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Firm Structure, Conduct and Competitiveness in Indonesian Manufacturing: Before and After the 1998 Economic Crisis

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Abstract

The primary objective of this paper is to investigate the competitiveness issues on three manufacturing sub-sectors in Indonesia, namely the auto parts, garment and personal computer industries. Competitiveness is defined as the ability to compete in international markets. At the present stage of technology maturity, R&D has not been an important factor in affecting the competitiveness of these industries. In general the Indonesian business climate is not conducive to the development of full manufacturing industry and let alone R&D development by electronic industry. Beside the threat of smuggled goods, various tax policies and labor regulations have made it difficult for manufacturing firms to compete with imported goods. In terms of conduct, becoming a member of a larger group is very important to penetrate export markets, and thus is very important to boost competitiveness. Another important variable affecting competitiveness is access to financial and capital markets which is a major obstacle for firms after the crisis.

Keywords : *Production: Capital and TFP, Industry Studies: Manufacturing, Industrial Organization, Indonesia*
JEL Classification: *D24, L00, L60*

1. INTRODUCTION

The primary objective of this paper is to investigate the competitiveness issues of three manufacturing sub-sectors in Indonesia, namely the auto parts, garments and personal computer industries. To investigate to what extent the above factors have affected the competitiveness of these three industries, a field survey was conducted on these industries. Due to the budget limitation the field survey was conducted only in the area of Greater Jakarta and its surroundings. The surveyed firms were selected randomly from the CBS firms directory. In the case of the PC industry, the number of true manufacturers is quite few. To increase the sample size, a number of firms from the consumer electronic were also surveyed. At the end of the survey, out of 60 questionnaires sent to each industry, we managed to collect 51 completed questionnaires from the garment, 46 from the auto-parts and 38 from the PC/electronic industry.

Our approach on competitiveness is loosely based on the industrial organization standard approach of structure, conduct and performance (SCP). In this respect firm competitiveness are influenced by industrial structure, organization, technological capabilities, human resources, government policy/business environment and financial institutions. In the discussion of industrial structure, we include all relevant information on the state of the industry which incorporates structure of the industry and government policy. Information on infrastructure and financial institutions were obtained from the survey as well as from the result of the interviews with industry associations. The discussion on conduct will encompass organization, technological capabilities and human resources. Since the competitiveness of a firm at various stages of the value chain will also be influenced by how the products are brought to markets, we also include a discussion on marketing and distribution channels.

2. METHODOLOGY

A firm's competitiveness is a function of its own endowments and conduct, and interactions with related economic agents. Industrial organization typically postulates that a firm's performance is determined by the structure (or environment), including other economic agents in the factor and final markets) in which the firm is located and its conduct (see Bain, 1968; Greer, 1992). Competitiveness is defined as the ability to compete in international markets. There are several instruments from the survey that can be used to measure competitiveness, for example a dichotomous variable of entering export markets or not, the ratio of exports to total sales and so on. A firm will not venture to compete in

international market if all factors considered above do not offer a favorable condition to do such business. In this model competitiveness is regarded as an indicator of performance which is the ultimate result of the dynamic interaction between factors internal and external to the firm. Firm conduct is mostly internal to the firm although it may still be influenced for example by the structure of the industry, which is external to the firm. How conduct and structure affect performance or competitiveness is estimated through the following equation

$$EXSH = f(ORG, HRD, TECH, MRKT, INFRA, CONSTR, FIN) \ldots\ldots (1)$$

EXSH represent any export variables that could reflect a firm's activity in international markets. It turns out that after experimenting with various export variables, the best result is given by the variable constructed from responses from the question of whether a firm export revenue changes over the last two years compared to its major competitors. A firm has five alternative responses; decline greatly, decline slightly, no change, increase slightly and increase greatly with the value of one assigned to the worst situation (declined greatly) and the value of five is for the best scenario (increase greatly). The nature of the dependent variable with both lower and upper truncations requires the application of the Tobit procedure.

Included in firm conduct are organizational structure (ORG), human resource development (HRD), technological capabilities (TECH), how a firm places itself in marketing/distribution channel (MRKT) and financial access (FIN). TECH for examples represents important variables in the survey capturing the role of technology and innovation on a firm competitiveness. For example the number of new products introduced over the last three years could be used as a proxy for product technology. In another case, the decision of a firm to set up a new production line, to put in a new production system and to put in new ICT components to upgrade production facilities could be used as proxies for process technology. From the survey we also obtain some measures of infrastructure, logistics and business environment. These measures are used as proxies for external conditions outside a firm's control, such as infrastructure condition (INFRA), and various constraints arising from the general economic condition and government policies (CONSTR).

Due to the presence of several related variables some problem of multi-collinearity might arise. For illustration, in the case of human resource development whether a firm possessing a separate HRD unit may correlate with the possibility that a firm adopts regular pay scale

and offering performance related bonuses. Thus to avoid this problem one might combine those related variables into a single integrated variable. In the aggregation process either summation or multiplication technique could be used. In the yes or no question related to those variables, numbers of one and two could be assigned to yes and no answers respectively. The score of integrated variable combining the above three human resource variable for yes answer to all three questions would be one if multiplication techniques were used. In the opposite case, if all answers are no, then the score would be 6. One example of the intermediate case is when a firm having a separate HRD unit but not offering a regular pay scale and bonuses.

This technique could be applied to ORG, TECH, MRKT, and INFRA as well depending on the multicollinearity situation. It is worth noting that integrated variable is not necessarily to be used in the regression. In many cases individual variable from the categories of ORG, TECH and others could stand on its own. For example in the organizational structure or ORG part of the questionnaire, the dummy variable (OWNMGR) captures whether the owner of the company is also the manager. This dummy tries to capture the complexity of the firm structure. For OWNMGR the value of one will be assigned for the yes answer and two is reserved for the no answer. This arrangement will be consistently applied to all other dummies when used as explanatory variables in the regression.

For the organizational structure (ORG) we do not construct integrated variables rather the variables are used in their original form. The dummy variable representing the complexity of organizational structure is constructed from the question whether the owner of the company is also the manager (OWMGR). The range of level of hierarchy of firms is very complex, from the two levels of merely manager-owner and shop floor workers to a complex organization having 6 levels of hierarchy. As it will be apparent later OWNMGR proved to be a very simple and useful variable to assess a firm's structure impact on competitiveness.

This does not mean that other variables are unimportant. In particular we use a dummy for the presence of a collective bargaining system (COLL) in a company. The implication for competitiveness is very clear that a collective bargaining system may prevent workers from resorting to destructive strike when presenting their interests as commonly observed in recent years. The other important variable in the ORG category is the presence of an employee suggestion scheme (SUGG).

This scheme serves as a channel in which suggestions from employees on technology upgrading, productivity enhancement, quality improvement and reduction in defects could be heard by upper level management who are expected to take corrective action.

For the human resources development (HRD) we construct an integrated variable (HRD) consisting of three variables, the presence of a separate HRD unit, a regular pay scale and performance-related bonuses. The more modern and complex a company, the more likely it will adopt this arrangement. Other variables such as employees' level of education, expenditure on training and the average turnover rate are also used whenever it is necessary.

In the case of market access (MRKT) we use the dummy variable capturing whether a respective firm is part of a larger group (PRTLGR) or network. The idea to use this variable to represent market access arises from our interview with the garment and auto-part industry association. The idea is very simple: when a firm does not possess information on fast changing market demand, then the best way to overcome the problem is to join those who posses such information. Networks or groups could take various forms from the loose to the very structured ones, but the function will remain the same. Not only will the larger group provide market information, but it will also provide advice on the best practice technology in the field. In the garment industry Yang (2000) mentioned two different types of value chain in the garment business, production driven and buyer driven. In the auto-parts industry, for example, a firm could be a part of a just in time chain for the final assembler or just an ordinary direct supplier.

Price competitiveness is one factor, which together with other non-price factors, such as product quality, technology and infrastructure, would be a necessary condition for export success. One non-price factor that receives less attention is the financial environment. Modern theories of finance postulate that differences in financing patterns across firms emphasize differences in costs associated with different providers of funds. Imperfect substitutability between internal sources (retained earnings) and external sources (different types of debts and equities) arises primarily due to asymmetric information between suppliers and users of funds which make external funds more costly than internal ones. The implication of higher cost of external funds is that internal funds would be more important than external funds in financing investments. A firm is financially constrained, if it is forced to depend on internal sources for investment.

The nature of the data does not allow us to estimate the true firm's investment function, which is a common practice to detect financial constraints. Instead we resort to a simple method of constructing a financial access variable (FIN) from the ratio of funds from commercial banks to retained earnings. If the coefficient of FIN is statistically significant then a firm's competitiveness is constrained by the availability of external sources of financing. The positive coefficient suggests that the more a firm has access to external sources of financing, the more competitive it will be. At the same time, it also implies that less favorable situation for external financing i.e. the tightening of credit markets, will impair competitiveness. As a firm relies more on retained earnings to finance investment projects, its ability to expand exports will be limited, thus export growth will be stagnant or declining. If the coefficient of FIN turns out to be negative, then the empirical result contradicts the theory prediction about the positive relationship between access to external financing and competitiveness. The insignificance of the coefficient may indicate the absence of financial constraints. The weakness of this approach is that it relies very much on the efficiency of estimators. If the model is estimated imprecisely with large variance then the coefficient very likely will not be significant, which will lead to drawing incorrect conclusion regarding the presence of financial constraints.

The availability of good infrastructure is a prerequisite for a firm's competitiveness. A firm will locate in a location where it can easily meet its basic need for infrastructure service. The survey unfortunately does not provide true measures of infrastructure availability. The only information available is the respondents' responses on how importance is infrastructure for firm's competitiveness. Basic infrastructure such as transport services, power supply, water supply, telecommunication network, legal system, public science and so on are included in the list. As before and also due to the vast array of infrastructure types listed in the questionnaire, we construct an integrated variable for infrastructure (INFRA). This variable combines transport services, power supply, water supply, telecommunication network, legal system and public sector science and technology system. The choice of variable is dictated by our regression experiment with all types of infrastructure in which export growth is the dependent variable. The overall regression results are generally weak, but we picked the ones having better explanatory power and dropping the rest.

The external factors that might impair firm's competitiveness are constructed in a similar manner. Most factors are in fact the product of government regulations, such as custom procedures, licensing

arrangements, local duties and levies, access to land, municipal regulations, official corruption and regulation on foreign expatriates.

In addition to competitiveness this study will examine the determinants of technological capabilities. There are several measures of technological capabilities proposed by Kraemer and Dedrick (2000), for instance engineers and technical professionals as a percentage of the work force, R&D spending as a percentage of revenue and new product introductions per year. The questionnaire is designed to capture two aspects of technological capabilities, namely product technology or product innovation and process technology or process innovation. Product innovation is a substantial improvement of a current product or development and manufacture of a new product. Following Kraemer and Dedrick (2000), the number of new products introduced over the last three years captures product innovation. Process innovation on the other hand involves a substantially improved or new production process through the introduction of new process equipment or re-engineering of an operational process. There are three variables to measure process innovation, i.e. the question whether a firm in the last three years did the following; to set up new production line, to put in a new production system and to put in new ICR components to upgrade production facilities. The purchase of new capital equipment can be categorized as process innovation if it involves a new production process or at least it brings improvement in a production process. To examine the relationship between technological capabilities and its determinants the estimating equation is

$$TECH = f(ORG, HUMAN, INFRA, CONSTR) \quad \text{..... (2)}$$

where the variable definition is the same as before. For the process innovation it is possible to construct an integrated variable consisting of all four types of process technology mentioned before. Only the last three questions, however, deal in a straightforward manner with process technology. Consequently, the purchase of new capital equipment is excluded from the integrated variable. In the estimation, to arrive at the final result, we experiment with the integrated variables as well as with all individual process innovation variables. To save space, the discussion of the estimation results will be inserted in each respective industry.

3. THE GARMENTS INDUSTRY

3.1 Supporting Environment

Infrastructure and Business Environment

The availability of domestic infrastructure is a prerequisite for industry's competitiveness. From the point of view of firms, a telecommunication network is considered as the most important factor affecting a company's competitiveness, followed by power supply and transport services (**Table 1**). This response is justified by the recent feature of the garment market which is characterized by shorter product cycles, greater fashion influence and increasing diversity in taste (Yang, 2000). This necessitates the development of a quick response system beyond the production processes. The introduction of electronic data interchange (EDI) has greatly speeded up the process from material supply to delivery.

The garment industry is noted by its high need for electricity. The reliability of electricity supply is definitely better in the city agglomerations mentioned above. Most firms tend to discount the existence of public sector market research/intelligence and public testing and evaluation facilities, citing it as the waste of valuable resources. In general respondents do not view government programs with high regard except in the case of the export credit program. The least important factor on the other hand is public support for overseas market promotion. This kind of answer is not too surprising given a pervasive doubt on the government's ability to deliver the promised assistance.

The three biggest constraints to a firm's competitiveness are legal/illegal local duties/levies, cumbersome licensing arrangements and official corruption (**Table 2**). Local duties, licensing arrangements and corruption are interrelated. Both local duties and licensing arrangements have been the source of corruption in Indonesia for a long time. The things seem going from bad to worse after the launching of the new regional autonomy law.

Access to Financial Markets

For the garment industry the availability of credit from domestic banks is the least restrictive, while the equity market is much more restrictive (**Table 3**). It is not too surprising that domestic banks and others become the prime sources of working capital, with a combined share of around 66 percent. There is however no answer with regard to what constitutes other sources.

In the case of major capital investment, firms rely mostly on domestic banks (32 percent) (**Table 4**). The second largest source is retained earning (30 percent in 1995). The use of domestic bank credit for capital investment indicates that firms do not face financial constraints. This is not so in recent years. The use of retained earnings increased 34 percent in 1999, indicating that firms were more financially constrained, as a consequence of the domestic credit tightening after the outbreak of the Asian economic crisis in 1998.

3.2 Firm Conduct

Organizational Structure

The complexities of organizational structure vary from one firm to another. In one case, there is a firm with only one department, production, but there are a number of firms with 5 to 6 functional departments like marketing, production, R&D, human resource, finance/accounting and general affairs. The hierarchies of firms are also as diverse as the number of departments. The simplest structure only has two hierarchies, shop floor worker and leader/manager, while the most complicated ones having as many as 7 hierarchies from shop floor worker to the board of directors. The number of owner/manager in the sample is 25, which is quite substantial given the sample size of 51. In addition to functional departments/units, about 23 firms have a labor union with a collective bargaining system (**Table 5**).

The domination of firms run by an owner-manager in the sample reflects the fact that most firms are medium and small size. It is true that the average size is 824 workers, but the average is skewed to the right because of the presence of large scale firms with employees of more than 10,000. Although a firm with an owner-manager is usually associated with lower export orientation as observed in the two other industries in the study, the garment industry is an exception. The prevalence of owner-managed firms does mean that they do not have a sophisticated organizational structure. About 65 percent of the sample have a separate HRD unit, which is the highest compared to the two other industries in the study.

Marketing and Distribution

The majority of firms or 73 percent operate independently, not becoming a member of large group or consortium (**Table 5**). This response is consistent with the fact that most firms do not form any strategic alliances with other business, unlike the automotive parts industry where

several cartels compete against each other. It is natural therefore if the degree of competition is higher in the garment industry.

High export orientation of this industry is reflected in a relatively high number of foreign affiliates of about 3 to 5 for a single firm. The main activity of foreign affiliates is marketing. Most firms have been in the export activity more than 5 years. The most widely used method is direct exporting to clients overseas. Most firms concentrated their export penetration on very few big customers where the biggest share is 42 percent. The prime destination of exports is still the US market with an 18.5 percent share. This figure however does not differ much from the shares to other destinations. Asia for example holds a 16.6 percent share, while the figure for the European Union is around 14 percent.

To a certain extent the industry has succeeded in diversifying markets, but a lot of complaints are directed toward the quota markets, such as the US and the European Union. In this respect the Multi Fiber Agreement (MFA) quotas are particularly to blame, because of the perceived unfairness in the quota allocation among countries. From the point of view of firms, MFA quotas are the biggest barriers to export expansion. In the last two years, the MFA quotas and fierce competition from China, India and Vietnam has exacted a toll on firms exports. Export sales have been declining slightly in the last two years, but are still considered better compared to domestic sales.

The respondents are split when asked about the impact of MFA removal on firms. Most firms saw no immediate impact of the MFA removal because the industrialized countries would resort to subtle forms of non-tariff barriers to impede exports from Indonesia. The most common form of non-tariff barrier faced by Indonesian exporters is anti dumping charges. The large depreciation of the currency has enabled exporters to cut the export price in foreign currencies, but the price cut has been constantly subjected to anti dumping charges by the EU and penalized with high punitive duties. In another case, top executives of the American Textile Manufacturers Institute (ATMI) representing 13 members of the US textile association have asked Congress to initiate anti-dumping and countervailing duties against Asian producers in response to the flood of low priced imports. Indonesia and other Asian producers also face increasingly stringent measures in the form of environmental and labor standards.

Formation of Technological Capabilities and Research and Development

To keep up with technological development, most firms opted to bring new capital equipment. The investment in capital equipment resulted in an average increase in productivity as much as 21 percent. In terms of energy, the saving was around 9 percent. Investing in ICT is apparently not a top priority of the garment firms. No single firm in the sample has put new ICT components to upgrade production facilities. It is also possible that old machinery is not compatible with the newest generation of ICT, so instead firms prefer to buy new machinery whereby the newest technology (including ICT components) is imbedded in it. New machinery may necessitate the adoption of a new production system. In the case of the development of a new production system, most firms usually rely on licensed technology from technology suppliers. There is however a respectable number of firms (17 firms or about 33 percent) choosing to rely on internal R & D to set up a new production system. Consistent with the above picture, the main source of company's technology is embodied in new machinery. Technology licensing from clients comes in the second place. Big overseas customers often provide technical assistance to help a company to upgrade the existing technology up to international standards.

In 1995, on average the firm's spending on R & D was 1.65 percent of total sales (**Table 6**). This number increased to 2.7 percent in 1999. These figures are comparable to that of the auto parts industry. Only 11 firms out 51 (22 percent) have a separate R & D unit, which is significantly lower than the auto-parts and electronic industries. For those having R & D units, the number of Ph.D.s on average per firm is less than 10 persons. As has become a common pattern in the Indonesian manufacturing industry, the nature of R & D -- which more involves minor modifications --does not require the presence of highly skilled and dedicated researchers. Government assistance for R & D is practically non-existent. Even if it exists, firms have never participated in the program for the simple reason that it has not been tailored to meet the firms' needs.

From the firm's point of view, the domestic environment is not conducive for technology development activities (**Table 7**). The lowest mark is given for the role of local universities for technical support and R & D collaboration. The role of R & D institutions for technical support and R & D collaboration receives the second lowest mark. Only the quality of ICT receives favorable marks. In general, with regard to the soundness of the domestic environment for technology development, the

responses are quite similar to the auto-parts industry. The domestic environment so far has yet to improve to be able to support technology development.

3.3 Econometric Results

The results of estimation for the garment industry are presented in **Table 9**. The dependent variable is a scale variable capturing export growth in the last two years. One variable that is almost always significant is a dummy capturing whether a firm is part of larger group - the dummy is negative and significant at the 5 percent level. The value of one is assigned to the dummy if a firm belonging to a larger group and the value of two for else. The negative coefficient indicates that although most firms tend to be export oriented, the export orientation of firms affiliated with group or network is even higher. By joining such group a firm will benefit from the exposure to the nature of consumer demand and its changes as well as new developments in technology. Another statistically significant variable is the dummy for owner-manager (one for owner-manager and two for not). The coefficient of owner-manager dummy is positive. This implies that companies run by an owner manager tend to have lower export growth compared to the ones managed by professional managers.

The existence of an employee suggestion scheme (one for yes and two for a no answer) also brings positive impact on export growth (**specification 4 Table 9**). The most likely channel how this scheme affects competitiveness is through a reduction in defects rather than through a technology upgrade, productivity enhancement or quality improvement. The survey results for the garment industry show that in terms of its importance a reduction in defects comes in the first place followed by quality improvement, productivity enhancement and technology upgrade in the last place (**Table 8**). Another important variable from the organizational structure is the existence of a collective bargaining system (one for a firm with and two for a firm without this system). The coefficient is negative and significant which means its presence provides another boost for competitiveness. This scheme apparently is able to reduce unproductive conflicts between workers and management.

The dummy for human resource development is actually the interaction of three dummy variables, the existence of a separate HRD unit, a regular pay scale and performance related bonuses. The coefficient of this variable is negative which means that a firm possessing the above three features tends to have higher export growth. The coefficients in all specifications however, are insignificant.

The results for technology variables whether to undertake product or process innovation is very weak statistically. For product innovation represented by the number of new products introduced in the last three years, the coefficient has the wrong sign but it is insignificant. In the case of process innovation the results are statistically better, but they are all insignificant and also have all the wrong sign. We also experiment with all individual variables that form the integrated variable process innovation; setting up a new production line, introducing a new production system, installing new ICT components as well as a percentage of R&D expenditure to total sales, but the results remain weak. Judging from the respondents' responses particularly in the case of an employee suggestion scheme that puts a low priority on technology upgrading, the weak results for production and process technology seem plausible.

The ratio of banking financing to retained earnings is positive and significant and positive at least at the 10 percent level (**specification 2 and 4, Table 9**). This implies that access to external sources of financing is very important for competitiveness. Another implication is that in the recent domestic credit tightening (the year 1999 onward) firms are financially constrained. This notion is supported by the earlier cross tabulation analysis showing that in recent year (1999) in comparison to 1995 the credit financing from the commercial banks has tightened following the 1998 economic crisis.

Unfortunately, the infrastructure variables like transportation services, power supply and so on only capture the respondents' perception on how important each infrastructure type is to a firm's competitiveness. As before, to avoid multi-collinearity problems, we employ the integrated variable INFRA. Statistically the results are weak since none of the seven specifications produces significant coefficients. Unlike INFRA, our integrated variable for a firm's external constraints (CONSTR) produces several significant coefficients in particular in specification 1, 3 and 4. The problem is how to interpret the positive coefficient. The positive coefficient suggests that a firm that says the constraint poses a serious problem to the company's competitiveness tends to be the one with good export growth and thus is more competitive. Therefore we still could not measure whether such constraints actually hurt a firm's competitiveness. What we have is the ranking of importance. If the constraints do indeed affect competitiveness adversely, then one should expect a negative coefficient. Aside from the interpretation problem, the previous cross tabulation analysis reveals that the top two constraints for competitiveness are local duties and levies,

and cumbersome licensing arrangements, which are the typical firms' answer after the launching of the new law of regional decentralization.

The estimation results of the determinant of technological capabilities are presented in **Table 12**. The results are much weaker than the competitiveness regression. This is actually not too surprising judging from the respondents' responses to the question of employee suggestion scheme that put technology upgrading at the lowest priority. We experiment with various measures of technological capabilities but in the end the likelihood that a firm installs a new ICT system in the production process is chosen as the dependent variable. The regression includes the dummies for a part of larger group, owner-manager, and employee-suggestion scheme. None of those variables is significant.

4. AUTOMOTIVE COMPONENTS

4.1 Supporting Environment

Infrastructure and Business Environment

The availability of domestic infrastructure is prerequisite for an industry's competitiveness. From the point of view of a firm, a telecommunication network is considered as the most important factor affecting a company's competitiveness, followed by power supply and transport services (**Table 1**). The least important factor is public support for overseas market promotion. This kind of answer is not too surprising given a pervasive doubt on the part of respondents towards the government's ability in supporting their cause.

The three biggest constraints to a firms' competitiveness are legal/illegal local duties/levies, cumbersome licensing arrangements and official corruption (**Table 2**). Local duties, licensing arrangements and corruption are interrelated. Both local duties and licensing arrangements have been the source of corruption in Indonesia for a long time. The things seem going from bad to worse after the launching of the new regional autonomy law.

Access to Financial Markets

In the case of a major capital investment, firms rely mostly also on domestic banks (32 percent). The second largest source is retained earning (30 percent in 1995). The use of domestic bank credit for capital investment indicates that firms do not face financial constraints. This is not so anymore in recent years. The use of retained earnings increased 34

percent in 1999, indicating that firms were relatively more financially constrained, as a consequence of domestic credit tightening after the outbreak of the Asian economic crisis in 1998 (**Table 4**).

4.2 Firm Conduct

Organizational Structure

There is no common pattern in organizational structure observed from the sample. In one case there is a firm with only two departments, production and marketing, with rather complete hierarchies of president director, manager, section head and shop floor workers. Firms managed by an owner-manager are more likely to be family business, but it would be wrong to judge those firms as having a simple structure. In one case, we encountered a firm with 6 departments, production, finance, transportation, finance and quality control, but having very simple hierarchies of three layers of the owner as manager, supervisor and shop floor worker. The case of an owner-manager is quite prevalent in our sample or about 17 out of 46 firms (**Table 10**). Besides traditional functional units or departments existing in an organization, labor unions are also present in some firms. This is not common however, since only about half of 46 respondents had such an organization. For those having labor unions, collective bargaining system is a common case. Unfortunately days of work lost due to strikes were not well documented.

Positive interaction among different units as well among different hierarchies is very important in determining the effectiveness of organization. To facilitate communication between employees and the management, the majority of firms adopt an employee suggestion scheme. Only 7 out of 46 firms opted not to adopt the scheme, but the reason is unknown, since no specific question was raised regarding this point. One interesting point in this regard is that one firm managed by an owner-manager did not adopt this scheme. It is hard, however, to generalize about the factors that might influence a firm to adopt this scheme, based only on this single observation. The most important information flowing through this channel of information is the suggestion on quality improvement. Technology upgrading in the meantime falls into the last priority. The lack of process innovation has been observed before in the garment industry, which suggests that the problem may come from the lack of a technology culture among Indonesian firms.

Marketing, Distribution and Production Chain

There is no a specific government regulation governing the distribution of automotive component in the domestic market. Each component manufacturer usually appoints or gives certification to several distributors to represent the company in particular regions. Then distributors channel the products to independent retailers and service stations. Meanwhile, in the case of exports, component manufacturers export the products directly to overseas customers.

In most cases large firms are extensions of principals.[1] (*For small and medium firms)* In the face of an uncertain domestic market, in order to secure orders small and medium firms become members of a consortium or at least a member of a subcontracting network which seems the right thing to do. One interesting feature of a subcontracting network in Indonesia is its non-exclusiveness. In the non-exclusive network, it is possible for a member to sell products to customers other than their main ones. If the scale of a firm is small or can be categorized as a cottage industry, exclusive customers are more common. However, as a firm continues to upgrade its production capacity, to improve the quality of work, efficient utilization of production capacity and capabilities requires accepting orders from more than one customer. For some firms, even the large portion of orders comes no longer from the main customer. Even for firms at advanced stages of production capability, orders do not necessarily have to originate from the automotive and auto component industry - on the contrary, they may supply non-auto parts industries as well.

The result of the field survey suggests that they operate mostly as component specialists and fewer are system integrators. Those operating as component manufacturers supply 40 to 60 percent of the output to system integrators. Most products are sent to a consortium firm appointed by a principal that acts like a collector. This is the one that is ultimately responsible to send products to the final assembler. A significant number of firms (54 percent) forming a loose strategic alliance with a network or a group (**Table 5**), which in turn serves a principal.

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[1] Astra Otoparts for example is a group consisting of a number off firms, producing for Toyota Astra Motor. One member of Astra Otoparts is Denso Indonesia Corporation, which produces spark plugs and horns. In the mean time other firms also specialize in few parts. NHK for example produce gaskets, SKF Indonesia produces springs, Aisin Indonesia is known for its clutch discs, EDS Manufacturing specializes in wiring harness, GS battery produces battery. Astra Otoparts sells its products domestically and for the export market, in particular to the US, Australia, Japan and ASEAN countries.

They are not a part of a just in time chain (JIT) for final assemblers but rather function as a third, sometimes as a second tier subcontractor in the production chain.

Most firms have fixed assets between US $1 to $ US 10 million with a sizable number of firms owning assets below US 1 million. The percentage of plant and machinery in total fixed assets is around 50 percent. With this type of scale, there are several benefits from joining a consortium. Besides securing some stability in sales, the goal of forming strategic alliances is to benefit from research and development and technology conducted by the principal and the group as well information about the market trend. Judging from the scale of individual firm, it would be frightfully expensive if they try to perform these functions by themselves.

In a way they have some sort of connection with foreign system integrators. Information obtained from the industry association indicates that this is a recent phenomenon. The slump in the domestic market has forced them to look for overseas markets. In fact, in the last three years the number of overseas operations has increased. Most firms posses between 3 to 5 foreign affiliates whose major activity is marketing.

Formation of Technological Capabilities

As confirmed by the nature of networks in Indonesia, most firms are not quite often involved directly in product development with the assembler or principal. In the past three years they have at most been involved only on three occasions. Most new products are destined for the domestic market. On average the number of new products introduced into the local market in the last three years is three. There are sizable numbers of firms that choose to develop products through their own development possibly by imitating or duplicating. These firms usually do not have direct ties either to a consortium or principal. However, they have indirect ties to the group through a manufacturer that is a member of a consortium.

The majority of firms, however, cite foreign subsidiaries or their principals as the source of technology for product development. In this respect, principals provide the component manufacturers with product samples along with some technical assistance. In the end, the final products still have to meet the principal's quality requirements. This process is repeated in the sub-contracting scheme between group members and those having no ties with a large group. The difference is that now members of a consortium present manufacture orders to those

non-group members along with technical assistance and quality requirement. To develop net products most firms need between 1500 to 8000 engineering hours which indicates that the products are not high precision components. It may involve only the manufacturing process of semi finished products.

To improve their manufacturing capabilities, most firms opted to buy new capital equipment instead of setting up a new production line, establishing a new production system or installing new ICT components. The reason was that three years ago most firms had obsolete equipment to start with. The stringent quality standards dictated by the principal are the prime motivation behind the drive to buy new capital equipment. As a result, the average productivity increased by 25.1 percent, while in terms of energy saving it succeeded to cut cost by 4.46 percent. While a little has been done for product development, more R & D efforts are directed at adapting new capital equipment to local needs or production system upgrading. Therefore, although about half of firms are equipped with an R & D unit, the number of patent applications in the last three years is quite low at 0.41 per firm.

Most firms are highly pessimistic with respect to any government sponsored R&D institutes (**Table 7**). Practically, no company has ever participated in any government sponsored R&D program during the last three years. The domestic environment is perceived as not conducive for technology development. The Government received bad marks on almost all questions regarding the suitability of the domestic environment for technology development activities (**Table 7**). The most pressing problem is the negative attitude of government departments and regulatory authorities. The role of local universities for technical support and R & D collaboration also receives low marks. Next to it is the lack of venture capital. Surprisingly, the quality of ICT services does not pose any problem for technology development activities.

4.3 Econometric Results

Table 10 presents the econometric results of the determinants of competitiveness in the auto-parts industry. The dummy for a part of larger group has the right sign and is significant at the 5 percent level. So again, becoming a member of a network or a group is a dominant strategy to boost export growth. As in garments, a firm managed by an owner-manager is less successful in export markets. Bigger and more complex organizations seem to carry more weight when dealing with foreign markets. More complex organizations, which demand higher

standards of professionalism, are rarely led by owner-managers unless they meet some standard of competence.

Interestingly, the presence of an employee suggestion scheme does not play an important role in enhancing competitiveness. At first we expected the positive benefits of this scheme would be stronger in auto-parts compared to garments since the technology intensity is higher in the former than in the latter. This result comes out because at present the auto-parts industry is not export oriented. In the meantime our definition of competitiveness is the ability to compete in international markets which is reflected by high export growth. For the same reason, the impact of human resources development on competitiveness is also not visible. All HRD coefficients in all four specifications are insignificant.

In the case of technological capabilities, the proxy for process innovation has the right (negative) sign but none of the coefficients are significant. The same picture also applies to product innovation, which is represented by the number of new products in the last years. The result of interviews with the industry association provides a clue why technological capabilities do not have an impact on competitiveness. The majority of firms are small, process-focused companies with very little ambition to grow bigger. They focus on a wide range of lower value products in small facilities. In terms of organizational structure, they adopt a lean hierarchy and limited engineering and thus have limited ability to innovate. The room for innovation is also limited because they just follow the operation manuals provided by other suppliers that are higher in hierarchy. Very few of them have direct contacts with final assemblers. Sometimes higher level suppliers lend some important machinery to lower level suppliers.

Another interesting observation is that the coefficient of financial variable is not significant, giving the impression that most firms are not financially constrained. The most likely situation, however, is that because of their low export orientation the relationship between financial variables could not be detected. In this respect the previous cross-tabulation analysis reveals that in recent years firms are more financially constrained than before the crisis.

The regression results for technological capabilities are slightly better than the garments industry (**Table 12**). Even so only the dummy for owner-managers is significant at the 5 percent level. This shows that a firm managed by non owner-managers is more likely to install a new ICT system in the production process. This is not too surprising given the fact that a firm managed by an owner manager tends to be small, focusing on process and having little ambition to grow bigger (Veloso (2000).

5. ELECTRONIC AND PC INDUSTRY

5.1 Supporting Environment

Infrastructure and Business Environment

Among non-price factors that inhibit competitiveness in this industry, several factors that are often overlooked are infrastructure and business environment. Most firms agree that the most important factor affecting competitiveness is transport services (**Table 6**). Other factors such as public support for overseas market promotion and power supply are next in line. This is very interesting since only electronic recognizes the importance of a public sector role in the industry's competitiveness.

The electronic industry association suggests that in general the Indonesian business climate is not conducive to the development of a full manufacturing electronic industry. Beside the threat of smuggled goods, various tax policies and labor regulation have made it difficult for manufacturing firms to compete with imported electronic goods, even if they enter the country legally. The most recent labor regulation requires companies to pay a handsome compensation for every laid-off worker regardless of the causes. This has made it difficult for companies to replace workers, even if they do not perform or commit unlawful activities. With this kind of business environment, some computer manufacturers have reduced manufacturing activities from nearly full manufacturing to only simple assembling operations and making computer cases. In the case of domestic market-oriented electronic producers, some have even planned to quit manufacturing activities at all, to become importers once the AFTA (ASEAN Free Trade Agreement) is put into effect.

Access to Capital and Financial Market

As discussed before access to external sources of financing is one key variable affecting a firm's competitiveness, otherwise the firm's growth will be very much constrained. To observe the change in access to financial markets the year 1995 and 1999 are used as points of references. The year 1995 represents the situation before the Asian economic crisis, while 1999 is the reference point for the post crisis situation. In the case of working capital, the firms' main sources were other sources of 42.4 percent, which could come from a partner, families and so on (**Table 3**). The commercial banks came only in second place with 38.4 percent. The share of commercial banks as the source of working capital declined in 1999 to 34.6 percent, while at the same time other sources rose to 57.3.

This was indeed the impact of the credit crunch as a consequence of the banking sector restructuring in 1999 as a part of the economic recovery program.

It would not be too surprising if the impact of banking sector crunch was also apparent in the composition of firms' sources of finance for major capital investment. In 1995 the main source for capital investment was the commercial banking accounting for 36.3 percent (**Table 4**). The internal sources of retained earning accounted for 26.3 percent of investment funds. Firms were more financially constrained in 1999 as a result of the banking sector crunch. The share of commercial banks dropped to 33.7 percent, while the retained earnings share increased dramatically to 42.4 percent.

5.2 Firm Conduct

Organizational Structure

Due to the limited number of 'true' computer manufacturers, the firms surveyed are not limited to computers, but also include other branches of electronic industry.

Altogether, there are 38 firms, four of which are computer or computer parts manufacturers. Most companies have legal status as incorporated. The most common ownership structure in the sample is a 100 percent foreign owned firm. In terms of number of employees, the firm's average size is 1063, but actually the firm size varies from as few as 6 workers to more than 10000 workers. In terms of fixed assets, the average value varies between US $ 1 million to US $ 10 million and US $ 10 million to US $ 50 million. The values of plant and machinery account for about 20 to 50 percent of the total fixed assets. In terms of the percentage to fixed assets, the values of plant and machinery are smaller than that of the garments and auto-parts industries. This may reflect the shallowness of the industry, which concentrates mostly on assembly operations.

The organizational structure of firms varies from a simple as 2 departments to a complex one of 8 different units. The simplest ones usually have lost their manufacturing unit, and therefore do not employ shop floor workers. The manufacturing or assembling unit has been relocated to other countries such as Malaysia and the Philippines. Those firms now function as agents for overseas principals in which products are imported in finished form, so in effect they actually do not qualify as manufacturing firms. The case of owner/managers is about half of the

sample. In addition to the traditional units such as production, finance and so on, most firms also have labor unions. The most prevalent structure is having three departments of production, marketing and finance. In addition to these core departments, some companies have at least one of the following units; R&D, human resources and public relation.

To coordinate activities among different units, inter departmental / unit meetings are conducted between once every two weeks to once a month. Through these meetings information are channeled to various units in a company. The existence of an employee suggestion scheme is not as widespread as in the garments and auto-parts industries, because only 14 out of total 38 firms have such a scheme (**Table 5**). The most important information flowing through this channel is the reduction in defects followed by quality improvement. So again we observe that technology upgrading is not a top priority on the company's agenda.

Marketing and Distribution

In general the distribution system of branded computers begins with producers. The products are then channeled to distributors, and then dealers that often also act as computer stores. There are some differences between computer stores selling branded imported PCs and those selling branded locally made computers. Computer stores selling branded imported PCs usually also sell their own store-made computers. On the other hand, computer stores that sell a particular local brand do not sell other brands. The reason why computer stores selling imported branded computers also sell their own made brand is because the demand for PC clones is high.

Producers of local relatively unknown brands usually sell their products directly to computer stores or they resort to door-to-door selling to companies and government offices. If sold to computer stores, the products are left unbranded. The task of naming the products' brands is left to computer stores to decide. In this respect, however, most computer stores prefer to sell their own-made computers, so they can get higher profits. About half of these firms are part of a larger group (**Table 10**). As has been observed in the case of the auto-parts and garments industries, the main activity of a firm's strategic partner is marketing and distribution. They maintain quite close contacts with strategic partners through scheduled meetings varying between once a week and once a month.

Formation of Technological Capabilities

Although the personal computer industry has already existed since 16 years ago, the level of technology capability is still in its infancy. The technological capability at the company level is generally still limited to production (assembling) and making minor changes. To move up the technological ladder, the main challenge faced by Indonesia in developing its personal computer industry or IT industry to improve access to international technology sources and the development of a local industry that is linked to foreign investment. Only less than half of the sample (15 firms out of 38) practices quality assurance (**Table 5**). One possible explanation is that most firms secure orders in the form of contract manufacturing, so just to follow strict quality standards given by principals is considered good enough. The most common quality certification is ISO 9002. Random statistical rejection rate is widely used by firms in this industry.

The new product introduction is very unevenly distributed among firms. There are about 23 firms that have never introduced new products in the last three years. There are about 8 firms that rely on licensing. Most products are destined for the domestic market. Meanwhile, another six firms depend on foreign subsidiaries. Given the perceived immaturity of the electronic industry in Indonesia, it is quite surprising to find a sizable number of firms (11 firms) pursuing their own development strategies. Those firms however are most likely to be domestic market-oriented producers.

With regard to process innovation the most popular choice is to install new ICT components, while buying new capital equipment is the second choice. Such process innovation results mostly in improvement of productivity as much as 23 percent, and also a 12.8 percent energy saving, which is a typical answer encountered in the garments and auto-parts industries. As happened in the garments and auto-parts industries, the new production system is licensed from the technology supplier.

About 47 percent of the sample own separate R&D units, which on average employ about eight to 10 persons (**Table 5**). Of the above personnel, the percentage of Ph.Ds is less than 10 percent. Given the level of technology, it would be surprising if they have more. In terms of percentage to total sales, the R & D spending of the electronic industry is higher than either the garments or auto parts industries. In 1995, the R&D spending for electronics was 3.4 percent of total sales (**Table 6**). The spending rose to 4 percent in 1999. The figures for the auto parts and garments industries in 1999 were three percent and 2.7 percent

respectively. Almost all firms have never participated in any government sponsored R & D program. The government R & D program is considered as having no immediate application for the firms' needs. No firms have received government assistance in the form of direct grants, subsidies or tax breaks for R & D over the last three years.

The domestic environment in general is considered less than satisfactory for technology development activities, except for the availability of skilled manpower, quality of ICT services and R & D institutions, which receive satisfactory marks (**Table 7**). The response with regard to R & D institutions is surprising, since most R & D publicized activities are conducted by the government, while the government's role in R & D is not valued highly by the companies. If so, these R & D institutions and linkages may arise from the initiatives of companies. Given the level of technological maturity in Indonesia, it would be hard to imagine that they conduct sophisticated R & D activities. Rather, the activities may lead to a minor product modification and at most process innovation.

5.3 Econometric Results

Table 11 presents the econometric estimation of the determinants of competitiveness or export growth in the electronic/PC industry. As commonly observed for the other two industries, the dummy for a part of a larger group is significant at the 5 percent level and has the right sign. The owner-manager variable does not have a significant impact on competitiveness or export growth. The dummies for the employee suggestion scheme and collective bargaining system are also not significant. The percentage of firms belong to a larger group is higher than in the garments and auto parts industries. The reason is that firms with a fairly high export orientation are in fact contract manufacturers working for a foreign principal. There is very little that can be done by employees to improve export growth except to finish jobs as dictated by contract.

One striking difference between the electronic /PC industry is the significant influence of human resource development on competitiveness. The HRD variable is significant at the 5 percent level and has the right sign in all four specifications. Since most exports arise from contract manufacturing, foreign principals will give manufacturing orders to their subsidiaries or other companies that meet strict criteria on organizational size and engineering capabilities. Foreign manufacturers rarely choose a small firm with a simple organizational structure and lacking reputation.

For this reason most exports comes from firms with more complete organizational structures. In this respect the presence of a separate HRD unit, a regular pay scale and performance-related bonuses may signify a company's reputation and thus manufacturing orders are more likely awarded to this type of company.

The coefficients of financial variables in the last two specifications are all significant and positive, so access to commercial banks is very important for a firm's competitiveness. This may imply that firms are financially constrained if credit access to commercial bank is restricted. Observation of the respondents' responses tends to confirm this, since the electronic industry has the highest percentage of retained earnings (42.39%) used to finance investment projects compared to 38 and 34 percent for the garments and auto-parts industries respectively.

With regard to the regression of technological capabilities (**Table 12**), the result is weak statistically, but it is still better in comparison to the garments and auto parts industries. The HRD has the right sign and is significant at the 10 percent level. The probability to install ICT components in the production process is higher for a firm with a more complete organizational structure. The initiative to conduct process innovation may be required by foreign principals before manufacturing orders are given. Firms therefore have to commit substantial resources first without any certainty of contracts. In this situation only firms with a minimum critical organizational size can play an active role in such risky investments. So once again the existence of a separate HRD unit, a regular pay scale and performance-related bonuses may form the critical threshold beyond which the company is willing to take the risk in the investment to improve technological capabilities. The other significant variables are the custom procedures with a negative sign. Most ICT components are still imported. Therefore the custom procedures may cause a delay in the installation of the components, which is very costly in terms of foregone production. Since firms have to meet strict deadlines, the situation may sometimes become intolerable which could cause the loss of valuable manufacturing orders and more importantly, the damage to a company's reputation.

6. CONCLUSION

We can summarize our findings as follows. At the present stage of technological maturity, R&D has not been an important factor in affecting the competitiveness of the industries surveyed. In general the Indonesian business climate is not conducive to the development of full

manufacturing industry, let alone R&D development of the electronics industry. Besides the threat of smuggled goods, various tax policies and labor regulations have made it difficult for manufacturing firms to compete with imported goods.

In terms of conduct, becoming a member of a larger group is very important to penetrate export markets. The costs would be much higher if a firm chooses to enter on an individual basis. By joining a group, a firm can at least save money on obtaining valuable information on the trend of consumer demand and the changes in production technology.

Access to financial and capital markets is no less important than the availability of adequate infrastructure. Lacking the R&D tradition, access to financial markets has become the most important variable affecting competitiveness. The lack of access to financial and capital markets is indeed the major obstacle for firms to compete successfully. If exporting firms are financially constrained, then this would be a major impediment to sustaining their competitiveness in international markets. Manufacturing firms are in general more financially constrained after the 1998 currency crisis. The credit market is practically dried up in the wake of the banking sector restructuring. As a consequence other sources of finance, such as retained earnings, partner firms and family have become important sources.

Most firms do not hold the role of government sponsored R & D institutes in high regard. Practically, there is no company that has ever participated in any government sponsored R & D program during the last three years. The domestic environment is perceived as not conducive for technology development. The Government received bad marks in almost all questions regarding the suitability of the domestic environment for technology development activities. The most pressing problem is the negative attitude of government departments and regulatory authorities. The role of local universities in technical support and R & D collaboration also receives low marks. Looking at the state of manufacturing sector development in Indonesia, the first priority is not to expand government R & D institutions -- rather a greater priority should be given to set up a good training system for technicians and craftsmen rather than for scientists and engineers. However, as Indonesia's needs to develop more skill and technology intensive industries, in the near future greater attention should be focused on expanding as well as improving the quality of higher education in the engineering and natural sciences.

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Table 1
The Importance of Infrastructure to Company's Competitiveness

Infrastructure, Facility and Program	Ranking		
	Auto parts	Garment	Electronic
Transport services	4	3	1
Power supply	2	2	3
Water supply	7	5	5
Telecommunication network	1	1	10
Public health facilities	6	9	11
Legal system and institution	5	7	13
Public sector science and technology system	3	4	8
Testing and quality evaluation facilities in the public domain	8	11	6
Public sector market and research intelligence	10	13	4
Public support for overseas market promotion	13	8	2
Export credit program	9	8	7
Government incentives in promoting cluster/science parks	11	10	9
The role of government in promoting inter-firm collaboration	12	12	12

Sources: calculated from the Survey

Table 2
Constraint to Company's Competitiveness

	Ranking		
	Auto parts	Garment	Electronic
Licensing arrangement	3	2	1
Local duties and levies	1	1	2
Official corruption	2	4	3
Municipal regulations	4	2	4
Access to land	6	3	5
Custom procedures	5	5	6
Regulation	7	5	7

Sources: calculated from the Survey

Table 3
Sources of Financing for Working Capital (%)

Industry	Commercial banks		Other sources	
	1995	1999	1995	1999
Auto parts	33.59	34.96	33.48	11.02
Garment	32.20	33.66	44.95	48.26
Electronic	38.43	34.58	42.40	57.29

Sources: calculated from the Survey

Table 4
Sources of Financing for Major Capital Investment (%)

Industry	Commercial banks		Retained earnings	
	1995	1999	1995	1999
Auto parts	33.29	31.41	30.22	34.13
Garment	25.63	28.83	37.35	38.09
Electronic	36.30	33.70	26.30	34.39

Sources: calculated from the Survey

Table 5
Sample Characteristics

	Percent of firm		
	Auto parts	Garment	Electronic
Part of larger group	33	27	50
Strategic alliance	54	59	90
Owner managed	39	55	47
Separate human resource department	63	65	47
Separate R&D unit	46	22	42
Quality assurance	39	28	50
Employee suggestion scheme	85	65	84
Average firm size (worker)	691	824	1063
Number of firms	46	51	38

Sources: calculated from the Survey

Table 6
Percentage of R&D Expenditures to Total Sales

Industry	1995	1999
Auto parts	1.91	3.01
Garment	1.65	2.71
Electronic	3.37	4.05

Sources: calculated from the Survey

Table 7
Ranking of the Current Domestic Environment for Technology Development

	Ranking		
	Auto parts	Garment	Electronic
Availability of government incentives for innovation	7	4	7
Availability of suitable scientific/skilled manpower	1	2	1
Local universities for technical support and R&D collaboration	6	8	5
R&D institutions for technical support and R&D collaboration	4	7	3
Attitude of government department and regulatory authorities	8	6	6
Intellectual property protection	3	5	5
Quality of information and communication technology services	2	1	2
Availability of venture capital	5	3	4

Sources: calculated from the Survey

Table 8
Employee Suggestion Scheme: Ranking of Importance

Item Suggested	Auto parts	Garment	Electronic
Technology upgrading	4	4	4
Productivity enhancement	3	3	2
Quality improvement	1	2	3
Reduction in defects	2	1	1

Sources: calculated from the Survey

Table 9
Garment: Determinant of Competitiveness

Explanatory Variables	Specification			
	1	**2**	**3**	**4**
Constant	**-0.52**	**0.25**	**0.35**	**5.33**
	[-0.32]	[0.17]	[0.307]	[3.08]**
Part of larger group	**-1.94**	**-1.21**		
(dummy: yes=1, no=2)	[-1.95]**	[-1.97]**		
Owner managed	**1.55**	**1.44**		
(dummy: yes=1, no=2)	[2.73]**	[2.47]**		
Human resource development	**-0.13**	**-0.13**	**-0.16**	**-0.11**
(small values = more complete HRD)	[-1.18]	[-1.10]	[-1.28]	[-1.01]
Process innovation (PI)	**0.13**		**0.08**	
(small values = more complete (PI)	[1.15]		[0.64]	
Product innovation		**-0.0035**		**0.01**
(number of new products)		[-0.20]		[0.67]
Infrastructure	**0.01**	**0.01**	**0.01**	**0.01**
(smaller means poorer quality)	[1.00]	[1.16]	[1.45]	[1.23]
Constraint to competitiveness	0.0001	0.0001	0.0003	0.0002
(small value = less important)	[1.70]*	[0.91]	[2.34]**	[1.73]*
Ratio of banking fin. to ret. earnings		0.33		0.39
		[1.81]*		[2.37]**
Employee suggestion scheme				-1.77
(dummy variable: 1=yes, 2=no)				[-2.94]
Collective bargaining system				-1.34
(dummy variable: 1=yes, 2=no)				[-2.27]**
No. of Observation	51	51	51	51
R-Squared	0.40	0.39	0.18	0.38

Notes:
** : significant at the 5 percent level
*: significant at the 10 percent level

Table 10
Auto part: Determinant of Competitiveness

Explanatory Variables	Specification			
	1	2	3	4
Constant	**-9.66**	**-5.59**	**-5.34**	**-4.02**
	[-2.57]**	[-2.23]**	[-2.15]**	[-1.43]
Part of larger group	**-2.23**			
(dummy: yes=1, no=2)	[-2.25]**			
Owner managed	**1.16**			
(dummy: yes=1, no=2)	[2.51]**			
Human resource development	**-0.0003**	**0.0001**	**0.0002**	**-0.24**
(small values = more complete HRD)	[-0.302]	[0.35]	[0.07]	[-1.26]
Process innovation (PI)		**-0.06**	**-0.10**	
(small values = more complete (PI)		[-0.27]	[-0.41]	
Product innovation	**-0.01**			**-0.07**
(number of new products)	[-0.42]			[-0.44]
Infrastructure	**0.04**	**0.05**	**0.06**	**0.06**
(smaller means poorer quality)	[1.96]**	[2.73]**	[2.74]**	[2.76]**
Constraint to competitiveness	0.0001	0.0001	0.0001	0.0001
(small value = less important)	[0.86]	[0.67]	[0.67]	[0.96]
Ratio of banking fin. to ret. Earnings				-0.13
				[-0.36]
Employee suggestion scheme				-0.84
(dummy variable: 1=yes, 2=no)				[-0.53]
Collective bargaining system				0.24
(dummy variable: 1=yes, 2=no)				[1.21]
No. of Observation	45	45	45	45
R-Squared	0.43	0.44	0.25	0.29

Notes:
** : significant at the 5 percent level
*: significant at the 10 percent level

Table 11
Electronic and Personal Computer: Determinant of Competitiveness

Explanatory Variables	Specification			
	1	2	3	4
Constant	**4.96**	**4.95**	**2.86**	**2.36**
	[2.99]**	[2.99]**	[2.78]**	[1.33]
Part of larger group	**-1.81**	**-1.88**		
(dummy: yes=1, no=2)	[-1.82]*	[-2.14]**		
Owner managed	**-0.44**	**-0.62**		
(dummy: yes=1, no=2)	[-0.46]	[-0.68]		
Human resource development	**-1.10**	**-1.08**	**-0.94**	**-0.96**
(small values = more complete HRD)	[-2.83]**	[-2.84]**	[-2.56]**	[-2.56]**
Process innovation (PI)	**-0.09**		**-0.12**	
(small values = more complete (PI)	[-0.55]		[-0.83]	
Product innovation		**0.003**		**0.01**
(number of new products)		[0.11]		[0.27]
Infrastructure	**0.01**	**0.05**	**0.004**	**0.01**
(smaller value means poorer quality)	[0.88]	[0.62]	[0.63]	[0.61]
Constraint to competitiveness	**-0.95**	**-0.0001**	**-0.0002**	**-0.0002**
(small value = less important)	[-0.86]	[-0.80]	[-1.43]	[0.96]
Ratio of banking fin. to ret. earnings			**1.36**	**1.24**
			[2.40]**	[2.05]**
Employee suggestion scheme				**0.48**
(dummy variable: 1=yes, 2=no)				[0.56]
Collective bargaining system				**-0.35**
(dummy variable: 1=yes, 2=no)				[-0.39]
No. of Observation	38	38	38	38
R-Squared	0.36	0.39	0.45	0.46

Notes:
** : significant at the 5 percent level
*: significant at the 10 percent level

Table 12
Process Innovation: Probability to Put in Information Technology System

Explanatory Variables	Industry		
	Garment	Autoparts	Electronic
Constant	**-5.34**	**-2.99**	**1.47**
	[-2.15]**	[-2.10]**	[0.99]
Part of larger group	**0.49**	**-0.50**	**0.64**
(dummy: yes=1, no=2)	[0.85]	[-0.90]	[0.80]
Owner managed	**0.84**	**1.27**	**0.24**
(dummy: yes=1, no=2)	[1.62]	[1.98]**	[0.32]
Human resource development	**-0.09**	**-0.0004**	**-0.38**
(small values = more complete HRD)	[-0.86]	[-0.40]	[-1.88]*
Employee suggestion scheme	**-0.82**	**0.12**	**0.80**
(dummy: yes=1, no=2)	[-1.57]	[0.18]	[0.96]
Ratio of bank fin. to ret. earnings	**-0.05**	**0.11**	**0.58**
	[-0.38]	[0.80]	[1.36]
Infrastructure	**-0.01**	**-0.0002**	**0.001**
(smaller value means poorer quality)	[-1.03]	[-0.03]	[0.08]
Custom	**0.18**	**0.13**	**-0.67**
(smaller values means posing less problem)	[1.16]	[0.70]	[-2.37]**
No. of Observation	51	45	38

★★★

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Microfinance Commercialisation, Challenges and Issues in Developing Countries: A Critical Literature Review

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Abstract

This paper aims at reviewing empirical literature on the performance and issues associated with commercialisation of microfinance institutions (MFIs). The popular approach believes that commercial-based operation can lead to financial self-sustainability without reducing the role to assist the poor. Although the growth in financial intermediation is evident, many commercialised MFIs remain dependence on subsidy and fail to achieve a greater outreach. Hence, this approach highly undermines the social mission of microfinance to reach the poorest of the poor.

Keywords : *Microfinance, Commercialisation, Developing Country*
JEL Classification : *G00, L14, O50*

1. INTRODUCTION

Over the last decade, the progress towards self-financing of some microfinance institutions has renewed interest in the study of MFIs assisting the world's poor. While the ultimate goal of MFIs is clearly to improve the welfare of the poor, the extent to which microfinance should aid the poor is uncertain among financial practitioners. According to the 'pro-profit' approach, MFIs should be seen as an ordinary financial business in which their capability to mobilize funds from and to the poor should coincide with maintaining a self-financing capacity and being independent of subsidies (Pischke, 2002). In contrast, the 'pro-poor' approach on the MFIs relies on how well they can reach out to the 'poorest of the poor' (Schreiner, 2002). In this approach, profitability should not be the main concern and, therefore, funding donations remain an essential component to succeed in the holy mission of non-profit orientation. However, the pro-profit approach seems to be favourable in terms of theoretical and empirical standpoints. Many of these standpoints are based on the fact that subsidized credits have low repayment rates and most are channelled to inappropriate recipients (Morduch, 1999; Gonzales-Vega *et al.*, 1997).

Recently, the superior performance of BancoSol in Bolivia, BRI-unit in Indonesia and the Grameen Bank in Bangladesh has triggered the world-wide transformation of microfinance NGOs into regulated MFIs in many developing countries. In the last decade about 39 microfinance NGOs had been transformed into regulated MFIs, covering Latin American countries (e.g., Colombia, Dominican Republic, Mexico, El Salvador, Peru), to Asia (e.g., Cambodia, India, Mongolia, Nepal, Pakistan, and the Philippines), and Africa (e.g., Kenya and South Africa). Optimistic views indicate that the self-sustainability objectives of MFIs can be achieved in parallel to the role in assisting the poor. With technical supports available to the transformed MFIs, the implementation of market-based operations will contribute to both outreach and self-finance in the long-run (Dhonaghue, 2004; Charitonenko *et al.*, 2004; and Christen, 2001). In contrast, pessimistic views suggest that the performance of regulated programs remains discouraging. Many of the transformed MFIs are still experiencing high default rates and are seemingly incapable of operating without subsidies. Most importantly, the fear exists that focusing on self-sustainability will lead MFIs away from their original mission. It is very likely as the targeted customers have become 'better-off' poor that 'very poor' households are excluded (Schreiner, 2001; Bhat and Shu-Yan, 2001; Bhatt, 1997 and Coleman, 2002, 1999).

This paper seeks to review the performance and issues associated with the transformation of MFIs into regulated financial institutions. It is structured as follows. Section 2 outlines the phases of development from the microcredit activities to regulated microfinance institutions. Section 3 reviews the performance and issues of microfinance. The transformation into regulated MFIs and its implications for governance, sustainability and outreach is discussed in section 4. Section 5 concludes this paper.

2. THE PHASES OF MICROFINANCE DEVELOPMENT

In the past international donations for poor people were relatively small because they assumed that poverty is due to a personal failing. Poverty traps are believed to be inherent in the development process in that it has reduced the access of the poor to credit sources. Credit availability should be seen, according Elahi and Danopulus (2004) among many others, as basic human right for the poor. As a result, funding supports for microcredit activities has increased dramatically. The Microcredit Summit in 1997, for instance, has called for $20 billion of funds to be available during 1997-2006 to scale-up microfinance activities around the globe (Coleman, 2002).

The inadequate access of the poor to formal financial services is the central reason for the introduction of microcredit activities. Formal financial institutions become risk averse to serve poor households because of two main reasons. Firstly, economic activities of the poor are characterised by mini-scale economies of production, consumption, saving, borrowing and income. Under this circumstance, there are substantial transaction costs in financing such a small scale of economic activities. Secondly, the economic activities of the poor have high risks and insecurity caused by unpredictable changes in income and expenditure (e.g., harvest failure, funeral, wedding and sickness) and moral hazard (e.g., contract enforcement difficulty and insecurity) (Matin *et al.*, 2002).

Elsewhere, Hulme and Mosley (1996) state that formal lenders face high risks due to the lack of viable information on the loan repayment capability of the poor. They term this as a 'screening' problem from which the lenders are incapable of distinguishing good from bad borrowers. In this case, high transaction costs as well as the cost of screening are the core issues for selecting creditworthy applicants. As the poor cannot insure their loan with collaterals, the prospective lenders highly face the 'enforcement' problem. This is akin to an adverse selection problem which is theoretically well proven by Akerlof (1970)

and Stiglitz and Weiss (1981). Consequently, the screening and enforcement problems deter credit supply for the poor. If so, such markets would be occupied by informal moneylenders who impose high interest rates on lending to the poor (Robinson, 1997).

Given the debatable issue of whether moneylenders are good or malicious, there is a disparity between supply of and demand for credits for the poor. To narrow the gap, since the 1950s the government and international funding agencies began to develop directed credit programs for the poor. Credit programs were subsidised and had specific sectoral and regional purposes, such as small credits for agriculture activities and micro enterprises of the poor in rural areas. However, the result of subsidised credits was disappointing in terms of loan collection and repayment. The World Bank study in 1975 brought to light that most microcredit programs in developing countries lost almost half of their capital every year (Morduch, 1999). This futile development then motivated the theoretical and empirical works of microfinance scholars from Ohio State University in the early 1980s, popularly known as the 'Ohio School'. The centre point of their ideas is that any state influence on microfinance markets is likely to fail because it creates 'rent seeking' behaviour within public sector institutions. This then leads to higher cost and relatively inefficient credit programs, compared to traditional moneylenders. Secondly, most credit programs cannot reach the targeted recipients due to such a moral hazard. Thirdly, saving mobilisation is important to encourage market discipline of the MFIs (Hulme and Mosley, 1996).

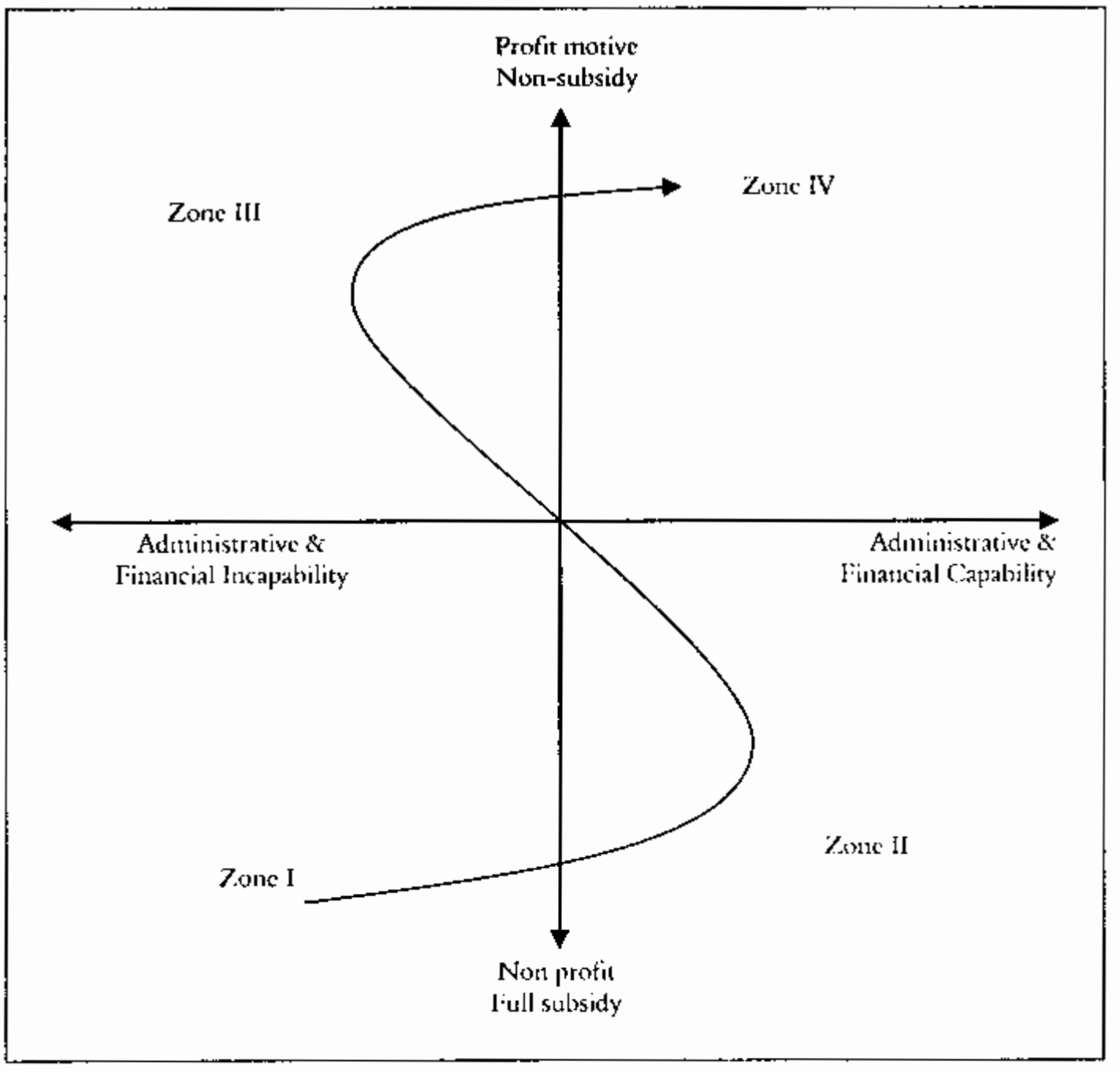
Since the late 1980s microfinance has become a global concept necessary to develop financial markets for the poor in developing countries. A widely-cited example includes the Grameen Bank in Bangladesh, BRI in Indonesia and BancoSol in Bolivia. Unlike credit-directed programs, such MFIs do not necessarily depend on external financing from donors. They have grown into self-financing and significantly reduce the dependence on financial subsidies. As their financial performance relies more on profit and saving mobilisation for the poor, this then boosts the popularity of regulated microfinance. This is stimulated by the successful transformation of the microfinance NGO, PRODEM into BancoSol in 1992. The ultimate target is to promote financial intermediaries of the poor for profit, so as to gradually relax funding subsidies in the long-run.

The evolution from credit-directed programs to the existence of regulated microfinance institutions can be outlined as in **Figure 1**. Here, suppose that the vertical axis describes two extreme conditions of non-profit orientation with fully subsidised funds from donors and the profit-oriented motive without subsidy. The horizontal axis indicates another extreme of administratively and financially incapable or capable. Then, the intersection of these two extreme lines sketches four sequential stages of MFI development. The first level, *Zone I*, indicates the early stage of MFI development where the microfinance NGOs are the main vehicle for the directed credit programs with no profit motive. As a non-profit organisation, they will persistently depend on financial supports from donor bodies. With perceived weaknesses in administrative and financial capabilities, a termination of funding subsidy from donors will lead to organisational failure in the short-run.

There has been evidence that some microfinance NGOs have achieved better organisational management after some years of establishment. Such NGOs have moved into *Zone II*. The only difference between Zone I and II is that in Zone II the microfinance NGOs have experienced relatively better performance in administrative and financial capabilities. Although financial supports remain an important part of their operations, administrative and financial skills have increased their business efficiency. BRAC in Bangladesh and PRODEM in Bolivia are often cited as examples of successful microfinance NGOs with strong business acumen, although they financially remain dependent on the donors.

In order to reach more of the poor, there is an increased pressure from donation bodies on microfinance NGOs to raise business efficiency. Many aid donors have required microfinance NGOs to have obvious plans in attaining self-financing capability. They believe that the goal to reduce poverty may not be achievable in the absence of self-financing sustainability. With technical supports for financial and managerial skill advancement, some microfinance NGOs have been transformed into banking-type institutions. This effort is particularly to achieve profitability and better access to commercial funds (e.g. voluntary savings and commercial borrowings), so as to gradually escape from financing subsidies in the long-run. However, the inadequate business skills and (less) unprofitable operation characterise the MFIs entering into the transitional process towards the market based operation. They enter *Zone III*. In this stage, therefore, funding support may still be necessary to overcome immature business capacities, inefficiency and unprofitable operations.

Figure 1
The Life Cycle of Microfinance Institutions



Through continuous improvement of business skills, MFIs have developed into financially viable organisation without subsidy by generating sufficient profits. The significant increase in saving mobilisation and accessibility to commercial funds celebrates the MFIs moving into *Zone IV*. In this final stage, the mature business capacity to compete against other financial companies indicates that their operations can be subject to prudent (market-based) regulation and supervision.

The movement from Zone I to Zone IV in Figure 1 can be traced to the case of BRI in Indonesia. The government-directed credit programs have been successfully transformed into mature microfinance institution of the village bank *(BRI-unit)*. Originally, the BRI-unit was set up to

channel credit programs for villagers under the BIMAS or *Bimbingan Masal* (Mass Guidance) program in the 1970s to achieve self-sufficiency in rice production. With regard to the unsuccessful BIMAS, in terms of loan collection and repayment, the government reformed the BRI-unit into the market-based operation within BRI in 1983. With financial innovation and profitability, the BRI-unit has become the main player in Indonesia's microfinance system. In 2001 with 4,063 branches, BRI-unit contributed about 43.5 percent of total microfinance loans and of 74.2 percent of total deposits (Charitonenko and Afwan, 2003). BRI unit has also been relatively financially solid in response to the financial shock in 1997/98 (Matin *et al.*, 2002).

3. MICROFINANCE PERFORMANCE AND ISSUES

Not coincidentally, non-governmental organisation (NGOs) has long been the main player on microfinance delivery for the poor. The historical 'success' of their mission has been through bottom-up approach to governance in the community. The long experience in providing non-financial assistance to the poor has also made NGOs favourable for delivering microfinance services. This is mostly the case in areas, such as adult education and training, entrepreneurships, women empowerment and the like. This then raises an expectation that the microfinance NGOs would be able to implement a more innovative management system with a strong participatory approach, than government bodies or profit-motive organisations (Bhat and Shu-Yan 2001).

Some NGO-type financial providers have documented remarkable performances in some developing countries in terms of outreach –'social benefits of microfinance for the poor'– (Schreiner, 2002). The NGO, Promoción Desarolla de la Micro Empresa (PRODEM), established in 1987 is an example of a well-cited successful microfinance NGO (Mosley, 2001). Data in 1999 indicated that PRODEM had covered about 59,000 borrowers, mostly in rural areas with the average amount of lending of US$450 each. Comparably, this figure was much larger than that of 1987 when the number of borrowers stood at about 1,737 with the average loan about US$92. About 70-80 percent of the customers were women (Mosley, 1996, 2001).

Moving to the Asian context, a similar story occurs in Bangladesh. The NGO, Bangladesh Rural Advancement Committee (BRAC) was set up in 1972 to help to rebuild the socio-economy of the poor, landless women in particular, after the war of independence. By 2002 BRAC had successfully organized about 3.5 million poor households, mostly women

participants, with total lending of about US$ 1.4 billion. About one-third of the loans have been mobilised from deposit of participation programs. In the educational sector, BRAC has run about 34,000 primary schools with 66 percent of student enrolment are girls. For adult literacy, it has covered vocational training on human rights, legal education, property law as well as income generating activities. BRAC is unsurprisingly well-known as the largest NGO in developing countries, in terms of scope and program diversity (Chowdhury and Bhuya, 2004). The development of BRAC has significantly contributed to the increase in income, health, nutrition, and education of the poor in Bangladesh (Bhat and Shu-Yan, 2001 and Chowdhury and Bhuiya, 2004).

Recently, there has been a significant diversification of financial services to the poor. These include various saving and credit facilities, and loan repayment systems perceived important to ensure loan collection. Hence, the assumption that the 'poor are too poor to save', has been found to be unrealistic. Martin *et al.* (2002) provide an argument on this through so-called 'life-cycle needs', 'emergency' and 'opportunities' hypotheses of which the poor is highly required to save money. The life-cycle-needs hypothesis states that the poor face many life-cycle expenditures, such as childbirth, child education, and marriage. Such expenses should be anticipated by the poor through saving money. The emergency hypothesis proposes that the poor are consistently pushed to save money for any personal emergency, such as sickness, death, and lost of employment opportunities. The opportunity hypothesis points out that there is always also a chance for poor people to have additional incomes, through new investment, job opportunities or expanding their ongoing business. Therefore, it is worth saying that saving facilities is as equally important as delivering micro credit services for the poor.

Apart from flourishing NGOs as the microfinance delivery conduit, they are mostly dependent upon funding subsidy. According to Bhatt and Shio-Yan (2001), about 85 percent of BRAC's operation required financial support from external donors (e.g., the Ford Foundation, the Canadian International Development Agency and the British Overseas Development Agency). In the case of PRODEM, the study of Mosley (1996) calculates the subsidy index which is derived from setting up interest rates below market rates, non-repayment dividends for stockholders prior to profitable operation, and the provision of free services. In exception of BRI in Indonesia, the subsidy index of all sampled MFIs in his study has a positive value, meaning that they remain dependent on subsidy. For example, the subsidy index of PRODEM stood at about 74 percent in 1987 in which this then sharply

increased to about 195 percent in 1990. Although, the subsidy index falls significantly to 12 percent in 1993, following the transformation of PRODEM into BancoSol in 1992 (Mosley, 1996).

Since the 1990s the transformation of microfinance NGOs into regulated MFIs has become a role model for the microfinance development in many developing countries. The ultimate goal of this is to achieve self-financing sustainability and reducing subsidy. The establishment of BancoSol in Bolivia is a well-known metamorphosis from the microfinance NGO into a profit-oriented institution. Its role is similar to commercial banks which enable them to tap funds from non-donor sources and then channelling to prospective borrowers for profit. However, a critical difference is that while commercial banks focus mainly on wealthier clients in urban areas, the regulated MFIs provide financial services especially for poor households and micro enterprises in rural areas.

The transformation into profit-oriented MFIs has also created a substantial increase in funding mobilisation with profitability, high loan repayments and self-financial sustainability. Following its establishment in 1992, BancoSol has remarkably expanded the scope of its operation and financial performance. Mosley (2001) notices that with total borrowers of about 80,000, BancoSol's coverage is much larger than any other microfinance institution in Latin America, Africa and Eastern Europe. With high loan repayment rates of its over 100,000 borrowers, for instance, in 1996, it was the first time BancoSol has generated dividends for the shareholders (Gonzales-Vega *et al.*, 1997). The Grameen Bank provides a different success story, providing small loan designed for rural poor households, women in particular and collateral-free loans. The Grameen Bank in recent years has raised a microfinance promise for the poor with mostly having no collateral in hand and lacked access to traditional banking institutions (Murdoch, 1999). In comparison with the rural areas without the Grameen Bank, the absolute poverty level of rural areas covered by the Grameen Bank indicates two-thirds lower than the villages without the existence of the bank (Khanndker, 1996). Another remarkable success story of banking-type microfinance is BRI-unit in Indonesia. Although BRI-unit does not have a special mission for poverty alleviation, it does successfully encompass low-income households with profitable operations. It does this through designing financial products favourable for this group as well as micro enterprises in rural areas.

Some argue however, that the self-financing sustainability of the MFIs through profit-orientation may reduce its original mission of

alleviating poverty. The commercialisation of microfinance services may leave the very poor households with limited access to capital, particularly for those living in remote areas which are commercially unprofitable to serve than in urban areas (Chao-Berrof, 1997 and Weis *et al.*, 2003). It is very likely that focusing on sustainability and profitability will make the MFIs to pay more attention to better-off clients in order to gain economies of scale and increasing the loan repayment probability. As Cohen and Sebstad (2000) point out, some microfinance institutions remain incapable of having deeper poverty focus on the poorest of the poor. It is also very often that many of the very poor clients drop out of the programs after only a few loan rotations. Some others eventually exit even when their loan repayment capacity actually raises (Hulme, 1999). Many factors are responsible for excluding the very poor households. According to Woller (2002), the failure of the marketing orientation of the regulated MFIs can be the main factor. He notices that such failure stems mainly from the lack of a customer-orientation strategy, in a sense that they pay too much attention to the products and services, rather than what customers need. In short, many MFIs do not have an explicit marketing target of the very poor. As a result, they are becoming risk averse to serve the very poor borrowers because of the fear of creditworthiness and unmet financial performance. The urban bias also tends to exclude the very poor because the MFIs have mostly been located in urban areas where the poverty is usually less concentrated (Woller, 2002) .

4. TRANSFORMATION INTO REGULATED INSTITUTIONS

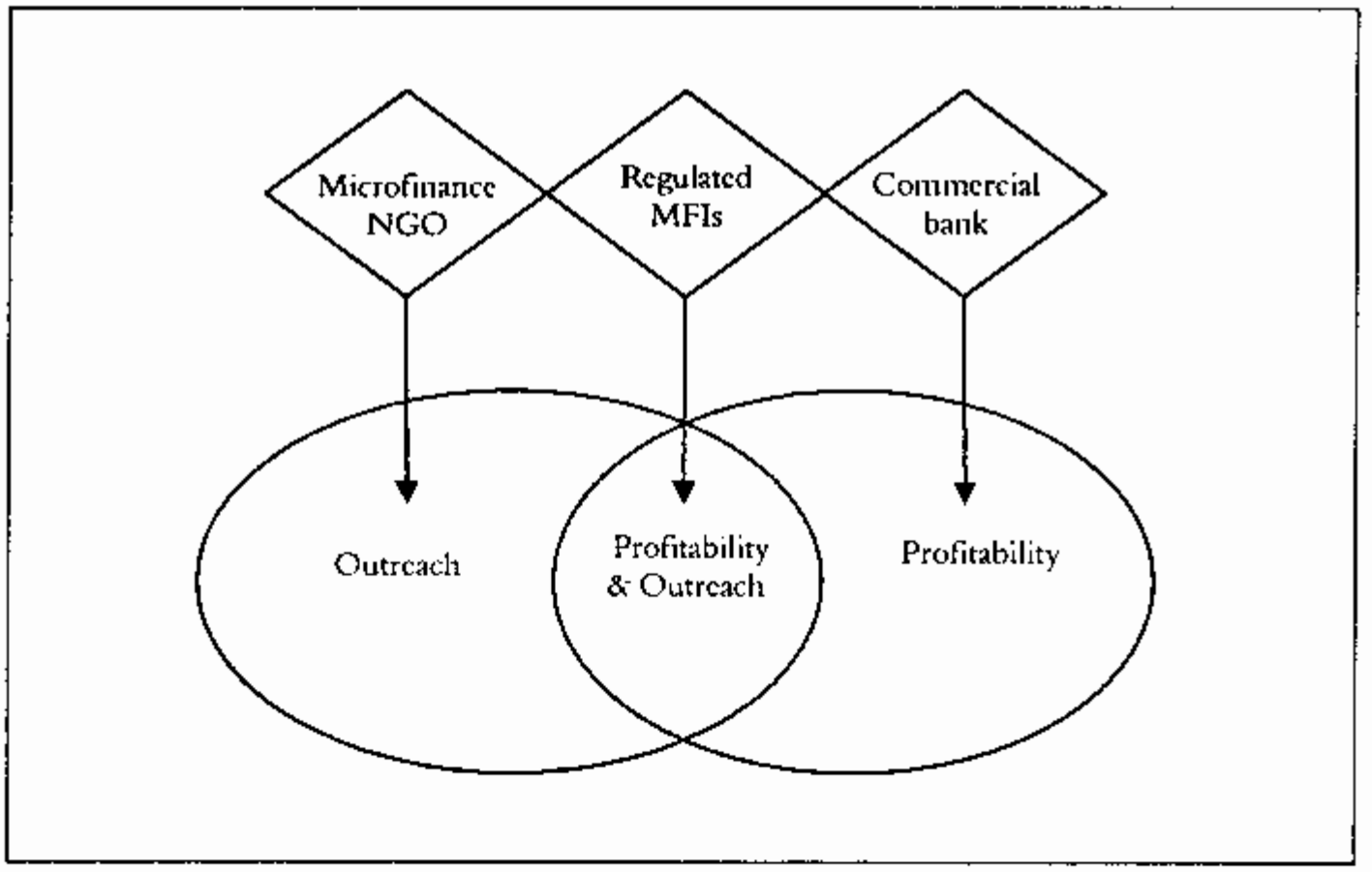
The transformation into regulated MFIs gradually increased in many countries following the case of BancoSol in Bolivia in 1992. Latin America and Asia recorded the largest case of transformation between 1992-2003 (Fernando, 2003). Conceptually, this transformation pictures a dramatic change in the perspective toward microfinance. Originally, the favourability of microfinance NGO modality to cater financial services to the poor is because regulated financial institutions (e.g., commercial banks) have failed to take the role. The profit-driven motive of regulated institutions is argued to be incompatible to the socio-economic characteristics of the poor. Nowadays, many microfinance scholars believe that the transformation is a logic procedure to attain efficiency and financially sustainable without necessarily reducing the role to assist the poor. This commercialisation approach is particularly stimulated by at least three expectations. Firstly, the change in the ownership structure of the MFIs will strengthen governance. Secondly, the transformation is

expected to increase access to commercial funds and broader financial services. Thirdly more importantly, it can further the number of poorest served (Fernando, 2003). The critical question is whether the transformation has fulfilled the expectation. The following sections are to discuss this issue.

4.1 Governance Issues

The concept of corporate governance can be referred to as a managerial process through which the board of directors navigates the resources of the organisation toward the achievement of its corporate mission. This implies the governance structure to be comprised of two levels: the governing body (the board of directors) and management team whose responsibility is to set up day-to-day decisions. The basic role of the board is to provide direction to the managers and monitoring them toward the fulfilment of the shareholders' interests (Otero, 2001; Aliriani, 2004). However, at a broader concept of governance, stakeholder approach, it should not only be assigned to realise the shareholders' interest but also to the whole economic agents in society who may be affected by and influence the productive process of the organisation (Otero, 2001; Labie, 2001 and Rock *et al.*, 1998). From microfinance perspectives, the governance issue is critically important at least for five reasons. Firstly, the stronger role of the director board is required to effectively manage the dynamic progress of the MFIs in terms of assets, the scope of financial services and the assignment to increase outreach. Secondly, the transformation into regulated MFIs has changed the ownership structure of the transformed MFIs. Shareholders are becoming important element within the board of directors with diverse interests in place. Thirdly, in the view of financial authority, the regulated MFIs entail sound financial oversight as they become deposit-taking institutions (Otero, 2001).

Figure 2
The Dual Mission of the Regulated Microfinance



Source: Adapted from Otero (2001 p.7)

Figure 2 above presents the corporate mission of MFIs which can be put in three different specialities. The first is those who have a focus mainly on the number of clients served. Microfinance NGOs mostly dedicate their mission to cater financial services to as many of the poorest as possible. Secondly, some microfinance NGOs have been metamorphosed into regulated MFIs who incorporate profitability into their missions, implying a dual mission of profitability and outreach. Thirdly, potential profitability has attracted commercial banks to get involved in microfinance. For this entity, the number of poor clients is put into consideration, only if they can contribute to the improvement in profitability.

Strengthening governance is basically to increase efficient control mechanism and transparency of the regulated MFIs. From shareholder perspectives, the core issue is the extent that incentives and internal control mechanism can be made available to the organisational growth with interest balance between each party involved in the MFIs (Otero, 2001). Considering the dual mission of MFIs, it can be a serious dilemma as one party within the board of directors can be interested in maximising profit, but the others are more on social accomplishment. The incapability

to reduce this trade-off can generate incoherent priority and conflicts which can end up with and organisational failure (Otero, 2001 and Labie, 2001).

4.2 Ownership Structure

The corporate governance is strongly related to ownership. The ownership structures of microfinance NGOs considerably differ with the regulated MFIs, particularly in relation to the risk sharing capitals. Microfinance NGOs mostly obtain start-up capital from donation bodies as a grant or concessionary loans. As a result, to whom the founder or the directors board of the microfinance NGO should be accountable to is unclear. This is probably why the accountability structure of microfinance NGO tends to be relatively inadequate and distant. In this case the loyalty and personal commitments to the institutional mission play the role to strengthening accountability (Rock *et al.*, 1998). Another way is by transforming the microfinance NGO into regulated MFIs (Rhyne, 2001). The conversion into shareholder ownerships of the transformed MFIs will generate incentives to improve accountability. This can be achieved basically through the clear direction of accountability and governance. In general, the ownership structure of the transformed MFIs is composed of the private and social investors. The first is usually concerned to capital returns (profitability) and the second is more on social returns. The combination between these two objectives brings the light on setting up institutional missions and that is to whom the accountability and governance should be addressed for. The important role of social/non-profit investors is to maximise an adequate level of profit with social returns of investments (Rock *et al.*, 1998; Otero, 2001; and Fernando, 2003).

A study of Fernando (2003) shows that the transformation of microfinance NGO into regulated MFIs has not changed much of the ownership structure. Table 1 reveals that the NGO founders remain the majority of stockholders in most samples of regulated MFIs (45 percent or more). In some cases the transformation has successfully attracted commercial and non-profit investors with small amount of ownership. In Latin America for instance, although, the transformation of Financciera Compartamos in Mexico has raised significantly the ownership of commercial investors to about 30 percent, in most cases, the ownership of commercial investors in the transformed MFIs are less than 15 percent (**Table 1**). From a positive side, the increase in commercial ownership can likely improve governance and sustainability of the transformed MFIs. This can be the case through transferring the advanced governance

mechanism as well as managerial skills from private financial companies to the regulated MFIs. The private investors can also provide a better access to additional capital in the case of illiquidity problems. Although, the side effect should be considered, as the profit-driven motive can dominate the decision making process within the regulated MFIs and therefore, deteriorating the social mission.

Social investors such as public entity, multilateral and bilateral institutions, international NGOs and specialized funds have significantly contributed to the ownership of the transformed MFIs. Mostly, the ownership of the social investors is relatively small (**Table 1**). Although in some cases, the social investors such as multilateral NGO have dominated the ownership structure of the transformed MFIs. In 2002, for instance, the ownership of social investors in BancoSol in Bolivia has accounted for about 38 percent, while in Calpia in El Salvador it is about 36 percent. In the case of Banco ADEMI in Dominican Republic, the ownership of social investor has been about 39 percent. The ownership of social investors in Asia is relatively lower than in Latin America in many cases (Fernando, 2003). As social investors are more interested in reaching more poor people, the modality of social investors in the regulated MFIs is to ensure the balance between profitability and social objectives. Yet, it will depend on the level of proficiency and commitment to poverty issues of representative individuals employed by the social investors at the director board of the transformed institutions (Rock *et al.*, 1998).

Table 1
The Ownership of Structure of Selected MFIs in Latin America and Asia

Ownership (%)	Founder	Foreign NGO	Public Entity	Specialised Equity Fund	Commercial Entity[1]	Other[2]
< 15	3 (14.3)	1 (4.8)	5 (23.8)	1 (4.8)	6 (28.6)	9 (42.9)
15 – 24,9	4 (19.1)	3 (14.3)	4 (19.1)	1 (4.8)	1 (4.8)	6 (28.6)
25 – 34,9	-	1 (4.8)	-	3 (14.3)	2 (9.5)	2 (9.5)
35 – 44,9	3 (14.3)	-	2 (9.5)	-	-	1 (4.8)
45 – 54,9	5 (23.8)	-	-	1 (4.8)	-	-
55 <	6 (28.5)	-	-	1 (4.8)	-	1 (4.8)

Source: Calculated from Fernando, 2003

Notes:
The regulated MFIs in Latin America include BancoSol, Calpia, BancoADEMI Confia, Financiera Compartamos, FPP Caja Los Andes, FFP-FIE, Mibanco, EDYFICAR, Confianza and in Asia include XAC Bank, Nirdham, Share, SB Bank, CARD, ACLEDA, OMB, First MF Bank, Hatta Kaksekar, Vision, and EMT.
[1]) Including private individual and
[2]) Including employee and the board of directors.

Moving to the stakeholder concept, the good governance of the transformed MFIs is crucial as they have been legally eligible to mobilize voluntary saving for the poor. From policy perspective, the regulated MFIs should then be subject to prudent regulation and supervision. This is in particular to protect precious savings of the poor against unsound financial practices that can lead to bankruptcy and collapse of the MFIs. Hence, good governance and accountability are needed, in order to meet prudent regulation and maintaining adequacy capital. However, whether or not, financial authorities should apply the universal principle of sound *banking* regulation and supervision (e.g. Basle Accord) to the regulated MFIs is a big question. In dealing with risks, for instance, the MFIs may act differently to that of commercial banks. Commercial banks can react more quickly in the case of insolvency through recapitalizations. This can be possible because they usually have better access to capital market than that of the regulated MFIs. Whereas, the owner of the MFIs may not be interested to add more capital because they may have nothing to lose in the case of bankruptcy. If the MFIs call the donors for capital rescue, their capacity to do so would be too late because the approval and disbursement of additional capital could take quite long time. Indeed, financial companies facing illiquidity problems require quick capital defence. According to Vogel *et al.* (2000), however, it should be acknowledged that the capacity of the regulated MFIs to sustain capital adequacy requirement is limited because of their social missions to serve a number of poor clients. This should also be a concern for financial authorities in dealing with MFIs.

4.3 Accessibility to Commercial Sources of Funds

The transformation of the microfinance NGO to the regulated MFIs is to provide more access to commercial funds. Among other reasons, this will depend on their financial performance, investment risks and regulations attached to the investment and business climate favourable to the MFIs. Apart from the accessibility of the MFIs to commercial funds, this success is not mainly based on their financial performance, rather than the guarantee from influential managers and or multilateral funding agencies. For instance, in the Philippines, the CARD bank has obtained substantially commercial credits from banks because a personal link exists between the members of the directors board and the senior executive of the creditors (Goodwin-Groen, 1998). In 1997 Banco Sol successfully issued $3.0 million bonds only with a guarantee from USAID. Similarly, the success of Mibanco to borrow $5.0 million from IFC is due to the assurance from the Accion International's Latin America

Bridge Funds (Fernando, 2003). This reflects that most commercial sources of funds are seemingly reluctant to provide loanable funds to the regulated MFIs. Similarly, only few regulated MFIs in the Asia and Pacific region received credits from commercial banks to support their mission. Two factors are responsible for this: the lack of transparency and comparable risk assessments to the creditworthiness of the MFIs (Charitonenko *et al.*, 2004).

The weakness in transparency is partly because the existence of funding subsidies masks market risks of the MFIs, so that their profitability does not clearly indicate market-based profit. This then discourages external financing for the MFIs. Unsound monetary policies leading to financial instability puts another problem as it can increase the risks of commercial investments on the regulated MFIs. Pouliot (2002) points out that high risks, coupled with the lack of standardised measurement on risks imply that the financial transparency in the MFI is substandard. As a result, credit worthiness of the regulated MFIs could not be assessed comparably. For this reason, prudent regulation of the MFIs is an important element to increase transparency, providing a conducive investment climate for the MFIs (Pouliot, 2002). For instance, the increase in disclosure and transparency of rural banks in Indonesia (BPR) has improved their accessibility to commercial credits from the banking sector. Charitonenko *et al.*, (2004) estimate that about one-third of existing rural banks in Indonesia have enjoyed credits from commercial banks.

Despite the difficulty of the transformed MFIs to access commercial loans, they have successfully mobilized funds from the clients. The passbook savings have been introduced to tap funds from poor clients, while deposit-type services are addressed to mobilize funds from wealthier clients. For instance, following the transformation of CARD, bank in the Philippines has been capable to mobilize voluntary savings of about 61.2 million pesos in 2002, compared to just about 4.9 million pesos before the transformation (Alip, 2003). Similarly, in Peru following the transformation of Mibanco in 1998 and the introduction of voluntary saving in 2001, saving mobilization increased about US$10.4 million by 2002. The mobilisation of funding deposits also indicates a remarkable result. The saving deposits of Mibanco increased from $1.4 million in 2000 to about $12 million in 2003. In Africa, the deposit mobilization of K-Rep in Tanzania increased from $US3.48 million in 2000 to about $11.35 million in 2003. The introduction of deposits of the transformed MFI in Pakistan (FMB), Nirdhan Bank in Nepal, EMT in Cambodia also recorded a significant progress (Fernando, 2003).

4.4 Transformation and Outreach

The central issue of the transformation into regulated MFIs is whether or not; it can increase the outreach of the transformed institutions. In the other words, the question is whether the transformation has drifted the FMIs away from their social mission. The term "outreach" refers to four aspects. The first is the depth of outreach referring to the number of poor covered by the MFIs. The second, the breadth of outreach, indicates the number of clients served. The third is the scope of outreach that refers to the range of financial services for the clients and the last is the sustainability of financial services provided by the MFIs (Charitonenko *et al*.. 2004, Meyer, 2002 and Schreiner, 2002).

Although, the transformation into the regulated MFIs has significantly resulted in various financial services to the poor, it depends on what type of institutions they were transformed into. The transformation into non-bank financial institutions has a lower capability to provide financial services than that of bank-type institutions. This can be the case because financial regulations in some countries do not allow non-bank institutions to provide certain services such as public deposits, check accounts and international money transfers. The transformation of Compartamos into SOFOL in Mexico, for instance, is not permitted to mobilize funds through deposit services. In Peru, the regulated nonbank MFIs are allowed to issue deposit only if they can achieve higher minimum capital requirement. By contrast, the transformation into bank-type MFIs, such as Mibanco in Peru, BancoSol in Bilivia and K-Rep in Kenya, ACLEDA bank in Cambodia have no legal restriction to provide such services (Fernando, 2003). This indicates that financial regulation has an important role on determining the breadth of outreach of the transformed institutions.

The depth of outreach is more concerned as it can link the capability of the transformed MFIs to provide the microfinance services with the income level of their clients. The depth of outreach is usually measured by the average loan size. The larger loan size reduce the capability of the poorest to serve the loan and therefore, decreasing the depth of outreach. At macro level, comparing the average loan size between regulated and nonregulated MFIs in Latin America shows that the average loans of regulated MFIs is significantly larger than that of non-regulated MFIs. This reflects that the transformation has drifted the MFIs away from their social mission. However, the larger size of loans does not necessarily lead to the mission drift of the MFIs. The larger loan size can be a response of the regulated MFIs to meet the demand on the various ranges of financial

services resulted from the increase in economic activities of their clients (Christen, 2001). From a different perspective, Charitonenko *et al.* (2004) state that the inability of the MFIs to cover the 'hardcore' poor, the bottom 50 percent of the poor below poverty line may be acceptable because this poorest of the poor often have no sufficient debt capacity even for microcredits. Providing credits for the poorest with no income generating activities will deprive financial soundness of the MFIs due to an increase in the possibility of loan defaults. Hence, the precious role of the transformed MFI in this case is not to provide microcredits but saving facilities.

A micro-level study by Schreiner (2002) on BancoSol argues that the efforts to achieve profitability do not decrease in the depth of outreach. Similarly, the transformation of Mibanco in 1998 could maintain about half of their loan portfolios below $500, indicating the capability to achieve the deeper outreach. Considering geographic coverage, ACCION survey on Mibanco client has found that almost half of its clients are living in poverty areas covering those working as pot-makers, market vendors and others. In the Philippines the transformation of an NGO, Centre for Agriculture and Rural Development (CARD), into CARD bank doubled the poor clients from 10,868 in 1997 to about 26,369 in 1999 (Carpio 2004). While, the transformation of ACLEDA bank in Cambodia increased its micro business loans by about 44 percent (Fernando, 2003). By contrast, a study of Senanayake and Ho (2002) on the six provinces of the Delta Mekong in Vietnam found that the poorest has a lower access to the cheap credits provided by both formal and informal MFIs than that of the better-off poor. Although, according to the author, this finding may be unnecessarily as a result of the commercialization of the MFI in Vietnam. Therefore, they suggest that to provide the poorest with credit, the government should design special institutions to address this issue.

The depth of outreach can also be measured by the number of women served by the MFIs. Study on the Khula Enterprise Finance in the Republic of South Africa, Makina and Malobola (2004) reveals that in a credit guarantee scheme, women participation is relatively less than their men counterparts. This can be the case because the women participation is not considered to be the targeted recipient of such a loan program. Similarly, a study by Siwar and Talib (2001) in Malaysia on three different types of the MFIs (*Amanah Ikhtiar Malaysia, Yayasan Usaha Maju and Koperasi Kredit Rakyat)* show that the implementation of the Grameen Bank-type operation does not change much the outreach of those MFIs. The numbers of poor women served by the MFIs remains constantly lower than that suggested by a standard guideline of deeper outreach.

Geographical difficulty is the main constraint to reach the hardcore poor (Siwar and Talib, 2001).

A part from a geographical dispute, Mosley and Hulme (1998) conclude a negative impact of sustainability to the income of the hardcore poor. This can be the case because the poorest tends to be risks averse to take higher loans. The loans are often used to protect (smooth) their consumption against unpredictable changes in incomes or expenditures. For prospective lenders, the poorest having less saving capacity and often fail to secure the loan with collaterals means the higher possibility of loan defaults. As a consequence, the lenders tend to collect the loan instalment frequently, discouraging the poorest to borrow. In contrast, the better-off poor have access to higher loans for 'promotional' activities such as hiring more labour and the purchase of fixed capitals that can lead to the possibility of higher incomes perceived important to secure the loans (Mosley and Hume, 1998).

5. CONCLUSION

Microfinance industry has moved into a revolutionary stage of development. Initially, microfinance NGOs were seen as being a convenient vehicle for delivering pro-poor credits, previously ignored by most commercial financial institutions. Recently, most microfinance scholars and practitioners conclude that commercial approach to microfinance lead the way to become financially viable and less subsidy without reducing the role to assist the poor. However, this conclusion is seemingly premature as many empirical works have failed to conclude that the commercialisation of the MFIs leads to the deeper outreach. Therefore, a part from the significant progress of the transformed MFIs, this change highly undermines the social mission of MFIs. To refine the view on the benefits of the transformation, the future empirical works should be addressed particularly to emphasize the depth of outreach of the various types of the transformed microfinance institutions in different countries with numerous socio-economic backgrounds.

Regarding the dual mission of profitability and outreach, some efforts should be considered at institutional and regulatory levels. At institutional level, the core issue is to attain the good governance that allows interest balance between social and private investors of the transformed MFIs. This is crucial as the failure to offset the dual mission can generate incoherent priority of the institution. Focusing more on profitability reduce the outreach which can disadvantage the interest of social investors. Hence the failure to narrow the trade-off can end up with an organisational breakdown in the long-run.

While the growth of saving mobilization of the poor is evident, the good governance and transparency of the transformed MFIs is a central issue. In this respect, the implementation of prudent regulation and maintaining adequacy capital is required to protect the precious savings of the poor. Considering the dual missions of the regulated institutions, a particular dispute is whether or not financial authority should attach the universal principles of prudent regulation and supervision to MFIs. Moreover, the lack of access to commercial borrowing reflects that the transparency in the transformed MFIs remains relatively substandard. Coupled with the financial instability, the weak transparency and the absence of comparable measurement on risks cause higher risks of investments on the MFIs. Therefore, the investment policies and regulation that provide business circumstance conducive to microfinance investment is vital. In this case the precursor condition is to achieve prudent macroeconomic policy as monetary instability creates high risks and lowering returns of investments on the microfinance industry.

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Regional Convergence and Indonesia Economic Dynamics

Yogi Vidyattama

Abstract

This paper looks at the pattern of inequality and convergence of Indonesia's regional income since the 1970s. Although economic growth frameworks have mostly been applied to analyse cross-country growth and convergence, some regional country studies have been done. However, the impact of the macroeconomic conditions at the national level on regional inequality and the convergence process need to be incorporated.

Indonesia is an interesting case study, since the economy has been through much turbulence in the last few decades from external shocks as well as some major national policy changes. The different record in sub national development has made regional inequality and growth a crucial topic.

It shows the pattern has been affected by a few of major changes in Indonesian policies and economic development, including macroeconomic conditions and structural change.

Keywords *: Analysis of Growth, Development and Changes, Size and Spatial Distributions of Regions,Indonesia*

JEL Classification: *R11, R12*

1. INTRODUCTION

The differing level of development among countries and regions has been a subject of concern in the field of development economics for a long time. Recent research puts more emphasis on regional growth and convergence within a country. For that purpose, analytical and empirical frameworks have been adapted from the theories of growth and development applied to international cross-country studies.

Although these frameworks have mostly been applied to analyse cross-country growth, some regional country growth studies have been undertaken. Using these frameworks, there may be some aspects that differ in the implementation and interpretation between these two applications. What would differentiate the application of an inequality analysis is the impact of the macroeconomic conditions facing a national economy on regional inequality, and the convergence process, including any economic reform at the national level. Beside the differences in transfer and investment allocation policy from central government to regional counterparts, a single national policy change could have different economic effects for different regions and hence impact on income disparity.

Indonesia is an interesting case study, since the economy has been through much turbulence in the last few decades from external shocks as well as some major national policy changes. Before 1982, Indonesia was predominantly a resource based economy. It then had to adjust to the fall in oil price during period 1983-1986. From 1987 to 1992, continuous reform succeeded in increasing the importance of non oil exports but the reform momentum slowed during period of 1993-1997. In period of 1997-1998, Indonesia experienced a deep economic and political crises which led to the weakening of the central government and finally to a major decentralization program in 2001.

During all these development episodes, the record of sub national development has made regional inequality and growth a crucial topic. The mining rich provinces showed their dissatisfaction with the central government, demanding larger income transfers and greater authority in constructing their development plans. This was one of the major issues during the rapid political change after the economic crisis. As a result, by 2001 Indonesia had shifted drastically from a highly centralised system of government to a highly decentralized one (Alm *et al.*, 2001; Tadjoedin *et al.*, 2001; Balisacan *et al.*, 2002).

This paper will look at the pattern of inequality and convergence of Indonesia's regional income, given the changes in the national economy since the 1970s. The organisation of the remainder of the paper will be as follows, section 2 and 3 will revisit the framework and data to be used for the analysis. The episodes of the Indonesian economy from the 1970s up to 2003 are described in section 4. Section 5 reveals the inequality and convergence process throughout the period being studied. Section 6 will conclude the discussion.

2. METHODOLOGY

The concept of convergence has been widely used to analyse the disparity in income among regions, also known as regional inequality. There are two concepts of convergence commonly used in regional inequality analysis, namely β (beta) and σ (sigma) convergence.

The concept of β convergence focuses on whether poorer regions grow faster than richer regions. On the other hand, σ convergence measures changes in per capita income dispersion across economies. Although focussing on two different aspects, these two convergence concepts have a strong relationship with each other.

2.1 The Application of Convergence

β convergence is named after the coefficient β as the partial correlation between the growth of income and its initial value. This approach is developed from the work of Solow (1956) and Swan (1956) in their growth models. The Solow-Swan Model implies that per capita income growth of all economies in the long run will follow the path of

$$\ln y_t - \ln y^* = e^{-\beta t} \ln y_0 - e^{-\beta t} \ln y^* = e^{-\beta t} (\ln y_0 - \ln y^*) \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where y_t is the current income per capita, y_0 is the initial income per capita and y^* is the steady state income per capita. Studies in β convergence use this trajectory equation to find the existence and speed of the convergence.

This trajectory is estimated in the reduced form of

$$\ln (y_t / y_0)/t = \alpha + (e^{\beta} - 1) \ln y_0 + u_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The negative value of the coefficient of (e^{β} –1) and hence β means that higher growth is experienced by an initially lower income economy. It also means that, on average, poorer economies catch up to higher income economies, in other words β convergence. The value of β is also used to calculate the speed of the catch up process. In particular, it can be used to estimate when the half way point of the common steady state will be achieved for a given speed. Given equation (1) and the assumption that all income will go to the steady state, the half way point means $e^{-\beta t}$ in equation (1) should be half or $e^{\beta t}$ is equal to 2. It implies that βt is equal to 0.69. If for example, β is equal to 2%, then t will be 35 years meaning in 35 years all y_t should already be at the half way of the journey from y_0 to y^*.

In the growth literature, there are two types of β convergence namely absolute and conditional. Absolute β convergence is when the convergence condition is achieved without controlling for any other variable in equation (2). On the other hand, in conditional β convergence, the convergence condition can only be achieved if one or more variables are controlled. The illustration can be formalized by the equation

$$\ln (y_t / y_0)/t = \alpha + (e^{\beta} - 1) \ln y_0 + X'_{it} \gamma_x + u_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where X'_{it} is the vector of those control variables. If negative β is achieved without the existence of X'_{it}, there is absolute β convergence. On the other hand, if negative β can be achieved only if X'_{it} exists, the β convergence is not absolute but conditional. This means there is no convergence unless some economic or non economic factors are specified to be the same across economies. If β is negative with or without the existence of X'_{it}, there are both absolute and conditional convergences at the same time. However, there are cases when a particular condition should not be controlled to generate the existence of convergence. Migration is one example. The movement of labour and capital among economies should lead to a more balanced production factor and hence promote convergence. If it is controlled, the convergence process might stop or at least become slower.

This chapter will focus on the discussion of absolute β convergence based on two arguments. First, Sala-i-Martin (1996) argued that openness and commercial integration among regions in one country has made the existence of intra country convergence more likely. Furthermore, the empirical results for intra country study show that the value of β has not changed substantially given the control variable, meaning that the speed

of convergence among sub national economy is not affected by any other factor. This may not be true for developing country studies, since Sala-i-Martin (1996) reports the results only from developed country studies. Second and more important, this study will focus on the convergence process over time in the past. This means the speed of convergence will be examined with the existing historical condition. As a result, it is not appropriate to control or set some condition to be the same across regions if it was not the reality at that time.

Econometrically, the non-existence of any control variable means the error term (u_t) in equation (2) is purely random and cannot be predicted by any variable, including the one that correlates with initial income as the only independent variable. So it is acceptable to assume there is no expectation of correlation between the independent variable and the error term. This is one of the three assumptions required to use ordinary least square (OLS) estimation to estimate absolute convergence without having a bias problem. Another assumption is linearly independent exogenous variables, which should be achieved since there is only one exogenous variable. The last assumption, zero expected value of error, should be achieved with the existence of an intercept in the equation so if the means of error is not zero it will be added or subtracted to the intercept.

2.2 The Application of Convergence

The other concept, the σ convergence, is the measure of standard deviation. Standard deviation and its squared value, variance, measure the dispersion of a distribution by the total distance of each number to their mean. Alternatively, the measurement of σ convergence analyses the degree of difference among incomes, income distribution is expected to decline over time.

In the growth theory literature, the measurement of dispersion in the σ convergence concept uses the variance of logarithm value of income per capita.[1] Baumol (1986) has popularized the used of this measurement to analyse σ convergence among growth economists (Barro and Sala-i-Martin 1991, Dowrick and Quiggin 1997). The formula for the variance of logarithm value is

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[1] It might be important to know that beside the variance of logarithm value of income, there is another concept called the logarithm variance of income. The first one, the logarithm value of income, the distance of logarithm value of income is defined to the mean of logarithm value of income while the second is defined to the logarithm value of mean income.

$$\sigma^2 = \sum_{i=1}^{n} (\ln y_i - \ln \bar{y})^2 \frac{1}{n} \quad \text{.....(4)}$$

where: y_i = income per capita in region i

$\bar{y}$ = average income per capita

n = number of regions.

There are two advantages of using the logarithm value instead of the level value of income per capita. The first concerns the scale effect and second the relationship between β and σ convergence.

Regarding the scale effect, the logarithm value will eliminate the problem that often occurs when the shape of two distributions with different scale or mean average are compared. The same shape of distribution will have higher standard deviation if it involves a larger nominal value. As an example, if all the numbers in a distribution have become twice as big then the shape of the distribution should be the same but the magnitude of the standard deviation will double and the variance will quadruple. Taking the logarithm value will eliminate the scale effect, since the subtraction of two logarithm values is equal to the logarithm value of the ratio of those numbers. It means each individual income in equation (4) is actually scaled by its average. By that concept, equation (4) can be rewritten as $\sigma^2 = \sum_{i=1}^{n} \left\{ \left(\frac{1}{n} \right) \ln^2 \left(\frac{y_i}{\bar{y}} \right) \right\}$. So if all the values in the distribution are getting bigger by the same proportion, the variance of logarithm value will be the same since the means would also be multiplied by that proportion.

3. DATA

The data consist of 26 provinces in Indonesia during the period of 1975-2002. The main database is established from two publications of the Indonesian Statistical Board (BPS), which are the regional accounts by production or value added and by expenditure. The population data is taken from the CEIC Asia Database.

The data set will start from 1975, since the data before 1975 are inconsistent and has major problem in some sectors (Arndt, 1973). He argued that this is probably because the first effort of producing the

regional income data was coming from university economists rather than the official body. Although they have work closely to each other and according to BPS national income estimation procedure, but there were some deficiencies in the data source that would cause some inconsistency. The problem is more obvious in the sectoral estimation.[2]

3.1 Provinces

Some concerns have been addressed to the discussion on what level the regional analysis in Indonesia should be done, since there are provincial and district/municipal level. The paper is dealing with provinces despite the fact that decentralization has put more power on district level. The reason is that since the beginning the tension of imbalance development was built up in the provincial level. In the first 20 years of Indonesian independence, the weak central government in Jakarta had to face armed insurrection, i.e. separation movements, from several regions such as in Aceh, West Sumatra, West Java, South Sulawesi and Maluku (Thee, 2003). Note that East Timor is not included since it had recently separated from Indonesia. Also the on-going separatist movements in Aceh and Papua are at the provincial level. It is hence suspected that the military and central government were afraid that more provinces would demand independence if greater power were given to them in decentralization.

Prior to July 1976, Indonesia consisted of 26 provinces and East Timor was the 27th province of Indonesia from July 1976 until August 1999. After the new laws on regional governance were passed in 1999, seven new provinces were proposed, but, until now, only four have been fully established, namely Banten from West Java, North Maluku from Maluku, Bangka Belitung from South Sumatra and Gorontalo from North Sulawesi. However, in order to have a continuous panel dataset from 1975 to 2002, these provinces have been regrouped to their original boundaries so that there will be only 26 provinces in the dataset (i.e. excluding East Timor). However, it is important to note that the regrouping of the new provinces to their original has made their GDP increase significantly higher in 2000. The possible explanation for this is that the separation of provinces would mean new investment for local government infrastructure and new employment for local civil servant.

[2] As an illustration, The manufacture sector in Jakarta was estimated very low around 7 to 8% before it became 12% in 1973, on the other hand, the trade estimate was too high.

3.2 Income Proxies

We focus on income per capita in this analysis. There are three income proxies that will be evaluated, provincial gross domestic product (GDP) per capita, non mining GDP per capita and household expenditure per capita. GDP per capita is the ratio of provincial GDP to the total population. The data for non mining GDP per capita are calculated from the GDP per capita less mining sector value added per capita. The household consumption data are a part of the GDP expenditure series.

The reason for three proxies is because the use of GDP per capita has been criticized, on the ground that most of the large mining output accrues to the central government and oil companies. Excluding the mining value added from GDP is one popular alternative income proxy. However, this proxy ignores any income or benefit from mining sector that may go to local people. As a result, total household consumption has become the third alternative.

Household consumption shows how much welfare can be enjoyed by the whole household in a province. As a result, it can show the real income for the society regardless of the output taken by central or local government. The weakness of this proxy is that it does not reflect the value of future income stream as a result of saving or investment. Moreover, the data are available only after 1983 instead of 1975.

3.3 Constant Prices

Price differences among regions are an important issue in a regional inequality discussion, since the same nominal income will give a different basket of goods and services if the prices are different (Dowrick and Quiggin, 1997).[3] The data in constant prices are used to deal with this problem both in cross country and intra country studies. Although there could be different prices amongst regions or countries in the base year, but the proportion of this mistake would be the same from time to time. Given these same price differences, if the real value of income disparity is increased from time to time, the estimated disparity in constant price will also be increased. As a result, the constant price of income can be used in convergence analysis since the focus is on whether the disparity is increasing or decreasing.

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[3] Dowrick and Quiggin (1997) also acknowledged the substitution effect problem if the relative prices among goods and services are different.

3.4 Additional

We also include data on Indonesia's exchange rate, oil prices, national growth and export as a share of gross domestic product at national level since 1975. The data are calculated from balance of payments and national income data from the CEIC Asia Database, except for oil prices. The latter data is taken from Energy Information Administration, which is the official energy statistics of the US government. The real value of the oil prices is estimated by deflating the nominal value by the US GDP deflator.

4. THE INDONESIAN ECONOMY

The growth studies initiated by Solow (1956) and Swan (1956) concern long run growth. In particular regarding to the economic process to achieve the balanced growth path and hence go to the steady state condition. That also the case in seeing how the impact of some major policy changes on the growth and hence convergence process. However, there is no consensus on how long is this long run process should be achieved. In intra country studies, the early literature such as Barro and Sala-i-Martin (1990) and Sala-i-Martin (1996) used 10 year as this long run period, but most of recent studies decreased the time period to 5 yearly, given the need for more observations using advanced econometric techniques.

Applying this long run concern as well as recognizing the different characteristic in Indonesia economy from time to time, a short history of Indonesian economic development is divided into five major periods or episodes. The relationship between the characteristics of each episode and the disparity as well as the speed of convergence throughout a particular episode is the basis of this analysis.

4.1 Economic Development Episodes since 1975

Based on the above argument, there should be three criteria for selecting the episodes. There are internal economic conditions, policy orientation and external circumstances. Five episodes from 1975 to 2002 can be identified. First is period of 1975-1981 when economic growth very much depended on oil export. Second is period of 1982-1986 when the oil price plunged and Indonesia had to adjust its economy. The non oil export promotion during period of 1987-1992 is the third episode. The fourth episode is the slowing economic reform in period of 1993-1997. The economic crises and decentralization is the fifth episode.

Figure 1
Expor – GDP Ratio Trend 1975-2004

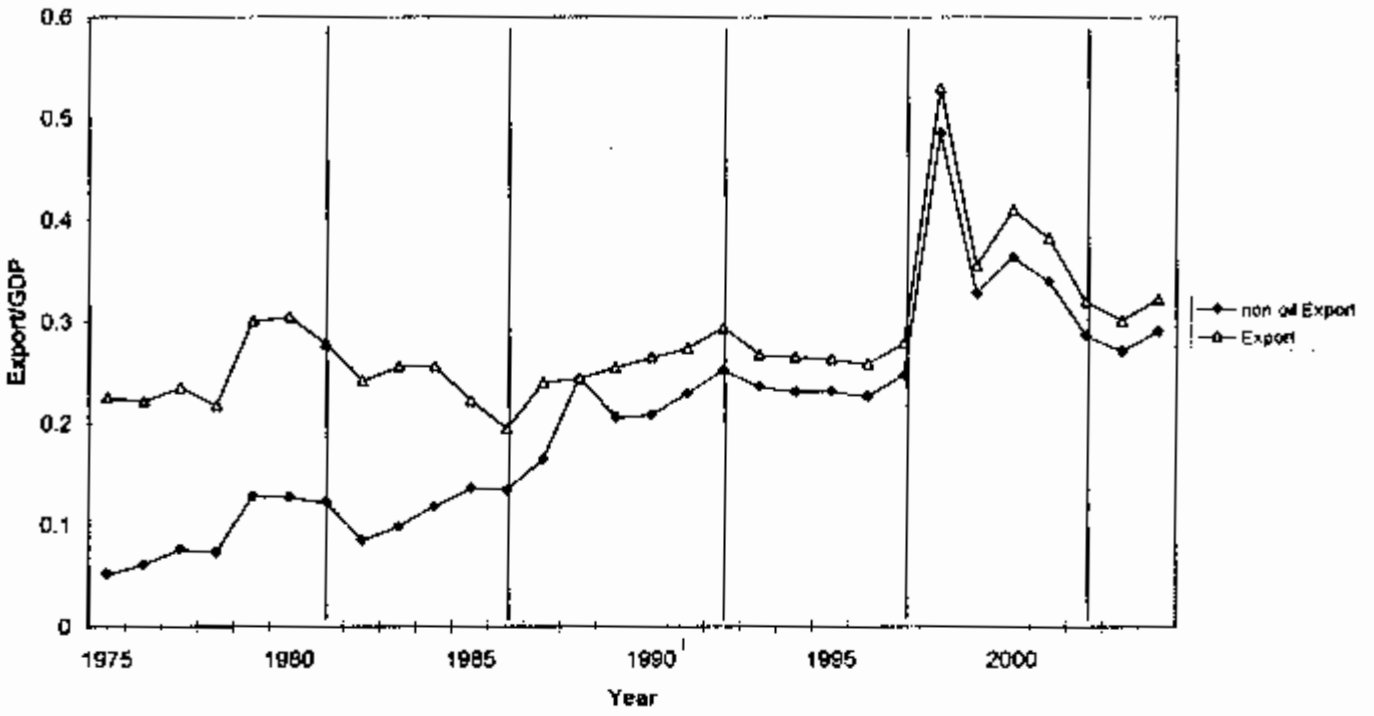
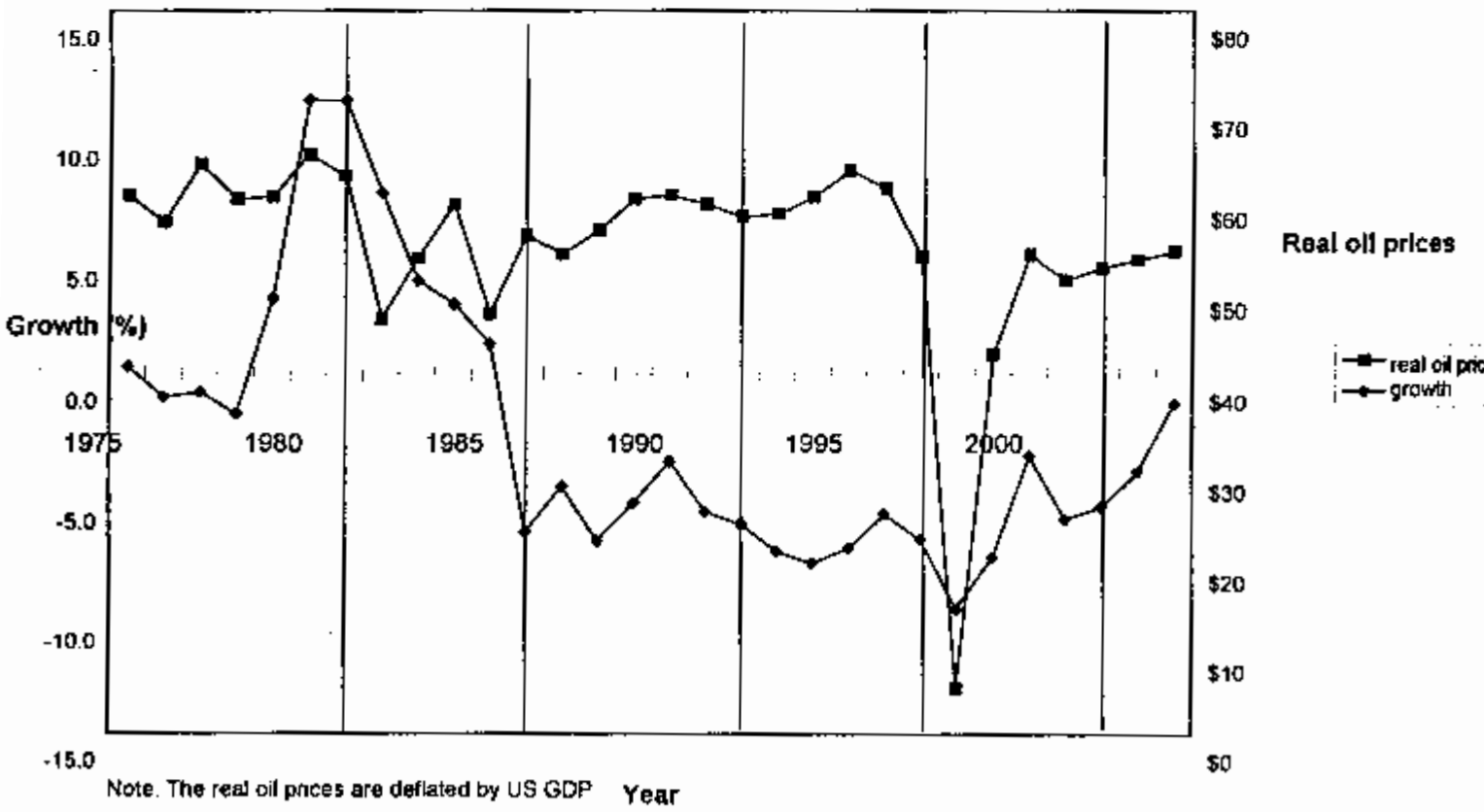


Figure 2
Growth and Real Oil Price Trend 1975-2004



Note. The real oil prices are deflated by US GDP

4.1.1 Period of 1975-1981

The high international oil price dominated the economic picture in the period of 1975-1981. It started with the massive oil price increase in late 1973 to 1974 triggered by the 1973 Arab oil embargo. As an oil exporting country, this resulted in massive increase revenue for the Indonesian central government and *Pertamina* as the state oil enterprise. The massive revenue flow was also a result of the equalization policy that allowed the central government to retain the income from the oil producing provinces to redistribute it nationally. The income was partly used by the central government and partly redistributed to all provinces based mostly on population. The massive revenue allowed the central government to expand state enterprises and increasingly restrict foreign investment (Hill, 2000).

During this period, Indonesia was growing quite fast at 7.7% annually. The growth was a bit slower in 1978 and 1979 because of concern that the oil price would decline, and a major devaluation occurred in November 1978. Yet, the devaluation increased the share of non oil export to GDP from 7.2% in 1978 to 12.8% in 1979, owing to of the exchange rate effect, while the oil export share of GDP slightly decreased from 17.4% to 15.7%. In 1980, economic growth picked up to more than 9%, not only because of the increase in non oil exports but also because of another increase in the oil price owing to the commencement of the Iran-Iraq war.

4.1.2 Period of 1982-1986

In 1982, the oil price began to plunge and continued to do so through to 1986. This was the adjustment period of the Indonesian economy to the lower oil price. First, the government had to adjust to the lower revenue, while at the same time an increasing proportion of the foreign debt required payment. As a result, the central government had to cut back expenditure by cancelling some large projects. Second, the government sought to strengthen non oil exports through a number of policies. In 1983, the government began to change the industrialization strategy toward export orientation and the rupiah was devalued to support the strategy (Rachbini, 2003). Reform in tax and customs was introduced by presidential instruction in 1985 to reduce the high cost economy. Several trade reforms were also introduced, mainly on tariff barriers, and the rupiah was again devalued in 1986. Yet, there was no change in the regional economic transfer policy and the equalization policy remained in place.

Growth fell sharply during period of 1982-1986, with an average of 4.4% annually. After falling to nearly 2% in 1982, growth climbed back in the next two years before plunging again in 1985. The share of non oil export in GDP increased after a fall in 1982. It reached 13.4% of total GDP in 1986. Meanwhile, the share of oil export plunged from 15.7% in 1982 to only 6% of GDP in 1986.

4.1.3 Period of 1987-1992

Period of 1987-1992 was the export orientation period with the ratio of export to GDP increasing from 16.4% in 1987 to 25.2% by 1992. It was driven mainly by the increasing share of non oil exports as the result of the adjustment to the lower oil prices. During period of 1987-1992, the non oil export share increased by 5.4 percentage points from 24% to 29.4% of total GDP. There was also a decision to depreciate the nominal value of the rupiah against the dollar at a fairly steady rate, averaging 3.3% annually since the 1986 devaluation while inflation was reaching 8%. GDP growth increased from 4.9% in 1987 to 6.5% in 1992 with an annual average of 6.5% for the entire period.

Major trade and financial deregulation took place during this period. By the end of 1987, the government came up with a deregulation package that included export incentives, import monopolies, foreign capital, domestic share/stock market, and tourist promotion (Booth, 1988). This was followed by three major deregulations in 1988. The first deregulation package was released on 27 October 1988. It focused on market entry deregulation especially in financial institutions. Second was the November 21 packaged that focused on trade and shipping. And third was the December 22 package that focused on the financial system (Simanjuntak, 1989).

4.1.4 Period from 1993 to the crises

However, reform slowed during period of 1993-1997. In contrast, private capital from both foreign and domestic resources was increasingly dominant. The conglomerates that emerged before the deregulation era had absorbed an increasing share of investment (Rachbini, 2003). As a result, the share of export per GDP experienced a slight fall from 23.6% in 1993 to 22.6% in 1996 (after being at 25.2% in 1992). In 1997, the share of export increased to 24.7% of total GDP, but only because the exchange rate jumped from Rp2383/US dollar at the end of 1996 to Rp4650/US dollar. In 1997, GDP growth suddenly slumped from an average 7.5% annually during 1993-1996 to only 4.6%. The growth was actually still

strong in the first quarter at 7.5% year on year and starting to fall at 5% in the second and third before only achieved 1% growth in the last quarter.

With the exchange rate continuing to approximately Rp15,000/US dollar by June 1998,[4] Indonesia had a serious currency problem. The problem had become a financial crisis with collapse of the stock market, bankruptcy of local companies, and a serious problem faced by banks (Soesastro and Basri, 1998). This led to the social and political crisis marked by the resignation of President Soeharto on May 1998 after having led the country for 32 years.

His resignation did not stop the crisis. There were vertical and horizontal disputes afterwards. A vertical dispute, meaning the dispute between two agencies in different levels of bureaucracy, was motivated by a weak central government. Some regions demanded a greater share of mining output or independence. The central government then passed two new laws to give more autonomy and authority to the regional government on May 1999. These laws, which were not implemented until 2001, began the new equalization formula that gave a greater share to the rich resources provinces. This dispute has already resulted in the independence vote in East Timor on August 1999 that separated a province that had joined with Indonesia in 1976.

Horizontal dispute and conflict emerged at the national as well as the local level. At the national level, the 1999 general election brought only temporary peace and the elected president was replaced by his vice president on July 2001 following a formal impeachment process. At the local level, conflicts were widespread with Aceh, Maluku, Central Sulawesi, and Jakarta particularly serious (Barron *et..al.*,2005). At one stage, the conflict seemed very serious, but the frequency was somewhat reduced by 2002.

Period of 1998-2002 episodes were also marked by a 13% drop of GDP in 1998, followed by 0.8% growth in 1999 and continued stronger growth in 2000 of 4.9%. Yet, the exchange rate, which had been around Rp7,000/US dollars at the end of 1999, again hiked to approximately Rp9,600/US dollars in 2000 and continued to Rp10,500/US dollars in 2001. As a result, growth was held at 3.9% in 2001, and a slightly increasing trend after that.

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[4] The record low was actually on 22 January 1998 at Rp17,000/US dollar.

4.2 Provincial Economies between 1975 and 2002

Indonesia is an archipelago with more than 13,000 islands. The five main islands are Kalimantan, Sumatra, Java, Sulawesi and West Papua. From 26 provinces, 22 provinces were located in these islands with 8 were located in Sumatra, 5 in Java, 4 in Kalimantan, 4 in Sulawesi and 1 big province in Papua. Each island is separated by a significant amount of sea area and endowed with different types or quantities of minerals, soil, plant and animal. They also had different histories before and during the Dutch occupation. As a result, disparity in culture and income is high.

4.2.1 Population

As discussed, the majority of the Indonesian population is concentrated in Java despite the fact that it only occupies 7% of the land area. The reason for this is that Java has the most fertile land in the country (Muhidin, 2002). Moreover, the Dutch in the 1930s decided to concentrate industrialization on Java (Thee, 2003). The growth of Indonesia's population during period of 1975-2002 varied among provinces, from 0.7% annually in Yogyakarta to 3.9% annually in Riau. Below Riau were East Kalimantan, Bengkulu, Central Kalimantan and South-East Sulawesi. On the other side, East Java, Central Java, West Sumatra and Bali were in the bottom five with Yogyakarta.

Population growth has been declining overtime. It was 2.3% annually during period of 1971-1980 and has become 1.3% annually during period of 1990-2000. This was partly caused by the significant decline in total fertility rate from 4.7 according to 1980 census to only 2.8 according to 1995 intercensal survey (Muhidin, 2002). West Nusa Tenggara, Bengkulu and Maluku had the highest fertility rate in 1980 with all above 6, while Yogyakarta, East Java and Jakarta were the lowest with all below 4. The fertility rate of Bengkulu has been decreased dramatically to only 3.2 in 1995. Maluku and West Nusa Tenggara were both managed to have 3.7 as their fertility rate in 1995, just below 3.8 as the highest fertility rate in 1995 which was achieved by Papua. Jakarta, Yogyakarta and Bali were the lowest at all around 2.0.

Beside the differences in fertility rate among provinces, migration is definitely one of the determinants of population growth difference. In term of lifetime migration which differentiated the place of born and the place of current residency, Jakarta, Lampung and West Java are always the main destinations of migration and their number of immigrants is significantly higher than for other provinces (Muhidin, 2002). However in term of recent migration the high net migration area has moved from

Lampung, Bengkulu, Jakarta, and East Kalimantan with all have the number of net migration more than 5% in 1970 to Riau, Central Kalimantan, South East Sulawesi and East Kalimantan. Included in this migration is the central government official migration program - transmigration, from inner Java-Bali-Lombok to the other islands in order to balance the Indonesian population.

4.2.2 Income

In terms of Gross Domestic Product constant 1993 prices, the four provinces in Java, excluding Yogyakarta, have been among the biggest economies in Indonesia since 1975. These four provinces comprised 47.4% and 56.4% of the Indonesian economy in 1975 and 2002, respectively. However, with 61.1% and 57.0% of the total Indonesian population in 1975 and 2002, their population is also much bigger than the other provinces. As a result, except for the capital city Jakarta, their GDP per capita has never been in the top five. Jakarta's GDP per capita was number four in 1975 (below Riau, East Kalimantan, and Papua) and second in 2002 (below East Kalimantan and above Riau, Papua and Bali).

The importance of the mining sector is indicated from those ranks, since East Kalimantan, Papua and Riau, which have always been in the top five, are all mineral rich provinces, and Aceh, another resource rich province, and was sixth in 2002. Nevertheless, most of the benefits of this mining income have been retained by the central government. As a result, many researchers argue that the welfare of these seemingly rich provinces with high GDP per capita is overvalued. Yet, **Table 1** also shows that, the non mining per capita income of these provinces is actually still ranks among the top, since they usually do not have a large population to begin with. Thus East Kalimantan was in second place, following Jakarta, while Riau was in third place in 1975 but fell slightly to fourth place in 2002. Papua however had the largest fall in this ranking; it was 14th in 2002 after being in fourth place in 1975.

Expenditure per capita is another measure of the welfare of these provinces. The provincial data for household consumption expenditure are available from 1983. Here too Jakarta again had the highest figure based on 1993 constant prices data. Three resource rich provinces were in the top five places, with East Kalimantan second, Papua third and Riau fifth, while Bali was in fourth place. The last province was unexpectedly high. Bali is a special case owing to tourism sectors that starting to flourish at that time. Although none of the rich resource provinces were among the highest growth provinces during period of 1983-2002, in 2002

four of the five provinces with the highest expenditure per capita were resource rich provinces. Jakarta was in the first place followed by East Kalimantan, Papua, Riau and Aceh.

Tabel 1
The Comparison of Provincial Income per Capita and the Growth per Capita. (Indonesia Income per Capita= 100)

	GDP per capita			GDP non mining per capita			Household Expenditure per capita		
	1975	2002	Growth (%)	1975	2002	Growth (%)	1983	2002	Growth (%)
Aceh	89.1	109.2	4.6	99.2	96.1	4.5	88.5	113.8	3.8
North Sumatra	84.4	103.4	4.6	102.5	112.1	5.0	92.5	110.6	3.4
West Sumatra	66.4	93.7	5.2	88.2	97.3	5.0	72.5	105.0	4.5
Riau	1430.2	219.4	-3.1	214.6	119.1	2.4	110.5	115.3	2.7
Jambi	90.2	71.6	3.0	111.3	70.3	2.9	54.9	77.1	4.3
South Sumatra	138.9	87.9	2.1	137.6	84.8	2.8	90.2	99.7	3.0
Bengkulu	52.1	56.3	4.2	69.2	59.9	4.1	73.7	64.2	1.7
Lampung	50.1	54.2	4.2	66.8	57.4	4.0	40.4	52.0	3.8
Jakarta	261.9	360.4	5.1	349.6	395.6	5.1	254.8	313.0	3.6
West Java	73.4	84.9	4.4	87.6	89.5	4.7	83.1	104.6	3.7
Central Java	49.4	65.8	5.0	65.7	71.1	4.9	59.1	74.8	3.7
Jogjakarta	83.3	82.4	3.8	110.8	89.4	3.8	72.2	66.1	2.0
East Java	68.7	82.9	4.6	91.6	89.3	4.5	65.8	96.8	4.6
Bali	60.5	119.8	6.5	80.4	130.6	6.5	117.7	113.5	2.3
W. Nusatenggara	39.7	57.6	5.3	52.2	44.8	4.0	35.1	40.5	3.3
E. Nusatenggara	33.3	40.1	4.6	44.3	43.5	4.5	32.3	40.0	3.6
West Kalimantan	75.2	87.5	4.4	100.1	94.6	4.4	68.2	79.5	3.3
Central Kalimantan	104.3	108.4	4.0	138.9	117.0	4.0	85.8	106.3	3.6
South Kalimantan	92.4	108.7	4.5	122.7	97.7	3.7	66.6	88.2	4.0
East Kalimantan	573.1	466.5	3.1	343.5	345.2	4.6	161.6	188.4	3.3
North Sulawesi	54.7	74.5	5.1	72.8	77.5	4.9	49.0	78.7	5.1
Central Sulawesi	50.9	56.7	4.3	67.7	60.7	4.2	56.6	59.5	2.7
South Sulawesi	53.6	64.3	4.6	71.5	67.4	4.4	50.1	64.1	3.8
S.E. Sulawesi	40.8	47.8	4.5	43.3	50.8	5.2	49.0	43.1	1.8
Maluku	67.5	45.9	2.4	88.1	50.1	2.5	53.3	49.0	2.0
Papua	280.5	185.4	2.3	145.6	86.1	2.6	146.7	168.7	3.2
Indonesia (million Rp)	0.8	2.1	3.9	0.6	1.9	4.6	0.7	1.2	2.5

Source: own calculation

Indonesia's GDP grew at 5.7% annually in the 1975- 2002 period. Bali, Bengkulu, South East Sulawesi, Central Kalimantan, and West Nusa Tenggara all had growth above 7.4% annually. On the other hand, Riau, Yogyakarta, Maluku, South Sumatra, and Papua, all grew below 5.5%, and were in the bottom five. Nevertheless, to measure the speed of development, the growth of GDP per capita is considered more important. With population growth of 1.8% annually, Indonesia's GDP per capita was growing at approximately 3.9% per year. Bali, West Nusa Tenggara, West Sumatra, Jakarta and North Sulawesi had the highest per

capita annual growth all with above 5%, while the lowest five were Riau, South Sumatra, Papua, Maluku and Jambi with below 3% annually. Yet, the higher and lower growth provinces would be different in different sub period of 1975-2002. None of these 26 provinces was always the fastest or slowest growing region during the entire episode of 1975-2002, yet Riau has always in the bottom five after experiencing very high growth in early 1970s.

4.2.3 The high performer

Bali was the fastest growing province during period of 1975-2002. It was also the most consistent growth economy, in that it was always among the provinces with the highest growth in the four episodes from 1975-1997, before the economy experienced negative growth in period of 1998-2002. The reason behind this consistency was the boom in tourism in Bali during the 1970s and 1980s. The opening of Ngurah Rai (Bali) airport to international airlines in the early 1970s played a significant role in addition to the attraction of its unique culture and beautiful scenery. The tourism sector grew rapidly during the 1980s, particularly when the government removed most restrictions on international flights to Bali in 1985 and provided funds for the province to boost tourism development (Jayasuriya and Nehen, 1989).

West Nusa Tenggara was one of the bottom three provinces in terms of GDP per capita since 1975. Despite recording the second fastest growth during period of 1975-2002, West Nusa Tenggara was actually only among the top five growing provinces during the period of 1997-2002. While Indonesia struggled with 0.1% annual growth and 11 other provinces experienced contraction during that period, West Nusa Tenggara was able to maintain growth at 6.0% annually. The main reason was copper mining. After ten years of exploration, Newmont Mining Corporation started the construction phase in Batu Hijau in 1997, began the start up process in 1999 and established commercial production in 2000.

West Sumatra was another of the high growth provinces during period of 1975-2002. In the 5 development episodes, it became one of the top five growing provinces only between 1982 and 1986. West Sumatran economic growth was dominated by the growth of services sector. It is presumably based on its culture of trading and out-migrating (*merantau*). Another interesting fact is that West Sumatra manufacturing productivity was positive during period of 1998-2002, while other provinces experienced negative growth.

As the capital city of Indonesia, Jakarta has consistently been among the richest provinces. Jakarta is also the centre for trade, communication and transportation in Indonesia. The share of the services sector is very high at 75% in 1975 slightly decreasing to 66% in 2002 due to the rapid development of the manufacturing sector. With that structure, Jakarta was among the fastest growing provinces during period of 1987-1997, which was the period of export orientation and rapid financial development. Jakarta also became the centre of private capital in the period of 1993-1997. The same reasons led Jakarta to be the worst hit province by the financial crises in term of GDP. However, migration out of Jakarta weakened the tension and there was no contraction in term of GDP per capita during the economic crisis period during period of 1999-2002.

North Sulawesi was also among the five fastest growing provinces during period of 1987-1997. Yet, North Sulawesi did not experience any GDP contraction in period of 1998-2002. Instead its GDP and GDP per capita grew by 3.7% and 2.4%, respectively, at the time of the crises in Indonesia. One reason is its strong services sector, with Bitung as a large seaport and Bunaken Island as a major tourism attraction. In addition, North Sulawesi also has a strong agriculture sector with coconuts and fish the main commodities which export increased dramatically in increase time (Jones and Sondakh, 2003).

4.2.4 Structural change

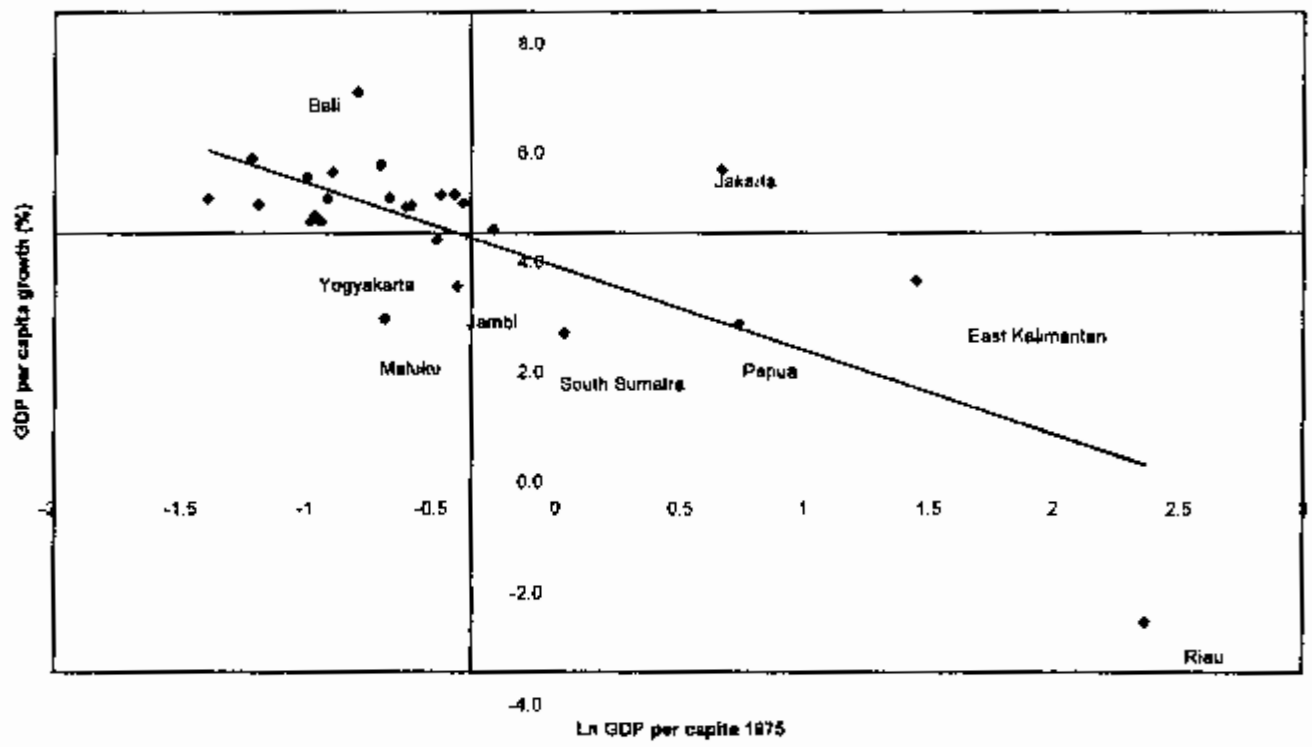
Despite the existence of the mineral rich resources provinces, other Indonesian provinces also experienced rapid structural change over the period of 1975-2002. Indonesian provinces had predominantly agricultural economies in 1975, with 21 of 26 provinces having more than one third of their GDP from agriculture. Nine of these provinces had more than half of their GDP from the agricultural sector. Yet, none had such a large agricultural sector in 2002 and only 5 of the 26 provinces had more than one third as the share of agriculture in their provincial GDP. The industrial sector was growing rapidly in most provinces - from only 4 provinces in 1975 with more than 25% as their industrial share to 15 in 2002. The services sector has always had a high share in Indonesia's GDP, it is always around 40% since 1975 to 2002. The sector was still growing with 15 provinces having more than one third of their GDP from services in 1975, increasing to 20 provinces in 2002.

Trade is very important part of service sector given Indonesia geographical condition and the differentiated output among provinces.

The sector share of GDP was increasing from 16% in 1975 to 18% in 2002. Bali, Jakarta, Central Java and East Java had the highest share at above 20% in 2002 while Aceh and Papua were the lowest with 7.6% and 4.7%. Transportation and financial sectors were around 7% to 8% of GDP each during period of 1975-2002. While transportation is almost spread evenly, the financial sector was heavily concentrated in Jakarta. The government and other services sector was also big with their initial share was 12% of GDP in 1975 but then shrinking to 9% in 2002. East Nusa Tenggara, Yogyakarta, and Bengkulu were the provinces with the biggest share of this sector at 25% to 18% in 2002.

Figure 3

Growth and Initial Income



5. ON REGIONAL INCOME CONVERGENCE

Analysis of convergence begins by comparing the growth performance of each province with its initial income (i.e. absolute β convergence). As can be seen in **figure 3**, there were four provinces, Riau, East Kalimantan, Papua and Jakarta, which had per capita GDP above average, but only Jakarta had above average growth. On the other hand, of the 21 provinces which had below average growth during period of 1975-2002, only three provinces grew at less than the average growth rate. As a result, convergence seems to be occurring in Indonesia's regional economy.

However, many researchers suggested this convergence process in Indonesia may be overstated. Inclusion of the mining sector in the calculation of GDP per capita is the main reason. The output of the

mining sector is unequally distributed with only five provinces having very big contributions in the sector. As a result, the high regional inequality is due to that sector, but most of the mining output is retained by the central government to be redistributed, which means the income of people in these mining rich provinces cannot be represented by the output of that sector. Moreover, the convergence is not that obvious in case of per capita GDP without mining, where 2 of 7 provinces with above average per capita non mining GDP were growing above the average and 6 of 19 below the average provinces were growing below the average growth.

The regression for absolute β convergence confirms the above argument. The estimation of β coefficient in GDP per capita for the whole period from 1975 to 2002 is of 1.5%, meaning the disparity will be halved within 46 years. It is also statistically very significant.[5] On the other hand, the β coefficient for GDP per capita without mining in 1975-2002 (0.4%) is far below the coefficient with mining and statistically not significant, meaning that it cannot be said there is absolute β convergence in per capita non mining GDP. Unfortunately, the finding cannot be confirmed with other income measures, i.e. household consumption, because of data unavailability. Nevertheless, the coefficient for the existing data (1983-2002) suggests the coefficient is 0.2% in 1993 constant prices and statistically insignificant.

The results show the strong convergence in GDP per capita but very weak in term of non mining GDP per capita during 1975-2002 and also in per capita consumption during period of 1983-2002. It is also useful to compare some results from other country convergence studies. Generally, it is expected that the result of developing country would be different with the one from developed country since the mechanism of convergence process is more suitable to be applied on a well developed market economy (Solow, 2001).

5.1 Comparison of Overall Convergence to Other Countries

China would be the country with the characteristic of planning system in period of 1952-1965 and market system after the reform in 1993. The magnitude of β coefficient in Indonesia GDP per capita case during period of 1975-2002 is higher than China in period of 1952-1965 (0.6%) but less than China during period of 1978-1993 at 1.7% (Jian, Warner and Sachs, 1996) or 2% during period of 1978-1989 (Gundlach, 1997). The

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[5] The β coefficient can be directly estimated since $e^{\beta} - 1 \sim \beta$

adjusted R^2 of the regression is relatively high compared to the China regression. Nevertheless, the magnitude of β convergence for non mining GDP per capita is lower than China convergence in planning system era. Vietnam, another economy that just through market reform process has a very low convergence rate at 0.3% during period of 1995-2000 (Klump and Nguyen, 2004).

Comparing to the other developing country studies, the magnitude of 0.4% from non mining GDP per capita is actually not too low. India has experienced regional divergence between 1961 and 1991 (Cashin and Sahay, 1995). Mexico was only achieved only 0.2% rate of convergence during 1970-2003, while Argentina and Brazil were slightly better with 0.5% and 0.6% respectively (Serra *et. al.*, 2006; Ferreira, 2000; Azzoni, 2001). The highest regional convergence among Latin America in this period was Chile with 1.2% followed by Peru with 1.1%, all based on GDP per capita convergence although this is not as high as Philippines during period of 1988-1997 at 10.7% (Balisacan and Fuwa, 2003). Interestingly, this rate of convergence has not been constantly low along the period and it will be discussed as the comparison for the impact of economy episodes on regional convergence in Indonesia later on.

The result from developed country studies show higher rate of convergence with the average of 2% (Sala-i-Martin, 1996). From the 8 countries, Canada in period of 1961-1991 and Spain in period of 1950-1987 were the highest at 2.4% and 2.3% each. Nevertheless, the rate of convergence of GDP per capita in Indonesia is also almost the same as the β coefficient for France (1.6%) and Germany (1.4%), and higher than Italy (1.0%) during the 1950-1990 period (Sala-i-Martin, 1996). These results have been confirmed by Coulembe and Lee (1995) for Canada and Paci and Pigliaru (1997) for Italy.

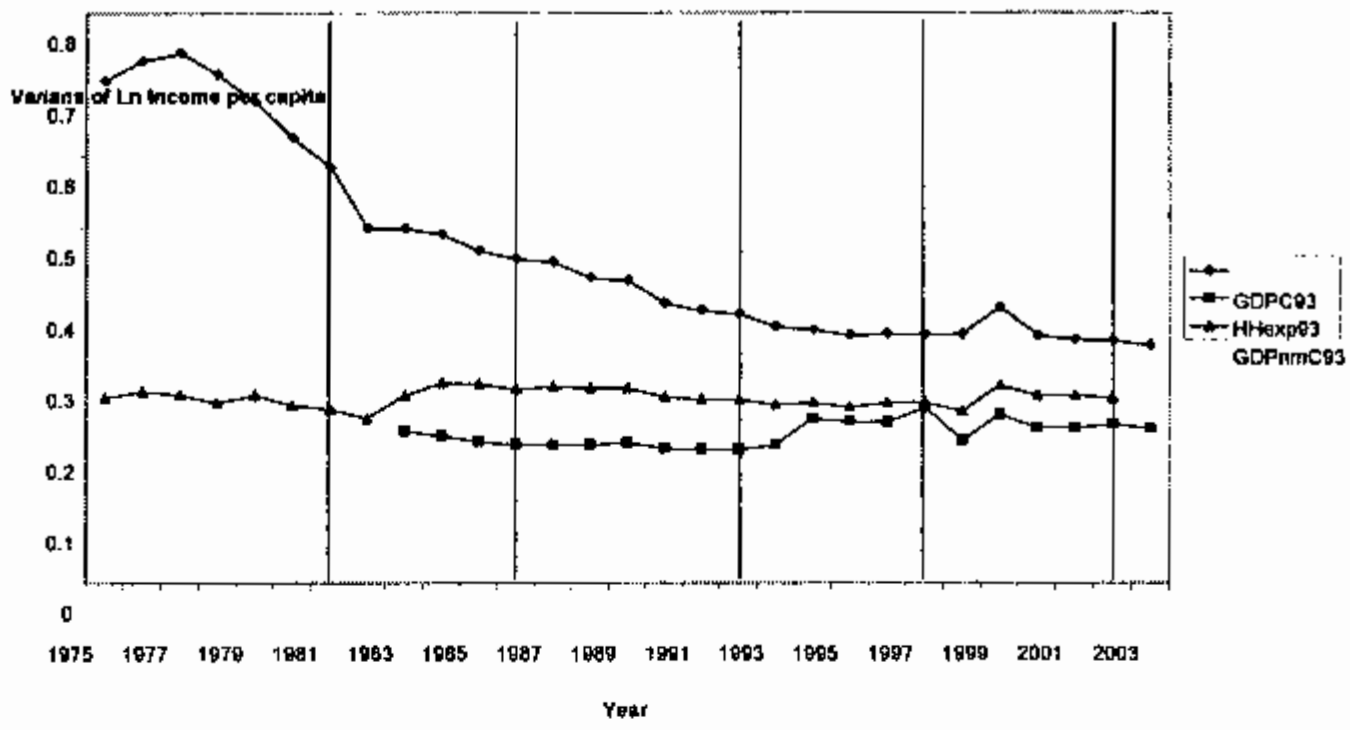
Tabel 2
The Estimation Result of per Capita GDP Absolute β Convergence

	Logarithm per capita real GDP			Logarithm per capita real GDP non mining			Logarithm per capita real Household consumption		
	Initial value	Constant	Adj. R^2	Initial value	Constant	Adj. R^2	Initial value	Constant	Adj. R^2
1975-2002	-0.015***	0.033***	0.539	-0.004	0.038***	0.022	-0.002	0.032***	-0.030
	-5.493	-12.782		-1.250	-13.77		-0.529	11.342	
1975-1981	-0.020**	0.053***	0.188	-0.01	0.057***	0.025			
	-2.608	-7.561		-1.280	-9.43				
1981-1986[a]	-0.028***	0.028***	0.301	0.001	0.037***	-0.042	-0.017**	0.012**	0.178
	-3.433	-4.624		-0.07	-5.1		-2.534	2.357	
1986-1992	-0.017***	0.050***	0.313	-0.008	0.051***	0.021	-0.007	0.025***	-0.002
	-3.520	-15.504		-1.240	-16.12		-0.971	4.957	
1992-1997	-0.010*	0.052***	0.084	-0.003	0.050***	-0.027	0.018	0.050***	0.024
	-1.814	-12.852		-0.580	-17.62		1.268	6.121	
1997-2002	-0.007	0.005	-0.016	-0.001	-0.001	-0.041	-0.018	0.030***	0.056
	-0.777	-0.682		-0.160	-0.230		-1.575	4.987	

Note: *, **, and *** are 10%, 5%, and 1% significance respectively. [a] starting from 1983 for household consumption regression

Figure 4.

Sigma Convergance



5.2 Convergence in the Oil Based Economy

In the first episode, from 1975 to 1981, there was a significant absolute β convergence for per capita GDP with the magnitude of the β coefficient estimated to be 2.0%. The expected time for the disparity to halve from 1975 value is 35 years. The coefficient is higher than the overall period of 1975-2002 estimation, but surprisingly the value of adjusted R^2 is only 0.19, meaning there were factors affecting the process other than simply the convergence process since although very significant, the convergence process only explain 19% of the provincial growth. This means that there are other growth determinants that should be discussed later on. It is also important to note that, although not significant, the β coefficient for non mining GDP per capita is relatively high at 1.0%.

The σ convergence may give a clearer picture in the changing of the inequality, since it shows the trend of the distribution disparity from year to year. According to this convergence concept, there was actually a divergence from 1975 to 1977 before a steep downward trend toward 1981. The variance of logarithm GDP per capita increased from 0.71 in 1975 to 0.74 in 1977 before dropping to 0.58 in 1981. On the other hand, the variance for non mining GDP per capita fluctuated slightly throughout the period and decreased from 0.26 in 1975 to 0.25 in 1981. These two inequality measurements have also shown that the disparity in Indonesia's regional economy was much less severe when mining is excluded from the domestic product.

Since the first Indonesian economic episode was dominated by the oil based economy, it is expected explanation should centre on the performance of the mining rich provinces compared to the others. The story of how strongly oil dominated the economy can be seen from the performance of the mining rich provinces. Riau, East Kalimantan and Papua were among the provinces with the highest GDP per capita, along with Jakarta and South Sumatra in 1975, while Aceh, Central Kalimantan, Bali, North Sulawesi and East Kalimantan achieved the highest growth. So the catching up process in this period was still due to the rapid growth of the two mining rich provinces, Aceh and East Kalimantan, in addition to the slightly negative growth of Riau, which had the highest per capita GDP in 1975. As a result, Aceh joined the highest GDP per capita group in 1981, while the gap between Riau and East Kalimantan as the first and second on the list was very close. Nevertheless, there was also high growth in the two non mining rich provinces, Bali and North Sulawesi.

5.3 Rapid Convergence in Mining Sector as oil Price Fall

Indonesia is estimated to have had a rapid absolute β convergence following the fall in oil prices in the second episode. The magnitude of the β coefficient was high at 2.8%. It was statistically significant and has higher adjusted R^2 than for the previous period at 0.30. Interestingly there was a sign of β divergence in non mining GDP per capita although it was not significant. The estimation can also be done for household consumption per capita from period of 1983 to 1986, which means missing the year 1981 and 1982 from this episode. The result shows the existence of β convergence in household consumption with a lower β coefficient at 1.7% and weakly significant.

There was also σ convergence in GDP per capita period of 1981-1986. The variance dropped from 0.58 in 1981 to 0.50 in 1982 and then continued to decrease steadily to 0.46 in 1986. On the other hand, the slight increasing disparity in non mining GDP per capita was also captured by the slight increase in disparity. It was 0.23 in 1982 and 0.27 in 1986. The variances of per capita household consumption in both prices have a slight downward slope from 1983 toward 1986. They were 0.21 in 1983 and had become 0.19 by 1986. So the disparity in consumption was lower than the disparity in non mining GDP and has become even lower in this period. This was probably because the consumption variable also includes the consumption of mining employees.

The convergence in per capita GDP was due to the fact that two mining rich provinces, Riau and Papua, had the slowest growth and Bali,

Central Java, West Kalimantan, Bengkulu and West Sumatra, which had the highest growth, were all below the median of this income distribution. On the other hand, the divergence in non mining GDP per capita was mostly due to the high growth of Aceh and East Kalimantan in non mining sectors. This shows that these two provinces were able to transfer the high income from mining to the non mining sector in those periods.

5.4 Slowing Convergence during Trade Liberalization

The speed of β convergence in GDP per capita had become much slower in the third episode of Indonesian economy when the economy was opening up by major trade deregulation in 1987. It happens as the regional economies better connected to the global economy benefited the most. After experiencing 2.0% and 2.8% convergence rate during the first and second episode, the magnitude of β coefficient is estimated to be low at 1.7% during period of 1986-1992. Meanwhile, the estimation for non mining GDP per capita β coefficient shows insignificant convergence. The same result is estimated for the β coefficient for household consumption.

This result is similar with the impact of trade liberalization in Latin America in early 1990 undertaken by Argentina, Brazil, Colombia and Peru. In Argentina and Colombia the speed of convergence plunged from 1.5% and 1.7% in period of 1980-1990 to 0.4% and 0.8% in period of 1990-2002 respectively, however both countries has experienced the low convergence before in period of 1970-1980 for Argentina and in period of 1960-1970 for Colombia. Nevertheless, Peru, which has experienced a convergence since 1970, has also slowed the speed of convergence significantly from 1.8% in period of 1980-1970 to 0.2% in period of 1990-2000 (Serra et.al., 2006). The massive impact of trade liberalization was experienced by Mexico in 1985 as it had significant β divergence after experiencing strong convergence in period of 1970-1980 at 2.1% and period of 1980-1985 at 3.4% (Serra *et.al.* 2006, Paluzie 1999, Hanson, 2003).

The variance of GDP per capita is estimated to have decreased from 0.46 in 1986 to 0.38 in 1992 as the sign of σ convergence. Nevertheless, the convergence was slower in the first half of the period and then decreased on a steeper slope after 1989. In the estimation on non mining GDP per capita, the disparity had only a very slight decrease from 0.27 in 1986 to 0.26 in 1992, while there was almost no σ convergence in household consumption. However, there was increasing disparity trend toward 1989 decreasing thereafter.

During this export promotion episode, Lampung, Bali, North Sumatra, Jakarta and North Sulawesi were the five fastest growing provinces. The additional deregulation in the trade and financial sector enhanced the economic performance of these provinces which had a relatively high share of the services sector to begin with. Bali and Jakarta have a very high share of trade sector in their GDP, moreover Jakarta also had high share of financial sector while Bali had high share of tourism sector. North Sumatra and North Sulawesi were two of the provinces with the highest transportation sector especially because they also have relatively good ports. Meanwhile, Lampung is the border of Sumatra and Java so although did not have such a big share of service sector but it had the impact of the increasing mobility of good from those two big islands. However, except for Jakarta, these provinces were not among the top five provinces in term of GDP per capita, although three of them, including Jakarta, were in the top ten. The reason being that is these provinces had relatively big economies with a high population.

5.5 Increasing Consumption Disparities in the Slowing Reform

After the episode of export promotion, the reform process especially on trade was slowing down. Yet, the speed of β convergence was lower than in the previous period. The magnitude of β coefficient for GDP per capita is estimated to have been only 1.0% and it is weakly significant. Meanwhile, the β convergence in non mining GDP per capita was not significant. These were also shown in the σ convergence trend. The variances were slightly decreased in GDP per capita and relatively constant in non mining GDP per capita.

The disparity in household consumption increased in this period as indicated by both β and σ convergence although still statistically insignificant. The high consumption growth was achieved by most of provinces in Kalimantan with East Kalimantan, the richest provinces among them, had the highest growth. Central Java and West Sumatra were also among the top five, while Jakarta was in sixth. Given Jakarta and East Kalimantan was in first and second position in household consumption per capita, the high growth of these two provinces have become the triggered for the increasing disparity.

In terms of GDP per capita, the leading growth province was almost the same as previously, except for Lampung which dropped to twelfth place and was replaced by Papua. Aceh had the lowest non mining GDP per capita growth in period of 1992-1996 after the highest growth in the previous period. One possible explanation is the escalation of conflict

after the Indonesian government declared Aceh to be a military operation area in 1990. The step was taken regarding some clashes with the Aceh freedom movement (GAM), but instead of solving the problem, the operation gradually exacerbated it.

5.6 Impact of Crises

There was no significant β convergence in the episode of Indonesian crises. 11 of 26 provinces had negative GDP per capita growth between 1998 and 2002. The highest growth was achieved by West Nusa Tenggara, East Kalimantan, Jambi, North Sulawesi and East Nusa Tenggara. The two Nusa Tenggara provinces were the two with the lowest GDP per capita, while in contrast, East Kalimantan had the highest income per capita that may cause the insignificant result. With East Kalimantan, Jambi, North Sulawesi and East Nusa Tenggara were also among the highest growth provinces in term of non mining GDP per capita, the story was very much the same. The speed of convergence for GDP per capita and non mining GDP per capita were 0.7% and 0.1%, while in household it was higher at 1.8%.

This might be surprising for those who believe the economic crisis in 1998 should have affected the wealthy provinces first as it hit the financial sector. The variance in σ convergence trend could give a clearer view. Although it is estimated to have been relatively constant between 1997 and 1998 for GDP per capita but the other two measures, especially household consumption, show a significant decrease in 1998 disparity compared to 1997. However, all income disparities, including GDP per capita, increased in 1999 before decreasing slightly again in 2000 and becoming fairly constant afterwards.

These fluctuations may show the different impact of economic and socio-politic crises on income disparity in Indonesia or simply because the rich provinces has managed to recover faster than others although suffered the worst hit by the crises. The cultural revolution of China can be a comparison how the socio-political crises full of conflict could have an impact on convergence. During period of 1965-1978, there was a massive disruption on the central planning system in China. Yet, the impact was mainly on agricultural region while the industrialized region continued to grow.

However, as stated earlier the conflict has also happened in Aceh, Jakarta and also Papua which rank fifth, second and fourth in GDP per capita beside Maluku, Central Sulawesi which rank 17th and 22nd . as a result there is no obvious impact of the conflict to GDP per capita

convergence. The similar situation can be stated for household consumption and non mining GDP. Yet, in non mining GDP Papua's rank was lower at twelfth that could make the convergence even more unlikely.

To sum up, the convergence speed of provincial GDP per capita in Indonesia became slower from one episode to another after the economy adjusted to the fall in oil prices and trade liberalized. There was no convergence in non mining GDP per capita in any of these Indonesian economy episodes, while household consumption was weakly converging when the economy was adjusting to oil price plunge. As a result, the disparity in GDP per capita, which was far above the other two income measures at the beginning, had closed the gap in those episodes because of the relatively slow growth by the mining sector.

7. CONCLUSION

This paper has looked at the pattern of inequality and convergence of Indonesia's regional income given the changes in the national economy since 1975. It has also shown that the convergence has been affected by a few of the major changes in Indonesian policies and its macroeconomic condition especially in relation to the structural change from mining sector domination to the manufacturing sector. However, it also shows that the pattern of disparity was mostly flat, i.e. the absence of convergence, except for the GDP per capita.

Generally, the speed of provincial GDP per capita convergence in Indonesia has become slower from one episode to another after the economy adjusted to the fall in oil prices. There was no convergence in non mining GDP per capita in any of these Indonesian economy episodes, while household consumption was weakly converging during the time the economy was opening up but diverged in the time capital accumulate during period of 1992-1996. The regional disparity in GDP per capita, which was far above the other two income measures in the beginning, became closer during those episodes because of the slow growth of the mining rich provinces.

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The Strategy of Indonesia's Economic Transformation

Hal Hill

Arndt (1978, p. 28):

There is hardly an economic policy – whether for the levying of income tax or an urban real estate tax, or for tariff protection of domestic industry, or for subsidies to depressed industries, or for minimal regulation of foreign investment or of road traffic, or for conservation of forests or for provision of rural credit to farmers or for priorities in investment credit by state banks, or for social welfare services or development projects of every kind – which, whatever its economic or technical merits, does not now need to be weighed – and often ruled out – almost wholly on grounds of its administrative impracticability in the face of corruption.'

Boediono (2005, p. 323) on lessons learnt:

'Beware of possible disharmony between politics and economics … Never take economic stability for granted. … Institutions and governance should receive the highest priority in the overall strategy.'

Harberger (1984, p. 427):

'... there is no magic formula [for economic growth] – no combination of one or two or even ten or twelve policy buttons that, once pushed in the right order, will guarantee economic growth.'

Higgins (1968, p. 678):

A 'chronic dropout, … Indonesia must surely be accounted the number one failure among the major underdeveloped countries.'

(Attributed to) Harry Johnson:

'The theory of the second best may be all very well in theory, but it's often devised by third best economists and implemented by fourth best bureaucrats.'

Keynes:

'It is better to be roughly right than precisely wrong.'

Lee Kuan Yew (2006):

'They (Indonesian policy makers) know that their labour laws are driving away investors. But the moment the government proposes an amendment, the unions riot. Why? I think they haven't understood what the world is. They think, "This is my minimum wage; you have to do this, you have to do that." Meanwhile, there's massive unemployment and no investments.' (quoted in the AFR, May 17, 2006)

Political economy 101 (courtesy of Chatib Basri):

'Governments may not be very good at picking winners, but losers are good at picking governments.'

Timmer (1973, p. 76):

'"Getting prices right" is not the end of economic development. But "getting prices wrong" frequently is.'

Keywords : *Economic Development, Economic Growth and Aggregate Productivity, Indonesia, Public Economics*

JEL Classification : *H00, O10, O40*

1. INTRODUCTION

Indonesia is successfully undergoing, in the words of Jack Bresnan (2005), 'The Great Transition'. It has recovered from the deep crisis of 1997-98, and it has navigated a long way down the road of the democratic transition, together with decentralization and far-reaching institutional change.

I am approaching the topic of my paper with caution and humility. I have had the privilege to work on Indonesian development issues for over three decades. I have always found Indonesian academics and officials remarkably frank and open about the issues facing their country, and also tolerant of the perhaps excessively intrusive foreign academic presence. But, equally, I am conscious that, even when I have worked on the country, sometimes intensively, I am always observing from afar and the outside. Inevitably, the political economy constraints are diminished, the inclination for 'first-best policy advocacy heightened, from a more distant perspective. Close up, as the distinguished policy makers will be quick to remind us, the world is much more complex, and the battle is often between the second-best and the nth best.

My paper is premised on the argument that the restoration of rapid economic growth is the single most important policy objective facing the government, growth that is broad-based, at least distributionally neutral, and recognizes environmental constraints. Growth most definitely is 'good for the poor' (Dollar and Kraay, 2002). Moreover, Indonesian economists and policy advisors have to operate in a very different political economy environment compared to the Soeharto era. That is, a presidency is not all powerful (though arguably has more 'legitimacy'), a weaker and less cohesive cabinet and bureaucracy, a much more powerful and assertive legislature, a very different set of centre-region relationships, and a more vocal and unpredictable civil society.

Three general points warrant emphasis at the outset. ***First,*** and most important, Indonesia has the immense benefit of experiencing rapid and long-term growth. That is, its policy makers have a deep understanding of the essential ingredients, and the community has appreciated the benefits in the form of rising living standards (and the concomitant downside of social disruption). This must surely be the central factor in any discussion of policy issues and options. Unless the growth was in some sense due to luck or it was fleeting – neither surely correct – one of the challenges is to replicate the positive lessons of experience, albeit in a different political and institutional landscape.

Second, Indonesia faces a tougher, more competitive global environment, and one in which key productive resources, capital and people, are ever more mobile across national boundaries. This is particularly the case for competition from the two Asian giants, China and India, and also significant-sized economies, most notably Vietnam. In the past decade, China's per capita income has already overtaken Indonesia's. If current growth differentials persist, the latter two could also surpass Indonesia, a proposition which would have been unthinkable a decade ago.[1]

Third, and notwithstanding this intensifying international competition, the global macro circumstances currently and in recent past have been exceptionally favourable for Indonesia. That is, there is the highly unusual 'trifecta' of low (albeit rising) interest rates, strong global economic growth, and very high commodity prices. These conditions are unlikely to persist for much longer. But while they are present, they provide Indonesia with a historic window of opportunity to restructure and enact policy reform.

My paper is organized as follows. In **Section 2,** I briefly review the large and rapidly expanding growth empirics' literature, which attempts to explain long-term international differences in growth rates. **Section 3** summarizes Indonesia's development record since the 1960s, in comparative perspective. Linking these two sections, **Section 4** looks forward (and backward) and offers an assessment of some key development policy issues. The main conclusions are summarized in **Section 5.**

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[1] I will not discuss the details of these countries in this paper, except to note that the slowest growing of the three over the past two decades, India, now appears to have permanently shed Deepak Lal's famous 'Hindu equilibrium' rate of growth, of 3-4%, implying long term annual per capita growth of 1-2%. The major reforms of 1991 and subsequently appear to have lifted the economy to a new growth trajectory, of 6-8%. Whatever backtracking occurs, the once dominant 'licence Raj' has become a historical relic. For recent surveys, see Pursell (2006) and Williamson (2006). The parallel with Indonesia is perhaps that, owing to complex political compromises (with unions, regions, business lobbies), it may not be able to achieve the really stellar NIEs/China growth rates. Conversely, perhaps the Indian (and Indonesian) rates are more durable since these countries have already established working democracies.

2. THE DETERMINANTS OF GROWTH: ELEMENTS OF AN ANALYTICAL FRAMEWORK[2]

There is now a very large literature attempting to identify the sources of long run economic growth and to explain international differences in growth rates. These range from growth decomposition techniques to large-scale econometric investigations. All are motivated in some way by underlying theory and empirical observation. The earlier literature tended to focus on partial correlations, often in the context of attempting to prove (or disprove) favoured theories of economic development. As more data bases have become widely available, and econometric techniques more advanced, inevitably the analysis as become more sophisticated quantitatively. However, endogeneity remains a serious obstacle, and the longer the time period (an important requirement since growth is a long-term phenomenon) the smaller the number of developing countries that are in the sample. Quantifying the impacts of new areas of interest in development economics, for example institutional quality, is particularly limited in this respect.

The empirical literature is usually arranged around three categories of dependent variables that either theory suggests is important or have been found to be robustly correlated with some measure of growth in empirical studies. These are: measures of factor accumulation and initial conditions (which capture the process of conditional convergence); government and policy related variables; and other relevant factors.

Theory and empirics posit a positive relationship between the rate of capital accumulation and output growth, with various proxies for the rate of capital accumulation found to be one of the variables most robustly correlated with long run growth rates.

In theory and empirical growth studies, there are typically two different roles for human capital in driving growth. First, if human capital represents a direct factor of production that does not suffer from decreasing marginal returns, higher rates of investment in human capital will drive faster growth. Second, as postulated in many endogenous growth theories, human capital may be important for creating knowledge or aiding knowledge diffusion from a more technologically sophisticated country, in which case higher levels of human capital would be expected to drive higher growth. On balance, the empirical evidence appears to lend greater support to the endogenous growth theory interpretation.

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[2] This draws on section 2 of Hill and Hill (2005), which also contains a guide to the key literature. A good general review of the literature is provided by Temple (1999).

Nevertheless, a surprisingly large number of studies have found neither the stock nor rate of investment in human capital to be statistically important.

Aside from the inclusion of basic factors of production, many cross-country empirical growth studies include as one of the explanatory variables the initial (lagged) level of some measure of labour productivity. The coefficient on this variable is often found to be negative, supporting the β-convergence hypothesis that, *ceteris paribus*, poorer countries tend to grow faster than rich countries.

A range of policy variables are likely to influence technical and allocative efficiency, thereby impacting on growth outcomes directly, or by altering the incentives and opportunities for factor accumulation, impacting on growth indirectly. Amongst the most common types of direct policy variables assessed in empirical studies are policies relating to openness to international trade, macroeconomic stability, the size and nature of government expenditures and factors which come under the broad banner of institutional quality. A large body of empirical evidence, using different measures of both trade regimes and measures of revealed openness to trade, has found this variable to be strongly correlated with growth. However, many of these studies have been the subject of a wide ranging criticism relating to measurement error and especially endogeneity bias.

The orthodox view of economic management and growth contends that a relatively stable macroeconomic environment is a prerequisite for sustained growth. However, the precise theoretical linkages are not always clear. In addition, defining exactly what constitutes macroeconomic stability and assessing whether it has ongoing or temporary effects on growth is problematic and this is born out in some empirical studies.

The enforcement of contracts and the safeguarding of private property rights, one aspect of what might come under the broad banner of 'institutional quality', are fundamental to most forms of economic activity, including production and exchange. However, one of the key empirical challenges in examining this issue is accessing a good proxy for property rights security. Many studies employ indicators of investment risk and contract enforcement, constructed by private ratings agencies, either directly or in conjunction with an instrumental variable based on geographic or historical factors. Nevertheless, these variables are usually subjective in nature, and extended time series are rarely available, for developing countries at least.

The rapidly expanding literature has also experimented with many other variables. One is financial sector development, which is presumed to support growth directly, by providing signals on efficient resource allocation and indirectly, by encouraging savings and capital formation. A second is political stability. This is presumed to represent a necessary though not sufficient condition for growth. Empirical testing also has to deal with cases where there may be frequent changes in government, but where, perhaps owing to a stable and well established bureaucracy, policy settings are maintained. It is also generally hypothesized that a more open and competitive political system is more consistent with an environment conducive to productive economic activity. However, the results are mixed. As much of East Asia illustrates, authoritarian regimes can generate a sound economic environment and execute good policies, particularly in the early phases of development. A third set of explanatory growth-enhancing variables embrace concepts such as trust, social capital and social cohesion. A variant of this is ethnic fractionalization, which some have argued is a key factor in explaining poor growth performance in Africa. Fourth, there are a range of geographic and environmental factors, including a tropical climate (e.g., which may increase the prevalence of disease) and land-locked locations (which may limit the scope for participating in international commerce). Finally, there is a literature on the links between long run economic performance and intra-national inequality. Here, both theory and the empirics are ambiguous: high inequality may be conducive to saving and provide incentives for enterprise; but it may constrain growth to the extent that it breeds instability and excludes economic agents from the production process.

3. THE INDONESIAN RECORD

From Benjamin Higgins's 'chronic economic dropout', to the World Bank's 'East Asian miracle', and then from 'show case to basket case'. Could all these characterizations possibly apply to the same country? Yes, they do, to Indonesia! They illustrate not only the hyperbole which is sometimes associated with major changes in a country's economic fortunes, but also the reality that Indonesia's development record has been highly episodal. We have now had a reasonably accurate picture of Indonesian economic development, thanks to the meticulous, pioneering work of economic historians such as Thee Kian Wie and Pierre van der Eng. At the outset of the Soeharto era, the national accounts data suggest that the country's per capita income was similar to that in 1913, and about three quarters of that at the effective end of Dutch colonial rule, in

early 1942. In the next 30 years, the Soeharto era, income per capita rose almost four-fold. These figures are quite remarkable. That is, there was no net improvement in aggregate national welfare for over a half a century through to the mid 1960s, followed by a sharp increase (van der Eng, 2002, p. 145).

Thus, Indonesia certainly belongs to the ASEAN high-growth club. From 1966 to 2000, four of these economies grew very fast, by at least 4% per capita (**Table 1**). Singapore was the standout, with 6.6%; it also ranked top among the 59 countries for which there are data for all these variables over this period. The other three ranked in the top six. There is also a clear investment-growth correlate in most cases. Singapore invested very heavily, on average about 44% of GDP, and was also ranked number one in the sample.

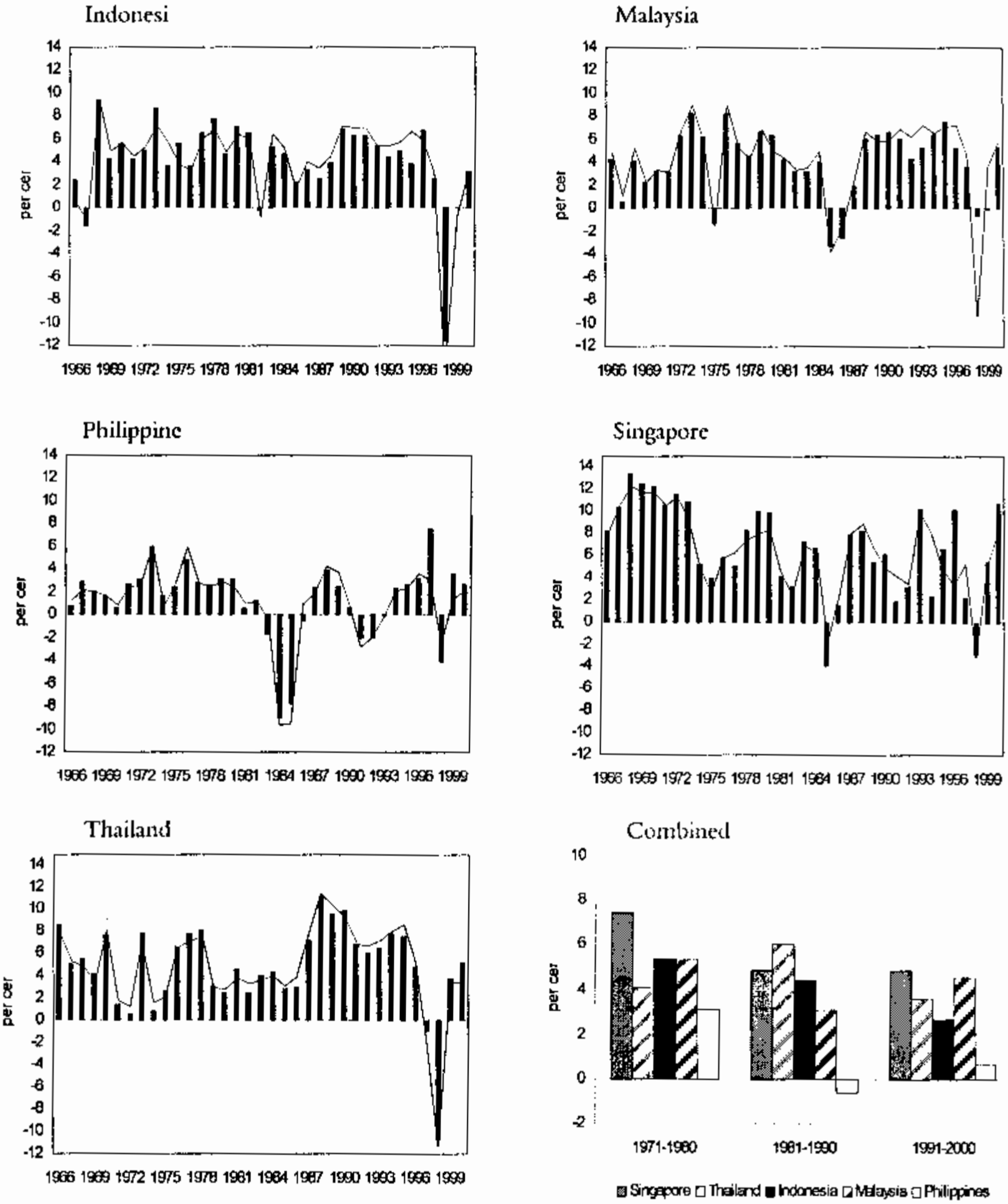
Table 1
Southeast Asian Economic Performance Indicators, 1966-2000

	Indonesia	Malaysia	Philippines	Singapore	Thailand
Outcomes					
Per-capita growth	**4.1**	**4.0**	**1.3**	**6.6**	**4.8**
Investment share of GDP	13.5	21.3	15.0	44.2	30.8
Government share of GDP	19.8	18.8	16.9	8.4	16.1
Public spending on education (% GDP)	1.5	5.5	2.4	3.4	3.8
Average years of education	3.4	5.3	6.4	5.4	4.7
Trade to GDP ratio	47.1	123.8	57.6	329.8	60.0
Openness, Sachs-Warner measure	0.9	1.0	0.3	1.0	1.0
Inflation	56.6*	4.8	11.4	3.6	5.8
Contract intensive money	0.74	0.83	0.82	0.84	0.83
Political instability	0.00	0.03	0.11	0.00	0.06
Ranking out of 59 countries					
Per-capita growth	**5**	**6**	**41**	**1**	**3**
Investment share of GDP	37	17	33	1	4
Government share of GDP	42	37	32	7	29
Public spending on education (% GDP)	59	15	53	37	30
Average years of education	44	26	20	25	32
Trade to GDP ratio	39	2	25	1	23
Openness, Sachs-Warner measure	22	1	34	1	1
Inflation	55	7	35	2	10
Contract intensive money	47	26	31	23	25
Political instability	1	39	57	1	50

Notes:
Outcome figures are based on annual averages for period 1966-2000.
Rankings are based on sample of 59 countries corresponding to the period 1966-2000. A higher number is 'better' for all variables. For ease of presentation, the rankings are switched for inflation, government share of GDP and the political instability figures.
'Contract intensive money' represents the proportion of M2 held in forms other than currency, and is derived from *International Financial Statistics*.
Data on public spending on education are from World Development Indicators, while the trade to GDP ratios are from Penn World **Tables 6.1.** For other variables used in regressions reported in table 2, see data appendix for definitions and sources.
The inflation figure for Indonesia is magnified by hyper-inflation in 1966; the average inflation rate for Indonesia for period 1967 to 2000 is 23.1%.
Source: Hill and Hill, 2005, p. 322.

The episodic nature of economic growth has been a feature of some of these economies (**Figure 1**). By decades, average growth among the five ASEANs was highest in the 1970s. There was no mid-decade recession, as in the mid- 1980s, nor a deep crisis as in the late 1990s. Episodes are especially pronounced for those countries whose exports are dominated by commodities, where the quality of macroeconomic management has been variable, or where political instability has been present. Since these variables are country-specific, there are no broad growth cycles. But it is useful to distinguish between the stable, high growth economies and those whose performance has been more erratic.

Figure 1
Southeast Asian Economic Growth, 1966-2000



Indonesia clearly belongs to the latter group. Episodically, the key periods are the late 1960s, early-mid 1970s, early-mid 1980s, and 1997-98. Indonesia experienced rapid growth from the late 1960s, for the first time in its recorded history, with the adoption of 'orthodox' trade and macroeconomic policies, further boosted in the 1970s by large increases in international petroleum prices. The collapse of these prices in the early 1980s led to a sharp deceleration in growth, but quick and decisive reform promptly restored the momentum (Kuncoro and Resosudarmo, 2006). It then experienced a deep economic collapse in 1997-98 and political turbulence, with the economy contracting by over 13% in 1998, followed by significantly slower growth thereafter.

In the long sweep of development, a really striking feature of Indonesia's economic history is just how successful its reform efforts have been. This particularly so when:

- a united group of policy makers have been at the helm;
- they have been listened to and supported by a powerful president;
- the vested interests opposed to reform have either been neutralized or co-opted; and
- the international commercial environment and donor community have been supportive.

As we have seen, from the seemingly hopeless circumstances of the mid 1960s, the reform agenda of the early Soeharto era produced remarkably rapid economic growth within just a few years. The 1980s was just as crucial a period in the country's economic history. At the beginning of the decade, as oil prices first tapered off, and then fell sharply, Indonesia was highly exposed to the international oil market. Oil, gas and related minerals provided about two-thirds of government revenue and almost three-quarters of merchandise exports. Indonesia could well have followed other major developing OPEC members – notably Mexico and Nigeria – into a debt crisis.[3] Instead, the decline in oil prices triggered a major reassessment of trade and industry policy. The political economy pendulum swung in favour of the technocrats and their supporters who advocated a more liberal economic agenda, including reduced protection, a more open posture towards foreign investment, and simplified export procedures (Basri and Hill, 2004).

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[3] See Gelb and Associates (1988) for an excellent comparative assessment of the management of the 1970s oil boom in selected developing countries. Indonesia emerges as the country which most effectively recycled its windfall oil boom revenues, and which adjusted most quickly to the downturn in prices.

What is the comparative evidence for Indonesia on a range of policy and geographical variables which are presumed to be growth-enhancing? Linking back to the framework enunciated in the previous section, we refer again to the data in Table 1 for the five ASEAN economies for which we have reasonably long-term data series.

All of the high-growth economies have a history of consistently good **macroeconomic management**, with a strong aversion to inflation and a predisposition to fiscal prudence. Inflation in Malaysia and Singapore has rarely exceeded 5%, while Thailand has almost always recorded single-digit inflation, even during periods of global inflation. For the period as a whole – which included episodes of significant global inflation – all three averages are in the 3-5% range (**Table 1**). They also rank among the very best performers. In this comparison, for the period 1967-96, Indonesia's average inflation rate was significantly higher. However, except for the early years of the 1970s oil boom, there was never a loss of macroeconomic control. In the wake of the 1960s hyper-inflation, which peaked at about 1,000% in 1965-66, a key building block introduced by its economic policy makers was the so-called balanced budget rule, which stipulated that government expenditure could never exceed the combined total of taxation and aid receipts. There was again a loss of macroeconomic control during the 1997-98 crisis, mainly associated with bank refinancing, but monetary stability was restored, albeit somewhat precariously, by the end of the decade.

The five ASEAN countries display a similar divide with respect to their **trade regimes and openness** as they do on macro management. The three higher income countries were among the small number which Sachs and Warner (1995) classified as 'always open', and all rank at the top according to this measure. Their average tariffs have been relatively low, there has been limited resort to NTBs, they have been open to foreign investment, and black market exchange rates have not been present. Of course, the differences within this group have also been significant. Singapore is perhaps the world's most open economy, with the highest trade to GDP ratio in the sample of 59 countries (**Table 1**), virtually no trade barriers, and a huge FDI presence. Malaysia and especially Thailand are a good deal less open on all criteria, but the former still ranks second in terms of its trade to GDP ratio.

Indonesia is now a relatively open economy, but historically it was much more inward-looking, placing greater restrictions on trade and foreign capital. It has also lacked the consistency of the other three (Basri, 2001). The pendulum swung sharply towards openness in the late 1960s.

There was a retreat for much of the 1970s, before the reforms of the 1980s got underway. There were further reforms in the late 1990s as part of the government's LOI with the IMF. It now seems unlikely that Indonesia would turn inward to any significant degree. But one would hesitate to assert that openness is a deeply embedded feature of the policy regime. Nationalist critiques on openness continue to resonate, with the necessities of political party funding introduce additional pressures.

In terms of **social progress**, the record in the five has generally mirrored economic development. Here it is useful to distinguish between two key elements: human capital indicators and distributional outcomes. Both are broadly indicative of the extent to which economic growth has been 'inclusive', while the former is also commonly employed with a range of 'competitiveness' indicators.

Here it should be noted that the sub-groupings identified above for macroeconomic management and openness do not apply for these variables. Moreover, consistent with the East Asian record, educational outcomes have been quite widely distributed, in the sense that, unlike other developing regions, most children receive at least some education. However, unlike Northeast Asia, with the exception of the Philippines educational achievement could not be said to have 'led' economic development, in the sense that OECD-level educational indicators were achieved at relatively low levels of income. In addition, although some aspects of the distributional record are contentious, there is no evidence of any significant increase in immiserization in the presence of sustained growth in any of the five.

Indonesia's starting point on these variables was dominated by low inequality, and educational neglect dating back to the colonial era. Particularly since 1970, there has been considerable catch up, but the country continues to record the lowest educational achievement among the five. Two education indicators are reported in **Table 1**. The widely used Barro-Lee years of schooling measure ranks the Southeast Asian countries according to their per capita incomes, except that the Philippines is number one, and Malaysia and Singapore are very similar. These three countries are grouped into the top half of the sample of 59, but none ranks highly. According to a second measure, public expenditure on education (as a percent of GDP), all but Malaysia rank in the bottom half of the sample, with Indonesia the lowest of all. Recall, though, that this sample includes most OECD economies.

Measuring **institutional quality** is an even more hazardous exercise. There is hardly a consensus as to what constitutes a robust set of

indicators. International comparisons need to make allowance for levels of development. Estimates based on subjective assessments of bureaucratic quality and corruption and extending back over more than two decades are not available. Common proxies such as the incidence of corruption are likely to be inconclusive, since there are cases of high corruption co-existing with both high and low economic growth. One also needs to distinguish between some sorts of notion of 'hard' and 'soft' states within, as much as between, countries. For example, Indonesia for most of the recent past, has been fiscally disciplined (and hence 'hard' in this respect), while highly vulnerable to capture in a microeconomic sense. In addition, proxies for political freedoms and democratic expression are empirically slippery.

For what they are worth, there is a broad consensus in rankings of institutional quality among the five, more or less following their per capita incomes. More focused indicators, such as the quality of the central bank and the legal system, which are widely used proxies for two key aspects of institutional quality, generate similar rankings. In these series, there is moreover a significant gap between Singapore and second ranked Malaysia, and between the latter and the other three economies.

For illustrative purposes, data on two widely available indicators are included in **Table 1**. On the first, political stability, Singapore and Indonesia rank very highly. Both are broadly accurate characterizations through to 1997. But, to illustrate the limitations associated with such indicators, Indonesia would of course be regarded as highly unstable during the six years following the collapse of the Soeharto regime. A second proxy is contract-intensive money, a variable used as an indicator of trust in the financial and legal system. Here the orderings broadly follow income per capita, with Indonesia the lowest among the five.

The growth literature generally finds a negative association between the **share of government** expenditure in GDP and growth. The effects on incentives (of a higher tax regime) and the possibilities of corruption are presumed to be important explanators, although much of course depends on a country's institutional quality. In Southeast Asia, Singapore has the 'smallest' government (and is again in the top ten for the sample), while Indonesia has the largest, partly owing to its large state-owned oil and gas sector (**Table 1**).

Of course, as noted, growth modeling has its limitations, and Indonesia's performance is typically underestimated in various attempts to quantify and explain its growth rates. Why has Indonesia grown a good deal faster than predicted? Conventional explanations for

Indonesia's rapid growth from the late 1960s draw attention to a conjunction of factors, in addition to the adoption of 'orthodox' policies of the type incorporated in the usual modeling. One is a range of fortuitous factors in its first decade of rapid growth (ie, through to the mid-late 1970s). These include the sharp increase in international oil prices; very strong donor support; and the rapid if delayed adoption of the high-yielding agricultural seed varieties at a time when that sector still contributed almost half of GDP. A second factor, reinforcing the favorable impacts of the first, was that, among the oil-exporting nations, Indonesia (and Malaysia too) recycled its 'petro dollars' more effectively than any other developing country. Especially important were the huge investments in physical infrastructure and agriculture, the latter resulting in Indonesia's transformation from the world's largest rice importer in the mid 1970s to self-sufficiency a decade later. Third, in spite of widespread corruption and centralized, authoritarian rule, the benefits of rapid growth were broadly distributed across households and regions, resulting in no significant change in distributional indicators. In particular, the low gini coefficients for household expenditure (the only distributional indicator consistently available from the late 1960s) were virtually constant throughout the Soeharto period. The entire community had a stake in the system. Fourth, although institutional indicators suggest low quality, the informal 'rules of the game' for the business sector, for which formal indicators like legal quality are largely irrelevant, were quite predictable and stable. Finally, the regime effectively handled the one potentially serious economic challenge in its first quarter century of rule – the debt crisis in the wake of the early 1980s oil price collapse – promptly and effectively.

Appendix 2 provides an additional set of comparative indicators, with greater focus on a range of 'competitiveness indicators'. In this context, I have found a useful intellectual exercise to be a framework which draws upon the "three I's", and then develops empirical proxies for each of them. These I's are *incentives*, *institutions*, and *infrastructure*. Incentives refer to domestic prices being more or less aligned with international price levels. Empirical proxies typically focus on openness to trade and foreign investment. Institutions revolve around the quality of governance and the legal system. Infrastructure embraces the pricing, regulation and quality of physical infrastructure, together with social infrastructure such as education and health that ensure that the benefits of growth are spread widely. In addition to these broad indicators, a number of specific measures related to technology and innovation are relevant to international comparisons of competitiveness.

How does Indonesia look in comparative East Asian perspective using such an approach? First, Indonesia is a 'late-comer' in practically all respects. Its educational base was hampered by colonial neglect and the absence of economic progress until the mid 1960s. It hardly possessed a modern industrial sector prior to the late 1960s, by which time almost all the private foreign capital had been driven out of the country. According to almost all indicators of science, education and technology, it is the laggard among these economies. The country also has a stronger natural resource base than most of its neighbours, hence dictating a somewhat different industrialization trajectory.

Second, technology policy has been sporadic and lacking in coherence. Prior to 1997, the government had begun to pay attention to technology issues, but its approach differed from its neighbours. That is, technology policy centered on a number of highly ambitious heavy industry projects, most especially a showcase aircraft factory, IPTN. State investment in the latter totaled at least $3 billion, and involved a 'back-to-front' approach to high-tech industrialization involving aircraft assembly without the base of supplier industries to support it. Not surprisingly, in the wake of the crisis, state support for the venture evaporated. Like China's and India's earlier push for heavy industry, there are residual, albeit high-cost, technological benefits.

Finally, in other respects, the picture is mixed. Indonesia scores well on its prudent macroeconomic management, reasonably open trade and investment policies, and major investments in physical infrastructure and to a lesser extent mass education. However, indicators suggest that institutions remain weak.

4. DEVELOPMENT POLICY ISSUES AND CHALLENGES

These brief reviews of growth theory and empirics alongside Indonesia's development record point to some powerful lessons which can shape future policy directions and priorities. In this section we highlight what are arguably the key policy challenges, both in the positive and the negative. We offer these comments bearing in mind the wise guidance above of Boediono and Heinz Arndt on Indonesia, and Harry Johnson and Lord Keynes more generally, and also conscious of the current political economy frailties which dictate that, owing to scarce, high-level bureaucratic resources and complex reform processes, priorities matter.

I am deliberately casting the net wide, but not delving into these issues in any depth. In so doing, I do not of course mean to imply that the issues are simple. There is greater emphasis on microeconomic issues as

compared to the macro, since the more serious challenges appear to reside in the former domain.

4.1 Prudent Macroeconomic Policy

Since 1967, and with the exception of the mid 1970s and 1998, this has been one of Indonesia's strengths. Moreover, and thanks to the exemplary economic policy leadership in recent years, the incipient hyper-inflation immediately after the crisis has been firmly brought under control. Public debt will continue to be a serious challenge for years to come. But the fiscal deficit is now modest. Combined with ongoing debt restructuring and negotiations, the country can grow its way out of the debt over-hang, as it did in the late 1960s and late 1980s. In addition, the country has an independent central bank, and the exchange rate float appears to be working satisfactorily, arguably better than might have been expected when it was first adopted. The floating rate has, desirably, exerted a cautionary influence on Indonesian firms contemplating foreign currency borrowings. It also appears to be working as a discipline on domestic policy excesses.

There are arguably three principal macro policy challenges. First, while managing inflation effectively, Indonesia has never quite been able to achieve the consistently low inflation of its neighbours, for example, Malaysia, Singapore, and Thailand. There do not appear to be any structural, policy, or analytical reasons why a low inflation targeting regime could not be achieved, one which is sufficiently flexible to be able to accommodate external shocks (e.g., sharp movements in commodity prices) or unforeseen policy developments (eg, the delayed petroleum price adjustments in 2005). A second macro policy challenge is to improve the revenue raising efforts, so as to be able to fund all the public investments necessary for development. Third, after the experience of 1997-98, the government is understandably cautious about large-scale foreign borrowings. But, especially in the area of infrastructure, there are almost certainly long-term investment projects where the social rates of return exceed the costs of borrowed funds, the more so where those funds are available on concessional terms.

4.2 An open Economy

The theoretical and empirical arguments for openness are very powerful. As noted, they are also supported by Indonesia's development experience since the mid 1960s, in that the country has grown more rapidly during periods of decisive liberalization.

It is important to remind ourselves that the dynamic and interactive effects associated with openness are much greater than the 'static triangles' story. Open trade and investment regimes combine to deliver higher quality FDI, since the nature of these investments shift from 'rent-seeking' a la the old 'tariff factory' model, to efficiency-seeking. That is, in an outward-looking regime, foreign firms enter the country in search of an internationally competitive production environment, rather than fiscal incentives and protection. They demand different things from governments – better infrastructure and a more skilled workforce, for example – which are likely in turn to be growth-promoting. The 'spillovers' to domestic firms, in terms of enhanced productivity and efficiency, are also likely to be greater.[4] Openness has additional indirect benefits, of the type which were illuminated in the pioneering Bhagwati-Krueger NBER series and subsequently. In low-wage economies, it shifts the growth towards a more labour-intensive trajectory, and hence it is more likely to deliver on poverty and employment objectives. It creates a more competitive environment, and hence sweeps away rents in the traded goods sectors, more effectively than complicated bureaucratic structures are able to. It is also more likely to lift institutional quality, since firms operating in internationally competitive markets are going to want better services from their government.

Indonesia is now a largely open economy, but arguably precariously so. There has been no significant backtracking on the decisive trade reforms of the 1980s (Basri, 2001). Yet the additional reforms introduced in 1998-99 are seen as politically odious in some quarters, since they were part of the infamous LOI with the IMF. Moreover, in the democratic era, the imperative of funding political parties and campaigns has introduced new protectionist pressures.

The investment regime is reasonably open, but investors continue to hold back owing to political and policy uncertainty. Hence capital flows into Indonesia in recent years have gone predominantly into short-term projects such as real estate and the stock market. The country's service sectors remain a good deal less open than the goods sector, while international labour inflows are among the more restrictive in ASEAN (Manning and Sidorenko, 2005).

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[4] There is a large literature on the impact of the trade regime on domestic spillovers. For an excellent recent Thai study, see Archanun (2006). Della Temanggung is exploring these issues in the Indonesian context in an ANU dissertation in progress.

Of course, openness is a necessary but not sufficient condition for development. The benefits need to be managed. It requires an efficient financial sector and infrastructure facilities, a workable legal system, and investments in the population which ensure that the workforce can grasp the opportunities. Connecting to global financial markets introduces major challenges, as was illustrated during the 1997-98 crisis. The financial sector, in particular, needs to be supervised conservatively and prudently. Perhaps there is a case for some light-handed measures to curb short-term capital flows, although in some circumstances the cure can be worse than the disease.

Clearly, the political economy of Indonesian trade policy has changed. The highly effective 'low politics' of the 1980s (Soesastro, 1989) presumably have to adapt to the new circumstances of fluid democracy and the politics of vested interests. Public persuasion is the new imperative. Mechanisms have to be established which demonstrate the costs of intervention via protection and regulation, and which require the proponents in business and the bureaucracy to make their case in public and subject to independent scrutiny.[5]

4.3 A simple and Transparent Business Environment

Indonesia ranks rather low in international comparisons of regulatory complexity and, as a corollary, corruption. In the East comparisons, the country particularly lags.[6] Business start-up times are long, ports and customs services lag, labour issues are more uncertain, and contract enforcement is regarded as weak. Admittedly, these surveys are subjective and not very rigorous. But together they paint a reasonably consistent story, and they explain why Indonesia has not been an attractive FDI destination since 1998.

During the Soeharto era, business learnt to adapt to such an environment, since there was the compensation of high growth, predictable rules of the game, and ample opportunities to short-circuit the system, albeit to the detriment of the public exchequer. In an era of lower growth, less predictable policies and intensified international competition, the case for reform is all the stronger.

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5 See Bird *et al* (2006) for a discussion of these issues, including a range of policy/institutional options.

6 See for example the various business surveys, such as the IFC/World Bank's annual **Doing Business** report, the JETRO surveys, the **Global Competitiveness Report**, and UNCTAD's **World Investment Report**.

Regulatory complexity benefits only the bureaucrats who are empowered by it, and the existing firms who are sheltered by it. Should it really have to take 151 days to register a business? This is the figure reported by the World Bank's **Doing Business** survey, compared to the East Asian and OECD averages of 61 and 27 days respectively.[7]

Regulatory reform is of course a highly complex, long-term and multi-faceted reform issue. First, as the initial quote from Heinz Arndt almost three decades ago reminds us, against the backdrop of a populist agenda resonating in the media and the DPR, all policy proposals need to be evaluated according to the likelihood of capture and corruption. Second, civil service reform is a key element: competitive salary structures, clear mandates and mission statements, modern management systems, and harsh penalties for malfeasance (see McLeod, 2005). Third, many of the country's laws and regulations are outdated, vaguely worded, and confer much discretionary authority of bureaucrats. Fourth, there needs to be more independent regulatory scrutiny of government operations, via a better resourced Audit Office and Competition Commission.[8] Fifth, over time, decentralization may deliver better governance at the regional level, and via competitive regional processes, this may impact on the national level. However, at best this is a long-term prospect, and it will impact only if decentralization is implemented in a stable, efficient and predictable manner.[9]

Finally, although I am generally skeptical of the merits of 'big bang' initiatives, the opposition to regulatory and civil service reform is so powerful that bold measures may be required. There are successful examples from Indonesia which illustrate this proposition: in 1985, customs was by-passed with the stroke of a regulatory pen, while an able senior official administered a highly effective duty drawback scheme for exporters, which had a similar effect. These were key ingredients of Indonesia's export success. In the 1990s, Batam was run as a free trade

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7 In fairness, it should be noted that these numbers are contentious. Alternative estimates suggest the actual figure is much lower. According to the LPEM survey, the figure may be a (still lengthy) 80 days, still well above comparative norms.

8 For example, although in its infancy, the KPPU (Commission for the Supervision of Business Competition, *Komisi Pengawas Persaingan Usaha*) appears to be operating more effectively in promoting a competitive business environment than was perhaps initially expected, especially given its origins as part of the LOI agreement, and given the implicit political agenda of some proponents of the commission. See Thee (2006).

9 It is worth noting the Philippine experience in this context. The country decentralized a decade before Indonesia, and with more preparation. Pockets of good governance have emerged among regional administrations, but there is not yet any generalized picture of competition among them lifting standards nationally. See Capuno (2006).

zone, and for a period investors voted with their feet, as the region generated about half of the increment to the country's manufactured exports. These measures might be considered 'second best', as compared to systemic reform. But they were highly effective interim steps.

4.4 Sharing in Development

Liberal reforms and rapid growth are durable only if the benefits of growth are widely distributed. Here too the international evidence and Indonesia's record provide many useful pointers. A useful framework starts with the proposition that the poor have only their labour to sell. Therefore, besides growth, the key elements are:

- increasing the demand for the services, that is a labour-intensive growth path;
- reducing the prices of the goods and services they consume intensively, that is, through competition, open borders and efficient infrastructure/logistics systems; and
- providing key productivity-enhancing services, most notably education and health.

Since the mid 1960s, Indonesia has performed well in most of these respects. The expenditure-based gini ratios and inter-regional inequalities (using the more relevant non-oil and gas series) have been broadly constant; meaning that, in high growth periods, the incidence of poverty has fallen rapidly. The spread of mass education has been quite rapid, while life expectancy and infant mortality indicators have improved significantly. Particularly in its education priorities, Indonesia has been 'East' not 'South' Asian, in that subsidies have tended to be directed at mass-based primary and secondary education. Rural development and infrastructure, through recycling the oil boom revenues, worked better than in most other developing country oil exporters.

This experience suggests that, as with much else, Indonesia has had a policy framework which by and large 'works'. Therefore, the reform agenda is substantial but essentially incremental. Among the policy challenges are measures to improve the public health and education systems, especially their reach and quality at the primary level. Partly owing to the historical backlog, Indonesia's indicators in this area are modest, even as compared to countries with a similar per capita income. Sanitation and water quality are also areas where the country lags. On the revenue side, taxes remain weakly, if at all, progressive, and there can no doubt that the tax effort and compliance for better-off urban communities could be lifted.

4.5 Avoiding Policy Dead-ends

Indonesia's development experience also highlights some potential policy pitfalls and dead-ends. We illustrate this with reference to industry and labour policy.[10]

Debates on industry policy have moved on from the earlier unproductive discussions surrounding 'picking winners'. Markets can and do fail, and there will be particular promotional measures which governments deem useful. Malaysia for example gained its unrivalled ascendancy in tropical crops with the assistance of high quality research institutes. Taiwan's SME dynamism was enhanced by the Industrial Technology Research Institute, ITRI. In both these cases, open economies and excellent infrastructure under-pinned the success. This draws attention to the fact that these interventions will be most effective where the emphasis is on efficiency and outward orientation. As Stiglitz (2001, p. 521) observes:

'In the light of *market* and *government* failures, there are two alternative strategies: to focus on one and ignore the other or to try to address the weaknesses in each, viewing the public and private sectors as *complementary*. Singapore illustrates nicely the advantages of the latter approach.'

A decade ago, I advanced the skeptical case for Indonesia's industrial policy approach (Hill, 1996). Promotional measures seem to have been prone to abuse, implementation has been sporadic and often short-lived, and there has been little systematic attempt to prescribe conditionality, in the sense of linking incentives to tightly defined performance criteria. It is therefore hardly surprising that it is difficult to detect any relationship between inter-industry variations in government assistance (for example, through protection and credit subsidies) and subsequent (lagged) performance, according to a variety of measures. That is, it is difficult to mount the case that the selective policy instruments introduced or extended in the 1970s and 1980s – protection, credit subsidies, state enterprises – 'worked' according to a range of subsequent performance criteria. By extension, Chatib Basri's (2001) detailed econometric investigation of inter-industry variations in protection consistently detected a 'crony' variable, even if admittedly the latter was a somewhat arbitrary construction. Similarly, it would be difficult to argue that the estimated $3 billion invested in high-tech

[10] Some of the arguments advanced here link back to earlier critiques of Indonesian economic policy debates. See for example Glassburner (1978) and Hill (1997).

projects could not have been more effectively spent in raising general education standards, together with some targeted industrial extension programs.

This suggests that, if the Indonesian government is going to experiment with any form of industry policy, it would be advisable to observe at least the following set of principles:

First, the 'fundamentals' adumbrated above need to be in place, and not just taken for granted (as is frequently evident in the industry policy literature). Openness especially is crucial, as it immediately subjects any intervention to some sort of market test, as in the Singapore approach.

Second, if there is to be any industry-level selectivity, it is important to establish just what, precisely, is the infant industry or distributional case for intervention. Moreover, the case need to be made bearing in mind that one industry's subsidy is another's tax.

Third, to the maximum extent possible, R & D efforts should be demand, not supply, driven, with an agenda set by the scientific community and the private sector.

Fourth, the selection of policy modalities and instruments is crucial. For example, as much as possible, assistance should be:

- industry rather than firm-based (and as a corollary it should be 'contestable');
- contain clear, non-negotiable provisions for a sunset clause;
- provided in the form of subsidies rather than tariffs and (especially) quantitative restrictions;
- completely transparent and fully costed; and
- Insulated from political processes, once broad priorities and budgets are specified.

Finally, purely for political economy reasons, there may be a stronger case for supporting export industries, simply because a market test (ie, sales in internationally competitive markets) is more readily available. This is especially the case for countries with a long history of protection.

The less these conditions can be met, the weaker the case for any forms of selectivity and the stronger the case for non-discretionary interventions such as education and infrastructure.

A similar set of arguments can be advanced in the case of SME policy. This has long been an article of faith for Indonesian policy makers, and there are interesting examples of SME dynamism from which lessons

can be learnt (Berry et al, 2001). The Bali garment industry, which grew spectacularly in the 1980s and is almost exclusively based on small firms, was practically an 'accidental' case of industrialization (Cole, 1998). Another much studied case is the export-oriented SME furniture manufacturers in Jepara.[11] These studies suggest a model of successful and innovative SME development based on at least four features. These are some basic industrial competence in a particular activity; a supportive macroeconomic environment; reasonably good physical infrastructure, especially connecting to international buyers and export markets; all combined with injections of technical, design and marketing expertise which link small producers globally to new ideas and major markets.

It is also worth emphasizing that neither of these successes resulted from any deliberate government promotional measures. Rather, and linking back to **Section 2** of our paper, it was the general policy environment which facilitated their growth. Moreover, as Thee Kian Wie (1994) and others have amply illustrated, further deregulations will work to the benefit of SMEs. This is because there are pecuniary economies of scale in dealing with a complex licensing regime, which in effect operate to the detriment of these firms.

Thus, in sum, SMEs are neither 'beautiful' (Schumacher) nor 'stupid' (Beckerman). Like firms of any size, they benefit from a clean and simple commercial environment. If the government is able to develop dynamic, demand-driven industrial extension programs, as in Taiwan, it is probable that these firms would be the primary beneficiaries. But the case for targeted SME assistance programs is unpersuasive. If welfare objectives are the main concern, there are more effective policy instruments, especially in public education and health. It is needs to be noted that, contrary to widespread impressions, size was not an important explanatory variable in firm survival and recovery following the 1997-98 economic crisis. This is clearly illustrated in the important firm-level investigations of Narjoko (2006). He concluded that foreign ownership and prior export orientation were the two main explanatory variables, and that they were especially significant in their interactive effects. The effects of size were generally inconclusive; if anything, larger

[11] In spite of their past success, both groups of firms have been experiencing difficulties in recent years. In the case of Bali, falling international tourism in the wake of the two terrorist attacks has affected business. In Jepara, timber supply shortages have been reported. The (sensible) removal of the log export ban and growing demand from China have apparently been contributing factors.

firms seemed to manage better.[12]

Labour market policies in the post-Soeharto era constitute a second cautionary policy lesson.[13] During the Soeharto era, Indonesia's employment patterns very much conformed to the East Asian model of rapid growth and structural change, rising real wages, minimal interference in the operation of the labour market, and very limited labour freedoms (Manning, 1998). Since 1998, there has been a welcome improvement in the freedom of labour to organize and negotiate. Moreover, another desirable outcome was that, initially, labour market flexibility enabled the adjustment to the crisis to occur mainly on the price (ie, real wages) rather than the quantity (ie, employment), and thus there was not a major increase in open unemployment. But in other respects, labour market policies and outcomes have deteriorated, as intimated above by Singapore's former prime minister. Labour market populism has resulted in mandated minimum wages rising sharply, while employment regulations have become among the most restrictive in East Asia, and on a par with India. For example, the regulated minimum wage series increased by over 90% in the three years, 1999-2002. Severance pay entitlements have also been increased, and are now among the highest in East Asia. There has also been pressure to convert contract workers into permanent employees.

The results have been largely predictable. Employment in the modern ('formal') sector has declined, while informal sector employment, typically lower paid and less secure, has been rising (Bird and Manning, 2002). Suryahadi et al (2003) found a negative and statistically significant impact on employment in the urban formal sector. The negative effects are greater for female, young and less educated workers, who are thereby forced to relocate in the informal sector with its lower wages and poorer working conditions. Moreover, as a result of these labour policies, and combined with the increased regulatory complexity in international trade, Indonesia has become a less attractive location in intensively competitive, footloose labour-intensive industries.

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[12] It should be noted that these results, from the BPS Statistik Industri series, refer to firms with at least 20 employees. It is possible that firms in the cottage industry sector behaved differently, but I am unaware of hard data on this group.

[13] I draw here on the authoritative work of my colleagues Chris Manning and Kelly Bird.

5. SUMMING UP

This paper has briefly surveyed Indonesia's long-term economic performance in the context of modern theories of economic growth and development. Although a contested field, there is a general consensus concerning the factors which explain why some countries consistently grow faster than others. As we have seen, the more Indonesia has adopted 'orthodox' economic policies – prudent macroeconomics, opening up to the global economy, broadly predictable commercial rules of the game, and investing in its people and its infrastructure – the faster its economy has grown, and the more rapid has been the improvement in community living standards. Unshackling the economy, combined with good governance, has in the recent past produced remarkable dividends.

And yet, notwithstanding this success, a puzzling sense of pessimism seems to permeate some policy and academic circles in Indonesia, particularly on whether the country can compete with China.

Although the management of a vast and diverse country like Indonesia is highly complex, the key elements of economic policy are relatively straightforward. For 30 years, the gifted economists who ran the economy illustrated that growth is not rocket science. It needs to be remembered that they inherited an economy much poorer, less connected to the global economy, and relatively more debt-laden than is currently the case. Moreover, they set about their task against a widespread belief that Indonesia was in some sense an inherently non-developmental state. It is important to remember that few developing countries have grown as fast as Indonesia over this 30-year period. Therefore, the challenges are not so much what to do, as how to do it. Similarly, this suggests not that a 'new paradigm' is needed, but rather that the lessons need to be re-learnt by the next generation of economists and officials, who will nevertheless have to operate in very different institutional and political circumstances.

This paper is premised on the assumption that the return to 'inclusive', high growth is the most pressing economic policy challenge facing Indonesia. The more difficult issue, where economists need advice from political scientists and public administration specialists, is how to achieve good policy in much more challenging circumstances, where it is no longer 'simply' a matter of the technocrats deciding on a certain policy objective, and then persuading the president of its desirability.

I suspect that, during this transitional phase of bedding down democratic institutions and practices, uncertain and perhaps unstable politics will be with Indonesia for some time to come. The question then

becomes how to construct a policy making system which preserves these democratic achievements but which 'takes the politics out' of key economic policy decisions, or in the words of Professor Sadli, which build a 'cordon sanitaire' around key institutions.

There are already examples where this process is underway. An independent central bank has been established and, although it is still in the transition phase, its low-inflation charter is clearly established. The floating of the exchange rate has similarly worked well, perhaps better than could have been expected in retrospect. There is a broad consensus that fiscal deficits have to be curbed, and that governments wishing to introduce new spending initiatives have to either spend their resources more efficiently or raise more revenue. There is a prospect that, as decentralization becomes firmly established, good governance at the regional level will be rewarded with a reform dividend of more investment and employment. This notion of 'islands of good governance' has also extended to some of the export zones, in that much of the manufacturing export growth since the mid 1990s has been generated by such facilities. Moreover, despite the massive economic contraction of 1997-98, Indonesia has not turned inwards.

In these new rules of the game, the role of public intellectuals is obviously critical. Economists have to win the policy battles as much, and perhaps more, in the public arena as in the presidential suite. I have the impression that that, post-crisis, public commentary on economics issues has become more populist and more nationalist. Perhaps this is the greatest challenge currently facing Indonesian economists: persuading the public that business-friendly, prudent, liberal economic policies, combined with strategies which ensure that the poor can participate in growth are in the best interests of the nation.[14]

As Sachs (2005) has persuasively argued, the key to poverty alleviation is growth, and a pre-requisite is that all members of the community are at least on the first rung of the ladder of economic development. And as Coleman's (2004) historical survey from the eighteenth century onwards has illustrated, from Smith to Keynes and beyond, 'anti-economics' sentiments are never lurking far beneath the surface, especially in times of political turbulence and economic uncertainty. Much of what passes for economic commentary in Indonesia, as in many other countries, has little to do with serious economic policy

[14] In Hill (2005), I offered examples of how some of Indonesia's leading economists had played a role in shaping public policy debates in the post-Soeharto era.

reform, and instead distracts impossibly busy reformers in government from more important issues. Can the Indonesian economics profession be the force that reshapes the nation's economic policy debates, thereby enabling the reformers within government to accelerate the pace of economic reform?

Appendix 1.
East Asia: Comparative Development and 'Competitiveness' Indicators

	PRC	Indonesia	Korea	Malaysia	Philippines	Singapore	Thailand	Taiwan
GENERAL ECONOMIC INDICATORS								
GDP, 2003 ($ billion)	1,410	208	605	103	79	91	143	286
GDP per capita PPP, 2003 ($)	4,995	3,364	17,908	9,696	4,321	24,480	7,580	24,560
GDP per capita growth, 1990-2003 (%)	8.2	3.1	5.1	3.9	1.0	3.5	4.2	4.4
Annual average inflation, 1990-2003(%)	5.6	12.8	5.0	3.0	8.0	1.6	4.0	2.1
Total external debt/GDP, 2002 (%)	13	76	23	51	76	266	47	12
GDP per capita 2003/1980	6.1	2.2	3.7	2.2	1.1	2.5	2.9	3.3
OPENNESS								
Trade								
(Exports + imports)/GDP, 1990 (%)	29.9	54.5	58.4	154.8	62.9	373.8	79.7	88.5
(Exports + imports)/GDP, 2003 (%)[i]	65.7	64.0	74.3	213.9	113.9	352.0	128.7	109.0
Export growth, 1990-2003 (%)[ii]	18.0	8.1	9.3	11.3	10.7	9.1	10.3	8.2
Average tariff rate, 2001[iii]	14.3	5.4	9.2	5.8	4.0	0.0	9.7	3.5
Index of economic freedom, 2004[iv]	3.6	3.8	2.7	3.2	3.1	1.6	2.9	2.4
Investment								
FDI as % of total capital inflows, 1990-2003[v]	93.0	-48.2	16.6	129.0	52.2	33.4	-19.2	19.1
Total FDI inward stock, $ billion, 2003[vi]	501.5	57.2	47.5	59.0	11.5	147.3	36.9	33.9
Total FDI outward	37.0	2.7	34.5	29.7	1.0	90.9	3.3	65.2

stock, $ billion, 2003[viii]								
Total FDI inward stock as % of GDP, 2003	35.6	27.5	7.8	57.2	14.5	161.3	25.8	11.9
Total FDI outward stock as % of GDP, 2003	2.6	1.3	5.7	28.8	1.2	99.5	2.3	22.8
HUMAN CAPITAL AND INNOVATION								
Years of education, 2000[viii]	5.7	4.7	10.5	7.9	7.6	8.1	6.1	8.5
Gross tertiary enrolment rate (%), 2001	12.6	14.6	77.6	28.2	31.2	46.0	35.3	83.4
R&D expenditure as % of GDP, 2002[ix]	0.6	-	2.6	0.2	-	1.4	0.1	2.3
Number of internet users as % of total inhabitants, 2003	6.3	3.8	61.3	34.5	4.4	54.8	9.7	39.0
Public spending on education as % of GDP, 2001[x]	2.1	1.3	3.6	7.9	3.2	3.1	5.0	6.4
International ranking in quality of math & science education[xi]	55	57	41	27	84	1	53	7
Total R&D employment, thousand, 2001[xii]	956.5	-	165.7	10.1	-	19.5	14.0	138.4
R&D employment per 1 million population, 2001[xiii]	752	-	3,500	432	-	4,709	236	6,177
Utility patents data, 2003[xiv]	0.2	0.0	82.7	2.0	0.3	99.3	0.4	234.4
% of manufactured exports which are 'high tech', 2002[xv]	23.3	16.4	31.5	58.3	65.3	60.3	31.4	43.2
PHYSICAL INFRASTRUCTURE[xvi]	60	45	23	22	87	6	39	21
INSTITUTIONAL QUALITY AND RISK								
Corruption								
Corruption perceptions index, 2003[xvii] (country ranking)	3.4 (66)	1.9 (122)	4.3 (50)	5.2 (37)	2.5 (92)	9.4 (5)	3.3 (70)	5.7 (30)
Country risk								
Composite risk ranking, 2002	75.0	58.3	79.8	77.5	71.0	90.0	76.3	82.0
Property rights								
Index of economic freedom[xviii]	4	4	2	3	4	1	3	2

Bureaucratic quality								
Public institutions index, 2004[xix] (country ranking)	4.39 (55)	4.12 (68)	4.81 (41)	5.06 (38)	3.21 (99)	6.21 (10)	4.71 (45)	5.56 (27)
FISCAL/FINANCE								
Stock market capitalization as % of GDP, 2003[xx]	48.3	26.2	54.5	163.2	29.3	115.4	84.4	130.6
Highest corporate tax rate, 2003 (%)	33	30	27	28	32	22	30	25

[i] Data for Singapore are for the year 2002.

[ii] Data for Singapore are for the period 1990-2002.

[iii] Data for Indonesia, Korea, Malaysia, and Thailand are for 2000, 2002, 1997, and 2000 respectively.

[iv] Index of economic freedom ranges from 0 mostly free to 5 highly restricted.

[v] FDI: Foreign Direct Investment.

Total capital inflows = Direct investment + Net Increases in portfolio investment liabilities + Net Increases in other investment liabilities.

FDI as % of total capital inflows = FDI inflows / total capital inflows.

[vi] FDI inward stock:

Data for Korea are accumulated since 1962.

PRC, Korea, Philippines, and Thailand: Stock data after 2002 are estimated by adding flows.

Indonesia: Stock data after 1999 are estimated by adding flows.

Malaysia: Stock data after 1994 are estimated by adding flows.

Taiwan: Stock data after 1988 are estimated by adding flows.

[vii] FDI outward stock:

Data for Korea are accumulated since 1968.

PRC: Stock data after 1989 are estimated by adding flows.

Indonesia: Stock data after 1999 are estimated by adding flows.

Korea, Malaysia: Stock data after 2002 are estimated by adding flows.

Taiwan: Stock data after 1988 are estimated by adding flows.

[viii] Years of education are average years of school over age 25.

[ix] Data for Malaysia are for the year 2001. Data for Indonesia and Philippines are unavailable.

[x] Data for the PRC, Singapore, and Taiwan are for 1999, 1995, and 2003 respectively.

[xi] Based on the 1-104 country ranking in the Global Competitiveness Report 1=best.

[xii] Data for Malaysia and Thailand are for 2000 and 1997, respectively. Data for Indonesia and Philippines are unavailable.

[xiii] Data for Malaysia and Thailand are for 2000 and 1997, respectively. Data for Indonesia and Philippines are unavailable.

[xiv] US utility patents granted per million of population.

[xv] Data for Thailand and Taiwan are both for the year 2001.

[xvi] Based on the 1-104 country ranking in the Global Competitiveness Report 1=best.

[xvii] The index ranges from 0 highly corrupt to 10 highly clean. The world average for the 133 countries covered is 4.2, with a maximum of 9.7 and a minimum of 1.3.

[xviii] The property rights index is a composite from the index of economic freedom developed by the Heritage Foundation. The range is from 0 very good to 5 very poor.

[xix] The public institutions index is based on survey data and ranges from 2.47 to 6.59 across 104 countries. The Higher the index, the higher the quality.

[xx] Data for Singapore are for the year 2002.

GENERAL ECONOMIC INDICATORS	
GDP, 2003 $ billion	*The Global Competitiveness Report 2004-2005.*
GDP per capita PPP, 2003 $	*The Global Competitiveness Report 2004-2005.*
GDP per capita growth, 1990-2003 %	World Bank, *World Development Indicators* Online.
Annual average inflation, 1990-2003%	World Bank, *World Development Indicators* Online.
Total external debt/GDP, 2002 %	Total External Deb: World Bank, *World Development Indicators* Online. Inter-Agency Task Force on Finance Statistics, 「Joint BIS-IMF-OECD-World Bank Statistics on External Debt, http://www.oecd.org/dac/debt/
GDP per capita 2003/1980	World Bank, *World Development Indicators* Online.
OPENNESS	
Trade	
Exports + imports/GDP, 1990 %	World Bank, *World Development Indicators* Online. National Statistics, Roc. http://www.dgbas.gov.tw/
Exports + imports/GDP, 2003 %	
Export growth, 1990-2003 %	
Average tariff rate, 2001	Heritage Foundation, http://www.heritage.org/research/features/index/
Index of economic freedom, 2004	Heritage Foundation, http://www.heritage.org/research/features/index/
Investment	
FDI as % of total capital inflows, 1990-2003	**FDI:** UNCTAD, *World Investment Report,* http://stats.unctad.org/fdi/
Total FDI stock, $ billion, 2003	
Total FDI stock as % of GDP, 2003	**Total capital inflows:** IMF, *International Financial Statistics.* http://www.imfstatistics.org/ Central Bank of China, ROC Taiwan. http://www.cbc.gov.tw/
HUMAN CAPITAL AND INNOVATION	
Years of education, 2000	Barro-Lee Education Data, http://www.nber.org/pub/barro.lee/
Gross tertiary enrolment rate %, 2001	*The Global Competitiveness Report 2004-2005.*
R&D expenditure as % of GDP, 2002	World Bank, *World Development Indicators* Online. National Statistics, ROC Taiwan. http://www.dgbas.gov.tw/
Number of internet users as % of total inhabitants, 2003	*The Global Competitiveness Report 2004-2005.*
Public spending on education as % of GDP, 2001	World Bank, *World Development Indicators* Online. UNESCO Institute for Statistics. http://www.uis.unesco.org *"Indicators of Educational Statistics of the Republic of China,"* by the Ministry of Education, ROC
International ranking in quality of math & science education	*The Global Competitiveness Report 2004-2005.*
Total R&D employment, thousand, 2001	UNESCO Institute for Statistics. http://www.uis.unesco.org National Statistics, Roc. http://www.dgbas.gov.tw/
R&D employment per 1 million population, 2001	

Utility patents data, 2003	*The Global Competitiveness Report 2004-2005.*
% of manufactured exports which are 'high tech', 2002	World Bank, *World Development Indicators* Online. *"Monthly Statistics of Exports and Imports Taiwan Area, ROC"* by the Ministry of Finance, ROC
PHYSICAL INFRASTRUCTURE	*The Global Competitiveness Report 2004-2005.*
INSTITUTIONAL QUALITY AND RISK	
Corruption	
Corruption perceptions index, 2003[xx] country ranking	Transparency International, http://www.transparency.org/
Country risk	
Composite risk ranking, 2002	UNCTAD, *World Investment Report*, http://stats.unctad.org/fdi/
Property rights	
Index of economic freedom[xx]	Heritage Foundation, http://www.heritage.org/research/features/index/
Bureaucratic quality	
Public institutions index, 2004[xx] country ranking	*The Global Competitiveness Report 2004-2005.*
FISCAL/FINANCE	
Stock market capitalization as % of GDP, 2003[xx]	World Bank, *World Development Indicators* Online, Taiwan Stock Exchange Corporation.
Highest corporate tax rate, 2003 %	Heritage Foundation, http://www.heritage.org/research/features/index/

Source: Hill and Chu, 2006, pp. 20-25.

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Book Review

Fifty Major Economist 2nd Ed.
(Lessons for Economists)

Author : *Steven Pressman*

Publisher : *Routledge; Oxon UK and New York, U.S.A; 2006, xxiii + 322 pages*

Reviewed by: ***Prijono Tjiptoherijanto***

If someone wants to learn the history of economic thought as well as the contribution of the economists to real world development, then he or she has to read this book. The "Fifty Major Economist" brings the reader to understand not only the thinking of the economists, but also some aspects of their daily life as well as their struggle to make economics become a respected discipline in line with other social sciences.

In addition this book can also be an important source for policy formulations. For example, an understanding of the work of Thomas Mun (1571-1641), a respected member of the so-called "the mercantilist school", can be used to understand the economy of Japan. The success of the Japanese economy in the second half of the twentieth century was achieved with the aid of economic policies that were mercantilist in spirit, even if not in intent. The Japanese government set high productivity standards – like those of Mun's suggestions for benefiting from trading with other countries -- that helped Japan become a producer of high-quality consumer goods. Economic success was also achieved by using tariffs and protectionism to stem import, while encouraging domestic firms to export goods.

Another example can be drawn by reading the life of David Hume (1711-1776). According to Hume, trade helped poor nations, but it did no harm to wealthier nations. Trade enables poor countries to grow and develop their standard of living would converge with that of their wealthier neighbors and trading partners. One mechanism that Hume identified as leading to converging living standards is the transfer of technology from more advanced to less advanced economies. As the recent examples of South Korea, Singapore, Malaysia, Taiwan and

Hongkong (all the "new Tigers" in Asia) show, advanced technology allows the living standard of less developed countries to rapidly approach that of more developed nations.

As to countries with high population growth like India, Indonesia and even China, following the advice of the Amartya Sen (1933-), the 1998 Economics Nobel laureate lecture, putting emphasis on improving life expectancy, literacy, health, and the education level of people as a goal of their economic development is a must. For Sen, the development involves "expanding the capabilities" of people. Sen distinguished economic growth from economic development. Growth means producing more things regardless of what happens to the people producing and consuming these goods. Economic growth raises per capita income and output. Economic development makes people part of their community and allow them to appear in public without shame because they are regarded as worthwhile individuals. Sen might follow the view of Gunnar Myrdal (1898-1987) who brought sociological, historical, psychological, and political insights into his economic analysis. However, Myrdal is also critical of the methodology employed in orthodox economic analysis. Myrdal goes further in criticizing the social scientists in general and economists in particular, because they could not write and speak to ordinary people. Instead, professionals generally write and speak only to each other. This reduces the importance of social science scholarship.

This kind of criticism also comes from John Kenneth Galbraith (1908-2006). Galbraith regarded his fellow economists as "idiot savants" who can do sophisticated mathematical analysis but fail to understand the real economic world. Even in his Presidential Address to the American Economic Association (AEA), Galbraith criticized economists for ignoring power relationships. Economic thinking removes power from the realm of discourse by denying its existence and by assuming that the market will mitigate the power of the firm. Nonetheless many economists would probably claim that Galbraith is not really an economist at all looking at the wide range of his ideas and writings. However, his work on economic power and on the role of government policy as a measure to control the power of large corporation is very important not just for an economic analysis, but also for a policy formulation.

The most controversial figure is Joseph Stiglitz (1943-). Not only about his criticism to the World Bank where he had worked as its Chief Economist previously, but also about his daily life. At the young age of

26, Stiglitz had become a full professor at MIT. The position was offered only on the condition that he would sleep in an apartment rather than in his office, and that he always wears shoes around the office. This reputation for eccentricity has grown, rather than diminished, over the years. When he served on President's Clinton's Council of Economic Adviser, 1993-1997, Stiglitz once showed up at the Cabinet's meeting with his ties outside his shirt collar.

By reading this book, one would appreciate the achievement of Alfred Marshall (1842-1924) who succeeded in his struggle to separate economics from other social science discipline in 1903. The teaching of economics which started at Cambridge University in that year was soon followed by other universities in Europe. And from that time on economics has become a recognized discipline throughout the world. As a result, students throughout the world were able to major in economics, and to study the many concepts introduced by Marshall and other economists up to the present time.

This book is very good for readers who want to understand more about economics and the economists. Especially for someone who is interested in the history of economic thought. The "Fifty Major Economist" offers to the readers the development of economic thinking from the mercantilists up to the public choice school which brings economic analysis to the formulation of policies by government officials, the bureaucrats. The only disappointing part of this the book is the absence of indexes, both a name index and subject index. This makes it difficult for readers to trace certain names or subject matters

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Book Review

Knowledge and the Wealth of Nations: a Story of Economic Discovery

Author : *David Warsh. Year: 2006.*

Publisher : *W.W. Norton & Company (New York). ISBN: 978-0-393-05996. Pages: 410+xxii+index.*

Reviewed by : ***Ari A. Perdana S.***

Fifty years ago, Robert Solow published a seminal paper that until now has becomes one of the most important landmarks in the theory of economic growth. In the paper, he showed that while increasing investment ("capital deepening") in an economy will increase output per labor, this process will not go indefinitely. If the stock of capital per worker in the economy is low, adding an extra unit of capital will increase output by a large magnitude. But if the economy's capital stock is already large, an additional unit of capital will not yield the same rate of increase in output.

The situation is well-known as the *diminishing returns* to capital. Giving a worker a second machine does not make him twice more productive or double his output. Hence, according to Prof. Solow, keeping increasing investment is not the solution for long-term economic growth. The only thing that matters for the long-run is technological progress. The problem is that according to the Solow growth model, technological progress is exogenous. It's like manna falling from heaven; in other words, it is hard to define the right policy to sustain growth.

This book is about a series of studies that challenged the exogeneity of technological progress. The work culminated in a 1990 paper by Paul Romer (now at Stanford University), entitled *Endogenous Technological Change*, which was published in the *Journal of Political Economy*. Romer introduced a new kind of goods: "ideas." According to Romer, ideas are non-rivalry, which means everyone can 'consume' ideas (knowledge, invention, software, or even a cook's recipe) at the same time without taking away other people's utility. Compare it with, for example, bananas. If you eat my banana then you prevent me from consuming it.

Thus, when an idea is produced, it virtually costs nothing to reproduce it. An idea may be expensive to produce (think about how much it costs to produce a new software tool). But once it is produced, the total cost is the same no matter how many people use it. Hence, the marginal cost is declining; ideas exhibit *increasing returns.*

Under diminishing returns assumption, firms will not be too big. When a firm grows too large, the cost of producing an extra output is getting higher. There will be other firms that can sell the same product with lower cost. Hence, diminishing returns implies that the invisible hand theorem works perfectly in preserving competition.

But in the case of ideas, if other firms are free to enter the market, it is not worth investing in new ideas because the first entrance will bear all the cost of producing the new ideas. The rest will just be free riders. Unless idea manufacturers can enjoy some measure of monopoly over their ideas—by patenting them, copyrighting them, or just keeping them secret—they will not be able to cover the fixed cost of inventing them. So competition is not always good; it might end up in no one wanting to invest in new ideas. That is the message of Romer's paper.

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This book centers on Romer's 1990 paper. It does not only explain what the paper was all about. It also tells the evolution on economic thinking prior to the paper being published, especially the riddle of increasing returns. The puzzle of increasing returns can be dated back as early as Adam Smith's *The Wealth of Nations*. True, the book is well-known for introducing the concepts of the invisible hand, specialization and competition. But in the book, there is a story about the pin factory. According to Smith, the division of labor in a pin factory is "limited by the extent of the market" – the degree to which one can specialize depends on how much of one's product can be sold. What does that imply? Warsh describes the implication on page 46:

> *Suppose the pin maker gets into the market early, expands, and specializes in pin making by investing in new equipment and pin making R&D. He develops better steel, more attractive packaging, and more effective distribution channels. The bigger his market, the greater the specialization he can afford... the more efficient his production, the lower the price [of his pins]... the more pins he hells... the higher his profits: a greater return for the same effort, hence increasing returns to scale.... Does that mean that big business is natural?*

So *The Wealth of Nations* is basically a tale of two stories: the pin factory which is about falling costs and increasing returns, and the invisible hand which is about rising cost and decreasing returns. The latter has been widely explored, but the former did not enjoy the same popularity.

In fact, the idea of increasing returns has been explored in separate discussions. In the late 19th century Alfred Marshall touched the idea of falling cost as being derived from the industry's spillover effects (neighborhood effects or externality). Marshall's successor at Cambridge, A.C. Pigou, argued that falling cost in an industry provides a justification for the government subsidy. Then in the 1940s, Edward Chamberlin, then at Harvard, was puzzled by the fact that products in the market are not necessarily homogenous, as predicted by the theory of perfect competition. They have brands attached to them: Chevrolet, RCA, Kelvinator, Quaker Oats, Gillette, and so on. He became convinced that "some such element of monopoly was virtually always present," which he refer to as 'monopolistic competition.'

The idea of falling cost enters the domain of international economics in the 1970s. This time it was Paul Krugman who raised the issue. He argued that, as Warsh wrote it in page 186:

> *If one country got a head start in mass production of some sophisticated good for which there were no near substitutes – cars, say, or airplanes or silicon chips – it may keep it. Specialization would lower unit costs. Others could find it impossible to break in.*

The implication was that markets couldn't necessarily be counted upon to "get things right." ... there might be multiple equilibria ...

It takes fourteen chapters and 194 pages before Warsh's story finally turns into the life of Paul Romer. His encounter with the idea of increasing returns started when he was a graduate student at MIT in the late 1970s – but he finished his graduate school at the University of Chicago. In the mid eighties he began modeling increasing returns in the growth theory context, based on the idea of monopolistic competition and spillover effects.

But in 1985, Romer's teacher Robert Lucas a Nobel laureate) delivered the Marshall Lecture in which he mentioned about human capital spillovers as the source of increasing returns. Lucas' speech on the one hand helped Romer's idea enter the academic discussion. On the other hand, the lecture put pressure on Romer because he needed to differentiate his work from his mentor's. Romer managed to publish an

article titled *Increasing Returns and Long-Run Growth* in 1986, which paved the way for his seminal 1990 article.

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The book is not a technical reading. It tells a story (and history) on how one single academic paper was published. As in many other great works or inventions, the output is not isolated from the other works. The book neatly tells the interconnections between the 'Romer 90' paper with the works of Adam Smith to Chamberlin to Krugman to Lucas to Barro, and even to the previous Romer's works. Not only with other academic works, the book also relates the paper with how the QWERTY typewriter layout was found, how Microsoft pioneered the software industry, and even the Microsoft court in the case of monopoly.

The author, David Warsh, is an economic journalist. *The Economist* described himself as a "veteran observer of dismal scientists (yes, it means economists) at work." Warsh was a regular columnist of the *Boston Globe*. Now he maintains an online column *Economic Principals* (www.economicprincipals.com).

As a journalist, his book contains a lot of interesting details. For example, in addition to writing about Romer's thoughts, he also writes the ups and downs of his career as an academic. At one point on his career he was so frustrated that he planned to quit academic world and join his father in politics.

In the preface, Warsh mentions that the secondary aim of his book is to "convey something about how economics is done today in universities "That is, the story about great ideas and great people in modern economics. Many inside story behind some great papers and important academic seminars are told in the book. In addition to that, Warsh also takes the readers to review changing approaches and methodologies of economics as a science from the philosophical-literary approach of the classical era, to the marginal revolution of neoclassical theory, to Keynes' macroeconomics invention, to the more mathematical-scientific approach of the modern days. There are also interesting stories on the rivalry between the 'saltwater' (Harvard, MIT, NYU, Princeton and others) and 'freshwater' (Chicago, Rochester, Pittsburgh and others) economists.

In short, this is a very interesting book to understand how the economist profession works. It is a "story of economic discovery," as the subtitle illustrates it.

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