

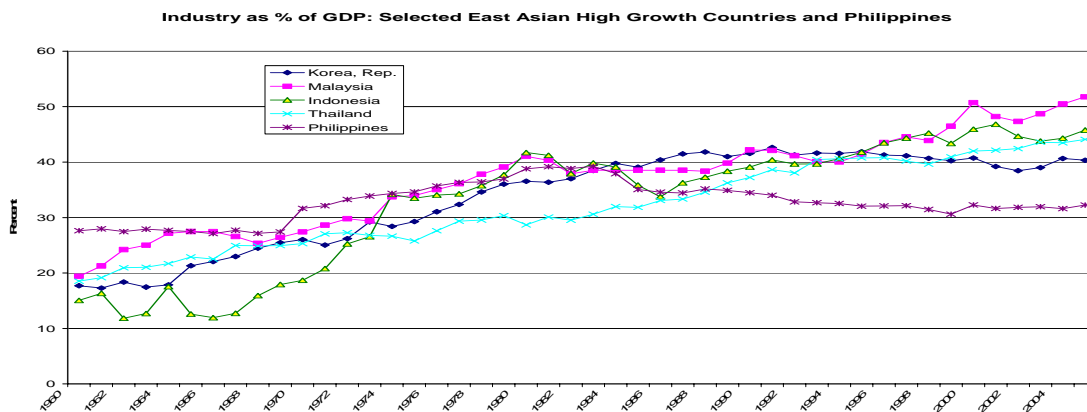
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Trade and Investment Component: Abridged Version by: Joseph Lim

1. Introduction

The declines in Philippine industry share to GDP as well as investment share to GDP from the early 1980s were mainly abrupt drops due to the sharp economic collapse in 1983-85, and periodic slowdowns and recessions thereafter. This is unlike other more developed countries where the services sector took over as the lead sector of growth from industry – and the consumption share from investments (as in Taipei,China) -- only after the high industrialization stage was achieved and after the industrial and manufacturing sector reached maturity. The premature stop in the rise of the industrial and capital formation sector may have reduced the capacity of the country to go upward in technology and scale production, which would have brought the economy to much higher growth and development. Fig. 1 shows the Philippines drop and stagnation in the industry share compared to its more successful East Asian neighbors.¹

Fig. 1



Source: IMF, International Financial Statistics

Fig. 2 shows that, except for Taipei,China² and the Philippines, all East Asian high-growth performers had increased their investment-to-GDP ratio until the East Asian crisis. The same graph shows that, even if the other East Asian countries suffered declines in investments to GDP ratios during the Asian crisis and after, all the other countries' shares of investments to GDP still exceeded that of the Philippines by 2006. Most countries had a mild recovery of investments during 2000 to 2006, except Malaysia and the Philippines.

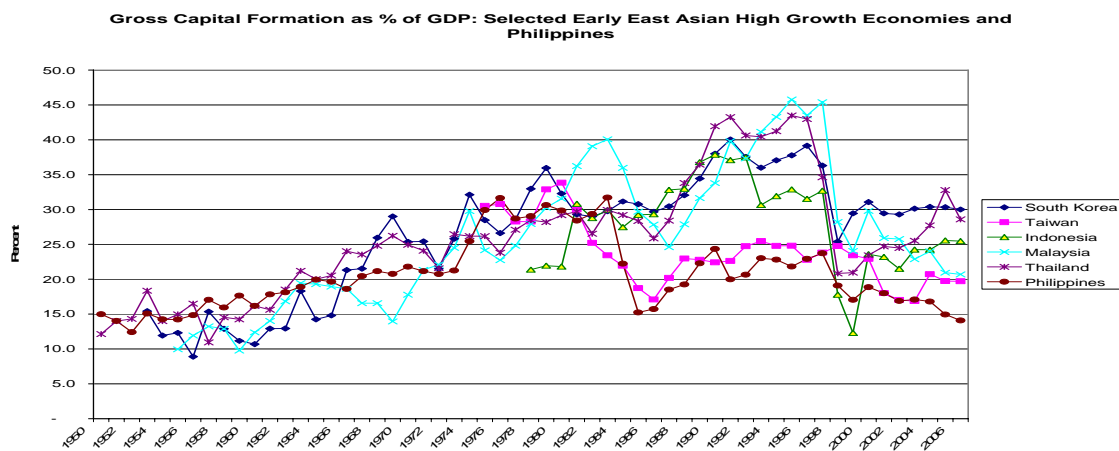
¹ In the longer paper, we also compare the industrial and capital formation share of the Philippines with China, India, Vietnam and key Latin American countries.

² Taipei,China is a matured economy that has gone into less investments share to GDP and more into higher consumption to GDP share as the aging population is going into higher standards of living

We now go to the performance of Philippine exports. Export and import shares to GDP had a sharp rise since the 1990s. But it is true for all countries due to the institution of the World Trade Organization (WTO) and regional and bilateral trade agreements – what is now widely called the globalization process – in the 1990s and 2000s. Table 1 shows the growth rates of exports of goods based on 2000 US dollars for selected countries.

Table 1 shows that for the period 1960 to 2005, the growth rate of exports of the Philippines is at the low end of the countries included in the table. The Philippines is at par with Indonesia and Argentina whose low growth of exports was only more than 5% annually in the period 1960 to 2005. Table 1 shows that, except for Mexico, all the other countries whose exports grew much faster than the Philippines, also had much higher GDP per capita growth than the Philippines (see macro management paper).

Fig. 2



Source: IMF, International Financial Statistics

This paper will attempt to tackle the constraints that had resulted in the Philippines' lacklustre performance in exports, investments and upscaling to high productivity sectors.

Table 1: Export Growth Rate (based on export values at constant 2000 US \$ prices)

Country	1960-2005	1960-1980	1980-1985	1985-1993	1993-1997	1997-1999	1999-2002	2002-2005
Philippines	5.57	6.35	-3.89	8.12	16.06	-9.54	5.55	7.72
Early East Asian Developers								
Korea	17.75	24.46	10.08	11.67	18.52	13.63	9.49	14.48
Malaysia	8.65	6.80	7.10	13.75	13.70	6.64	3.90	10.12
Thailand	10.41	9.87	8.09	17.56	7.52	8.64	8.02	6.98
Indonesia	5.15	6.56	-5.73	9.78	8.25	-12.92	7.94	9.29
Late Asian Developers								
China*	12.60	14.99	6.57	7.65	12.91	11.09	22.81	26.47
India*	8.84	8.55	1.02	9.56	11.44	15.92	6.09	16.50
Vietnam*	20.45			18.85	31.23	13.49	13.06	21.24
Latin American Countries								
Chile	7.19	6.86	1.85	10.31	11.40	6.27	4.61	8.11
Brazil	7.86	7.91	10.45	5.73	4.38	6.44	9.90	12.79
Mexico	8.92	8.63	9.51	6.09	19.03	12.26	4.38	7.00
Argentina	5.64	5.18	4.78	3.26	14.28	4.51	2.85	9.16

*Data for China starts at 1978, India at 1970, Vietnam at 1989

Source: World Development Indicators

2. Government Failures Constraining Growth, Trade and Investments

The diagram based on the Hausmann, Rodrik and Velasco (2006) paper identifies government and market failures as some of the key variables that might lead to low appropriability of economic returns and inhibit growth, trade and investments in the country.

Growth, trade and investments would obviously thrive only in an environment where there are: a) macroeconomic and political stability, b) clear property rights and contract enforcements, c) low transaction costs and easy setting up of businesses, d) the absence of corrupt practices that hamper business start-up and operations, e) clear economic policies and policy directions, f) safety of persons and the rule of law and order, g) good infrastructure and h) reasonable taxation of sales and income.

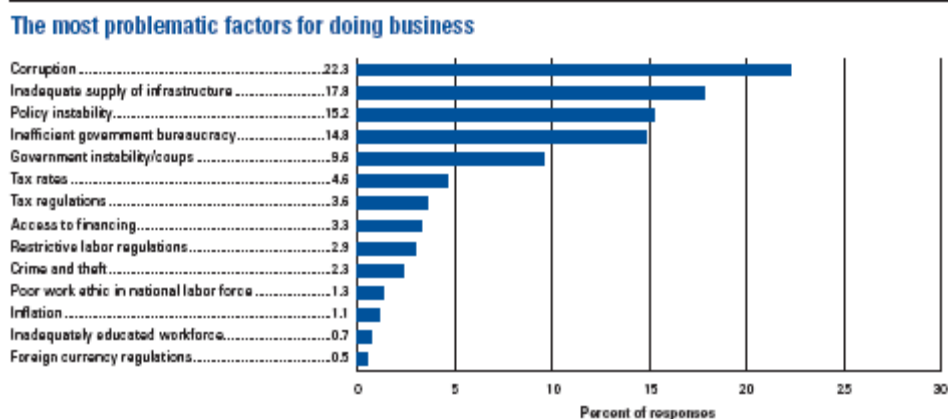
Government Failures as Revealed by Surveys

The best way to see if government failures are significantly hindering the economy is to go to secondary sources where firms are surveyed on what the major constraints are to their operations and investments.

The latest surveys in 2007 are those done by the Makati Business Club (MBC) for the Global Competitiveness Index Survey of the World Economic Forum. The Makati Business Club (MBC) surveyed 72 out its 700 members from Oct. 19 to Nov. 9, 2007. The MBC revealed that the top two constraints that were identified by their respondents were licensing obstacles and contract enforcement. Lifted from the results of the Global Competitiveness survey (also undertaken by MBC for the Philippines with 37 of its members responding), Fig. 3 identifies the major constraints done in the survey for 2007-2008. Note that the top constraints identified were corruption, inadequate infrastructure, policy instability and inefficient government bureaucracy. Appendix A gives us some of the results of the Global Competitiveness Index for the Philippines for 2007-8. Note that the Philippines' ranking is very low with respect to institutions (rank 95 out of 131 countries), infrastructure (rank 94), labor market efficiency (rank 100), macroeconomic stability (rank 77), financial sophistication (rank 77), general business environment (rank 73) and general global competitiveness index (rank 71). It has a lower global competitiveness index ranking than all the ASEAN countries with the exception of Cambodia.³ It also has a lower ranking than Mexico, Turkey, El Salvador, Columbia and Sri Lanka.

³ Brunei, Laos and Myanmar were not included in the survey.

Fig. 3



Note: From a list of 14 factors, respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings.

The ADB Investment Climate Survey undertaken in 2003 on 716 firms in the Philippines shows that the biggest constraint – cited by 40% of the firms – is macroeconomic instability (Fig. 4). The next factors cited by around one-third of the respondents are (in order of importance): corruption, high electricity costs and high tax rates. Also getting high ratings are economic policy uncertainty (around 29%), crime/theft and disorder (around 26%), and tax administration (around 26%). It must be pointed out that macroeconomic instability got the highest score in the survey since 2003 was the height of the fiscal crisis in the Philippines. This problem had been reduced starting 2006 and is the main reason why the Philippines improved its ranking in the Global Competitiveness Survey.

The ADB Investment Climate Survey further found that there are long periods of delay in obtaining government licenses or permits (Fig. 5), corroborating the latest MBC survey. The worst-hit in terms of getting licences to operate are medium-sized firms – which have to wait an average of almost 40 days to get a business permit or operating license.

Giving similar results are the surveys done by the members of the American Chamber of Commerce in the Philippines where major concerns of the members (more than 50 members responded in 2006, and more than 60 in 2005). The results are summarized in Table 2. It shows that the major concerns are: 1) corruption – cited by 77% in 2006, 2) defective or unclear laws and regulations – cited by 52% in 2006, 3) bad infrastructure – cited by 50% in 2006 and 4) tax structure – cited by 45% in 2006.

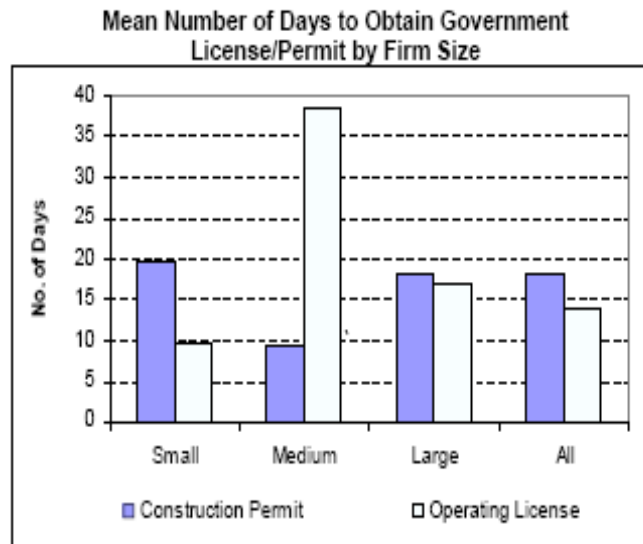
The picture that looms is that there are significant government failures that constrain growth and investments. These are bureaucratic red tapes, corruption, defective or unclear laws and regulations, bad infrastructure especially high electricity costs, unclear economic policies and policy direction, and long delays in setting up businesses.

Fig. 4



Source: ADB, *Improving the Investment Climate of the Philippines*, Nov. 2003

Fig. 5



Source: ADB, *Improving the Investment Climate of the Philippines*, Nov. 2003

Table 2

Local Business Environment Factors

Strengths (Measured by Top 2 Box Satisfaction) 60% or more is significant				Major Concerns (Measured by Bottom 2 Box Satisfaction) 30% or more is significant			
Factors	2004	2005	2006	Factors	2004	2005	2006
Availability of low cost labor			71%	Laws & Regulations	48%	63%	52%
Availability of trained personnel	73%	63%	67%	Corruption	91%	88%	77%
Office lease cost			59%	Local Protectionism	40%	46%	39%
Housing cost			63%	Tax structure	49%	56%	45%
				Infrastructure	69%	68%	50%
				Availability of raw materials	20%	42%	35%

Source: American Chamber of Commerce, *ASEAN Business Outlook Survey for Members From the Philippines, 2006*.

2.2 Overvaluation of the Currency: Another Potential Constraint and Government/ Market Failure

The exchange rate is a crucial variable that critically affects industrial policy. This variable did not come out as a major problem in the surveys because different businesses have different interests when it comes to the exchange rate. Only exporters – for obvious reasons – have complained strongly about the overvaluation of the currency during critical periods, especially in the current period. Families of overseas Filipino workers are also voicing out their hardship resulting from the strong appreciation of the peso since 2006.

Currency overvaluation is considered both a government and market failure since it is dependent on the government's exchange rate regime and monetary policy as well as market failures in the international financial markets, as in the irrational exuberance of 'hot money' pouring into emerging markets or sudden panics and flight from currency during speculative attacks.

The effects of the exchange rate on trade and industrial policy are clear:

An overvalued currency reduces the economic incentives for both the suppliers and demanders of Philippine exports. As exports are retarded over time, the economy loses the opportunity – not only to earn foreign exchange – but to undertake 'learning by doing', by competing internationally and adopting best techniques and processes learned in the international sector.

An overvalued currency encourages imports and reduces incentives to produce domestically. This affects domestic industries directly. As we shall see later, it also critically retards economic incentives for firms to undertake 'cost discovery' to enter high productivity sectors because of strong import competition.

Appendix B shows that in a regression analysis, exports is very significantly affected by world trade, and a dummy denoting the strong trade liberalization years before the Asian crisis. It is also positively related to the exchange rate at the 5% level.

Appendix B also shows that imports are mainly determined by GDP and the exchange rate. Currency depreciation tames import growth as it makes it expensive to buy foreign goods and vice-versa. This is important for firms producing for the domestic market since it reduces import competition.

A later regression (Appendix C) will also show that the overvaluation of the currency retards the upscaling of domestic industries to high productivity sectors. Thus overvaluation of the currency, especially for long periods, has a strong detrimental effect on the industrialization and incentives for trade and investments.

3. Market Failures as Constraining the Growth and Upscaling of Production and Investments

3.1 Various Strands of the New Growth Theory and Market Failure Literature

Increasing Returns to Scale

The increasing returns to scale literature that became popular with Romer (1988) and Lucas (1994) is used extensively by the World Bank study of Gill and Kharas (2006). It adds one additional factor -- human capital or knowledge – to the traditional neoclassical production function. This additional factor leads to increasing returns to scale in the economy. This replaces the constant returns to scale and diminishing marginal productivity of factors used by the traditional neoclassical Solow-type models, and endogenously explains the continuing high growth of successful economies, the continuing technological and scale advancement of their economies, and the lack of convergence among countries.

Gill and Kharas (2006) assert that this interpretation is most consistent with the Schumpeterian idea of the aggressive drive towards innovation by entrepreneurs because of the strong economic incentive of deriving economic rents. It also explains the high intra-industry trade observed among the East Asian countries as economies of scale and dwindling transportation/communication costs make location of scale industries very sensitive to production costs. It also implies agglomeration economies in major cities and hubs.

Government intervention in this theory consists of its involvement in increasing human capital and encouraging research and development (and increasing knowledge). These important interventions are added by Gill and Kharas (2006) to the list of standard development policy strategies that include: trade openness and trade liberalization, macroeconomic stability, openness to foreign direct investments, financial and capital account openness and liberalization, flexible exchange rate, and flexible labor arrangements. In this regard, the World Bank policies of Gill and Kharas (2006), *The East Asian Renaissance*, mirror the 'market-friendly' policies of the earlier World Bank (1993) book *The East Asian Miracle*.

Market Failures

Although increasing returns to scale is also a case of market failure, the case for stronger interventions by the government will come from theories associated with positive externalities that arise with technology or information spillovers as well as arguments related to coordination failures.

Positive externalities brought about by technological and knowledge spillovers involve knowledge-intensive products (e.g. internets, information technology) providing social benefits way beyond the revenues derived by the firms providing the products. This will lead to under-provision of these products and social welfare will be improved with interventions increasing provision of these products and services. Market failures involving coordination failures, information (cost-discovery) spillovers and training externality are discussed in more detail in section 3.2.5.

3.2 The Evidence of the Lack of Technological and Scale Upgrading in the Philippines: Export and Domestic Manufacturing

This section provides evidence that the Philippines had failed to go up the technological, scale economy and productivity ladder. This is an indication that much of the market failure problems discussed previously had not encouraged Schumpeterian entrepreneurial and innovative activities in the Philippines.

3.2.1 Concentration on a Few High-Tech but Low Value-Added Products in Exports

To examine the export performance of the Philippines over time, we construct a measure of the quality of a country's exports called EXPY, as in Hausmann, Rodrik and Hwang (2006). This measure captures the income level associated with a country's export basket. It proceeds from the idea that commodities exported by richer countries are associated with higher productivity levels or "quality" than those exported by poorer countries. This gives commodity specific scores, which are then used to construct country specific indices of the quality of a country's exports.

The commodity specific index called PRODY is a weighted average of the per capita GDPs of countries exporting a given product. It represents the income level associated with that product. Let countries be indexed by j and goods by l . Total exports of country j equals

$$X_j = \sum_l x_{jl}$$

Let the per-capita GDP of country j be denoted by Y_j . Then the productivity level associated with a product k , $PRODY_k$ equals

$$PRODY_k = \sum_j \frac{(x_{jk}/X_j)}{\sum_j (x_{jk}/X_j)} Y_j$$

The index represents a weighted average of per-capita GDPs where the weights correspond to the revealed comparative advantage of a country in good k .

The productivity level associated with a country i 's export basket, $EXPY_i$ is the weighted average of the $PRODY$'s for that country, where the weights are the value shares of the products in the country's total exports.

$$EXPY_i = \sum_l \left(\frac{x_{il}}{X_i} \right) PRODY_l$$

Export data come from the United Nations Commodity Trade Statistics Database (COMTRADE) at the 2-digit level (SITC Revision 1) with 60 commodities for the years 1970 to 2006.

Table 3 gives us the composition of Philippine merchandise exports based on the 60 commodities ranked from highest $PRODY$ to the lowest $PRODY$ score. It can be seen from the table that the Philippines had changed its composition over the years from low technology and scale products (wood/ lumber/cork, oil products – mainly coconut oil, sugar, and metalliferous ores or mineral products). In the mid-1970s to 1990, manufactured exports started to be produced such as semiconductors (under electrical machinery, apparatus and appliances), clothing, and furniture. Starting in the 1990s electrical machinery/ apparatus and appliances started to dominate exports reaching more than 50% of total merchandise exports. In the second half of the 1990s machinery other than electrical started to be the second biggest export, comprising 20% of total merchandise exports by 2000. Since 1997, machinery -- both electrical and non-electrical -- had comprised 60% to more than 70% of total merchandise exports of the Philippines. This share has diminished slightly since 2001.

Fig. 6⁴ shows the Philippines performing well in terms of the $EXPY$ score compared to its higher growth neighbors. It can be seen that the Philippines has grown from a low $EXPY$ score in 1970 and has gone up fast through the years. By 2004 to 2006, the Philippines is second only to Korea in terms of $EXPY$ score. But it seems that for the Philippines, Malaysia and Indonesia, the increase in $EXPY$ had tapered off in recent years.

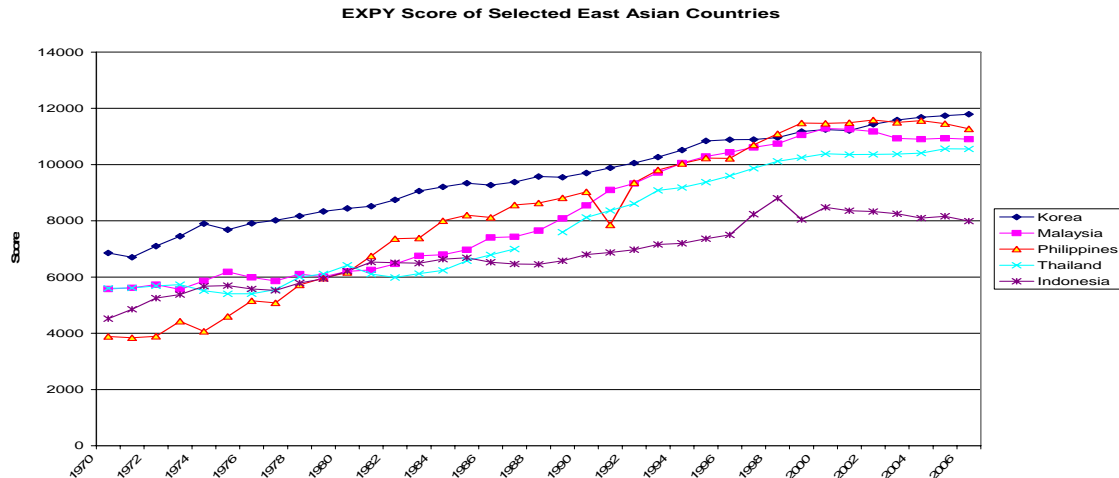
⁴ The longer paper also compares the $EXPY$ score of the Philippines with the scores of China, India, Vietnam and key Latin American countries.

Table 3: Composition of Philippine Merchandise Exports

Merchandise Exports	PRO	1970	1975	1980	1985	1990	1995	2000	2005	2006
Medicinal and pharmaceutical	19059	0.13	0.10	0.11	0.15	0.09	0.11	0.05	0.07	0.07
Scientific & control instruments,	18091	0.00	0.05	0.48	0.13	0.21	0.35	1.30	2.41	2.32
Machinery, other than electric	14751	0.06	0.32	0.26	0.30	1.14	2.94	20.24	20.10	18.50
Plastic materials, etc.	14604	0.00	0.18	0.21	0.37	0.40	0.27	0.20	0.29	0.28
Chemical materials and	14487	0.04	0.29	0.24	0.35	0.30	0.22	0.14	0.14	0.12
Paper, paperboard and	13997	0.03	0.03	0.01	0.02	0.18	0.32	0.24	0.27	0.29
Coin, other than gold coin, not	13466	0.07	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00
Pulp and paper	13423	0.06	0.09	0.15	0.29	0.26	0.19	0.10	0.13	0.11
Electrical machinery, apparatus	12226	0.05	6.11	17.24	36.31	41.94	56.58	54.06	48.95	47.61
Dyeing, tanning and colouring	12121	0.03	0.05	0.02	0.01	0.02	0.05	0.03	0.04	0.04
Transport equipment	11984	0.01	0.13	0.66	0.49	0.71	1.40	1.93	5.09	4.02
Rubber manufactures, nes	11969	0.01	0.03	0.01	0.03	0.15	0.12	0.21	0.27	0.38
Miscellaneous manufactured	11930	0.41	2.33	2.52	2.90	3.96	3.22	1.56	1.42	1.45
Dairy products and eggs	10774	0.02	0.03	0.04	0.01	0.01	0.00	0.03	0.19	0.19
Chemical elements and	10611	0.26	0.28	0.90	1.52	1.29	0.33	0.23	0.31	0.62
Manufactures of metal, nes	10356	0.02	0.07	0.32	0.17	0.23	0.36	0.40	0.35	0.42
Gas, natural and manufactured	10348	0.03	0.00	0.03	0.31	0.60	0.63	0.18	0.08	0.10
Sanitary, plumbing, heating and	10301	0.07	0.08	0.06	0.04	0.06	0.10	0.13	0.11	0.40
Iron and steel	9383	1.09	0.08	0.84	0.87	0.94	0.35	0.09	0.30	0.57
Electric energy	9213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Travel goods, handbags and	9134	0.08	0.46	0.16	0.21	0.53	0.64	0.73	0.18	0.22
Meat and meat preparations	9072	0.00	0.00	0.03	0.01	0.01	0.00	0.00	0.02	0.01
Non ferrous metals	8888	0.13	1.66	2.49	5.25	3.55	2.58	0.86	1.18	2.95
Miscellaneous food preparations	8744	0.07	0.07	0.07	0.16	0.20	0.15	0.13	0.16	0.14
Perfume materials, toilet &	8261	0.02	0.06	0.05	0.12	0.18	0.22	0.10	0.20	0.22
Coal, coke and briquettes	8260	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Furniture	8142	0.13	0.23	1.33	1.81	2.31	1.60	1.01	0.74	0.59
Explosives and pyrotechnic	7850	0.00	0.04	0.03	0.06	0.08	0.03	0.02	0.02	0.02
Textile yarn, fabrics, made up	7065	0.51	1.01	1.29	0.83	1.12	1.19	0.77	0.65	0.50
Wood and cork manufactures	6957	4.07	2.70	3.22	2.42	2.36	0.89	0.59	0.39	1.42
Feed. Stuff for animals excl.	6898	1.71	1.54	1.47	0.82	0.69	0.47	0.08	0.08	0.08
Fish and fish preparations	6757	0.19	0.74	2.39	3.21	4.83	2.91	1.06	0.84	0.82
Non metallic mineral	6735	0.31	1.47	1.04	0.51	0.69	0.63	0.53	0.99	1.22
Crude chemicals from coal,	6363	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00
Hides, skins and fur skins,	6332	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01
Petroleum and petroleum	6074	1.60	1.69	0.84	0.43	1.60	0.89	1.15	1.80	2.22
Footwear	5635	0.10	0.14	1.16	0.84	0.95	0.89	0.20	0.06	0.05
Crude animal and vegetable	5623	0.25	0.28	0.27	0.53	0.76	0.54	0.24	0.20	0.17
Cereals and cereal preparations	5116	0.05	0.04	1.37	0.12	0.12	0.15	0.10	0.19	0.19
Fertilizers, manufactured	4762	0.03	0.00	0.01	0.72	0.88	0.70	0.12	0.22	0.18
Leather, lthr. Manufs., nes &	4614	0.00	0.02	0.01	0.03	0.08	0.03	0.02	0.01	0.01
Wood, lumber and cork	4503	23.83	8.84	4.89	3.16	0.41	0.16	0.11	0.04	0.05
Animals, nes, incl. Zoo animals,	4281	0.00	0.00	0.01	0.02	0.01	0.01	0.00	0.00	0.00
Live animals	4243	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.00
Firearms of war and ammunition	4232	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Tobacco and tobacco	4172	1.33	1.56	0.52	0.61	0.60	0.16	0.10	0.35	0.29
Beverages	4154	0.12	0.06	0.03	0.05	0.11	0.08	0.03	0.11	0.09
Fruit and vegetables	4091	5.04	6.94	6.34	7.65	5.16	3.37	1.72	2.13	2.04
Crude rubber including synthetic	4015	0.02	0.03	0.15	0.21	0.14	0.16	0.04	0.09	0.10
Animal and vegetable oils and	3943	0.01	0.04	0.04	0.43	0.15	0.10	0.03	0.08	0.07
Clothing	3916	0.04	1.49	4.82	5.71	8.32	6.36	6.81	5.66	5.68
Metalliferous ores and metal	3297	20.76	11.54	17.91	5.26	4.42	1.64	0.72	1.03	1.47
Crude fertilizers and crude	3013	0.10	0.04	0.08	0.10	0.13	0.09	0.05	0.05	0.04

Merchandise Exports	PRO	1970	1975	1980	1985	1990	1995	2000	2005	2006
Sugar, sugar preparations and	2690	18.67	27.78	11.38	4.09	1.74	0.51	0.22	0.27	0.29
Fixed vegetable oils and fats	2652	9.21	10.40	9.80	7.53	4.42	4.79	1.23	1.60	1.23
Oil seeds, oil nuts and oil kernels	2365	7.56	7.85	0.96	0.15	0.28	0.08	0.00	0.00	0.00
Textile fibres, not manufactured,	1858	1.60	0.72	0.56	0.68	0.27	0.21	0.07	0.08	0.08
Coffee, tea, cocoa, spices &	1297	0.04	0.21	1.13	1.76	0.36	0.18	0.03	0.03	0.02
EXPY Score of the Philippines		3884	4598	6168	8202	9034	10239	11470	11457	11271

Fig. 6



No doubt the high score of the Philippines is its high concentration – more than 60% of its total merchandise exports – on two main categories of merchandise exports: electrical machinery/apparatus / appliance and machinery, other than electrical. Both categories score high in the PRODY score. This is both a good thing and a bad thing. The good thing is that the Philippines is exporting at the high-end of export product lines so that the potential for technological expansion and expanding electronic know-how of the country is strong. The bad thing comprises two aspects: a) the over-concentration of merchandise exports on two categories of products in the 2-digit coding scheme shows a lack of diversification of exports, which is dangerous if there is a slump in the world electronics and machinery sectors; and b) the two sectors are highly import-intensive and the value-added generated may not be very big.

Table 4 shows the ratio of imports to exports on electrical and non-electrical machinery on three countries that rely much on this sector for their exports (Korea, Malaysia and the Philippines). It is clear that the Philippines is the most dependent on this sector and has the highest import-to-export ratio for this sector. This means that the value-added for these two export products is not big. It is a challenge for the Philippine export sector to go into backward linkaging in these two general export categories so that it can go up the technological, scale and productivity ladder.

Table 4
Ratio of Imports to Exports of Electrical and Non-Electrical Machinery

	2000	2001	2002	2003	2004	2005
Korea	77.2	72.1	69.7	64.1	65.6	66.9
Malaysia	82.4	83.5	83.2	85.3	82.5	83.1
Philippines	81.4	95.5	94.9	91.7	93.7	90.3

Share of Electrical and Non-Electrical Machinery to Total Merchandise Exports

	2000	2001	2002	2003	2004	2005
Korea	38.9	42.3	43.6	43.5	40.9	38.8
Malaysia	57.1	57.5	54.4	52.1	51.8	50.1
Philippines	71.3	73.2	71.2	71.4	69.0	66.1

Sources of Figure 6, Table 3 and 4: Calculated from United Nations Commodity Trade Statistics Database (COMTRADE), SITC Revision-1, 2-digit codes

3.2.2 Low Technological and Scale Upgrading in Domestic Manufacturing

In terms of technological and scale upgrading the Philippines doesn't do well when we look at its domestic manufacturing sector and the products it produced. Using the PRODY scores of the commodities in Table 5, we classify the economic sectors in the manufacturing sectors as:

Group 1 -- PRODY scores of less than 6,000: Food, beverage, tobacco, textile, footwear, clothing and wearing apparel

Group 2 – PRODY scores of 6,000 to 9,000: Wood and cork products, furniture and fixture, non-metal minerals, petroleum and coal

Group 3 – PRODY scores of 9,000 to 10,500: metals, metal manufactures, leather-made products (travel, handbags, etc.)

Group 4 – PRODY scores of 10,500 up: paper and pulp, printing and publishing, rubber manufactures, electrical machinery, non-electrical machinery, transport equipment, chemicals, miscellaneous manufactures

We were able to get more detailed manufacturing subsectors for Taipei,China, Korea, Malaysia and the Philippines. Using the above classification, we took the share to GDP of the above groups of manufacturing subsectors. The results are given in Table 5.

Table 5: Share to GDP of Manufacturing Subsectors

% OF GDP	1981	1985	1987	1990	1993	1995	1998	2000	2003	2004	2005
KOREA											
Group 1	8.2	7.4	7.8	5.5	4.9	4.1	4.1	4.1	3.1	3.0	2.8
Group 2	3.7	4.2	4.4	4.0	4.5	4.0	4.2	3.8	3.7	3.9	3.9
Group 3	2.9	3.5	4.2	3.9	3.7	3.9	3.7	3.8	3.4	4.2	4.6
Group 4	10.2	12.2	13.9	13.8	13.6	15.6	15.3	17.8	16.2	17.4	17.2
TAIWAN											
Group 1	9.5	9.8	9.1	6.6	5.2	4.0	3.3	3.0	2.6	2.3	2.1
Group 2	4.9	4.4	5.2	3.7	4.2	3.8	3.3	2.6	2.7	3.1	2.9
Group 3	4.3	5.3	5.2	4.6	4.1	3.6	3.5	3.3	3.0	3.8	4.0
Group 4	14.9	16.2	17.8	16.3	14.5	14.0	14.7	14.9	14.1	12.7	12.3
MALAYSIA											
Group 1			5.1	4.7	4.4	4.2	4.6	3.2	3.6	3.3	3.0
Group 2			3.8	3.9	4.3	4.6	4.1	5.4	5.0	4.9	5.0

Group 3			1.2	1.7	1.9	1.5	1.9	1.8	1.9	2.5	2.2
Group 4			9.7	13.9	15.2	16.0	18.2	22.2	20.6	20.8	20.3
PHILIPPINES											
Group 1	14.3	15.2	15.3	14.7	13.7	13.1	12.6	12.5	13.4	13.4	13.3
Group 2	4.7	4.4	3.9	4.1	3.9	3.5	2.9	3.1	2.9	2.7	3.3
Group 3	1.1	1.3	1.3	1.4	1.2	1.2	0.9	0.7	1.1	1.1	1.0
Group 4	5.4	4.3	4.4	4.7	4.9	5.2	5.4	5.9	5.9	5.9	5.7

Source: Calculated from National Statistics of Taiwan, Malaysia, NSCB. Data for Korea derived from ADB's CEIC

It can be seen that the Philippine manufacturing is more concentrated on group 1 – while the other countries' manufacturing sector is concentrated in group 4 – the higher technology and scale subsectors. The fall in the share of Group 1 in the other three countries over time is very distinct and clear⁵.

Thus the Philippine export composition is very different from the composition of its domestic manufacturing. This is unlike the three other countries whose exports and domestic manufacturing sector are both concentrated on the high technology and scale products pointing to the export sector being more consistent with the domestic manufacturing sector. Table 6 gives us a more detailed look into the shares of GDP of the various economic sectors in the Philippines. Table 6 shows that the Philippines' is not doing well in the high-tech and high-scale manufacturing sectors. However, as it shifts its output to the service sectors, it is improving in some potentially high-tech and high-scale service sectors such as communication, financial intermediation, and business services, especially business process outsourcing. It is also improving in the shares given to educational and health/medical services, which are important for human capital formation. It is also improving in the share going to public utilities (electricity, gas, water).

⁵ It must be pointed out the reason why Taipei, China's shares to GDP of all subgroups are falling is because the total industrial share to GDP of Taiwan is falling fast as the service sector's share is increasing in the natural tendency of Taiwan becoming a developed and mature economy.

Table 5: Share To GDP of Production Sectors

INDUSTRY	1967	1970	1975	1980	1985	1990	1995	2000	2004	2005	2006	1st sem
AGRI.FISHERY,FORESTRY	27.4	29.5	30.3	25.1	24.6	21.9	21.6	15.8	15.1	14.3	14.2	13.1
a. Agriculture industry	22.8	25.6	27.9	22.5	23.0	21.1	21.4	15.7	15.0	14.3	14.1	13.0
b. Forestry	4.5	3.9	2.5	2.6	1.6	0.8	0.2	0.1	0.1	0.1	0.1	0.1
INDUSTRY SECTOR	31.5	31.9	35.0	38.8	35.1	34.5	32.1	32.3	31.7	31.9	31.6	31.6
a. Mining & Quarrying	1.1	2.1	1.3	2.2	2.1	1.5	0.9	0.6	1.1	1.2	1.3	1.8
b. Manufacturing	24.2	24.9	25.7	25.7	25.2	24.8	23.0	22.2	23.0	23.3	22.9	21.2
Group 1	12.7	13.1	13.8	13.6	15.2	14.7	13.1	12.5	13.4	13.3	12.9	12.3
Food manufactures	8.9	9.6	9.2	9.0	11.3	10.4	9.2	9.5	11.0	11.0	10.8	10.6
Beverage industries	0.7	0.8	0.8	0.9	1.1	1.1	1.1	1.0	0.8	0.7	0.7	0.6
Tobacco manufactures	0.8	0.7	1.1	0.8	0.9	0.7	0.6	0.5	0.2	0.2	0.1	0.1
Textile manufactures	1.0	1.1	1.5	1.4	0.9	0.9	0.6	0.3	0.3	0.4	0.3	0.3
Footwear wearing apparel	1.4	1.0	1.2	1.4	1.0	1.6	1.6	1.2	1.1	1.0	0.9	0.8
Group 2	4.3	4.0	4.6	5.2	4.4	4.1	3.5	3.1	2.7	3.2	3.4	3.1
Furniture and fixtures	1.1	0.9	0.7	0.6	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.3
Wood and cork products	1.4	1.0	0.8	1.1	0.5	0.5	0.3	0.2	0.1	0.1	0.1	0.1
Non-metallic mineral	0.9	0.8	0.7	0.9	0.5	0.7	0.9	0.6	0.6	0.5	0.5	0.5
Products of petroleum &	1.0	1.3	2.3	2.6	3.2	2.4	1.9	2.0	1.7	2.3	2.4	2.2
Group 3	1.6	1.7	1.3	1.2	1.3	1.4	1.2	0.7	1.1	1.0	1.1	1.0
Leather and leather prod.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Basic metal industries	0.3	0.5	0.5	0.5	0.8	0.8	0.7	0.4	0.7	0.6	0.7	0.6
Metal industries	1.3	1.2	0.8	0.7	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4
Group4	5.5	6.0	6.0	5.7	4.3	4.7	5.2	5.9	5.9	5.7	5.5	4.7
Rubber products	0.6	0.6	0.7	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Chemical & chemical	1.3	1.8	2.2	2.4	1.8	1.9	1.9	1.6	1.5	1.6	1.5	1.2
Paper and paper products	0.2	0.3	0.3	0.5	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1
Publishing and printing	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Machinery except	0.5	0.5	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1
Electrical machinery	1.0	1.1	0.7	0.8	0.8	0.9	1.5	2.6	2.8	2.6	2.6	2.1
Transport equipment	1.4	1.2	1.1	0.8	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2
Miscellaneous	0.2	0.2	0.3	0.3	0.3	0.5	0.5	0.7	0.7	0.6	0.7	0.6
c. Construction	5.3	4.1	6.7	9.3	5.1	6.0	5.6	6.5	4.4	3.9	3.9	4.7
d. Elect,Gas and Water	0.8	0.8	1.4	1.6	2.8	2.1	2.6	2.9	3.2	3.6	3.6	3.9
SERVICE SECTOR	41.1	38.6	34.7	36.1	40.4	43.6	46.3	52.0	53.2	53.7	54.2	55.3
a. Trans., Comm. & Stor.	3.6	3.4	3.8	4.6	5.5	4.9	4.7	5.9	7.5	7.6	7.4	7.7
Land			1.5	2.1	3.0	2.4	2.3	2.5	2.7	2.6	2.7	2.7
Water			0.8	0.8	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5
Air			0.3	0.3	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.4
Storage			0.6	0.8	0.7	0.6	0.4	0.4	0.4	0.5	0.5	0.5
Communication	0.5	0.6	0.6	0.6	1.0	1.1	1.2	2.3	3.6	3.7	3.5	3.7
b. Trade	9.9	9.7	10.3	12.2	14.5	14.4	13.7	14.1	14.0	14.3	14.5	14.3
Wholesale				5.6	2.7	4.2	3.5	3.1	3.2	3.3	3.2	3.1
Retail				6.6	11.8	10.1	10.2	11.0	10.8	11.0	11.3	11.2
c. Finance	2.5	3.0	3.3	3.9	3.0	3.9	4.1	4.4	4.4	4.8	5.2	5.7
Banks	1.3	1.6	1.5	2.0	1.9	2.8	2.9	3.1	3.1	3.5	3.7	4.1
Non-Banks	0.3	0.5	0.7	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6
Insurance	0.9	1.0	1.0	1.0	0.8	0.7	0.8	0.9	0.9	0.9	0.9	1.0
d. O. Dwellings & R. Estate	9.4	8.3	6.3	5.2	5.6	5.7	6.8	6.6	6.0	5.9	5.8	5.9
e. Private Services	8.5	7.4	5.6	5.3	6.8	7.5	8.9	11.4	13.4	13.6	13.8	14.5
Eduational	1.2	1.1	0.9	0.8	0.8	1.0	1.5	2.3	2.7	2.6	2.6	2.6
Medical	0.5	0.4	0.5	0.6	0.9	0.9	1.1	1.4	1.6	1.6	1.6	1.6
Business	1.5	1.5	1.1	1.0	1.0	1.0	1.2	1.6	3.0	3.4	3.6	4.2
Recreational	0.5	0.5	0.5	0.4	0.8	0.9	0.8	1.1	1.1	1.1	1.1	1.1
Personal	3.1	2.0	1.2	1.0	1.8	2.1	2.3	2.9	2.9	2.9	2.9	3.0
Hotels & Restaurants	1.2	1.5	1.0	1.0	1.2	1.4	1.7	1.9	1.8	1.8	1.7	1.8
Other Services	0.5	0.5	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2
f. Government Services	7.2	6.7	5.4	4.9	4.9	7.2	8.1	9.5	7.9	7.5	7.5	7.3

Source: Authors' calculations from data of National Statistics Coordination Board

3.2.3 Explaining the Inability for Technology and Scale Upgrading of Manufacturing

Why is Philippine domestic manufacturing concentrated on low productivity, low technology and scale products? We analyzed this problem in more detail by doing a panel data analysis. The methodology consists of using as dependent variable the per capita manufacturing value added of group 4 (the high technology and scale index products identified earlier) for the Philippines, Malaysia, Korea and Taipei, China for the period 1987 to 2005. This variable is expressed in constant 2000 US \$. The Philippines has a low value here⁶ compared to the other three countries. This variable was regressed to the following:

GDP per capita in constant US\$ 2000 prices. As the income per capita of the country increases, the country's demand for and capacity to produce more high-technology and high-scale products increase.

Share of gross capital formation to GDP. Technology is embedded in capital stock so the higher share a country's investment is, the higher the chances it would go to higher technology and scale products

Research and Development: Technology and scale production requires research and development and scientific linkages to industry. The data from World Development Indicators contain patchy data on research and development expenditures as a percent to GDP (latest data are shown in Table 7). The paper took the averages of these data for each country and used these averages as the level of research and development spending for all the years in the sample period⁷.

The real effective exchange rate. It is hypothesized that overvalued currencies will encourage imports of high technology and high scale products and lessen the incentives to produce them at home. Specifically the Schumpeterian entrepreneur will be discouraged to do his innovation and risk-taking because of extreme import competition made cheap by the overvaluation.

The result in the panel data regression of Appendix C shows conclusively the hypothesis that was proposed. The strongest effect, surprisingly, is the real effective exchange rate, followed by the share of gross fixed capital formation to GDP, research and development (all significant at the .001% levels) and per capita GDP (significant at the 5% level). The fact that per capita GDP – a measure of an economy's level of development – has the weakest significance in the above regression may indicate that the achievement of a high technology and scale output for the economy is not a static thing but can be derived through correct policies of not overvaluing the currency, encouraging investments in the country (and perhaps the right investments in the right sectors), and stimulating investments in research and development, and science and technology.

3.2.4 The Lack of Research and Development Promotion

The importance of research and development expenditure which is significant at much better than 1% in Appendix C is emphasized in Table 7. It shows very clearly that the Philippines invests in very little research and development (0.11% of GDP) – one of the least in the world (rank 89 out of 103 countries). In Appendix A, the Global Competitiveness Index

⁶ The Philippines had the highest manufacturing sub-group 4 output per capita in 1981 for all the countries, but this declined and stagnated through the years as the other countries improved significantly over the next two decades.

⁷ The research and development expenditure as a percent of GDP for Taiwan was derived separately from an internet search which yielded a 3% R & D expenditure.

shows very clearly that the Philippines has a very low score in infrastructure, technical readiness and innovation. ADB (2003) in analyzing the ADB Investment Climate and Productivity Survey also gave the following finding: "Given the Philippines' relatively well-developed university system, it is surprising that only one of 716 firms reported universities (and other public institutions) as the most important source of new technology. Moreover, only three firms rated universities as the second, and two firms as the third, most important source of new technology." Most firms in the ADB Survey of Investment Climate and Productivity claim that technology improvements in the Philippines are mainly derived from embodied technology in new equipment and machinery or from trained and skilled personnel, not from any government or academic or even from the firm's R & D support.

Table 7: Research and Development Expenditure, as % of GDP (Most Recent Year), by Country

Rank	Rank Countries	R&D Exp.	Year	Rank	Rank Countries	R&D Exp.	Year
1	Israel	4.46%	2004	53	Greece	0.58%	2004
2	Sweden	3.74%	2004	54	Poland	0.58%	2004
3	Finland	3.46%	2005	55	Slovakia	0.53%	2004
4	Japan	3.15%	2003	56	Bulgaria	0.51%	2004
5	Iceland	3.01%	2004	57	Latvia	0.42%	2004
6	United States	2.68%	2004	58	Argentina	0.41%	2003
7	Korea South	2.64%	2003	59	Mexico	0.40%	2002
8	Denmark	2.63%	2003	60	Romania	0.40%	2004
9	Switzerland	2.57%	2000	61	Costa Rica	0.39%	2000
10	Germany	2.49%	2004	62	Saint Lucia	0.38%	1999
11	Austria	2.33%	2005	63	Cyprus	0.37%	2004
12	Singapore	2.25%	2004	64	Mauritius	0.35%	2003
13	France	2.16%	2004	65	Sudan	0.34%	2003
14	Canada	1.93%	2004	66	Panama	0.34%	2003
15	Belgium	1.90%	2003	67	Azerbaijan	0.30%	2002
16	United Kingdom	1.89%	2003	68	Malta	0.29%	2004
17	Netherlands	1.85%	2003	69	Georgia	0.29%	2002
18	Luxembourg	1.81%	2003	70	Bolivia	0.28%	2002
19	Norway	1.75%	2003	71	Mongolia	0.28%	2002
20	Australia	1.70%	2002	72	Venezuela	0.28%	2003
21	Slovenia	1.61%	2004	73	Uruguay	0.26%	2002
22	China	1.44%	2004	74	Macedonia	0.26%	2002
23	Czech Republic	1.28%	2004	75	Thailand	0.26%	2003
24	Ireland	1.21%	2004	76	Armenia	0.25%	2002
25	Russia	1.17%	2004	77	Kazakhstan	0.22%	2001
26	Serbia	1.17%	2002	78	Pakistan	0.22%	2002
27	New Zealand	1.16%	2003	79	Kyrgyzstan	0.20%	2002
28	Ukraine	1.16%	2002	80	Kuwait	0.20%	2002
29	Croatia	1.14%	2003	81	Egypt	0.19%	2000
30	Italy	1.14%	2003	82	Vietnam	0.19%	2002
31	Spain	1.11%	2003	83	Colombia	0.17%	2001
32	Brazil	0.98%	2003	84	Burkina Fasso	0.17%	1997
33	Estonia	0.91%	2004	85	Saint Vincent	0.15%	2002
34	Hungary	0.88%	2004	86	Sri Lanka	0.14%	2000
35	India	0.85%	2000	87	Madagascar	0.12%	2000
36	Moldova	0.81%	1997	88	Trinidad-Tobago	0.12%	2003
37	Uganda	0.81%	2001	89	Philippines	0.11%	2002
38	Portugal	0.78%	2003	90	Seychelles	0.11%	2002
39	Lithuania	0.76%	2004	91	Peru	0.10%	2003
40	South Africa	0.76%	2001	92	Paraguay	0.10%	2002
41	Malaysia	0.69%	2002	93	Bermuda	0.08%	1997
42	Iran	0.67%	2004	94	El Salvador	0.08%	1998

Rank	Rank Countries	R&D Exp.	Year	Rank	Rank Countries	R&D Exp.	Year
43	Turkey	0.66%	2002	95	Burma	0.07%	2001
44	Nepal	0.66%	2002	96	Jamaica	0.07%	2002
45	Cuba	0.65%	2003	97	Ecuador	0.07%	2003
46	Tunisia	0.63%	2002	98	Honduras	0.05%	2003
47	Bangladesh	0.62%	2002	99	Nicaragua	0.05%	2002
48	Morocco	0.62%	2002	100	Indonesia	0.05%	2001
49	Belarus	0.62%	2002	101	Brunei	0.03%	2003
50	Chile	0.61%	2003	102	Zambia	0.01%	1997
51	Hong Kong	0.60%	2002	103	Lesotho	0.01%	2002
52	Mozambique	0.59%	2002		Weighted Average	0.90%	

Source: World Development Indicators

The lack of linkages between the university system and research and development of industries and skills requirements of industries contrasts with the nursing school system in the Philippines whose entire curriculum is geared towards providing skilled and quality nurses for the US. This is true also courses for health technicians such as X-Ray technicians, physical therapy and care-giving, whose aim is to send their graduates to foreign markets. On the other hand, there are no universities clearly linked to providing research and development or skilled engineers to high value-added electronic or semiconductor products produced within the country or high-skilled business process outsourcing such as software development, medical diagnostics and computerized designs for fashion, cinema and the like.

3.2.5 Coordination Failures, Information/Self-Discovery Externalities and Training Externalities

Appendix C shows only 58% of within-country variations are explained by the panel data regression. This suggests that there is room for omitted variables that had not been included in the panel data regression because they are hard to measure. These omitted variables may be made up of the inability to tackle market failures. One externality is termed by Hausmann and Rodrik (2006) as information spillovers in self-discovery. Because of uncertainty over the success or failure of an innovation, new products and technologies, if left to the markets, will not be introduced because of the 'first mover' problem. The first mover shoulders all the risks and all the losses in case of failure. But when he succeeds, she/he will be giving information concerning the profitability and economic opportunities of the new product or technique. New entrants will enter the field and reduce the economic rents and profits of the first mover. Thus, there is no first move since the private returns from engaging in the innovation are lower than the social benefits. The answer to this is to provide a subsidy or economic incentive in order to increase the private returns in line with the social benefits. The 'first mover' can be interpreted as the Schumpeterian innovator and entrepreneur.

Coordination failures occur when there is a need for complementary inputs -- interrelated industries, specific skills requirements for the specific sector, specific intermediate inputs, infrastructure, logistics and transportation systems, legal and regulatory frameworks for contracts/ property rights/ labor norms, etc. to be set up -- before an industry can take off. Many of these requirements are specific to the sector and would have a higher possibility of being non-existent for new activities that involve innovation. Furthermore, many of the requirements cannot be provided by the markets and can only be provided by the state (such as physical infrastructure, legal and regulatory frameworks, labor norms, etc). Thus government provision of these non-market requirements, and economic incentives for some of the non-existent economic activities, are prerequisites for the establishment of the industry.

There are also training externalities. As Becker (1975) pointed out, profit-maximizing firms will provide less than the socially optimal amount of general training, because they fear

that they will not get the full benefit of their training expenditure because the trained employees will be hired away by other firms. This requires the state to provide the general and specific skills formation required especially for industries that have positive externalities.

4. Policy Implications

It is clear from the above discussion that the constraints to growth, investment and upscaling of production involve both government and market failures. We now discuss the policy implications and recommendations to tackle these constraints.

4.1 Tackling Government Failures

The tackling of government failures in terms of policy recommendations are largely covered by the other components of this project. The macro management paper tackles the recommendations to avoid macroeconomic instability, especially the tackling of the fiscal problem the country is facing. In particular, the bad infrastructure mentioned in most surveys as a major constraint needs to be addressed by increasing tax revenues and perhaps loosening the fiscal targets. The governance paper addresses the challenges of eradicating corruption, bureaucratic impediments and red tapes, and inadequacies in contract enforcements as well as securing property rights and policy inconsistencies and policy instabilities.

The Philippines is also weak in anti-trust and anti-monopoly laws and regulations. It forms another government failure in terms of failing to provide a competitive atmosphere for productive growth and investments. The governance paper will also discuss regulatory captures of strategic industries and how to tackle this serious problem.

4.2 Avoiding Overvaluation of the Exchange Rate

The strong appreciation of the currency in 2006 and 2007 had partly contributed to reduced growth in exports in 2007. The value of imports in 2007 is almost sure to increase, not only because of the strong peso, but also due to the large world oil price hikes starting September of the year. Thus it is important that the appreciation of the peso be tamed. This is very difficult and challenging given the high inflows of overseas workers' remittances, and high portfolio inflows into the country. To avoid the currently strong appreciation of the peso, it is recommended that the following be followed:

One policy is to undertake laxer monetary and interest rate policies. Given that oil prices will definitely increase inflation in the last quarter of 2007, the BSP should just stick to its 4-5% inflation target for 2007 rather than the stricter de facto policy of keeping the inflation rate to be below 3% (as has been achieved so far). The special deposit account (SDA) was a way of trying to mop up liquidity in the banking system so as not to allow inflation to go beyond 3%. But the reduction of the overnight rates by 75 basis points in 2007 is a welcome development. There is still room for monetary relaxation since the gap between the overnight lending rate of 7.75% (as of October 15, 2007) and the 90-day treasury bill rate at less than 4% is still significant. Lower domestic interest rates and laxer monetary policy will definitely lead to slower appreciation of the peso. Most analysts expect the BSP to lower the overnight lending and borrowing rates by 25 basis points on Nov. 15, 2007 mainly to stem the sharp appreciation of the peso.

Because periodically large portfolio inflows contribute to the sharp appreciation of the peso, the BSP should study ways to discourage excessive short-term capital inflows into the country during overoptimistic periods and excessive outflows during losses of confidence or external shocks. The Thai experiment of trying to tax short-term 'hot money' was short-lived as

it led to a plunge in the stock market, which frightened the authorities. The problem is that it is easy to liberalize the capital account but very difficult to reverse it. Now that we had liberalized the capital account significantly in the 1990s, we should go more slowly into liberalizing anymore by just sticking to the current maximum amount of foreign currency allowed to go into the country in any one transaction. (Over and beyond this ceiling, a BSP permission is required). The paper also suggests studying the possibility of taxing short-term capital inflows. This may cause an initial massive plunge in the stock market, but the plunge may be short-lived as in the case of Malaysia when it implemented capital controls in 1998. Still this paper recommends a more rigorous study on possible market-based capital controls (taxation or required reserves for short-term capital flows) and its impact on the financial and external sectors before any drastic move is made. This is to ensure that productive long-term capital flows, like beneficial foreign direct investments, will not be unduly harmed by ruining investor confidence. Because putting capital controls may cause financial instability, especially a stock market plunge (as what happened in Thailand in 2006), it is recommended that taxing short-term capital flows ('hot money') be proposed as a regional or international policy (backed by many developing economies) that will be a regular policy allowed and not frowned upon by the powerful multilateral agencies and developed economies. This will give an imprimatur for countries to impose some form of taxation on short-term inflows, and prevent damaging overvaluation of the currency. This choice should be a regularly accepted policy of the international financial system.

The BSP is now implementing more capital account liberalization in terms of allowing more capital outflows and relaxing the maximum amount of foreign exchange to flow out of the country in order to tame the net inflows from workers' remittances and portfolio inflows. Earlier this year, the BSP doubled the maximum amount that local companies can invest overseas using foreign exchange from the banking system from \$6 million to \$12 million. The BSP is considering increasing this further to \$20 million. It is also considering relaxing the restrictions on the overseas investments of mutual funds, pension funds and unit investment trust funds (UITF) of banks. This policy, however, may not be too effective since the BOP tables in the most recent years (see the longer macro management paper) already show large capital outflows from residents. But these outflows pale in comparison to the workers' remittances and portfolio inflows during exuberant periods. Thus some form of market-based capital control on 'hot money' should be considered, but cautiously, as suggested above.

In April, 2007, the BSP also relaxed the maximum amount of individual and banks' purchases of foreign exchange. It is recommended that the BSP explore asymmetric maximum limits, with relaxation on the limits of purchases of foreign exchange but tightening the maximum limits of sale of foreign exchange (or limiting the maximum limit of a single transaction on the conversion of foreign currency to peso). This will make it more difficult to speculate on the peso, which is now very strong since all multinational banks and multilateral institutions are predicting significant strengthening of the peso over the short and medium term.

4.3 Improving Research and Development, and Linking R & D With the Industries; Linking Universities with Industries to Address Training Externalities

Finally, low focus on research and development reduces the country's chances of joining the other successful countries' march towards high close-to-double-digit growth as the country locks in high value-added and products with increasing returns to scale (as described in the section of endogenous growth theories). Government should put more focus and resources on planned and practical research and development to support industries in upscaling their technologies and improve the product range and the quality of products. The linking of universities to this endeavor is crucial. This is especially because of training externality.

University linkages to human capital needs of particular industries and sectors should be established to address the training externality problem.

The Department of Science and Technology together with Intellectual Property Organization Philippines, IBM Philippines and the Asian Institute of Technology (AIM) announced they were holding a National Innovation Summit in Nov. 26, 2007 to achieve an effective National Innovative System (NIS). The plan includes support and direction of the academe in designing new curricula to enhance the quality of education to allow the country to meet emerging and new standards. It also includes plans to counter the 'invisible brain drain' in which the work of local inventors are being licensed and patented in other countries. The plan therefore includes strong domestic protection of indigenous intellectual property rights.

This government/ private partnership of creating dynamism in R & D and science and technology contribution to industrial upscaling is commendable. But it definitely requires government to commit more resources allotted to R & D activities. This should be increased from 0.11% of GDP to maybe quadruple the amount. But the resources require a well-planned strategy to integrate public and academic activities in R & D to the actual industries that will be successful in upscaling the economies' technology and economies of scale. This requires strong commitment from the economic planning agency (NEDA), the Department of Trade and Industry (DTI), the S & T agencies, the private industries and the academic sectors to collaborate strongly. So far the NIS plan described above lacks the important participation of NEDA and DTI, and it also lacks the strong backing of the legislative branch and President's Office to give this endeavor a sense of urgency and priority.

4.4 Policies to Improve the Technological and Scale Upgrading of the Domestic Economy

This perhaps is the most controversial and most difficult task among all. Our panel data regression shows that to achieve this, one must be successful in avoiding overvaluation of the currency, one must be successful in increasing the investment rate and in increasing research and development spending for the economy. But the more controversial question is, after achieving the above, should we just leave it to the markets to achieve the technological and scale upgrading, or does the state have to be more pro-active? The endogenous growth literature of Hausmann and Rodrik (2006) and Murphy, Vishny and Schleifer (1989) point to the need for the state to be pro-active in solving coordination failures and the setting up of complementary inputs and legal and physical infrastructure of potentially dynamic sectors, especially those with positive externality spillover. It must also be active in giving economic incentives to Schumpeterian activities of the 'first movers' to undertake risky innovation and entry into new activities and ventures that will have high positive externalities and information spillovers. The Schumpeterian activities will encourage entry into technology and knowledge-intensive areas that exhibit increasing returns to scale (most of the group 4 economic sectors identified in the previous section) that will lead to much higher growth of the economy.

In the Philippine context, the backward linkaging of the electronic and semiconductor industries, so that this large export sector becomes less import-intensive and actually increases its value-added contribution to the economy, is an important challenge. Table 3 also points to possibilities to improve exports and outputs of scientific instruments, whose exports had been increasing slowly in recent years. The rapid increase in the business process outsourcing (BPO) should also be able to have stronger backward linkaging, especially to the telecommunications and ICT sectors. BPOs should also expand more towards more value-added and strong human capital formation activities. Apart from call centers, there should be strong increased activities in software development, medical diagnostics and computer designing in fashion, motion pictures and the like. Policies to make other basic industries like iron and steel, cement, petrochemical

plants more competitive vis-a-vis imports through better infrastructure and stringent anti-monopoly practices should be formulated and implemented.

Right now, there are many sectors included in the Investment Priority Plan (IPP) that are given fiscal incentives. Many say this is reducing the chances of solving our fiscal crisis. This paper recommends trimming down the sectors to the ones that will – through consultation with the private sector – actually lead to the upscaling of production and products and lead to higher value-added and employment absorption. Actual identification of sectors can be left to just a few sectors, but giving economic incentives to successful Schumpeterian innovation can be done ex-post with the successful innovators given tax rebates. Any initial tax incentives given to any identified activity should be performance-based, with the tax incentives stopped immediately if the performance criteria are not met.

Hausmann and Rodrik (2006) may be correct that pro-active state incentives will promote technological and scale upgrade of the economy. But they also point out that this requires a wise, efficient, honest, transparent and relatively autonomous state to achieve proper handling of market and coordination failures.

No doubt government's selection of its interventions cannot be arbitrary and biased. Hausmann and Rodrik (2006) provide some guidelines. Interventions are only justified when there is enough available information to provide a reasonable probability of success of the targeted industry. The processes and criteria of deciding to grant economic incentives to a particular economic sector, the criteria and selection of the beneficiaries, the length of time of the special treatment – all these should be done in open and transparent manners. Furthermore, self-organization and public (transparent) lobbying should be encouraged with a general consensus on the 'industrial policy'. Restrictive rules and forced groupings of potential beneficiaries based on predetermined criteria should be avoided.

It is clear that good governance is required. If these theories are accepted, it should lead to the urgent task of undertaking serious studies on institutional, legal and political structures of the government and their roles in providing economic incentives and formulating industrial policies. Addressing market failures work best when government failures are minimized. The governance paper should have plenty to add to this discussion.

Appendix A: Global Competitiveness Indices for the Philippines: 2007-8

Rank (Out of 131 countries/economies)		Score (Out of 7)
	Global Competitiveness Index 2007-2008	71 3.99
	Global Competitiveness Index 2006-2007 (out of 122)	75 3.98
	Subindex A: Basic requirements	93 3.99
	1st pillar: Institutions	95 3.42
	2nd pillar: Infrastructure	94 2.70
	3rd pillar: Macroeconomic stability	77 4.70
	4th pillar: Health and primary education	86 5.16
	Subindex B: Efficiency enhancers	60 4.03
	5th pillar: Higher education and training	62 4.02
	6th pillar: Goods market efficiency	64 4.19
	7th pillar: Labor market efficiency	100 4.05
	8th pillar: Financial market sophistication	77 4.06
	9th pillar: Technological readiness	69 3.07
	10th pillar: Market size	24 4.77
	Subindex C: Innovation and sophistication factors	65 3.61
	11th pillar: Business sophistication	55 4.20
	12th pillar: Innovation	79 3.03
Rank (Out of 131 countries/economies)		
	Business Competitiveness Index 2007-2008	66
	Sophistication of company operations and strategy	46
	Quality of the national business environment	73

Source: World Economic Forum

Appendix B: Regressions of Exports and Imports

Regression of Log of Real Exports at 1985 Prices

Lnexpr85	Coeff	Std. Err.	t	P> t 	[95% Conf. Interval]	
lnexpwifs	0.4227	0.0779	5.42	0.000	0.2663	0.5791
lnexchrt	0.1862	0.0929	2.01	0.050	-0.0001	0.3726
Dummy	0.1687	0.0719	2.35	0.023	0.0245	0.3128
Constant	5.4919	0.9719	5.65	0.000	3.5415	7.4422

Rho = 0.87217

0.42635

D-W Statistic (transformed) =

1.78814

Number of obs =

56

F (3, 26) =

32.64

Pro > F =

0.000

R-Squared =

0.6531

Adj R-squared =

0.6331

Root MSE =

0.0955

Source	SS	df	MS
Model	0.89258	3	0.29753
Residual	0.47403	52	0.00912
Total	1.36660	55	0.02485

where lnexpr85 = log of exports of goods and services, 1985 prices

lnexpwifs = world exports in US \$, derived from IMF, IFS

lnexchrt = log of exchange rate

dummy = dummy for trade liberalization period 1988 to 1997

Regression of First Difference of Log of Imports in 1985 Prices

D.Inimpr85	Coeff	Std. Err.	t	P> t 	[95% Conf. Interval]	
D.lnexchrt	-0.2315	0.1338	-1.73	0.089	-0.4998	0.0368
D.lngdpr85	1.1795	0.1660	7.11	0.000	0.8468	1.5123
D.lnpimp_pgdp	-0.6436	0.1760	-3.66	0.001	-0.9965	-0.2908
Constant	0.0117	0.0188	0.63	0.534	-0.0259	0.0494

Durbin-Watson d-Statistic (4, 58) =

1.64950

Number of obs =

58

F (3, 26) =

20.90

Pro > F =

0.0000

R-Squared =

0.5373

Adj R-squared =

0.5116

Root MSE =

0.1223

Source	SS	df	MS
Model	0.93811	3	0.31270
Residual	0.80794	54	0.01496
Total	1.74605	57	0.03063

where,

D.Inimpr85 = first difference of log of imports of goods and services, 1985 prices
 D.Inexchrt = first difference of peso exchange rate (average of period)
 D.Ingdp85 = first difference in the log of Gross Domestic Product, real 1985 Prices
 D.Inpimp_pgdp= first difference of log of price of imports ratio to GDP price deflator

Note that the domestic price of imports vis-à-vis the GDP price deflator is heavily affected by the exchange rate since the domestic price of imports is given by the following equation:

$$\text{Pimp} = (\text{exchange rate} * \text{border price of imports in } \$) * (1 + \text{tariff rate})$$

Appendix C: Panel Data Analysis of Output per Capita of High-Tech and Scale Products (Group 4)

Random-effects GLS regression	Number of obs	=	76		
Group variable (i) : cntry	Number of groups	=	4		
R-sq: within	=	0.5825	Obs per group: min	=	19
between	=	0.9896	avg	=	19
overall	=	0.9457	max	=	19
Random effects u_i ~ Gaussian	Wald chi2(4)	=	1237.43		
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000		

Lnmfgr4	Coeff	Std. Err.	z	P> z	[95% Conf. Interval]	
Lncapusd	0.1867	0.0930	2.01	0.045	0.0043	0.3690
Lngfcf	1.0438	0.1613	6.47	0.000	0.7277	1.3600
Lnreer	-2.6133	0.2508	-10.42	0.000	-3.1049	-2.1218
Lnrnd	0.3938	0.0920	4.28	0.000	0.2134	0.5742
Constant	17.3218	1.1535	15.02	0.000	15.0610	19.5826

Sigma_u = 0
 Sigma_e = 0.18278
 Rho = 0 (fraction of variance due to U-I)

where

lnmfgr4 = logarithm of per capita value-added output of manufacturing subgroup 4 in 2000 US\$
 lncapusd = logarithm of GDP per capita in US 2000 \$
 lngfcf = logarithm of share of gross fixed capital formation to GDP
 lnreer = logarithm of real effective exchange rate (2000=100) using JP Morgan data
 lnrnd = logarithm of average of research and development expenditures as percent of GDP for available years from WDI (one value for each country)

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