) and Tiralap (1997b) suggests that it is just a matter of product life cycle and relocation cost that make other foot-loose industries such as toys and footwares different from electronics.

Exploiting FDI Flow

- Investment statistics in Thailand indicates a slow growth of investment in electronics

even before the economic crisis in 1997.

- For instance, investment in 1999 counts only one-third and one one-fifth of the investment in 1995 in terms of number of project applied and investment value.

Exploiting FDI Flow

- Many planners argue that this would be temporary; FDI would regain probably higher than the previous level when the economy recovers.
- Arguably, this light seems to be deem when taking into account the following changes in investment environments:

Exploiting FDI Flow

- No tariff barrier: ITA, AICO.
- Less trade and investment restriction: AFTA, APEC, WTO.
- Rising wages and less GSP allowances.
- Inadequate manufacturing resources: supporting industries, professional engineers, physical infrastructure.

THE CAUSES

- Lacking Technological Capability.
- Increasing Degree of Liberalization.

Lacking Technological Capability

- Technological capability is one of the two major causes behind the myths.

- No developing country could master high technology, gain high value added, grow from an OEM, obtain trade surplus, and exploit FDI if it lacks endogenous technological capability.

Lacking Technological Capability

- Acquisitive capability is a very basic requirement for technology transfer and absorption while adaptive capability is essential to the modification of transferred or learned technology.
- This is fundamental to innovative capability.

Lacking Technological Capability

- TDRI (1989) and Tiralap (1998) argues that without these capabilities, mastering of higher technology would not be possible.
- This is the weakest point of the electronics industry in Thailand that while its productive capability is at the world class level, its innovative capability is at infantry.

Lacking Technological Capability

- Consequently, with no adaptive and innovative capabilities, local production relies largely on contracted manufacturing, hence low value added.
- As subcontractors, they have the capability to make according to specifications but no capability to change or create.

Lacking Technological Capability

- Hence, there is no gain in value added, except labour and some overhead costs.

- Though it is argued that through OEM, value added could be made higher by improving productive capability, achieving ODM and OBM status without endogenous technological capability is clearly a myth.

Lacking Technological Capability

- Trade surplus is an outcome of value added gained from technological capability.
- Without both, gaining trade surplus would be a myth.
- Endogenous technological capability is also central to sustaining FDI flow.

Lacking Technological Capability

- This is because once endowment resources (labour, GSPs, working standard, etc.) diminish, FDI flow would certainly cease.
- But resources and technological capability invested (professional engineers, supporting industries, SMEs, etc.), would induce FDI to continue or enable local firms to take off.

Increasing Degree of Liberalization

- As the results of globalization, the falls of investment and trade barriers and the rises of capital and information flows provide both opportunities for and threats to developing countries.
- These depend upon the ability of individual country to take advantage of.

Increasing Degree of Liberalization

- The world will be more divided.
- For those with something to be traded or adequate capability, globalization opens new

windows for trade and investment and new webs for research and information exchanges world wide.

Increasing Degree of Liberalization

- But for those lacking endogenous capability and deteriorated productive resources, increasing degree of liberalization exacerbates development potentials than creating.
- They are at the brink.

Increasing Degree of Liberalization

- With increasing degree of liberalization, all strategies for and targets of sunrise industry need to be reassessed whether developing countries are still in a position to exploit FDI flow, gain trade surplus, grow from OEM, obtain high value added, and master high technology.

Increasing Degree of Liberalization

- As a result of GATT agreement, trade related investment measures (TRIMs) create a new investment regime as follows:
 - Requirements for local contents, exports, government purchases, and the like are prohibited.

Increasing Degree of Liberalization

- MFN and national treatment principles are applied to all investments (foreign or local) in member countries both in terms of subsidies or restrictions.
- Further, with information technology agreement (ITA), member countries will reduced

tariffs of electronics down to zero.

Increasing Degree of Liberalization

- These not only prohibit developing countries to negotiate for the country's benefits from FDI such as building OEMs, earning foreign currency, and using local contents but also create a choice for develop countries to invest outside or remain in the countries.

Increasing Degree of Liberalization

- Further, with similar schemes in ASEAN (CEPT and AICO), products can be traded at 0-5 percent and parts and components are allowed to exchange freely in the region.
- And, with similar investment incentives, there is no distinction among developing countries as a production site.

Increasing Degree of Liberalization

- Apart from the fall of investment and trade barriers, the rise of capital and information flows render more important opportunities to developed countries which control both capital and information to manage, exchange, transfer, and/or retain their investment and trade portfolios.

Increasing Degree of Liberalization

- Investments would freely flow to any country having more endowment or investment resources to offer.
- Investors can choose sites to invest, products to produce in each site, prices to transfer

among production sites, and product lines and technology to be localized.

Increasing Degree of Liberalization

- Recipient countries, on the other hand, have no control on trade and investment directions.
- Therefore, without new strategy and policy, all desired FDI flow, trade surplus, OBM, high value added, and high technology of electronics would remain myths.

THE SUGGESTIONS

- **No Free Ride for Late Comers.**
- **The True Sunrise Industries.**
- **Innovation and Globalization.**

No Free Ride for Late Comers

- Lessons from the past clearly point out that majority of developing countries gain very little from targeting electronics as the sunrise industry.
- This has nothing wrong about the industry.
- The point is on the views of the country's planners turning realities into myths.

No Free Ride for Late Comers

- Most of them play the role of free rider.
- As a result, the best they achieve is as a productive manufacturing sites of MNCs.
- Success of a few developing countries transforming themselves to newly industrialized

countries indicates that there is no free rider for late comers.

No Free Ride for Late Comers

- With tremendous efforts and surmountable difficulties, they determine to success and struggle for it although all outcomes are not always desirable (Bello and Rosenfeld 1992).
- This includes country such as Japan (Okimoto 1989).

No Free Ride for Late Comers

- In the new regimes of trade, investment, capital, and information flows, developing countries as the late comers need to reassess and reposition their advantages, not blindly follow the paths of the forerunners.

The True Sunrise Industries

- Under the new regimes, there is no boundary of market, capital, and information.
- The true sunrise industries for particular economies must base upon their own niches and advantages in production and market.

The True Sunrise Industries

- There is no room for building the old-fashion infant industry.
- They must build upon endogenous technological capability and endowment resources while cultivating well established exogenous networks of capital and information globally.

The True Sunrise Industries

- For Thailand, it is clear that the true sunrise industry is not electronics.
- The opportunity has gone.
- The potential sunrise industries are, instead, the ones with technological bases and/or competitive resources as follows:

The True Sunrise Industries

- Technological niche industry:
 - | Home appliance based industry: fans, rice cookers, refrigerators, air-conditioners, washing machines.
 - | Software based industry: data processing, basic coding, module programming

The True Sunrise Industries

- Resource niche industry:
 - | Food based industry: processed foods, instant foods, TV dinner products, herbal related products, healthy foods.
 - | Tourism based industry: resorts, restaurants, handicrafts, traditional entertainment.

Innovation and Globalization

- In summary, electronics as a sunrise industry for Thailand turns to be a myth largely because the country has no innovative base and does not prepare for competition.
- Unfortunately, there is no second chance to fix or rebuild under the rapid developments of innovation and global network.

Innovation and Globalization

- Innovation and globalization will certainly be the two main driving forces of the world economy, at least for the century to come.

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