The Impact of Market Reforms on Competition, Structure and Performance of the Philippine Economy[1]

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1.0 Background

In its quest for industrialization, the postwar Philippine economy adopted a complex array of protective policies, investment incentive measures, and regulatory controls. In general, the literature shows that these policies failed to provide an efficient mechanism for allocating domestic resources in the economy. The more than three decades of protectionism and import-substitution has left a legacy of high levels of industrial concentration and the concentration of economic wealth among a small number of families and groups. It has likewise left a legacy of a lack of a culture of competition that is characterized by a weak and underdeveloped competition framework. Although it has laws forbidding monopolies and cartels, the Philippines does not have a history of fighting against these illegal activities as evidenced by the lack of cases litigated in Philippine courts against monopolies and cartels.

Domestic firms have grown accustomed to government-sanctioned monopolies and cartels together with price controls and government protection. In general, anticompetitive business practices have been accepted as part of the normal course of doing business in the country. Rather than compete with imports and focus on efficiency improvements, firms have tended to hide from the challenges of market competition by engaging in collusive acts and intensive lobbying for more government protection.

With the demise of the import substitution model for economic development, the government was prompted to institute economic policy reforms consistent with the requirements of a competitive market environment. Since the 1980s, it had carried out economic reforms through liberalization, privatization, and economic deregulation, all of which were aimed at removing barriers to competition and promoting factor mobility and firm growth as well as securing both high and sustained economic growth and rapid poverty alleviation.

The main objective of the paper is to examine the impact of trade policy reforms vigorously pursued in the 1990s on market competition, structure, and performance of major

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[1] Paper presented at the "Workshop on Policies to Strengthen Productivity in the Philippines" sponsored by the Asia-Europe Meeting (ASEM) Trust Fund, Asian Institute of Management Policy Center, Foreign Investment Advisory Service, Philippine Institute for Development Studies and the World Bank, held in AIM Policy Center, Makati City, 27 July 2005.

[2] The author is grateful to Ms. Mildred Belizario, Ms. Melalyn Cruzado, and Ms. Corazon Pisano for their excellent research assistance, to the participants of the July 26, 2004 WB-PIDS Workshop for very useful discussions, to Shyam Khemani and Milan Brahmbhatt for their guidance and insightful comments and suggestions and to Linda Medalla for her support and encouragement. The usual disclaimer applies.

economic sectors. The paper will also evaluate the presence of remaining barriers to entry and their effect on competition. It will attempt to address the following questions: Did the market-oriented reforms increase competition in the domestic market? If so, how can market forces be strengthened in order to ensure effective competition? If not, what could be the possible factors that inhibit effective competition from taking place? Are there remaining barriers to competition erected by the private sector or the government? How high are these barriers and what forms do they take?

Market reforms like trade liberalization reduce barriers to competition. They are expected to sharpen competitive pressure and lead to welfare gains, particularly when monopolies and cartels characterize the structure of the market. In the context of the new trade theory, gains from trade are derived not only from specialization and comparative advantage, but also from the reduction of deadweight losses created by firms that have market power. Trade liberalization leads to lower price cost margins and causes more efficient firms to expand and less efficient firms to either contract or exit, thus, inducing additional efficiency gains. This increases productivity and innovation and enhances long-run economic growth.

The paper begins by analyzing the overall performance and growth as well as changes in the structure of outputs of the major economic sectors. Section three presents the current state of competition-related laws, institutions, and competition policies. Section four discusses the theoretical underpinnings of trade liberalization, competition, and productivity. The next two sections assess the extent to which pro-competition changes have occurred in the major economic sectors: manufacturing, agriculture, and services and determine the presence of remaining barriers to competition. Price cost margins are calculated and the relationship between competition and trade reforms is analyzed using manufacturing sector data. The last section draws lessons from the previous analysis and recommends policy changes to deepen the economic reforms and strengthen competition in the Philippines.

2.0 Growth, Performance and Structure of the Philippine Economy

2.1 Output, Value Added Growth and Changes in Economic Structure

The growth of the country's Gross Domestic Product (GDP) throughout the years is characterized by a boom-bust cycle (Figure 1). The 1950s represented the best decade with GDP growing at an average of 6.2 percent. From the seventies to the nineties, the Philippines experienced three major crises: the first occurred in 1984 when the GDP shrank by 7.3 percent followed by another crisis in 1991 when GDP contracted by 0.6 percent and again in 1998 when GDP dropped by 0.6 percent. The 1980s, marked as the lost decade, witnessed the country's average growth rate plummet to 1.7 percent. This placed the Philippines significantly below its neighbors who were able to attain respectable growth rates during the same period. The 1990s witnessed the economy's attempt to recover and catch up with its neighbors.

Figure 1: Gross Domestic Product

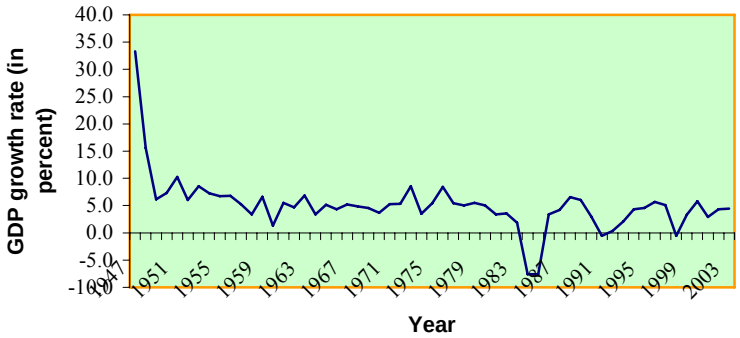


Table 1 indicates that the growth of the major economic sectors generally mimicked the macroeconomic picture. While the industry sector was the best performer in terms of average annual growth rate from the 1950s to the 1970s, the services sector has become the star sector in the succeeding decades as both agriculture and industry, manufacturing in particular, experienced sluggish growth during these periods. In contrast, services average growth increased continuously in the last two decades. Broad growth took place in the services sector as most of its sub-sectors registered consistently rising growth rates in the same periods under review.

It is also evident from Table 1 that the Philippine economy's output structure is characterized by a large services sector. This sector's share has continued to increase from an average of 37 percent during the 1970s to 40.4 percent in the 1980s, 42.4 percent in the 1990s and to almost 46 percent in the most recent 2001-2003 period. Trade has constituted the bulk of the services sector followed by transportation, communication, and storage and private services sub-sectors. Since the 1980s, almost all services sub-sectors have experienced rising shares.

Within the services sector, the transportation, communication, and storage as well as trade sub-sectors have registered continuously rising average growth rates since the 1980s. The transportation, communication, and storage sector posted the highest average growth rate of 8.4 percent during the period 2001-2003. This was followed by trade and private services sub-sectors with average growth rates of approximately 5.6 percent and 4.9 percent, respectively. Finance grew by 4.4 percent during the nineties and by 3.8 percent in the most recent period under review. The growth in the transportation, communication, and storage sub-sector as well as in finance may be attributed to the market reforms introduced in telecommunications, shipping, air transport, and finance sub-sectors during the early 1990s.

Table 1: Average Growth Rates and Value Added Structure by Major Economic Sectors
(in percent, at constant 1985 prices)

Year	1951-60	1961-70	1971-80	1981-90	1991-00	2001-03
Value added growth rate						
Gross Domestic Product	6.2	4.8	5.7	1.7	3.0	3.89
1. Agriculture, Fishery,Forestry	4.8	4.2	3.9	1.1	1.8	3.59
Agriculture industry	4.8	1.0	5.7	2.0	2.2	3.67
Forestry		2.6	-3.6	-9.1	-16.7	-11.15
2. Industry Sector	7.1	5.5	7.6	0.3	3.0	2.51
Mining & Quarrying	8.7	7.1	6.1	1.9	-0.2	16.86
Manufacturing	9.4	5.7	5.9	0.9	2.5	3.46
Construction	-0.6	4.2	14.1	-3.1	4.3	-4.84
Electricity, Gas and Water	4.3	5.4	11.6	4.1	5.6	2.56
3. Service Sector	6.7	4.7	5.2	3.3	3.6	5.07
Transportation, Communication & Storage	7.6	5.6	7.2	3.4	5.1	8.41
Trade		4.9	5.7	3.0	3.5	5.58
Finance*	6.4*	-16.5	8.7	2.2	4.4	3.77
Occupational Dwellings & Real Estate		1.4	1.6	2.4	1.9	1.66
Private Services	7.2	-1.8	5.0	5.0	3.6	4.94
Government Services		7.6	4.3	3.6	2.9	3.07
Share in Value added						
1. Agriculture, Fishery,Forestry	32.5	29.7	25.6	23.9	20.8	19.7
Agriculture industry	32.5	26.5	20.7	22.1	20.5	19.7
Forestry		8.2	4.9	1.8	0.3	0.1
2. Industry Sector	30.6	32.6	38.3	38.0	34.1	34.4
Mining & Quarrying	1.2	1.1	1.4	1.7	1.3	1.4
Manufacturing	22.3	25.6	28.2	26.3	24.3	24.2
Construction	6.1	5.0	7.1	7.3	5.5	5.6
Electricity, Gas and Water	1.1	1.0	1.7	2.7	3.0	3.3
3. Service Sector	38.3	38.4	36.6	40.4	42.4	45.8
Transportation, Communication & Storage	3.7	4.0	4.7	5.5	6.0	7.7
Trade		13.0	12.8	14.4	15.0	16.3
Finance*	24.6*	15.8	3.4	3.6	4.4	4.7
Private Services	9.9	8.3	5.1	6.6	6.8	7.5
Government Services		4.6	4.5	4.8	5.0	4.9

Source of basic data: National Accounts of the Philippines, National Statistical Coordination Board
*: figure refers to combined finance and trade sectors

The share of agriculture, fishery, and forestry has gradually declined from around 26 percent in the 1970s to 24 percent in the 1980s. This dropped further to 21 percent in the 1990s and to about 20 percent in the recent period 2001-2003. Agriculture constitutes the bulk of the sector. In the 1960s and 1970s, the agricultural subsector achieved respectable growth of about 4.2 percent and 3.9 percent, respectively. Much of this growth was due to the Green Revolution Program of the 1960s. Since then, agricultural growth has been sluggish and failed to keep up with population growth. Resource constraints have been encountered as

the country hit the land frontiers (David, 2003). In the 1980s and 1990s, the sector grew at the average annual growth rates of around 1 percent and 1.8 percent, respectively, as agricultural yields increased only slowly. In the recent period, the sector registered an average growth rate of about 3.6 percent.

The share of the industrial sector to total output decreased from the peak of about 38 percent in the 1970s till the 1980s, to 34.1 percent during the 1990s and 34.3 percent in the period 2001-2003. The manufacturing sub-sector represents the most important industrial sector, accounting for about 28 percent of total output in the 1970s, 26 percent in the 1980s, and 24 percent in the 1990s. This share to total output has remained unchanged in the most recent period under review.

Since the 1980s, industrial growth has been very slow with virtually no growth in the 1980s. In the 1990s, the sector posted an average annual growth rate of 3 percent. It grew by 2.5 percent in the period 2001-2003. Manufacturing registered an average annual growth rate of 0.9 percent in the 1980s, by 2.5 percent in the 1990s, and by 3.5 percent in the recent period.

Table 2 shows a more detailed structure of the manufacturing value added. Consumer products such as food manufactures and beverage industries continue to dominate the sector, although its share dropped from 58 percent in the 1980-85 period to about 49 percent during the 1996-02 period. Intermediate goods like petroleum and coal products and chemical and chemical products follow, accounting for 30 percent to around 32 percent. The shares of textile, rubber products, and wood and cork products substantially decreased between the 1980-85 and 1996-02 periods, while the share of capital goods increased markedly from approximately 10 percent to 17 percent. This can be attributed to the growing importance of the electrical machinery sub-sector. The share of transport equipment, meanwhile, fell by almost half during those years.

In terms of growth, electrical machinery has been the best performer as it grew from about 5 percent during the mid-1980s to 15 percent during the 1996-02 period (see Table 3). Non-electrical machinery and miscellaneous manufactures also registered respectable growth. The growth of textile manufactures, wood and cork products, and rubber products, on the other hand, has been disappointing with the subsectors experiencing negative growth rates in two successive periods 1991-95 and 1996-02. The growth of wearing apparel and footwear has also declined from 1986 to 2002.

Table 2: Distribution of Manufacturing Value Added (in percent)

Industry Group	1981-85	1986-90	1991-95	1996-02
Consumer Goods				
Food manufactures	45.1	33	36.4	35.9
Beverage industries	3.4	3.9	3.9	3.8
Tobacco manufactures	3.5	3.1	2.7	2.5
Footwear & wearing apparel	4.8	4.5	6.2	5.4
Furniture & fixtures	1.3	1.2	1.2	1.3
Sub-total	58.1	45.7	50.4	48.9
Intermediate Goods				
Textile manufactures	4.1	3.9	3.1	2.0
Paper & paper products	1	1.1	1.1	0.9
Publishing & printing	1.2	1.2	1.6	1.3
Leather & leather products	0.1	0.3	0.1	0.1
Rubber products	1.6	2.5	1.3	0.9
Chemical & chemical products	7	7.3	6.3	6.1
Products of petroleum & coal	10.2	12.3	17.3	16.5
Non-metallic mineral products	2.3	2.5	2.9	2.7
Wood & cork products	2.6	2	1.8	1.1
Sub-total	30.1	33.1	35.5	31.6
Capital Goods				
Basic metal industries	2.2	2.8	2.4	1.9
Metal industries	1.9	2	2.3	2.1
Machinery except electrical	1.3	1.6	1.3	1.7
Electrical machinery	2.9	3.1	4.9	10.1
Transport equipment	2	1	1.3	1.0
Sub-total	10.3	10.5	12.2	16.8
Miscellaneous manufactures	1.4	1.5	2.0	2.5

Table 3 : Average Value Added Growth Rates in Manufacturing (in percent)

Industry Group	1981-85	1986-90	1991-95	1996-02
Food manufactures	-3.1	1.6	0.4	4.1
Beverage industries	9.8	2.8	0.7	1.9
Tobacco manufactures	0.1	0.5	-0.2	3.9
Textile manufactures	-8.0	4.8	-3.6	-4.1
Footwear & wearing apparel	-4.5	11.3	5.5	0.5
Wood & cork products	-16.5	7.8	-7.2	-5.1
Furniture & fixtures	-8.3	8.6	-0.8	2.7
Paper & paper products	-2.9	7.6	0.3	-1.2
Publishing & printing	-9.0	14.5	0.7	0.4
Leather & leather products	-6.6	0.0	2.7	6.5
Rubber products	-7.6	7.9	-2.6	-5.8
Chemical & chemical products	-3.1	1.6	1.8	1.8
Products of petroleum & coal	1.9	10.2	3.7	-0.8
Non-metallic mineral products	-10.8	10.4	7.3	-1.9
Basic metal industries	9.8	2.2	2.4	-5.3
Metal industries	-5.9	8.3	0.5	4.5

Machinery except electrical	-10.5	9.1	6.3	5.9
Electrical machinery	4.9	8.3	10.7	15.0
Transport equipment	-34.7	14.2	9.7	-3.3
Miscellaneous manufactures	-0.3	12.8	1.5	7.9
Gross Value Added in Mfg.	-3.1	4.9	2.0	3.1

Source of basic data for both tables: National Accounts of the Phil., National Statistical Coordination Board

Table 4 compares the performance of the Philippines in terms of value added distribution with other Asian developing countries. It is evident from the data that our neighboring countries registered reductions in the share of agriculture and substantial increases in the share of industry during the period 1990 to 1999. In comparison, the share of Philippine agriculture dropped from 22 percent to 18 percent, industry declined from 34 percent to 30 percent while services, which constituted a large portion of Philippine output, rose sharply from 44 percent in 1990 to 52 percent in 1999.

Table 4: Structure of Output (percent of GDP)

Sector	Philippines		Thailand		Indonesia		Malaysia		China	
	1990	1999	1990	1999	1990	1999	1990	1999	1990	1999
Agriculture	22	18	12	10	19	19	15	11	27	18
Industry	34	30	37	40	39	43	42	46	42	49
Manufacturing	25	21	27	32	21	25	24	32	33	38
Services	44	52	50	50	41	37	43	43	31	33

Source: World Bank, 2001 World Development Indicators.

In contrast, the share of agriculture in Thailand dropped from 12 percent in 1990 to 10 percent in 1999. The same trend was witnessed in Malaysia and China. In Malaysia, agriculture declined from 15 percent to 11 percent. In China, the share of agriculture fell from 27 percent to 18 percent. In Indonesia, it remained constant at 19 percent. In terms of industry share, in Thailand this went up from 37 percent to 40 percent, in Indonesia, it increased from 39 percent to 43 percent, in Malaysia, it rose from 42 percent to 46 percent and in Thailand, from 42 percent to 49 percent. The bulk of industry, manufacturing, witnessed significant increases in its share for all the countries under review except for the Philippines. In services, Thailand's share remained unchanged at 50 percent in both years. In Indonesia, Malaysia, and China reductions in the share of services were observed.

2.2 Employment

The services sector has become the largest provider of employment in the most recent period (Table 5). The share of the labor force employed in the sector consistently increased, from around 32 percent in the mid-1970s to almost 47 percent in 2001-2003. The share of industry to total employment has been almost stagnant from the mid 1970s to the most recent period under review.

Table 5: Structure of Employment (in percent)

Major Sector	1975-78	1980-89	1990-99	2000-02
Agriculture, Fishery and Forestry	52.83	49.60	43.16	37.41
Industry	15.23	14.49	15.98	15.67
Mining and Quarrying	0.46	0.66	0.59	0.35
Manufacturing	11.29	9.93	10.01	9.70
Electricity, Gas and Water	0.35	0.36	0.44	0.40
Construction	3.13	3.54	4.94	5.21
Services	31.87	35.90	40.94	46.91
Wholesale and Retail Trade	10.32	12.55	14.54	17.82
Transportation, Storage & Communication	4.08	4.45	5.80	7.23
Financing, Insurance, Real Estate & Business Services	4.55	1.79	2.18	2.72
Community, Social & Personal Services	14.05	17.11	18.42	19.14
Industry not Elsewhere Classified	0.49	0.02	0.05	0.01

Sources: Yearbook of Labor Statistics (1980-2000) and Current Labor Statistics (2001-2002), Bureau of Labor and Employment Statistics, Department of Labor and Employment and Employed Persons by Major Industry Group, National Statistics Office Labor Force Survey (1970, 1975-1976, 1977-1978).

The manufacturing sector has failed in creating enough employment to absorb new entrants to the labor force as well as those who move out of the agricultural sector. Its share dropped from 11.3 percent in the mid-1970s to 9.7 percent in the 2001-2003 period. While the share of agriculture has been declining, the sector has remained an important source of employment. From 52.8 percent in the mid-1970s, the agriculture sector's share in total employment continuously declined in the succeeding decades and is currently around 37.4 percent.

2.3 Size Structure of the Manufacturing Sector

In terms of number, small enterprises are more predominant than medium-sized enterprises (Table 6). While some fluctuations occurred between 1972 and 2003, the table shows that the size structure hardly changed from the seventies to the present. In terms of employment and value added, the manufacturing sector is still dominated by a small number of very large firms.

In 1995, large-scale establishments accounted for 76 percent of manufacturing value added and 67 percent of employment, although they represented only 10 percent of all firms. On the other hand, small establishments, which represented 82 percent of all firms, accounted for 21 percent share of employment and only 11 percent of manufacturing value added. Medium-scale establishments, which accounted for 8 percent of all establishments, contributed 12 percent of employment and 13 percent of manufacturing value added.

Table 6: Firm Size Distribution in Philippine Manufacturing (in percent)

Number of Firms	**1972**	**1983**	**1988**	**1994**	**1995**	**1999**	**2000**	**2001**	**2002**	**2003**
Small	83	78	84	72	82	86	86	85	86	83
Medium	7	9	7	12	8	7	7	7	7	7
Large	10	13	9	16	10	8	8	8	7	10
Employment	**1972**	**1983**	**1988**	**1994**	**1995**	**1999**	**2000**	**2001**	**2002**	**2003**
Small	22	18	24	21	21	28	29	26	26	23
Medium	10	10	12	13	12	12	12	12	13	11
Large	68	72	64	66	67	61	59	62	61	66
Census Value Added	**1972**	**1983**	**1988**	**1994**	**1995**					
Small	15	11	12	11	11	-	-	-	-	-
Medium	12	8	11	12	13	-	-	-	-	-
Large	74	81	77	77	76	-	-	-	-	-

Small-sized establishments employ 10 to 99 employees, medium-sized establishments have 100 to 199 employees while large establishments have 200 or more workers.
Source: National Statistics Office
-: no data

The country's underdeveloped financial markets represent a formidable barrier not just to the entry of new enterprises but also to the growth prospects of small and medium sized firms. The absence of a liquid and deep peso financial market contributes to the high cost of investment and makes it more difficult for enterprises to expand. Note, however, that financing constraints do not affect all firms equally, with access to financial credit being a particular problem affecting SMEs (Maxwell Stamp PLC, 2001). Based on a survey of SMEs, Hapitan (2005) concluded that small and medium-sized companies still face difficulties in credit access, particularly from foreign banks. This, the study found, is the result of accessibility problems in terms of branch location and the absence of information on the availability of credit facilities.

2.4 Foreign Direct Investment

Trade, together with foreign direct investment, is an important channel in improving efficiency. The highest degrees of productivity tend to be attained by firms competing directly with best practice firms all over the world. The diffusion of technology across countries tends to be slower in industries where competition is weak, as openness to competition allows firms to learn from their international competitors (Pilat, 1996). Open borders and favorable entry conditions for new firms also tend to improve productivity growth.

Table 7 presents the distribution of total cumulative flows across the major sectors from the eighties to the most recent period. Total cumulative flows to the Philippines increased from US$ 2.03 billion to US$ 8.34 billion between the 1980s and the 1990s. During the 2000-2003 period, a total of US$ 5.16 billion was registered.

In the eighties, the bulk of FDI flows was concentrated in the manufacturing sector particularly in the manufacture of chemical and chemical products, food products, basic metal products, textiles and petroleum and coal. The average share of manufacturing went up from about 45 percent in the eighties to 50 percent in the nineties. In the most recent period, its share declined from 50 percent to around 31 percent as most FDI flows went into the financial sector.

In terms of changes in FDI flows within manufacturing, there was a shift towards the production of machinery, appliances, and supplies and petroleum and coal products. On the average, the FDI flows appear to be strong in food manufacturing as its share more than doubled from 7 percent in the nineties to around 14.5 percent in the period 2000-03.

A lot of these changes in FDI flows and structure may be explained by the substantial FDI liberalization process implemented over the past decades and which accelerated in the early nineties with the legislation of the Foreign Investment Act (FIA). As a result of this liberalization process, the shares of banks and other financial institutions to total FDI went up significantly, from 8 percent in the eighties to 15 percent in the nineties. In the most recent period, its share rose further to about 34 percent.

These increases in the share of FDI cumulative flows to the financial sector coincided with the major banking reforms legislated since the mid-1990s. The Foreign Bank Liberalization Act of 1994 allowed the establishment of ten new foreign banks in the Philippines. With the passing of the General Banking Law in 2000, foreign banks have been allowed to acquire up to 100 percent of the voting stock of only one bank (but only within seven years from the effectivity of this law). Prior to 1994, there were only four foreign banks in the country. These banks were heavily regulated; they could not engage in universal banking and trust operations and could not open new branches. Currently, there are a total of 19 foreign banks operating in the Philippines.

Public utility also experienced substantial increases in its share to total FDI, which went up from 1 percent in the 1980s to 12 percent in the nineties and to around 18 percent in the period 2000-03. Within the sector, the communication sub-sector received the largest cumulative FDI flows, increasing from less than one percent in the eighties to 6 percent in the nineties and to 15 percent in the most recent period under review.

In the past two decades, the share of mining fell drastically from 32 percent in the 1980s to around 6 percent in the nineties and increasing to 11 percent in the most recent period. Meanwhile, the share of agriculture, fishery, and forestry is very low and has been declining in all three periods under study. Commerce, which includes wholesale and retail trade as well as private services saw increases in its share from 5 percent in the eighties to 7.6 percent in the nineties. This share dropped to around 3 percent in 2000-2003.

Table 7: Distribution of Foreign Direct Investment by Sector (in percent)

Major Economic Sector	**1980-89**	**1990-99**	**2000-03**
Total Cumulative Flows (in million US$)	**2027**	**8340**	**5164**
Banks & other Financial Institutions	**8.11**	**15.45**	**34.19**
Banks	5.11	6.78	15.09
Other Fin. Institutions	2.99	8.67	19.11
Manufacturing	**44.70**	**50.08**	**30.65**
of which:			
Chemical & Chem. Prods.	13.36	5.72	3.55
Food	9.29	7.10	14.52
Basic Metal Products	5.71	2.27	1.85
Textiles	2.17	1.80	0.02
Transport Equipment	3.50	3.88	1.16
Petroleum & Coal	2.14	10.77	1.23
Rubber	-	0.60	0.01
Metal Prods.,exc. Mach.	0.33	1.22	-
Paper & Paper Prods.	-	0.24	0.19
Mach., App., Suppl.	-	12.23	3.99
Non-metallic Min. Products	-	2.27	3.34
Others	-	1.34	0.49
Mining	**32.44**	**5.68**	**10.56**
of which:			
Petroleum and Gas	28.15	1.66	10.54
Copper	0.51	0.00	-
Nickel	-	0.06	-
Geothermal	-	3.26	0.01
Others	-	0.41	
Commerce	**5.05**	**7.63**	**3.23**
of which:			
Wholesale	2.86	3.86	2.03
Real Estate	1.23	3.42	1.20
Services	**6.39**	**5.29**	**0.91**
of which:			
Business	2.36	1.13	0.63
Others	-	0.21	0.23
Public Utility	**1.13**	**11.94**	**17.82**
of which:			
Communication	0.75	5.95	15.06
Water Transport	-	0.16	0.15
Land Transport	0.04	0.01	0.04
Electricity	-	5.39	1.54
Air Transport	-	0.20	
Others	-	0.05	1.03
Agri., Fishery & Forestry	**1.66**	**0.36**	**0.01**
of which:			
Livestock & Poultry	-		-
Fishery	-	0.13	-
Agriculture	2.01	0.23	
Others	-		
Construction	**0.52**	**3.00**	**2.44**
of which:			
Transport Facilities	0.15	-	-
Infrastructure	0.66	0.70	0.10
Building	-	0.17	0.02
Gen. Engineering	-	1.10	2.31
Others	-	1.00	0.01

Source: Bangko Sentral ng Pilipinas

Despite the progress in liberalization, there still remain certain significant barriers to FDI entry. The two negative lists under the Foreign Investment Act (FIA) either fully or partially restrict foreign ownership in a number of sectors. Due to constitutional constraints, List A restricts foreign investment in the practice of licensed professions as well as in the following industries: mass media, small-scale mining, private security agencies, and the manufacture of firecrackers and pyrotechnic devices. Foreign ownership ceilings are also imposed on enterprises engaged in, among others, financing, advertising, domestic air transport, public utilities, pawnshop operations, education, employee recruitment, public works construction and repair (except Build-Operate-Transfer and foreign-funded or assisted projects), and commercial deep sea fishing. Foreign equity remains banned in retail companies capitalized at less than $2.5 million.

Under List B, foreign ownership in enterprises is generally restricted to 40 percent due to national security, defense, public health, and safety reasons. List B also protects domestic small- and medium-sized firms by restricting foreign ownership to no more than 40 percent in non-export firms capitalized at no less than US$200,000. In 1997, foreign ownership was raised from 40 percent to 60 percent. The limit for financing companies was also raised to 60 percent in 1998.

Land ownership is constitutionally restricted to Filipino citizens or to corporations with at least 60 percent Filipino ownership. The Philippine Constitution bans foreigners from owning land in the Philippines. Foreign companies investing in the Philippines may lease land for 50 years, renewable once for another 25 years, or a maximum 75 years.

The legal framework for build-operate-transfer (BOT) projects and similar private sector-led infrastructure arrangements is covered under RA 6957 (as amended by RA 7718). The BOT law limits foreign ownership to 40 percent in BOT projects. Many infrastructure projects like public utilities, franchises in railways/urban rail mass transit systems, electricity distribution, water distribution and telephone systems are generally considered as natural monopolies.

There are certain provisions of the Omnibus Investment Code that impose more stringent conditions on foreign- owned enterprises seeking to qualify for BOI-administered incentives. In general, foreign-owned firms producing for the domestic market must engage in a "pioneer" activity to qualify for incentives. "Non-pioneer" activities are generally opened up to foreign equity beyond 40 percent only if, after three years, domestic capital proves inadequate to meet the desired industry capacity.

For firms seeking BOI incentives linked to export performance, export requirements are higher for foreign-owned companies which ought to produce at least 70 percent of production for export while domestic companies ought to produce only 50 percent of production for export. Foreign-owned companies must also divest to a maximum 40 percent foreign ownership within thirty years or such longer period as the BOI may allow. Foreign firms that export 100 percent of production are exempt from this divestment requirement.

3.0 The Evolution of Competition Related Laws and Policies

The Philippines does not have a comprehensive framework for competition policy and regulation. Current competition law and regulations are fragmented (see Table 8) and implemented by different government institutions. The Philippine Constitution prohibits and regulates monopolies, combinations in restraint of trade and other unfair competition practices. The Revised Penal Code defines and penalizes anticompetitive behaviour that is criminal in nature. The Civil Code of the Philippines allows the collection of damages arising from unfair competition as well as abuse of dominant position by a monopolist. The Act to Prohibit Monopolies and Combinations in Restraint of Trade, meanwhile, allows treble damages for civil liability arising from anticompetitive behaviour. The Corporation Code of the Philippines also covers the rules on mergers, consolidations, and acquisitions. It does not, however, address competition issues such as the possible abuse of dominant position arising from mergers and acquisitions.

There is no central government agency that monitors the implementation of competition laws and policy, with various government agencies being tasked with both the regulation and promotion of competition in different economic sectors. For instance, the National Telecommunications Commission for telecommunications, the Energy Regulatory Board for power, Maritime Industry Authority for the shipping industry, Philippine Ports Authority for ports and arrastre services, and the Civil Aeronautics Board for air commerce, among others (Table 9).

There is general agreement that despite their considerable number and varied nature, these laws have been ineffective in addressing anticompetitive behavior mainly due to lack of enforcement. The laws have been hardly used or implemented as may be seen in the lack of cases litigated in court against anti-competitive behavior. Since the laws are penal in nature, guilt must be proven without reasonable doubt and hence, the amount of evidence required so that the case may prosper is tremendous. The fines are also insufficient to prevent would-be criminals.

Since the early 1980s, there have been various attempts to legislate new competition laws (refer to Table 10). There are two House bills that allow the creation of fair trade commission. The Espina bill is the most comprehensive and the strictest. It provides a more powerful commission than the Gonzales-Roxas bill. In terms of penalties, the Espina bill provides for imprisonment of not less than five to not more than 20 years, including possible closure of the erring firm. The Gonzales Roxas bill only contains provisions for penalties. To date, none of the House bills have been acted upon. The bills are both pending in the House Committee on trade and industry.

Table 8: Existing Antitrust Laws and Regulations

Competition Law	Description	Agency Responsible
1987 Philippine Constitution Article XII, Section 19	prohibits anti-competitive practices, combinations in restraint of trade and other unfair competition practices	
RA 3815: Revised Penal Code Articles 186 and 187	defines and penalizes anticompetitive behavior that is criminal in nature such as monopolies and combinations in restraint of trade	
RA 386 (1949): Civil Code of the Philippines, Article 28	allows the collection of damages arising from unfair competition as well as abuse of dominant position by a monopolist	
RA 165: Act to Prohibit Monopolies and Combinations in Restraint of Trade	allows treble damages for civil liability arising from anticompetitive behavior	
RA 165: Intellectual Property Code of the Philippines	protects patents, trademarks, and copyrights and provides for the corresponding penalties for infringement	Department of Trade and Industry Intellectual Property Office
BP 68 (1980): Corporation Code of the Philippines	rules on mergers, consolidations, and acquisitions. It does not, however, address competition issues such as the possible abuse of dominant position arising from mergers and acquisitions	Securities and Exchange Commission
BP 178 (1982) Revised Securities Act	prohibits and penalizes manipulation of security prices and insider trading	Securities and Exchange Commission
RA 7581 (1991): Price Act	to stabilize prices of basic commodities through price controls and ceiling mechanisms and prescribe measures against abusive price increases during emergencies and critical situations in order to protect consumers	Department of Trade and Industry Bureau of Trade Regulation and Consumer Protection
RA 7394 (1932): Consumer Act of the Philippines	consumer product quality and safety standards and includes deceptive and unfair sales practices like weight and measures as well as product and service warranties	Department of Trade and Industry Bureau of Trade Regulation and Consumer Protection, Bureau of Food and Drugs Bureau of Product Standards
RA 337 (1948): General Banking Act	to regulate banks and banking institutions	Bangko Sentral ng Pilipinas

Source: Abad, A. (2002)

In the Senate, a bill sponsored by Sen. S. Osmena III provides for the creation of a competition commission as an administrative body of the Department of Trade and Industry. The bill also contains provisions for penalties. It, together will two other competition bills, are pending. This inaction indicates that the legislation of competition law and policy is not a priority. It shows the lack of appreciation and political will to pass a comprehensive framework for competition law and policy in the country.

Table 9: Government agencies dealing with competition-related matters

Regulatory Agency	Function
Department of Trade and Industry Board of Investments	pioneer and nonpioneer industries and firms availing of BOI incentives
Securities and Exchange Commission	stock and nonstock corporations, resolves intra-corporate disputes and regulates all forms of securities, brokers and dealers, financing companies and investment houses
Insurance Commission	insurance companies
Housing and Land Use Regulatory Board	land use and real estate development
National Food Authority	rice, corn, wheat and other grains and foodstuff
Sugar Regulatory Administration	sugar industry
Philippine Coconut Authority	coconut industry
National Telecommunications Commission	telecommunications companies
Land Transportation Franchising and Regulatory Board	common carriers for land
Civil Aeronautics Board	companies engaged in air commerce
Maritime Industry Authority	shipping industry
Philippine Ports Authority	port operators and arrastre services
Department of Energy Energy Regulatory Board National Power Corporation	power generation companies and oil companies
Local Water Utilities Administration	water firms outside Metro Manila

Source: Abad, A. (2002)

Table 10: Draft Competition Bills

Proposed bill	Authors	Description	Year filed	Status
HB 1373	Gerardo Espina	creation of fair trade commission which can adjudicate violations & conduct formal investigations, it can issue restraining orders, writs of execution, cease & desist orders	11th Congress	Pending House Committee on Trade & Industry
HB 4455	Neptali Gonzales II & Manuel Roxas II	creation of fair trade commission, no adjudicatory powers to issue writs, cease & desist order or seizure of products	11th Congress	Pending House Committee on Trade & Industry
HB 3780	Feliciano Belmonte Jr., Jack Enrile & Oscar Moreno	monopolization of trade, more detailed provisions on various anti trust activities	11th Congress	Pending House Committee on Trade & Industry
HB 271	Roilo Golez	provides for anti trust penalties	11th Congress	Pending House Committee on Trade & Industry

SB 150	Sergio Osmena III	creation of a fair trade commission & regulation of various anti-competitive practices	11th Congress	Pending Senate Committee on Ways & Means
SB 1792	Juan Ponce Enrile	same as Belmonte House Bill, strengthens penal provisions prohibiting monopolies & combinations in restraint of trade leaves antitrust enforcement to Courts & DOJ, DTI, & DA	11th Congress	Pending Senate Committee on Ways & Means
SB 1600	Panfilo Lacson	does not create an independent commission, provides for anti trust penalties including imprisonment	12th Congress	Pending Senate Committee on Ways & Means

4.0 Trade Liberalization, Competition, and Productivity Links

While it does not have a comprehensive set of competition laws and regulation, the country has introduced substantial economic reforms aimed at promoting competition. As the next section discusses, the government has carried out trade liberalization in manufacturing and agriculture industries since the early 1980s. At the same time, reforms in the financial sector were also implemented. In the 1990s, privatization, liberalization, and economic deregulation were carried out in the transport sector as well as in the utilities sectors such as telecommunications, water, and power which were traditionally considered as natural monopolies or being of strategic interest.

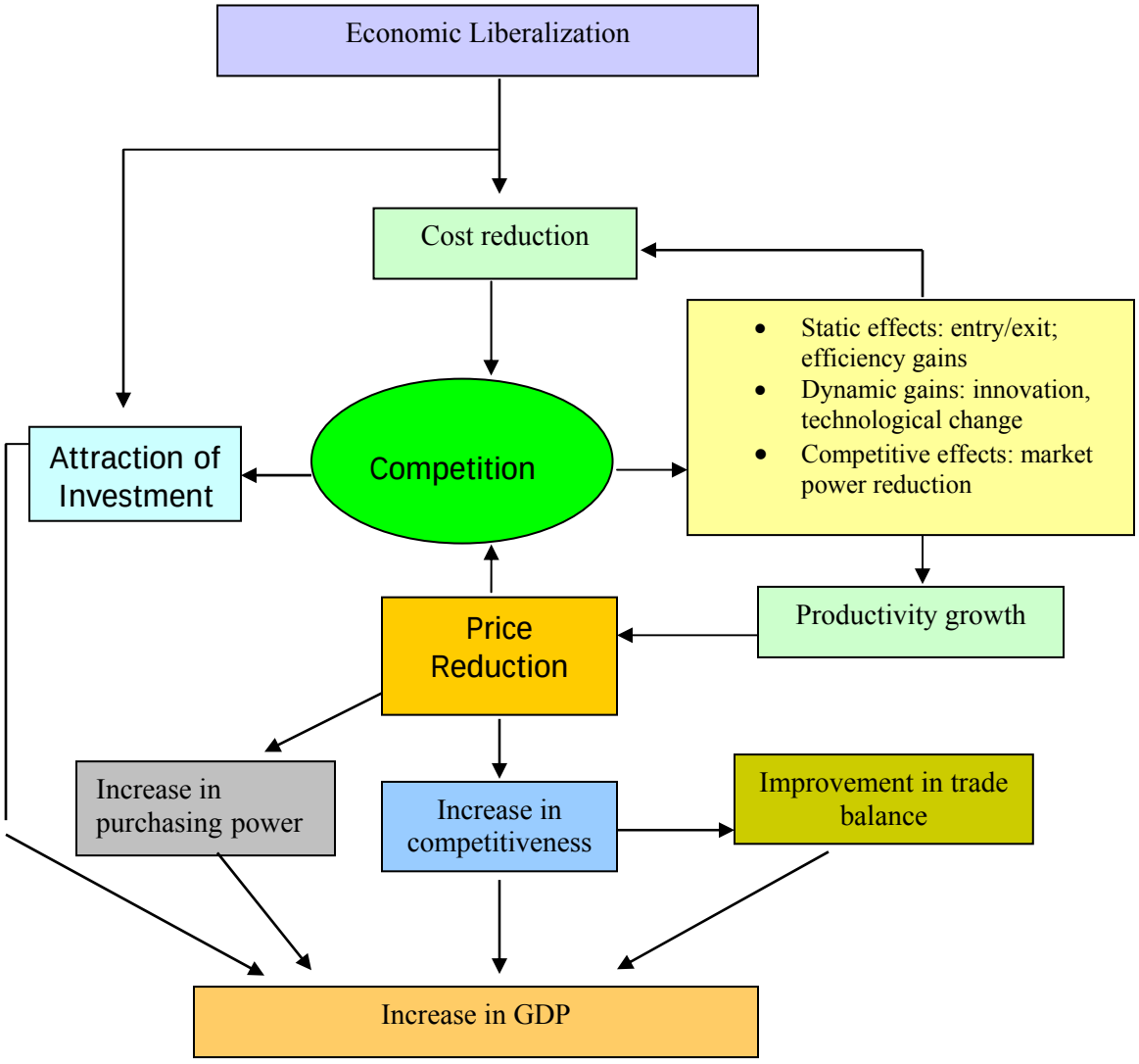
4.1 Impact of Trade Liberalization

There are two major effects that can arise from liberalization: microeconomic and macroeconomic (see Figure 2). The macroeconomic effects involve GDP growth, employment creation, reduced price inflation, and improvements in external balances. The microeconomic effects are the focus of this paper. The removal of trade barriers through liberalization will compel firms to rethink their strategies and to adapt to a new environment characterized by increased competition. By maintaining a competitive process, the emergence of technological innovation and improvements in product quality will also be promoted. With competition and the interplay of these effects, firms are induced to become productive.

In the theoretical literature, there are three main channels through which trade liberalization affects a country's economic performance. First, there are static gains arising from trade liberalization as resource allocation improves within and across industries. With increased competition from imported goods, domestic producers of import-competing goods will be forced to become more efficient. Firms will lower their price cost margins and move down their average cost curves. The pressure of competition will bring down costs and prices. As barriers to trade are removed, the costs to exporters and importers are reduced,

purchasers of consumption and investment goods gain from lower prices. Consumers are the first beneficiaries of this process, as prices are lowered and as trade expansion leads to improvement in quality, quantity, and choice of products available.

Figure 2: Main Channels of the Liberalization, Competition, and Productivity Link



In the presence of within-industry heterogeneity, trade liberalization allows more productive firms to expand while less efficient firms either exit or shrink. With the exit of inefficient firms, resources (labor and capital) will be freed and will move to other industries where they can be used more productively. Trade liberalization and other market-oriented

reforms will drive the process of restructuring and reshuffling of resources within and across sectors of the economy such that unprofitable activities contract while profitable ones expand. This is the expected improvement of allocative efficiency that leads to welfare gains for the whole economy.

Second, there are dynamic gains through technical change, learning, and growth that leads to improved productivity growth. Dynamic efficiency implies that the economy achieves a permanently higher growth rate. The presence of competition, larger markets and increasing returns to scale drive firms to permanently strive for lower costs, higher quality, more specialization, and innovation through R&D activities.

Third, there are competitive effects arising from domestic competition. The new trade theory has shown that in the presence of imperfectly competitive markets, trade reforms can result in additional gains by reducing the deadweight losses created by domestic firms' market power.

These microeconomic effects will not be achieved in a short period of time and will require several years to materialize. During the adjustment period, one of the feared costs is the reduction in employment. Thus, accompanying measures are necessary in reducing these adjustment costs, especially among workers. To realize the expected effects, it is also important that firms change their behavior and adjust to the new market environment. The success of reforms depends to a great extent on the capacity of firms to exploit the new competitive conditions in the market and to take advantage of the opportunities offered to them. Firms, however, will not venture into the unknown and uncertain. They will only take advantage of the new market opportunities if the government program for implementing policy reforms is a credible one. Policy reversals, delays in timetable, and inconsistent decision-making may thus undermine the success of liberalization.

The strength of competition is a function not only of the behavior of firms but also of the external environment within which firms compete. This includes the state of transport and communication, framework of laws and regulations, effectiveness of the financial system in matching investment resources with entrepreneurial opportunities, as well as information available to consumers. Carlin and Seabright (2000) call this external environment "competitive infrastructure" referring to both physical and institutional infrastructure. When this "competitive infrastructure" is inadequate, competition becomes weak.

4.2 Price Cost Margin as a Measure of Competition

One common approach used in assessing the impact of increased competition on mark-ups is to measure price cost margins or PCMs. The PCM or Lerner index is defined as:

$$PCM = [P - MC]/P$$

where P is price and MC is marginal cost.

The PCM is a standard variable based on accounting data and is constructed to analyze inter-industry differences in profitability or mark-up. It is a static measure of actual conduct. Its empirical measurement is difficult since marginal costs are not directly observable and quite hard to estimate. Indirect measures have been developed based on accounting data with average variable costs acting as proxy for marginal costs.

The structure conduct performance paradigm (SCPP) in industrial organization measures PCMs using the above method. SCCP assumes that price cost margins are directly observable from accounting data. Focusing on cross-section analysis of many industries, early studies on PCMs and industry structure used price cost margin as a measure of profitability and related it to variables such as concentration, geographic dispersion of industries, industry size, growth rate, and industry capital-output ratios. These studies confirmed that profits tend to be higher in industries in which structural conditions departed substantially from the competitive model, although the statistical associations were usually weak (Collins and Preston, 1969).

The hypothesis that PCMs are directly observable formed a major dissatisfaction with the SCCP (Bresnahan, 1989). Beston (1985) indicated that accounting data yielded noisy measures of economic variables. Moreover, PCMs are easily criticized because they omit capital costs (Schamalensee, 1989). Orstein (1975) pointed out that it does not take into account other expenditures like advertising, research and development, taxes, depreciation, distribution expenses and components of overhead costs. A further problem is that PCM does not identify the relative component of fixed and variable costs for each expenditure.

The other criticism focused on the SCCP hypotheses that cross-section variation in industry structure could be captured by a small number of observable measures and empirical work should be aimed at estimating the reduced-form relationship between structure and performance (Bresnahan, 1989). Schamalensee (1989) noted that cross section studies rarely yield consistent estimates of structural parameters, although they can produce useful stylized facts to guide theory construction and analysis of particular industries.

The new empirical industrial organization (NEIO) has moved towards the use of an econometric model of an industry in measuring market power and degree of competition. Under the NEIO, PCMs are not taken to be directly observable in accounting data. PCMs are estimated, one approach being to econometrically estimate marginal cost from cost data or factor demand data based on the economic theory of cost as dual to production (Bresnahan, 1989). Another approach is to make an inference based on the supply behavior of firms. The main problem arises from the fact that while prices can be measured, marginal costs are not directly observable (Martins, Scarpetta and Pilat, 1999). Therefore, indirect measures have to be developed. Robert Hall developed an alternative method in the late 1980s by estimating industry mark up from the production function of firms. Assuming imperfect competition, Hall showed that by estimating the parameters of the production function, the coefficient associated with the weighted growth rate of labor can be interpreted as the implied

equilibrium mark up. The Hall framework has been extensively used in the empirical literature (see Shapiro, 1987; Domowitz et al, 1988; Caballero and Lyons 1990).

In principle, the PCM approach provides a very simple way to measure the degree of competition. However, in practice, it is very difficult to measure marginal cost well and as such, the use of PCMs as a measure of competition has been somewhat limited. Nevertheless, recent empirical work indicates that accounting margins may still provide some useful information (see Martin, 2002). In a more recent study comparing PCMs or accounting margins based on the simple method described above (with slight modification to incorporate inventory changes) and those that were econometrically estimated using data from Spain, Siotis (2003) found that the accounting margins provide a reasonable proxy for margins obtained econometrically. Siotis concluded that the main difference between estimated mark-ups and accounting margins is one of magnitude with the latter taking lower values. He also indicated that accounting margins performed well in ranking the different sectors in terms of firms' pricing above marginal cost. Using Philippine manufacturing data, a comparison of estimated margins obtained using the Roeger method (based on Hall) and PCMs calculated based on accounting data, was performed and as will be shown later in this paper, the same conclusions were arrived at.

In this paper, the main data sources in the calculation of price cost margins are the Annual Survey of Establishments and Census of Establishments of the National Statistics Office. Average variable costs are used as proxy for marginal costs. Measured in this manner, the price cost margin or Lerner index becomes:

PCM = [value of output sold – raw materials costs- total compensation]/ value of output sold.

We know that $\Pi = R - wN - rK$

where Π is economic profit, R is total revenue, w is wage rate, N is labor employed, r is rate of return to capital, and K is capital.

Then, PCM can be rewritten as

PCM = [economic profits + user cost of capital]/value of output sold.

To account for certain variable costs, the price cost margin is redefined as follows:

Adjusted L = {[value of output sold + inventory change] – [raw materials costs+ fuels+ electricity + total compensation]- [rentals + depreciation + interest payments]}/ {value of output sold + inventory change}

In a situation of perfect competition where firms have no market power, economic profits are zero and the firms will be earning a normal or competitive return on investment. Thus, under perfect competition, price equals marginal cost and the price cost margin is zero. In the presence of market power, the firms will be able to set prices above those prevailing

under competitive conditions, leading to excessive economic profits or "rents". When prices exceed marginal cost, the price cost margin becomes positive and varies between zero and one. The higher the number, the greater the firm's market power.

Firms may gain market power by limiting competition, i.e., by erecting barriers to trade, and engaging in other anticompetitive business practices. This is bad because the firm's ability to exercise market power can harm consumers and other producers through higher prices (rather than competitive prices), reduced output, and poorer product quality. In this case, market power results in inefficient allocation of resources and negatively affects industry performance and economic welfare.

The presence of entry barriers impedes competition and allows firms to acquire and exercise market power. Regulatory barriers include government regulatory measures such as investment licensing and trade and industrial policies like tariff and nontariff measures as well as antidumping and countervailing duties along with safeguard measures.

Behavioral barriers represent abuse of dominant position where "relatively large" firms engage in anti-competitive conduct by entering into collusive arrangements to restrict prices and output, preventing entry or forcing exit of competitors through various kinds of monopolistic conduct. These monopolistic behavior include predatory pricing, market foreclosure, product differentiation, and advertising (Dixit, 1982). Behavioral restraints are often classified into two: horizontal and vertical restraints. Horizontal restraints refer to agreements that are often referred to as "naked" restraints of trade, cartel behavior, or collusion. Examples are price-fixing, bid rigging, and allocation of territories or customers, and output restriction agreements. Vertical restraints are contractual agreements between supplier and purchasers/retailers in both upstream and downstream markets.

Economies of scale (increasing returns to scale) is an example of a structural barrier. When there are increasing returns to scale, there is a minimum size that firms have to attain if they are to have average cost as low as possible. If the minimum efficient scale is so large that only one firm of that size can serve the entire market, there will be a monopoly. This situation often occurs in public utilities such as distribution of water and electricity.

It is important to note that the economic profit or "rent" or a positive price cost margin can also serve as a reward for entrepreneurship and encourage innovation to take place. Innovation can take the form of new products or processes that lead to the creation of new markets. In these cases, high price margins are rewards for successful innovation and efficient mechanisms adopted by firms. This should not last forever since competition will erode it.

Tybout (2001) surveyed the literature in the past two decades on the impact of trade policy on mark-ups, firm sizes exports, productivity, and profitability among domestic firms. Based on the imperfect competition assumption under the new trade theory, Tybout's main robust findings were:

1. In general, mark-ups fall with import competition, but it is not clear whether this phenomenon reflect the elimination of market power or the creation of negative economic profits.
2. Import competing firms cut back their production levels when foreign competition intensifies at least in the short run.
3. Trade rationalizes production in the sense that markets for the most efficient plants are expanded, but large import-competing firms tend to simultaneously contract.
4. Exposure to foreign competition often improves intra-plant efficiency.
5. Firms that engage in international activities tend to be larger, more productive, and supply higher quality products. But the literature is mixed on whether international activities cause these characteristics or vice-versa.
6. The short-run and long-run effects of trade policy on exports and market structure can be quite different depending on factors such as initial conditions, sunk entry costs, and extent of firm heterogeneity.

Erdem and Tybout (2003) found that trade liberalization squeezes price cost margins among import-competing firms, that the increased competitive pressure induces productivity gains among these same firms, and that further efficiency gains come from market share reallocations due to the shutting down of weak plants.

Recent studies for developing countries have demonstrated that trade liberalization can lead to substantial reductions in PCMs at least in those industries that are imperfectly competitive (Feenstra, 1995). Hoekman, Kee, and Olarreaga (2001) found that import competition reduces industry mark-up. Studies that examine the effect of trade liberalization on price cost margin estimated along the lines of the Hall approach include Levinsohn (1993) for Turkey, Harrison (1994) for Cote d'Ivoire, and Krishna and Mitra (1998) for India. Using plant-level data to assess the impact of trade liberalization on competition in developing countries, Levinsohn found that mark ups declined in Turkey as trade was liberalized and increased as protection rose. Similarly, Harrison found that mark-ups were negatively related to import competition in Cote d'Ivoire, and in India, Krishna and Mitra showed that mark ups fell during the trade reform period.

In the Philippines, existing empirical work on trade policy and competition is limited and is based mainly on the structure conduct performance paradigm where PCMs are calculated, not estimated econometrically. These studies treated profits as directly observable and valid measures of market power.

Imbat and Tanlapco (1993) calculated PCM as the ratio of the difference between value added and total compensation to value added. Using manufacturing data on 29 industries for 1988, their results showed that import competition, which was measured by the share of import value in aggregate domestic demand, had a negative effect on PCM. An interaction variable was used to capture the effect of trade reforms on competition. This was

represented by the change in import share from 1983 to 1988 interacted with a dummy variable that was equal to 1 if the three firm concentration ratio exceeded 50 percent and zero elsewhere. The results showed that the interaction variable was negatively correlated with price cost margin which indicated that highly concentrated industries would be most affected by trade reforms.

L. de Dios (1993) also use the same 1988 manufacturing data set in testing the relationship between trade liberalization and market power. De Dios calculated mark up as the ratio of [value of output less wages and costs] to [wages + costs]. Industry average tariff rate and a dummy variable representing import restrictions were used as trade liberalization variables. The results showed that tariff protection was positively correlated with mark-up while the dummy variable was negatively correlated with mark-up, which was unexpected. The three-firm concentration ratio was also found to be significantly positively correlated with mark-up. De Dios noted that the regression results are tentative given the level of product aggregation done and the unweighted average tariff rates used. She also pointed out that the cumulative impact of deregulation may not be too obvious when looking at a single year cross section of industries on which many other factors are at work but which were left out of the model.

E. de Dios (1986) used 1979 establishment data on the manufacturing industry to study the relationship between price cost margin and effective protection rate. Price cost margin was defined as [value added less compensation]/value of gross output. The results showed effective protection rate (EPR) failed to attain an independent significance and it was only when EPR was interacted with concentration ratio in a log-linear specification did it become positively significant. Capital-labor ratio was found to be negatively correlated with PCM while concentration ratio had a positive relationship with PCM.

4.3 Productivity Growth as Measure of Performance

The theoretical literature defines three main channels through which trade liberalization increases productivity growth (Tybout, 2000). First, a reduction in tariff and nontariff barriers increases the competitive pressures on domestic producers in import-competing industries, thereby inducing them to improve their efficiency, introduce technological improvements through new investment or exit the industry. Second, a reduction in protection makes it cheaper to import capital goods and thus facilitate access to foreign technology. Third, trade liberalization changes the relative prices between exportables and import competing goods, making exporting relatively more attractive. Increased exports can lead to higher productivity growth through scale effects and increased awareness of best practice technology and production techniques abroad (Paus et al, 2003).

One of the measures of productivity growth is given by the ratio of output to labor which reflects labor productivity. An analogous concept, the total factor productivity (TFP), is an economic indicator that measures the efficiency with which inputs of capital and labor are used. TFP provides more information about changes in technology than does labor

productivity. Increases in labor productivity can result from increases in the capital-labor ratio without changes in underlying technology. Thus, TFP is the preferred measure, despite problems in measuring it.

The empirical evidence on the relationship between trade liberalization and industrial productivity in developing countries is mixed and no definite conclusion can be drawn (Das, 2002). In India, which has undertaken substantial and far-reaching changes in its industrial and trade policy since 1991, Krishna and Mitra (1998) found evidence of a significant favorable effect of reforms on industrial productivity. Balakrishnan et al, on the other hand, found economic reforms to have an adverse effect on industrial productivity. One serious limitation of both studies was the absence of an explicit trade variable in their models as dummy variables were used. Using effective protection rates (EPRs) and import coverage ratios (percentage of imports covered by nontariff barriers) as trade liberalization variables, Goldar and Kumari (2003) found the coefficient of EPR to be consistently negative and statistically significant. However, the coefficient of the nontariff variable was found to be positive (contrary to expected relationship) but insignificant.

In Chile, Pavcnik (2002) used a panel of Chilean manufacturing establishments covering the period 1979-1986. Chile implemented a large trade liberalization program as it eliminated most of its NTBs and reduced tariff rates from over 100 percent in 1974 to a uniform rate of 10 percent ad valorem across industries in 1979. While trade protection increased in 1983, the overall variation in protection appeared very small. Pavcnik found a positive relationship between trade liberalization and productivity and concluded that trade liberalization enhances plant productivity.

In Korea, Kim (2000) used a panel data of 36 Korean manufacturing industries covering the period 1966-1988 and employed legal tariff rates, quota ratios (ratio of restricted imports to total imports), and nominal protection rates as trade liberalization variables. He found that under assumptions of non-constant returns and imperfect competition, trade liberalization has a positive impact on productivity performance, although the productivity increase was not significant because the extent of trade liberalization was not substantial enough. While quota ratios dropped from 100 percent to 30 percent between 1966 and 1985, nominal protection increased from 36 percent to 39 percent. Under assumptions of constant returns and perfect competition, none of the variables were significantly related to productivity.

5.0 Impact of Trade Reforms in the Manufacturing Sector

5.1 An Overview of Trade Reforms

The Philippines substantially liberalized its trade policy by reducing statutory tariff rates and removing import quantitative restrictions particularly in the late 1980s. The first tariff reform program (TRP 1) initiated in 1981 substantially reduced the average nominal

tariff and the high rate of effective protection that characterized the Philippine industrial structure. It also reduced the number of regulated products with the removal of import restrictions on 1,332 lines between 1986 and 1989.

The second phase of the tariff reform program (TRP II) was launched in 1991. TRP II introduced a new tariff code that further narrowed down the tariff range with the majority of tariff lines falling within the three to 30 percent tariff range. It also allowed the tariffication of quantitative restrictions for 153 agricultural products and tariff realignment for 48 commodities.

With the country's ratification of the World Trade Organization (WTO) in 1994, the government committed to remove import restrictions on sensitive agricultural products except rice and to replace these with high tariffs. In 1995, the government initiated another round of tariff reform (TRP III) as a first major step in its plan to adopt a uniform five percent tariff by 2005. This further narrowed down the tariff range for industrial products to within three and ten percent range. In 1996, the government legislated the tariffication of quantitative restrictions imposed on agricultural products and the creation of tariff quotas imposing a relatively lower duty up to a minimum access level (or in-quota rate) and a higher duty beyond this minimum level (or out-quota rate).

Except during the Ramos administration, the various liberalization episodes that the economy has gone through under different presidents have been characterized by reversals. The inability of the government to sustain trade reforms can be attributed not only to the crises that have incessantly plagued the country but also to intense lobbying by special interest groups to increase their tariffs and delay or exempt them from tariff restructuring. For instance, the Marcos administration suspended TRP I because of the 1983 economic and political crises that triggered the imposition of severe import restrictions and the re-regulation of previously liberalized commodities.

In 1998, the Aquino administration signed Executive Order (EO) 413 in July 1990 to simplify the tariff structure over a period of one year. The EO, however, was not implemented because of the vehement protests from domestic manufacturers of import substitutes. Various industry associations convened to oppose its issuance and, in the process, formed the Federation of Philippine Industries, a strong private sector group advocating protection of domestic industries. The business sector also successfully persuaded then President Aquino to delay the tariff reform package for one year. In July 1991, EO 470 was legislated; it contained the same tariff cuts under EO 413, except that the reductions were spread over a period of six years instead of one year.

Box 1: Major Episodes of Trade Policy Reform in the Philippines

Timeline	Event	Description
1980	**Marcos Administration** Tariff Reform Program I EO 609 and EO 632-A (January 1981)	TRP 1 reduced the level and dispersion of tariff rates from a range of zero to 100 percent in 1980 to a range of 10 percent to 50 percent and removed quantitative restrictions beginning in 1981 and ending in 1985
1983	Assassination of B. Aquino Balance of payments crisis Suspension of the TRP I	
1986	EDSA I **Aquino Administration** Revival of import liberalization	
1990	EO 413 (July 1990)	EO 413 aimed to simplify the tariff structure by reducing the number of rates to four, ranging from 3 percent to 30 percent over a period of one year, but was not implemented.
1991	EO 470 (July 1991) Tariff Reform Program II	TRP II reduced the tariff range to within a three percent to 30 percent tariff range by 1995
1992	**Ramos Administration** EO 8 Tariff Reform Program II	EO 8 tariffied quantitative restrictions for 153 agricultural products and tariff realignment for 48 commodities
1994	Ratification of the GATT-WTO	
1995	EO 264 (August 1995) Tariff Reform Program III EO 288 (December 1995)	EO 264 further reduced the tariff range to three percent and ten percent levels, reduced the ceiling rate on manufacture goods to 30 percent while the floor remained at three percent, and created a four-tier tariff schedule: three percent for raw materials, 10 percent for locally available raw materials and capital equipment, 20 percent for intermediate goods, and 30 percent for finished goods EO 288modified the nomenclature and import duties on non-sensitive agricultural products
1996	EO 313 (March 1996) RA 8178	EO 313 modified the nomenclature and increased the tariff rates on sensitive agricultural products RA 8178 lifted the quantitative restrictions on three products and defined minimum access volume for these products
1998	EO 465 (January 1998) **Estrada Administration** EO 486 (June 1998) EO 63 (January 1999) EO 334 (January 2001) Tariff Reform Program IV	EO 465 corrected remaining distortions in the tariff structure and smoothened the schedule of tariff reduction in 23 industries identified as export winners EO 486 modified the rates on items not covered by EO 465 EO 63 adjusted the tariff rates on six industries Freezing of tariff rates at 2000 level until 2001 EO 334 adjusted the tariff structure towards a uniform tariff rate of 5 percent by the year 2004
2001	EDSA II **Macapagal-Arroyo** EO 11 (April 2001) EO 84 (March 2002) EO 91 (April 2002)	 EO 11 corrected the EO 334 tariff rates imposed on certain products EO 84 extended existing tariff rates from January 2002 to 2004 on various agricultural products EO 91 modified the tariff rates on imported raw materials, intermediate inputs, and machinery and parts
2003	EO 164 (January 2003) EO 241 (October 2003)	EO 164 maintained the 2002 tariff rates for 2003 covering a substantial number of products EO 241 and EO 264 adjusted tariff rates on finished products and raw materials and intermediate goods, respectively.

Amid a weak Estrada administration, the National Economic Development Authority (NEDA) struggled to continue the trade reforms initiated by the Ramos government. EO 486, a comprehensive tariff reform package, was signed. However, this was strongly opposed by the local manufacturers of import-substitutes. After six months, EO 63 was issued to increase the tariff rates on textiles, garments, petrochemicals, pulp and paper, and pocket lighters. In 2000, tariffs were frozen until the following year.

The same pattern emerged under the Arroyo administration. TRP IV, which was legislated prior to the impeachment of Estrada, never really took off the ground as intense pressure by lobby groups either resulted in tariff increases or postponement of scheduled tariff reductions. In March 2002, EO 84 was passed to extend existing tariff rates from January 2002 to 2004 on various agricultural products. In January 2003, EO 164 was signed to maintain the 2002 tariff rates for 2003 covering a substantial number of products. By December 2003, two legislations, EOs 241 and 264, were passed to adjust the tariff schedule resulting in tariff increases on a group of selected agricultural and manufactured products.

5.2 Structure of Effective Protection

The substantial trade liberalization implemented in the last two decades has considerably reduced the high rates of nominal and effective protection in the economy. Table 11 shows that the average tariff rate fell from 33.33 percent in 1990 to 6.82 percent in 2004 while the average effective protection rate[3] dropped from 39.4 percent to 6.33 percent, respectively.

Note that a lower level of tariff protection does not always imply that the tariff schedule is less distorting. The economic and trade distortions associated with a country's tariff structure depend not only on the size of tariffs but also on the dispersion of these tariffs across all products. Table 11 shows two measures of dispersion: the percentage of tariff peaks and the coefficient of variation. Tariff peaks are estimated by the proportion of

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[3] Effective protection rates (EPR) or rates of protection of value added are more meaningful than actual tariff rates since it is value added rather than the value of the product that is contributed by the domestic activity being protected. EPRs measure the net protection received by domestic producers from the protection of their outputs and the penalty from the protection of their inputs. The EPR formula is given by

$EPR = (V-V^*)/ V^*$

where V is the domestic value added per unit of the final good (including the tariffs on that good and on its inputs) and V^* is the value added under free trade. Value added per unit , in turn, is defined as the gross value of output minus the cost of inputs used in production. Domestic value added is

$V = (1+ t_j) - \sum a_{ij} * (1+t_i)$

free trade value added is the same, except that in this case tariffs do not exist (the value of t is zero)

$V^* = 1- \sum a_{ij}$

where

a_{ij}: technical coefficient derived from the 1994 input-output table indicating the amount of input from sector i needed to produce a unit of output j

tj : tariff on output from sector j

ti : tariff on input from sector i.

products with tariffs exceeding three times the mean tariff while the coefficient of variation is the ratio of the standard deviation to the mean. In general, the more dispersion in a country's tariff schedule, the greater the distortions caused by tariffs on production and consumption patterns. Firms will tend to increase the production of those commodities protected by high tariffs. The reallocation of resources away from potentially competitive products towards highly protected less competitive products tends to lower the overall efficiency of the economy. Consumers will pay high prices for both imports and domestic import-competing products, thus reducing consumer welfare and benefiting domestic producers.

Table 11: Nominal and Effective Protection in the Philippine Economy

	1990	1998	2000	2004
Average tariff (in percent, all sectors)	33.33	11.32	8.47	6.82
Dispersion of tariffs (coefficient of variation)	0.44	0.96	0.99	1.07
Effective protection rate (in percent, all sectors)	29.39	8.59	7.06	6.33
Dispersion (coefficient of variation)	0.75	2.19	2.04	2.91
Percent of tariff peaks	-	2.24	2.48	2.71
Number of product lines (8-digit level 2002 HS)	6,193	7,366		7,382

Source: Author's own calculations except 1990 Manasan & Pineda (1999). Number of product lines refers to 6-digit HS.

Despite generally low average nominal protection rate, tariff variance remains high and even increased from 44 percent in 1990 to 107 percent in 2004, thereby implying a wide dispersion of tariff lines. The number of tariff peak products went up from 165 product lines (or 2.24 percent of total number of HS lines) in 1998 to 200 lines (2.7 percent of total HS lines) in 2004. The tariffs for peak products range from 25 percent to 65 percent in 2004. These tariff peaks are concentrated in agricultural staple food products such as palay, corn, sugarcane, onions, garlic, cabbage, roots and tubers, hog, cattle and other livestock, chicken, other poultry and poultry products that serve as inputs to the manufacturing industry. Tariff peaks are also present in related manufactured food products such as milled and refined sugar, milled rice and corn, processed and roast coffee, processed meat, canned and preserved fruits and vegetables, starch and starch products, bakery products excluding noodles, and miscellaneous food products. They can also be found in non-food manufactures like animal feeds, drugs and medicines, chemical products, and motor vehicles.

The structure of protection has remained biased for manufacturing and agriculture importables as these continue to receive higher levels of protection than exportables. On the average, manufacturing exportables have negative EPRs from 1998 to 2004 (see Table 12). This clearly indicates that manufacturing exportables are penalized by the system of protection. Given the strong anti-export bias of the structure of protection, only the best firms are able to export. There is clearly no incentive for firms to venture into the export market as it still remains profitable to manufacture import-substitutes for the domestic market. Food manufacturing has an average EPR for importables at 15 versus 0.4 percent for exportables. Tobacco has an average EPR of 6 percent for importables and -0.12 percent for its exportables while transport equipment has an average EPR of 5 percent for importables and -1.2 percent for exportables. The country's major exports have negative protection of -

0.26 percent for machinery and electrical equipment and -1.34 percent for garments. Except for food processing and furniture and fixtures, the manufacturing sub-sectors have zero or negative EPRs for their exportable sectors.

Table 12: Weighted Average Effective Protection Rates (in percent), 1998-2005

Sector	1998	1999	2000	2001	2002	2003	2004
All Industries	8.59	7.80	7.06	7.09	6.14	5.89	6.33
Exportable	2.35	1.75	1.59	1.71	1.16	1.1	1.38
Importable	14.76	13.42	12.28	12.16	10.89	10.48	10.98
Agriculture	19.38	17.50	15.87	16.62	14.38	13.74	15.09
Exportable	6.96	6.45	5.22	5.67	4.26	4.04	4.93
Importable	12.42	11.05	10.65	10.95	10.12	9.70	10.16
Fishing & forestry	8.52	8.05	5.97	5.78	4.67	4.63	5.15
Exportable	5.28	4.94	3.70	3.51	2.61	2.62	3.04
Importable	3.24	3.10	2.27	2.27	2.05	2.00	2.11
Mining & quarrying	1.99	2.05	2.09	2.11	1.91	1.86	1.80
Exportable	1.15	1.22	1.34	1.38	1.30	1.27	1.24
Importable	0.84	0.83	0.75	0.73	0.60	0.59	0.56
Manufacturing	7.01	6.36	5.86	5.79	5.04	4.82	5.13
Exportable	-0.38	-0.92	-0.48	-0.45	-0.52	-0.52	-0.53
Importable	14.17	12.93	11.75	11.51	10.2	9.83	10.3
Food processing	19.61	18.32	17.47	17.42	15.57	14.49	15.36
Exportable	0.89	0.91	0.67	0.63	0.29	0.29	0.35
Importable	18.72	17.40	16.80	16.79	15.28	14.20	15.01
Beverages	9.27	7.54	3.88	3.89	1.88	1.75	3.20
Exportable	-0.38	-0.34	-0.29	-0.29	-0.25	-0.26	-0.26
Importable	9.65	7.88	4.18	4.18	2.13	2.01	3.46
Tobacco	10.83	7.88	5.01	5.04	3.56	3.50	6.06
Exportable	-0.31	-0.24	-0.18	-0.17	-0.12	-0.12	-0.12
Importable	11.14	8.12	5.18	5.21	3.68	3.62	6.18
Textile	5.97	5.58	4.51	4.51	3.28	3.6	3.82
Exportable	-0.48	-0.86	-0.3	-0.25	-0.24	-0.09	-0.26
Importable	6.37	6.24	4.76	4.69	3.49	3.7	4.02
Garments	-2.11	-2.76	-1.42	-1.31	-0.99	-1.01	-1.34
Exportable	-2.95	-3.39	-2.11	-2.01	-1.51	-1.52	-1.84
Importable	0.84	0.63	0.69	0.69	0.52	0.52	0.5
Leather & leather products	-0.42	-0.70	-0.36	-0.37	-0.49	-0.28	-0.27
Exportable	-2.65	-2.46	-1.78	-1.72	-1.38	-1.58	-1.59
Importable	2.24	1.76	1.42	1.35	0.89	1.30	1.33
Wood & wood products	1.62	1.48	0.85	0.77	0.37	0.49	0.50
Exportable	-0.68	-0.59	-0.60	-0.64	-0.59	-0.58	-0.59
Importable	2.30	2.07	1.45	1.41	0.96	1.07	1.09
Furniture & fixtures	18.53	14.71	14.55	14.37	10.55	10.76	10.80
Exportable	18.41	14.61	14.45	14.28	10.48	10.70	10.73
Importable	0.13	0.09	0.09	0.08	0.06	0.07	0.06
Paper & paper products	3.10	2.36	1.78	1.77	1.18	1.31	1.01
Exportable	-1.94	-1.73	-1.37	-1.33	-0.90	-0.96	-0.85
Importable	5.04	4.09	3.15	3.10	2.09	2.26	1.86
Chemicals & chemical products	2.69	2.49	1.96	1.88	1.55	1.82	1.86
Exportable	-0.52	-0.50	-0.44	-0.43	-0.33	-0.34	-0.34
Importable	3.21	3.00	2.40	2.31	1.89	2.16	2.20
Rubber & plastic products	1.48	0.79	0.73	0.74	0.40	0.60	0.45

Exportable	-1.95	-1.94	-1.51	-1.46	-1.29	-1.31	-1.43
Importable	3.43	2.73	2.23	2.20	1.68	1.91	1.88
Petroleum & nonmetallic mineral products	2.64	2.65	1.99	1.65	1.37	1.58	1.60
Exportable	0.13	0.14	0.03	-0.02	-0.06	0.00	0.01
Importable	2.51	2.51	1.95	1.67	1.44	1.58	1.59
Basic metal & metal products	0.35	0.21	0.15	0.11	0.00	0.10	0.09
Exportable	-1.95	-1.78	-1.55	-1.42	-1.08	-1.13	-1.13
Importable	2.30	1.99	1.70	1.52	1.08	1.24	1.23
Machinery & electrical equipment	-0.79	-0.76	-0.20	-0.23	-0.21	-0.25	-0.26
Exportable	-1.85	-1.74	-0.96	-0.88	-0.69	-0.74	-0.70
Importable	1.06	0.98	0.77	0.66	0.48	0.49	0.44
Transport equipment	4.59	4.69	3.61	3.54	3.92	3.83	3.89
Exportable	-1.94	-1.82	-1.45	-1.39	-1.21	-1.23	-1.20
Importable	6.53	6.51	5.06	4.94	5.13	5.07	5.08
Miscellaneous products	-0.82	-1.02	-0.62	-0.59	-0.45	-0.39	-0.48
Exportable	-2.15	-2.13	-1.53	-1.48	-1.11	-1.18	-1.26
Importable	1.32	1.11	0.91	0.89	0.67	0.79	0.78

Source: Author's own calculations.

The system of protection has also remained biased for agriculture as the sector enjoys the highest level of protection since 1996. The agriculture sector, which used to be penalized by the system of protection, witnessed increases in its EPR between 1974 and 1996 (see Table 13). Its effective protection rate went up from 9 percent in 1974 to 29 percent in 1996. This declined to 19 percent in 1998 and is currently about 15 percent. Note that the high tariff schedule in agriculture resulted from the tariffication under the WTO. In 1996, the government legislated the tariffication of quantitative restrictions imposed on agricultural products and the creation of tariff quotas imposing a relatively lower duty up to a minimum access level (or in-quota rate) and a higher duty beyond this minimum level (or out-quota rate). Unlike the rest of the sectors where ad valorem tariffs are used, tariff quotas are used in agriculture primarily because of the increased protection that they can provide against large reductions in import prices.

Table 13 provides a list of the most highly protected sectors in the economy. In agriculture, the sub-sectors with the highest EPRs are coffee and hogs with EPRs of 38 percent and 35 percent in 2004, respectively. Corn comes next with an EPR of 26 percent. In manufacturing, there are two outlier sectors: coffee roasting and processing with a negative free trade value added and manufacture of pesticides and insecticides whose EPR is over 200 percent in 2004. Under transport, the manufacture and assembly of motor vehicles also has a relatively high protection with its EPR of 76 percent. Meat processing and rice and corn milling have EPRs slightly above 40 percent. Carpets and rugs, wire nails, rebuilding and major alteration of motor vehicles, and bicycles and motorcycles have EPRs ranging from 30 to 35 percent. Fish canning, bakery products excluding noodles, sugar milling and refining, ready-made clothing, made-up textile goods excluding wearing apparels, hardboard and particle board, and structural concrete have EPRs below 30 percent but greater than 23 percent.

Table 13 : High Effective Protection Rates in Agriculture and Manufacturing Sectors

Sector	1974	1990	1996	1998	2002	2004	Classification
Agriculture, weighted average	9	26	29	19	14	15	
Palay	-	53	53	53	-	-	Palay production
Coffee	50	32	65	48	43	38	Other agricultural crops
Corn	-	20	44	36	31	26	Corn production
Hog	-	-	-	40	36	35	Livestock
Manufacturing, weighted average	44	31	28	7	5	5	
Coffee roasting & processing	36	90	210	*	*	*	Food manufacturing
Manufacture of pesticides, insecticides	17	23	5	109	110	238	Industrial Chemicals
Mfr and assembly of motor vehicles	127	30	20	97	78	76	Transport equipment
Meat and meat products	68	61	91	60	52	41	Food processing
Rice & corn milling	-49& -46	38	60	51	43	42	Food processing
Manufacture of wire nails	-	52	56	74	28	32	Fabricated metal products
Manufacture of carpets & rugs	43	60	32	52	32	33	Textiles
Rebuilding & major alteration of motor vehicles	-	33	21	43	34	33	Transport equipment
Mfr, assembly of motorcycles & Bicycles	52	40	30	45	32	35	Transport equipment
Manufacture of hardboard & particle board	181	31	46	38	29	29	Wood & cork products
Manufacture of ready made clothing	-26	23	15	45	28	27	Garments
Manufacture of structural concrete products	110	110	81	59	16	26	Other non metallic mineral products
Manufacture of made up textile goods ex apparel	1	32	16	40	26	29	Textile
Sugar milling and refining	-12	53	106	36	31	30	Food manufacturing
Radio and TV receiving sets, sound recording & producing eq. incl records and tapes	204	51	33	37	22	19	Electrical machinery, apparatus, appliances & supplies
Mfr of bakery prods exc noodles	3,371	57	34	35	23	28	Food manufacturing
Mfr & repair of furniture & fixtures, made primarily of metal	0	62	38	37	23	24	Metal furniture
Hosiery, underwear, & outer knitting	-4	-3	-0.4	36	22	21	Textiles
Manufacture of other wearing apparel ex footwear	-	10	6	35	22	22	Garments
Manufacture of veneer & plywood	5	35	22	35	19	19	Wood & wood products

leather & leather substitutes ex footwear & apparel	145	40	24	37	14	23	Leather &leather products
Manufacture of articles made up of native materials	-	-7	-3	31	20	22	Textiles
Metal stamping, coating, engraving mills	38	35	26	36	16	20	Fabricated metal products
Manufacture of rubber footwear	454	23	13	37	14	19	Rubber products
Other fabricated wire & cable prods exc insulated wire & cable	14	35	38	33	16	16	Fabricated metal products
Manufacture & repair of other furniture	0	71	43	33	17	17	Furniture &fixtures
Manufacture of flat glass	45	63	39	30	14	20	Glass & glass products
Manufacture of leather footwear & footwear parts	-27	19	11	33	13	19	Leather footwear

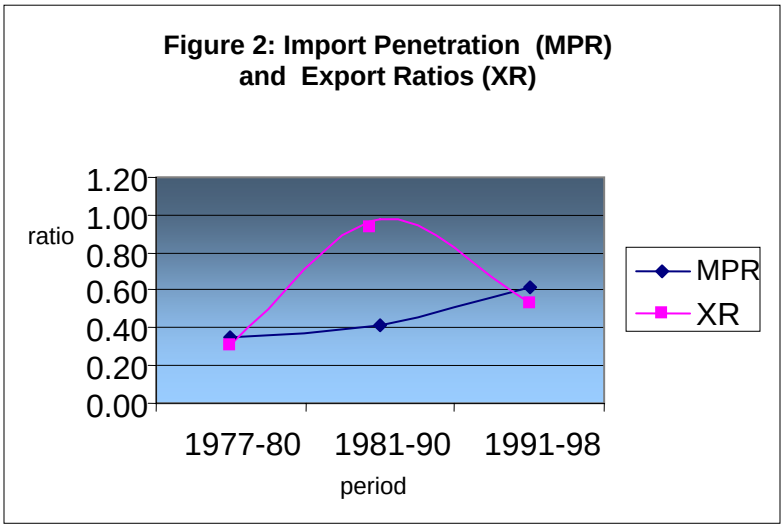
* negative free trade value added

EPR Sources: author's own calculations (1998-2004), Manasan & Pineda (1990 & 1996), and Bautista, Power & Associates (1974).

5.3 Import Penetration and Export Ratios[4]

Table 14 presents two trade measures: the import penetration ratio and export ratio. On the average, both import penetration and exports ratios increased between the late 1970s and the late 1990s indicating that the exposure of the country's industries to international trade has increased. While the import penetration ratio increased steadily across the three periods, the export ratio dropped substantially from 97 percent in the 1980s to 54 percent during the 1990s. In the 1980s, the export ratio exceeded the country's import penetration ratio (see Figure 2) indicating the presence of highly competitive industries in the country.

Figure 2: Import Penetration (MPR) and Export Ratios (XR)



[4] Import Penetration Ratio = [Imports/(Output – Exports + Imports)] and Export Ratio = [Exports/Output]

Table 14: Import Penetration and Export Ratios

PSIC	Description	Import Penetration Ratio			Export Ratio		
		1977-79	1980-89	1990-98	1977-79	1980-89	1990-98
311	Food Processing	0.17	0.14	0.18	0.50	0.32	0.20
313	Beverage Manufacturing	0.08	0.06	0.05	0.01	0.01	0.01
314	Tobacco Manufacturing	0.00	0.05	0.11	0.02	0.03	0.04
321	Mfr of Textiles	0.15	0.28	0.60	0.10	0.20	0.44
322	Mfr of Wearing Apparel, Except Footwear	0.03	0.02	3.11	0.76	0.55	0.82
323	Leather & Productsof Lthr, Subs & Fur	0.21	2.37	-0.92	1.08	17.52	1.51
331	Mfr of Wood & Wood/Cork Prods, Exc Furn	0.05	-0.02	0.40	0.89	0.82	0.74
332	Mfr/Rrp of Furniture & Fixture (Wooden)	0.00	0.05	0.44	0.37	0.74	0.80
341	Mfr of Paper & Paper Products	0.19	0.24	0.35	0.02	0.04	0.09
342	Printing, Publishing & Allied Ind	0.15	0.14	0.19	0.00	0.00	0.03
351	Mfr of Industrial Chemicals	0.64	0.66	0.72	0.17	0.29	0.27
352	Mfr of Other Chemical Products	0.21	0.18	0.22	0.02	0.03	0.04
353	Petroleum Refineries	0.11	0.09	0.12	0.01	0.03	0.04
354	Misc Products of Petroleum & Coal	0.50	0.77	0.47	0.00	0.47	0.02
355	Mfr of Rubber Products	0.19	0.15	0.27	0.01	0.02	0.06
356	Mfr of Plastic Products, N.E.C.	0.10	0.10	0.28	0.19	0.28	0.23
361	Mfr of Pottery, China & Earthenware	0.11	0.12	0.14	0.12	0.12	0.08
362	Mfr of Glass& Glass Products	0.17	0.16	0.33	0.07	0.06	0.15
371	Iron & Steel Basic Industries	0.50	0.39	0.41	0.06	0.07	0.04
372	Non-Ferrous Metal Basic Industries	1.42	1.19	0.45	1.49	0.90	0.48
381	Fabricated Metal Prods Exc Mach & Equip	0.45	0.39	0.53	0.08	0.13	0.25
382	Mfr of Machinery Exc Electrical	0.90	0.85	1.74	0.17	0.23	2.55
383	Elect Mach Apparatus, Appliances &Supp	0.49	0.56	2.79	0.11	0.45	1.27
384	Mfr of Transport Equipment	0.53	0.50	0.54	0.06	0.13	0.12
385	Prof, Scientific, Msurg & Cont Equipment	1.02	0.93	1.45	1.03	0.91	2.64
390	Other Manufacturing Industries	0.67	0.28	1.10	0.71	0.95	1.03
	Average Manufacturing	0.35	0.41	0.62	0.31	0.97	0.54

Source of basic data: World Bank

Based on these trade measures, industries may be broadly classified into four groups where (i) export ratios are greater than import penetration ratios, (ii) both export ratios and import penetration ratios are high, (iii) export ratios are lower than import penetration ratios, and (iv) export ratios and import penetration ratios are low. The first group which is characterized by industries having export ratios that are significantly greater than their import penetration ratios may reflect the presence of competitive domestic industries. These include leather and leather products, wood and wood/cork products, furniture and fixtures, machinery excluding electrical, and professional and scientific equipment.

The second group includes industries like electrical machinery, other manufacturing, non-ferrous metal, and manufacture of plastic products (not elsewhere classified) have high

export ratios and high import penetration ratios. This indicates the internationalization of these industries especially because of sourcing of intermediate goods and intra-industry trade.

The third group is characterized by industries whose import penetration ratios are significantly higher than their export ratios which may reflect weak domestic industries. These include paper products, printing, publishing, rubber products, glass and glass products, iron and steel, fabricated metal products, and transport equipment. The fourth group of industries which includes food processing, beverage, and tobacco have low import penetration ratios and low export ratios which may possibly indicate the presence of weak competition in the domestic market. Note the decline in the competitiveness of food processing as its export ratio, which began at a high level of 50 percent in the late 1970s, dropped drastically to 32 percent in the 1980s to only 20 percent in the 1990s. The sector's import penetration ratio remained low and changed very little during the same periods.

5.4 Four-firm Concentration Ratios: Manufacturing Sector

Competition is not straightforward to measure. Oftentimes, concentration ratios are used to measure the strength of competition. Concentration ratios are at best imperfect indication of the underlying competition and can be misleading when there are important differences in size, strength, and productivity between firms.

Table 15 presents the four-firm concentration ratios (CR4) in the manufacturing sector for the years 1988, 1994, 1995 and 1998. The calculated average CR4 indicates that the Philippine manufacturing industry has remained highly concentrated increasing from 71 percent in 1988 to around 74 percent in 1994 and 1995 and further to 81 percent in 1998. The CR4 estimates also show that around 65 percent of the manufacturing industry have concentration ratios ranging from 70 to 100 percent. In 1998, this went up to almost 90 percent.

Manufacturing sub-sectors with high level of concentration are mostly those producing intermediate and capital goods. In 1995, these included sectors such as petroleum refineries, glass and glass products, industrial chemicals, pottery, china and earthenware, petroleum and coal products, rubber products, and other nonmetallic mineral. These also included paper and paper products, professional and scientific equipment, nonferrous metal products, transport equipment, iron and steel, machinery except electrical, textiles, other chemicals and fabricated metal products. Consumer goods like tobacco and those of food manufacturing, and food processing firms also belong to the high concentration group.

In 1995, the moderate concentration group (which consists of sub-sectors with concentration ratios ranging from 40 to 69 percent) included beverages, electrical machinery, metal furniture, wood and cork products, cement, printing and publishing, leather footwear, furniture except metal, plastic products, and leather and leather products. In 1998, only furniture and cement remained in the moderately concentrated group as the other sectors

experienced increases in their concentration ratios. In 1995 and 1998, only one sector wearing apparel except footwear fell under the low concentration group.

Table 15: Four-firm Concentration Ratios in the Philippine Manufacturing Industry

Sectors	Concentration Ratios				Number of Establishments			
	1988	1994	1995	1998	1988	1994	1995	1998
High (above 70 percent)								
Petroleum Refineries	100	100	100	99.93	4	4	4	5
Professional and Scientific	100	100	99.97	97.41	14	13	20	80
Tobacco	96.64	99.56	99.41	99.50	25	21	22	21
Nonferrous Metal Products	99.67	99.28	98.57	97.76	35	34	40	35
Glass and Glass Products	96.33	90.58	92.05	95.43	35	53	46	66
Industrial Chemicals	90.14	87.52	84.65	86.49	112	171	197	375
Transport Equipment	80.98	86.2	84.4	77.67	230	264	265	364
Pottery, China and Earthen	92.82	86.05	93.74	D	59	68	61	-
Food Processing	79.51	81.37	81.74	A	915	751	717	-
Iron and Steel	84.18	80.64	70.55	79.43	128	191	201	505
Machinery except Electrical	63.59	77.47	79.43	94.90	556	464	460	888
Petroleum and Coal Products	81.1	77.0	87.4	100	16	14	16	13
Fabricated Metal Products	73.45	74.48	74.32	78.24	469	555	550	975
Other Chemicals	66.37	75.64	69.09	80.92	300	288	295	397
Rubber Products	79.15	73.5	73.66	90.33	137	187	181	136
Other Nonmetallic Mineral	68.92	71.31	74.54	90.03 [d]	353	304	253	701
Paper and Paper Products	78.97	71.23	70.4	78.14	167	215	206	335
Miscellaneous Manufacture	70.87	70.62	76.76	92.77	342	312	309	310
Textiles	64.12	64.14	72.37	72.84	549	537	508	586
Food Manufacturing	63.48	69.74	77.92	86.94[a]	2003	1879	1798	3919
Beverages	48.19	70.08	63.43	73.51	91	86	88	129
Electrical Machinery	64.8	69.36	63.73	72.42	217	271	310	448
Leather and Leather Products	57.7	63.89	64.02	73.47 [c]	120	84	85	595
Wood and Cork Products	40.5	55.47	65.35	76.32	683	401	354	584
Printing and Publishing	42.13	47.26	51.08	82.08	636	637	636	988
Plastic Products	49.41	40.75	50.87	70.09	300	377	365	490
Moderate (40 percent to 69 percent)								
Metal Furniture	80.88	79.49	62.67	b	36	34	35	-
Cement	45.3	48.3	45.37	68.22	17	18	18	20
Leather Footwear	30.33	41.7	55.0	c	425	384	373	-
Furniture	19.51	40.91	41.64	62.54 [b]	678	497	439	68
Low (below 39 percent)								
Wearing Apparel except Footwear	34.7	31.69	26.52	23.57	1556	1512	1521	2025
Total Manufacturing	70.88	73.63	73.64	80.55	11208	10726	10373	15674

Source of basic data: National Statistics Office, 1988 and 1994 Census of Establishments and 1995 and 1998 Annual Survey of Establishments.

The concentration ratios refer to the ratio of census value added by four largest firms to total in each five-digit PSIC sector. The concentration ratios given above are weighted averages for three-digit PSIC.
[a]combined food manufacturing and food processing; [b]combined metal furniture and furniture
[c]combined leather footwear and leather products ; [d]combined pottery,china and other nonmetallic products

5.5 Price Cost Margins in Manufacturing

PCMs when reliably measured maybe an inverse measure of the strength of competition in the market. But note that high PCMs are not always an indication of undesirable market power, they maybe a temporary reward for innovation. Using the National Statistic's annual survey and census of manufacturing establishments, PCMs were computed for the period 1972 to 1998. As the figure shows, PCMs fluctuated widely prior to 1986. Since then, PCM movements were relatively smooth except for a sharp rise in 1993. In general, an upward trend is evident between the periods 1986-90 and 1996-98.

Table 16 presents estimates of average PCMs in the manufacturing sector from the seventies to the late 1990s. On the average, the PCMs for the manufacturing sector remained quite high, slightly increasing from 31 percent in the seventies to 34 percent in the late nineties with some fluctuations in between. In general, the dispersion of the PCMs about the mean declined between the mid-seventies and the nineties. There was a significant widening in the dispersion of PCMs in the mid-seventies but this narrowed down in the succeeding decades particularly toward the mid-nineties. The standard deviation increased tremendously from 14 percent in 1972-75 to 32 percent in the period 1976-80. However, this fell to 20 percent in 1986-90 and further dropped to 15 percent in 1991-95 and to 14 percent in 1996-98.

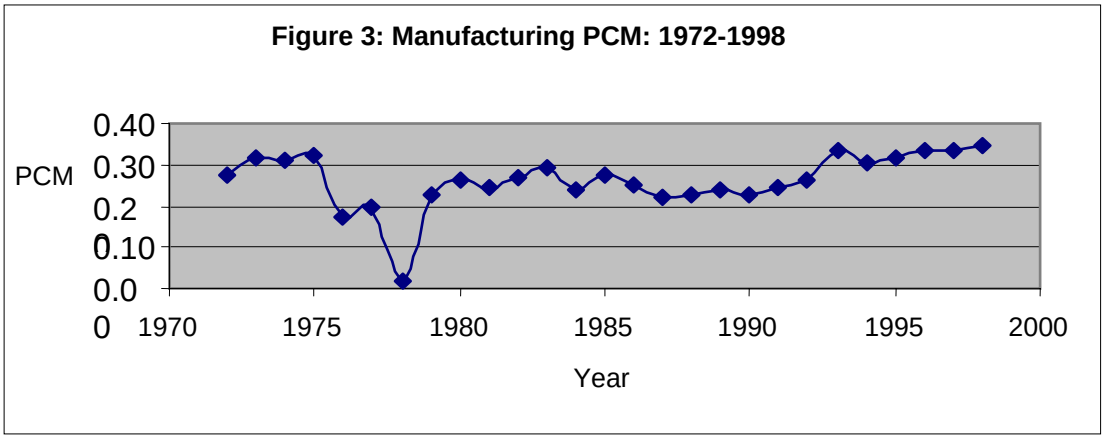
Table 16: Simple Price Cost Margins in the Philippine Manufacturing Industry

Industry sector	Average 1972-98	1972-75	1976-80	1981-85	1986-90	1991-95	1996-98
High (50 percent to 69 percent)							
Cement	0.65		0.59	0.66	0.67	0.65	0.65
Beverages	0.53	0.56	0.46	0.51	0.56	0.57	0.55
Glass and Glass Products	0.52	0.48	0.48	0.51	0.55	0.54	0.58
Moderate (20 percent to 49 percent)							
Tobacco	0.47	0.44	0.40	0.31	0.50	0.57	0.66
Other Nonmetallic Mineral Prods	0.43	0.64	0.42	0.33	0.42	0.43	0.36
Other Chemicals	0.37	0.37	0.35	0.30	0.35	0.46	0.44
Paper and Paper Products	0.36	0.35	0.38	0.36	0.36	0.34	0.36
Industrial Chemicals	0.35	0.40	0.33	0.37	0.32	0.38	0.32
Rubber Products	0.28	0.25	0.26	0.30	0.26	0.31	0.29
Food manufacturing	0.28	0.34	0.24	0.23	0.29	0.28	0.37
Textiles	0.27	0.25	0.23	0.30	0.25	0.27	0.30
Iron and Steel	0.26	0.26	0.22	0.35	0.21	0.26	0.25
Plastic Products	0.25	0.25	0.22	0.26	0.20	0.29	0.32
Electrical Machinery	0.25	0.29	0.21	0.25	0.21	0.24	0.34

Wood and Cork Products	0.26	0.33	0.22	0.30	0.24	0.25	0.22
Furniture except Metal	0.22	0.21	0.18	0.24	0.21	0.23	0.27
Nonferrous Metal Products	0.21	0.37	0.29	0.17	0.11	0.14	0.19
Petroleum and Coal Products	0.21	0.32	0.17	0.22	0.20	0.24	0.13
Miscellaneous Manufacture	0.20	0.22	0.12	0.30	0.12	0.22	0.27
Low (19 percent and below)							
Fabricated Metal Products	0.17	0.23	0.12	0.16	0.12	0.21	0.21
Printing and Publishing	0.16	0.26	0.08	0.07	0.13	0.17	0.36
Leather and Leather Products	0.16	0.14	0.16	0.22	0.10	0.15	0.20
Transport Equipment	0.14	0.11	0.17	0.12	0.05	0.16	0.28
Machinery except Electrical	0.11	0.20	-0.14	0.18	0.13	0.17	0.17
Average		0.31	0.18	0.26	0.23	0.29	0.34
Standard deviation		0.14	0.32	0.17	0.20	0.15	0.14

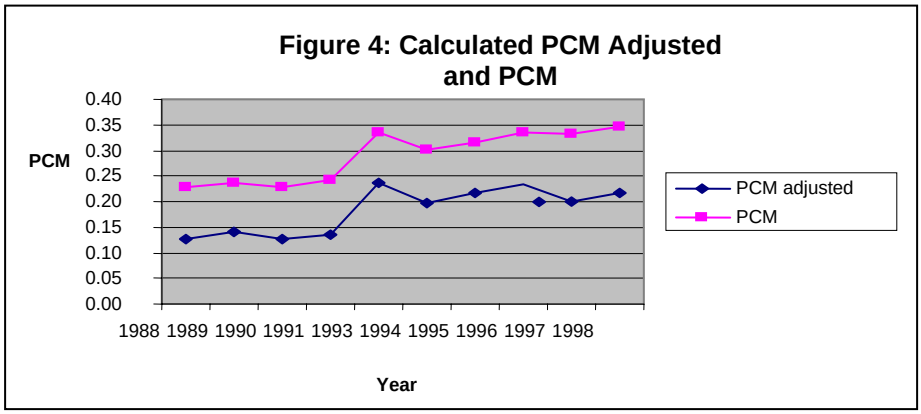
The PCM estimates suggest sizeable and persistent margins in sectors such as beverages, glass and glass products, and cement whose margins ranged from 55 percent to 66 percent. The estimates were ranked and classified into three major groups: high, moderate, and low. In a span of over twenty years, the margins seemed to remain quite stable. Significant reductions were observed in only three manufacturing sectors: other nonmetallic mineral products whose margin declined from 64 percent in the seventies to 36 percent in the nineties, nonferrous metals whose margin dropped from 37 percent to 19 percent, respectively, and petroleum and coal products whose margin decreased from 32 percent to 13 percent during the same period. A substantial increase in margin was observed in tobacco as it went up from 44 percent in the seventies to 50 percent in the late eighties to 64 percent in the nineties.

Figure 3: Manufacturing PCM: 1972-1998



Appendix 1 presents PCM estimates calculated using roughly the same method for India and Spain. Evidently, PCMs in the different manufacturing sectors in the Philippines are significantly higher than those in other countries. In India, the average PCM for the period 1995-1998 was 22 percent for beverages, tobacco and nonmetallic mineral products. In Spain, average PCMs during the period 1983-1996 was about 18 percent for beverages and glass products and 22 percent for nonmetallic mineral products.

Table 17 presents a second set of computed PCMs for the Philippine manufacturing sector. The second set takes into account additional expenditures that are available in the NSO's Annual Survey and Census of Manufacturing Establishments. The second PCM measure explicitly deducts additional cost categories like fuels and electricity and capital expenditures like rentals, depreciation, and interest payments. It thus accounts for certain types of variable costs that are not accounted for in the first set of PCMs. These cost adjustments are particularly important for firms that are capital-intensive like glass manufacturers as well as for those that are intensive energy users like cement manufacturers. Following Domowitz et al (1986), inventory changes are included to ensure that adjustment for business cycle fluctuations is controlled for in the measure of PCMs.



As can be readily seen from Table 17, in terms of magnitude, the second set of PCMs are much lower. The average for the 1996-98 period dropped substantially from 34 percent in the first set to 22 percent in the second set. In terms of PCM ranking, the second set of PCMs shows that, tobacco, beverage, petroleum refineries, cement, other chemicals, and food manufacturing had the highest PCMs. This is slightly different from the first set where the top sectors were led by cement, tobacco, beverages, and glass and glass products. Note that in the second set of PCM, cement and glass sectors witnessed substantial reductions in their PCM levels. Although, in the case of tobacco, its PCM changed very little, i.e. from 66 percent in the first set to 63 percent in the second set, despite the cost adjustments made. In contrast, glass and glass products, a sector that had very high PCM in the first set, saw a tremendous fall in its adjusted PCM. On the average, its PCM dropped from 58 percent in the first set to only 20 percent in the second set during the 1996-98 period.

On the overall, the average adjusted PCM for manufacturing followed the same upward trend found in the first set of PCMs. Between 1988-1990 and 1991-1995, the average adjusted PCM rose from 13 percent to 20 percent. This further went up to 22 percent in the 1996-98 period. The standard deviation fell from 18 percent in 1988 to 15 percent in 1998. Despite trade liberalization, most of the manufacturing sub-sectors witnessed increases in their adjusted PCMs. In the Philippines, only the following six sectors showed reductions in their adjusted PCM between the two periods 1988-1990 and 1996-98: wood and wood

products, furniture and fixtures, rubber products, glass and glass products, other non-metallic products, and paper and paper products. Empirical studies typically show that trade liberalization and exposure to import competition led to a reduction in the PCMs of import-competing firms (Tybout, 2003). Note that in India, price cost margins in the post-reform period have also increased despite large reductions in tariff and non-tariff barriers (Goldar and Aggarwal, 2004 and Srivastava et al, 2001). In Turkey, while price cost margins declined in general, they went up in the highly concentrated private sector industries (Yalcin, 2000).

Table 18 shows another set of PCM estimated econometrically based on the Hall method and developed by Roeger (see Appendix 2 for details). The PCM is estimated using the following equation:

$dy_j = Bdx_j + u_j$.

where
$dy_j = (dq_j + d p_j) - \alpha_j (dl_j + dw_j) - \beta_j (dm_j - dp_j^m) - (1-\alpha_j- \beta_j) (dk_j + dr_j)$
$dx_j = (dq_j + d p_j) - (dk_j + dr_j)$

j is the industry-sector index
B is the price cost margin
K_j is capital
L_j is labor input
M_j is raw material input
$\alpha_j = (W_j L_j)/P_j Q_j$ is the share of wage payments to labor in total income
$\beta_j = (P_j^m M_j)/P_j Q_j$ is the share of raw material costs in total income
$(1-\alpha_j- \beta_j) = R_j K_j /P_j Q_j$ is the share of rental payments to capital in total income
u_j is error term.

The small letters denote logarithms and d (logarithmic) differences approximating growth rates. The dependent variable dy_j can be interpreted as the nominal Solow residual (difference between the primal and dual Solow residual) and the explanatory variable dx_j is the growth rate of the nominal output/capital ratio.

The average PCM by three-digit manufacturing sector was estimated using time series information by sector for all 26 three-digit sectors. There is a wide variation in price cost margins within the manufacturing industry. Sectors like beverages and tobacco have average PCM of around 62 percent and 59 percent, respectively while glass and glass products have an average PCM of 51 percent. Other chemicals and miscellaneous manufactures have an average PCM of 44 percent while cement and other non-metallic products have an average PCM of 41 percent. Manufacturing sectors with relatively low PCM include wearing apparel, leather and leather products, printing and publishing, transport equipment, and fabricated metal products whose average PCMs range from about 10 percent to 15 percent. Machinery except electrical has an average PCM of 19 percent. Compared with the PCMs based on accounting profits, there are differences in magnitude. It is evident

that the price cost margins that are econometrically estimated are higher than the calculated accounting margins. However, in terms of ranking the different sectors, the two methods generally provide almost similar results.

Table 17: Adjusted Price Cost Margins

Manufacturing Sector	1988	1989	1990	1991	1993	1994	1995	1996	1997	1998
Food Processing	0.14	0.15	0.16	0.13	0.21	0.19	0.20	-	-	-
Food Manufacturing	0.22	0.19	0.36	0.22	0.26	0.24	0.29	0.27	0.27	0.37
Beverage	0.51	0.53	0.47	0.50	0.51	0.50	0.49	0.43	0.44	0.51
Tobacco	0.43	0.46	0.49	0.43	0.59	0.63	0.61	0.63	0.62	0.63
Textiles	0.06	0.08	0.13	0.12	0.18	0.12	0.17	0.16	0.17	0.15
Wearing Apparel, Except Footwear	0.01	(0.07)	(0.01)	0.05	0.22	0.23	0.25	0.20	0.21	0.25
Leather & Leather Products	0.04	0.08	0.16	0.10	0.15	0.04	0.14	0.12	0.09	0.17
Leather Footwear	0.12	0.19	0.14	0.14	0.45	0.04	0.10	-	-	-
Wood & Wood/Cork Prods, Exc Furn	0.11	0.19	0.12	0.19	0.22	0.20	0.11	0.14	(0.01)	0.22
Furniture & Fixture (Wooden)	0.19	0.17	0.16	0.18	0.18	0.19	0.16	0.17	0.15	0.20
Paper & Paper Products	0.22	0.23	0.24	0.21	0.21	0.19	0.15	0.20	0.19	0.18
Printing, Publishing & Allied Industries	0.02	0.01	0.09	0.01	0.20	0.13	0.18	0.22	0.21	0.37
Industrial Chemicals	0.11	0.05	0.11	0.24	0.32	0.16	0.09	0.21	0.16	0.20
Other Chemical Prods	0.29	0.32	0.32	0.39	0.41	0.43	0.42	0.31	0.32	0.36
Petroleum Refineries	0.17	0.12	0.14	0.19	0.12	0.21	0.29	0.46	0.39	0.30
Misc Products of Petroleum & Coal	0.21	(0.01)	0.23	0.06	0.27	0.14	0.20	0.04	0.04	0.08
Rubber Products	0.21	0.23	0.16	0.17	0.22	0.20	0.28	0.20	0.03	0.13
Plastic Products, N.E.C.	0.16	0.13	0.10	0.15	0.22	0.19	0.19	0.22	0.21	0.12
Pottery, China & Earthenware	0.22	0.32	0.30	0.24	0.25	0.25	0.24	-	-	-
Glass& Glass Products	0.36	0.35	0.30	0.17	0.17	0.28	0.38	0.28	0.21	0.10
Cement	0.21	0.28	0.20	0.25	0.29	0.28	0.29	0.35	0.34	0.39
Other Non-Metallic Products, NEC	0.19	0.25	0.22	0.24	0.29	0.20	0.22	0.18	0.14	0.22
Iron & Steel	0.06	(0.01)	0.14	0.13	0.12	0.26	0.15	0.19	0.05	0.10
Non-Ferrous Metal	(0.01)	(0.06)	(0.07)	(0.38)	0.15	(0.06)	0.06	0.17	0.18	(0.13)
Fabricated Metal Prods	0.06	0.05	0.14	0.14	0.12	0.19	0.10	0.13	0.09	0.09
Machinery	0.02	0.04	(0.09)	0.07	0.07	0.02	0.14	0.11	0.13	0.11
Elect Mach Apparatus, Appliances & Supplies	0.10	0.16	0.17	0.19	0.18	0.16	0.19	0.23	0.19	0.27
Transport Equipment	(0.01)	0.06	0.09	0.07	0.11	0.13	0.15	0.26	0.17	0.14
Prof, Scientific, Equipment	(0.56)	(0.38)	(1.25)	(0.45)	0.24	0.17	0.18	0.17	0.19	0.14
Furniture & Fixtures, of Metal	0.06	0.17	0.00	(0.03)	0.22	0.05	0.18	-	-	-
Other Manufacturing	0.06	0.14	0.16	0.11	0.16	0.15	0.21	0.24	0.21	0.21
Average	0.13	0.14	0.13	0.14	0.24	0.20	0.22	0.23	0.20	0.22
Standard deviation	0.18	0.17	0.29	0.18	0.12	0.14	0.12	0.12	0.13	0.15

Table 18. Econometrically Estimated PCMs

PSIC	Description	OLS			Robust Regression		
		PCM	SE	Obs	PCM	SE	Obs
311-312	Food processing & Manufacturing	0.181**	0.087	22	0.226***	0.029	22
313	Beverages	0.539***	0.057	22	0.616***	0.034	22
314	Tobacco	0.581***	0.055	22	0.591***	0.037	22
321	Textiles	0.253***	0.06	22	0.256***	0.022	22
322	Wearing Apparel except Footwear	0.182*	0.093	22	0.139*	0.075	22
323-324	Leather and Leather Products & Leather Footwear	0.158***	0.045	22	0.140***	0.038	22
331	Wood and Cork Products	0.290***	0.055	24	0.304***	0.026	24
332&386	Furniture including Metal Furniture	0.263***	0.026	20	0.321***	0.02	19
341	Paper and Paper Products	0.343***	0.087	22	0.376***	0.014	22
342	Printing and Publishing	0.092	0.105	22	0.151*	0.074	21
351	Industrial Chemicals	0.350***	0.089	22	0.378***	0.032	22
352	Other Chemicals	0.366***	0.077	22	0.443***	0.036	22
353	Petroleum Refineries	0.451***	0.136	24	0.280***	0.042	23
354	Petroleum and Coal Products	0.272***	0.098	20	0.340***	0.036	20
355	Rubber Products	0.397***	0.066	22	0.355***	0.032	22
356	Plastic Products	0.375***	0.08	22	0.288***	0.024	21
362	Glass and Glass Products	0.486***	0.049	22	0.505***	0.052	22
361, 363 & 369	Pottery, China and Earthenware, Cement & Other Nonmetallic Mineral Prods	0.433***	0.061	22	0.410***	0.038	22
371	Iron and Steel	0.258***	0.076	22	0.222***	0.03	22
372	Nonferrous Metal Products	0.319*	0.171	22	0.307***	0.052	22
381	Fabricated Metal Products	0.162*	0.093	22	0.096*	0.052	22
382	Machinery except Electrical	0.141	0.139	22	0.190***	0.035	22
383	Electrical Machinery	0.27***	0.049	24	0.275***	0.016	24
384	Transport Equipment	0.116	0.162	22	0.125***	0.018	22
385	Professional and Scientific Eqpt	0.552***	0.215	24	0.328***	0.037	24
390	Miscellaneous Manufacture	0.350***	0.043	20	0.439***	0.014	20
	All Manufacturing	0.313***	0.024	643	0.292***	0.011	643

Note: *** indicates significance at the 1 percent level, ** at the 5 percent level, and * at the10 percent level.

5.6 Trade Liberalization and Competition in Manufacturing

Empirical work on the impact of trade liberalization in developing countries indicates that trade reforms were accompanied by falling mark-ups, productivity growth, technology advancement, and a reallocation of resources towards more efficient firms. This sub-section presents the results of a multiple regression analysis applied to assess the effect of trade liberalization on PCMs. It is based on pooled cross-section and time series data on the manufacturing industry covering 24 sub-sectors. The simple PCMs computed for the 795 five-digit manufacturing sub-sectors for the years 1988, 1994, and 1995 are pooled for the regression analysis. The regression equation is specified as

Model 1:

$PCM_{it} = f(CR4_{it}, EPR_{it}, DRC_{it}, CAPINT_{it}, GDPLAG_{it}, EPR*CR_{it},)$
where
PCM_{it} : price cost margin in sub-sector i in year t
$CR4_{it}$: four-firm concentration ratio in sub-sector i in year t
EPR_{it} : effective protection rate in sub-sector i in year t
DRC_{it} : domestic resource cost in sub-sector i in year t
$CAPINT_{it}$: capital intensity in sub-sector i in year t
$GDPLAG_{it}$: gross domestic product growth rate lagged one year
$CREPR_{it}$: interaction between effective protection rate and four-firm concentration ratio

The four-firm concentration ratio is a measure of market structure, which is expected to have a positive correlation with the PCM. The effective protection rate is a trade liberalization measure, which is expected to be positively correlated with the PCM. The domestic resource cost is an efficiency measure, which is expected to be negatively correlated with PCM. The other variables used are capital intensity which is measured by (fixed assets/sales) and GDP growth rate which is a measure of business fluctuation and cyclical effect. The interaction term $EPR*CR_{it}$ tests the hypothesis that if highly concentrated industries enjoy above normal profits because of market power, then they should be more sensitive to reduction in protection and import competition. A reduction in protection and an increase in imports will have a disciplining effect on the pricing behavior of firms particularly those that are in highly concentrated industries.

The regression equation is estimated using three methods: ordinary least squares, fixed effects, and random effects. The results are presented in Table 19. In all three methods, CR4 is positive and highly significant indicating that highly concentrated industries are characterized by high PCMs. GDPLAG is negative and significant, suggesting that PCMs are affected by fluctuations in economic activity, rising during bad times and falling during good times. The coefficients on EPR and DRC have the correct expected sign, although they are not significant. In all methods, CAPINT is negative and significant at 10 percent level.

The coefficient on the interaction term is negative, although it is not statistically significant. This seems to imply that a reduction in protection does not seem to affect the market power of highly concentrated industries. This may also seem to suggest that highly concentrated industries may have a different pricing behavior. Case 1 (Appendix 3) illustrates the case of the cement industry, which used to be highly regulated and protected through high tariff and non-tariff barriers. After liberalization and deregulation, industry concentration and price cost margins have remained high. Shortly following the Asian crisis, a wave of mergers among foreign investors ensued. Soon after, price increases were observed in the midst of excess supply and depressed demand in the industry. In the absence of effective competition laws in the country, imports could have provided the necessary market discipline. However, this did not happen because rather than allowing imports to come in at

the legislated tariff rate of 5 percent, the government opted to make imports more expensive by providing safeguard measures in addition to the normal tariff duty imposed on cement imports.

As the initial set of results show, the coefficient on EPR is positive as predicted, although not statistically significant. The same result is obtained when the Roeger methodology is applied to assess the effect of trade liberalization on competition. This is implemented by interacting the variable dx_j with EPR to capture the change in PCM as a result of trade liberalization. EPR is a trade liberalization variable and a proxy for competitive pressure. A reduction in effective protection is expected to discipline firm behavior and lead to a decline in market power, hence a positive B_2 is expected. The variable dx_j is also interacted with yearly GDP growth to control for changes in PCMs due to business cycle fluctuations and demand effects. The model is given by:

Model 2

$$dy_j = B_1 dx_j + B_2\ EPR*dx_j - B_3\ GDP*dx_j + u_j$$

It is evident from Table 20 that using the OLS method, B_2 has the correct sign but is not statistically significant. The same finding is obtained in the fixed and random effects models. These results indicate that if market power declined because of trade liberalization, it did so only mildly. With the robust regression model, however, a highly significant positive coefficient is observed although its magnitude is very small. With respect to B_3, a significant counter-cyclical price cost margin is observed in the random and fixed effects models.

Table 19: Determinants of Price Cost Margin in Philippine Manufacturing

Dependent variable: PCM	OLS	RE	FE
CR4	.001442*** (0.000461)	.0015181*** (0.0004891)	.0028625*** (0.0009944)
EPR	.0003275 (0.0010495)	.0002855 (0.0010516)	.0003764 (0.0013253)
DRC	-.0003974 (0.0022216)	-.0004393 (0.0022046)	-.0002306 (0.0026532)
GDPLAG	-.0181053** (0.0080073)	-.0182407** (0.0075026)	-.0183826** (0.0075203)
CAPINT	-.0224776* (0.0131081)	-.0235705* (0.0130859)	-.027954* (0.0160374)
CREPR	-4.77e-06 (0.0000125)	-4.40e-06 (0.0000125)	-6.53e-06 (0.0000157)

Note: Standard errors in parentheses; *** indicates significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level.

Table 20: Effect of Trade Liberalization on Competition

Dependent variable: dy	OLS	Robust Regression	Fixed Effects	Random Effects
B_1	0.339*** (0.041)	0.297*** (0.018)	0.409*** (0.044)	0.394*** (0.043)
B_2	0.007 (0.007)	0.007*** (0.003)	0.006 (0.006)	0.006 (0.006)
B_3	-0.009 (0.008)	-0.004 (0.003)	-0.013* (0.007)	-0.013* (0.007)

Note: Standard errors in parentheses; *** indicates significance at the 1 percent level, ** at the 5 percent level, and * at the10 percent level.

These results tend to suggest that while trade seems to play a role in providing market discipline, the evidence in the Philippine manufacturing sector is still not as strong as expected a priori. The present analysis looks at a relatively short time period when the economy is still undergoing adjustments. It is important to note that most of the impact of trade liberalization will only materialize in the long run. The expected benefits may take even longer to be realized given the policy reversals characterizing each political administration as well as the policy of selective protection adopted by the government. This lack of a significant increase in competition seems to have prevented the economy from reaping more of the benefits of trade liberalization during the years under study.

Though still quite small and statistically significant only under the robust regression technique, the positive effect of trade liberalization on market power should not be underestimated. In assessing the impact of trade liberalization on market power, it is important to recognize that the shift from a highly protected and highly distorted economic regime towards a more market-oriented has not been a smooth one for the Philippine economy. The trade reforms occurred along with adverse macroeconomic conditions that may have masked the positive effects of trade reforms.

The trade liberalization process has also been characterized by backsliding and policy reversals. The country's long history of protection has illustrated how import lobbies with political clout are able to ensure that their sectors remain protected. The various policy reversals indicate how the government is driven by vested interest groups that lobby for protection to the goods they produce and for duty-free access to the inputs they need. Tariffs on these products have remained relatively high. On the other hand, tariffs on products where there is no or small domestic industry have relatively low tariff rates because there is no opposing lobbying influence advocating tariffs on these sectors. All these factors have prolonged the adjustment process and hence, the expected positive results have not been quickly felt.

It is also worth noting that the trade reform process is far from over. Although the average nominal and effective protection rates seem to be low, protection continues to be uneven with the coefficients of variation remaining at very high levels. It is important to

point out that economic and trade distortions associated with a tariff schedule depend not only on the size of the tariffs but also on the dispersion of these tariffs across all products. The more dispersion in a country's tariff schedule, the greater the distortions caused by tariffs on production and consumption patterns. Among the economic sectors, the manufacturing industry exhibits the most dispersion.

Despite generally low average import duties, the total number of tariff headings (8-digit level of the 2002 Harmonized Commodity Description and Coding System or HS) increased from 7,366 in 1998 to 7,382 tariff lines in 2004. Most countries average about 6,000 tariff headings. The nominal tariff variance increased from 96 percent in 1998 to 107 percent in 2004 implying a wide dispersion of tariff lines. The number of tariff peak products went up from 165 product lines (or 2.24 percent of total number of HS lines) to 200 lines (2.7 percent of total HS lines) during the same period with tariffs for peak products ranging from 25 percent to 65 percent in 2004.

The structure of protection has also remained biased for importables as these continue to receive higher levels of protection than exportables. Given the tariff distortions, problems of inefficient resource allocation arise that tends to favor highly protected importables at the expense of exportables.

The EPR estimates also show that the bias for agriculture has remained as the sector enjoys the highest level of protection from 1998 to 2005. The high tariff schedule resulting from the tariffication under the WTO is the main problem in agriculture. With the obvious bias of the system of protection against manufacturing, the gap between manufacturing and agriculture has widened.

Meanwhile, the increase in applications for and use of safeguard measures as well as petitions for anti-dumping and countervailing duties have resulted in an increase in protection particularly in sectors such as cement, float glass, chicken, and ceramic tiles. This policy environment of backsliding and conflicting policy pronouncements create a lot of uncertainty such that the government loses its credibility in implementing reforms. This has dampened firms' incentives to become efficient and have fostered rent-seeking behavior.

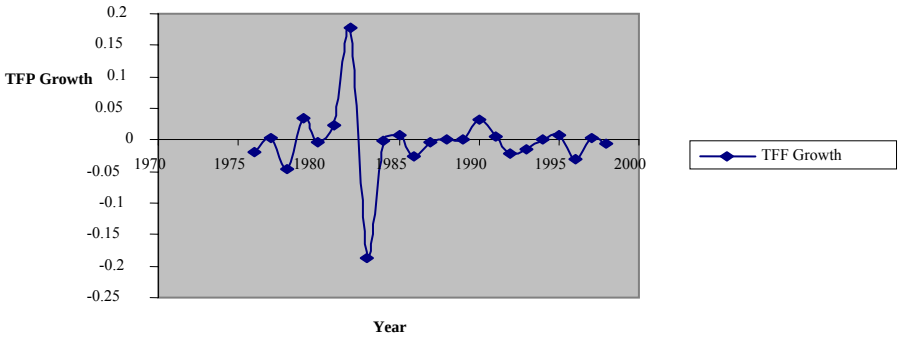
5.7 Trade Liberalization and Productivity in Manufacturing

TFP growth in the Philippine manufacturing industry and its major sub-sectors was estimated using the Annual Survey and Census of Manufacturing Establishments of the National Statistics Office for the 1972-98 period. One important concern raised in using OLS estimates of production function is the potential correlation between inputs that are easily adjusted and the unobserved firm-specific shocks. Firms that have a large positive productivity shock may respond to it by increasing the inputs used. In such cases, the OLS estimates will yield biased parameter estimates and biased productivity estimates.

The TFP estimation used in this paper is based on the method developed by Levinsohn and Petrin (2001) which uses intermediate inputs as the proxy input to correct the potential simultaneity bias in production function estimation. The Levinsohn and Petrin method is a modification of Olley and Pakes (1996) which uses investment as the proxy. In this paper, electricity is chosen as the proxy for productivity. Appendix 4 describes the Levinsohn and Petrin method in more detail.

Figure 5 illustrates how the TFP growth estimates evolve in the Philippine manufacturing industry. The average annual TFP growth estimates are generally low and even negative for six years during the period 1980-1989 and for four years during the period 1990-1998. Note that the TFP growth estimates were not particularly high during the mid-seventies. The estimated growth rate of TFP was negative for two out of four years during the period 1976-1979. In general, log TFP has remained very low during the period from 1975 to 1998. For the years 1996 to 1998, the estimated TFP growth rate was negative in 1996 and 1998 with slight improvement in 1997.

Figure 5: TFP Growth in The Manufacturing Industry



Using labor productivity as another measure, the same results are obtained. On the average, labor productivity in manufacturing declined substantially from around P84,000 during the 1980s to P78,000 in the 1990s (see Figure 6). The average labor productivity barely improved from P84,000 in the mid-1970s to its current level of P85,950.

Regression analysis was applied to examine the impact of trade liberalization and competition on manufacturing productivity. The growth rates of TFP estimated for the 26 three digit sectors for the period 1989-1998, a period of significant changes in trade policy, were pooled for this regression analysis. Using ordinary least squares (OLS) method and fixed effects method to take into account industry-specific factors, the determinants of manufacturing total factor productivity were examined with effective rate of protection (EPR), price cost margin (PCM) and GDP growth as explanatory variables.

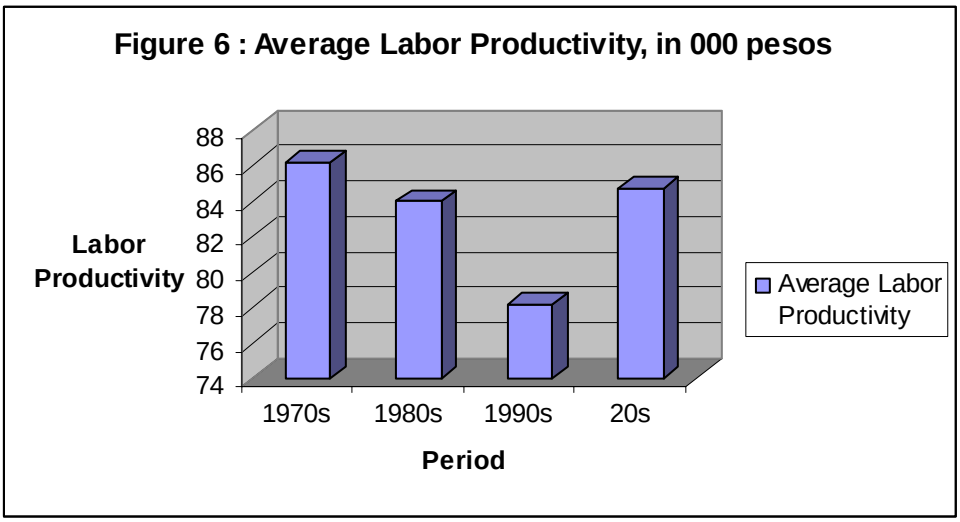


Table 22: Determinants of Productivity

Dependent variable: TFP growth rate	OLS	FE
1+EPR	-0.0006 (0.0222)	-0.0043 (0.0255)
PCM	-0.0358 (0.0644)	-0.1098 (0.1126)
GDP	0.0083* (0.0073)	0.0086* (0.0050)

Note: Standard errors in parentheses; *** indicates significance at the 1 percent level, ** at the 5 percent level, and * at the10 percent level.

Table 22 presents the results of the regression analysis. In both methods, the expected negative relationship between productivity and protection was found but this was not significant. The coefficient on EPR clearly showed a negative sign but was statistically insignificant. PCM also showed the expected negative sign but was not statistically significant. The results showed a significant positive relationship between GDP growth rate and productivity.

The lack of a significant increase in competition and productivity seems to have prevented the economy from reaping more of the benefits of trade liberalization. As the results on the determinants of competition have shown, the coefficient on EPR is positive but not significant. This indicates that if trade liberalization increased competition, it did so only mildly. The regression results on the determinants of productivity have shown that the coefficients on EPR and PCM are negative, although not statistically significant. This tends to imply that the impact of trade liberalization and competition on productivity is still somewhat small.

6.0 Price Cost margins and Productivity Growth in Other Economic Sectors

6.1 Agriculture

This sub-section on agriculture refers to establishments with ten or more average total employment and engaged in agricultural and livestock production such as palay/corn farming, banana farming, poultry and hog raising and agricultural services like the operation of irrigation systems and the renting of farm machinery. Table 23 presents the PCMs computed for the different agriculture sub-sectors. In general, the margins for agriculture are also relatively large. In the most recent year, 1997, the agriculture PCMs are very high (over 50 percent) for palay and corn, chicken broiler production, and agricultural services. The mark-up for sugarcane production has also remained high, although a slight reduction is observed as its mark-up dropped from 48 percent in 1994 to 43 percent in 1997. For hog and livestock (except hog) farming, the margins are 24 percent and 39 percent, respectively.

Table 23: Price Cost Margins in the Agriculture Sector

Agriculture sub-sector	1989	1991	1994	1997
Palay/corn production	0.00*	0.35	0.50	0.54**
Vegetable production, including root & tuber crops	0.31	0.23	0.41	-
Fruit & nut (except coconut) production	0.39	0.41	0.41	-
Coconut production, including copra making in the farm	0.37	0.55	0.49	-
Fiber crops production	0.48	-	0.74	-
Other agricultural crops production	0.35	-	0.66	-
Sugarcane prod'n, incl muscovado sugar making in the farm	0.40	0.40	0.48	0.43
Livestock and Livestock products	0.14	0.32	0.23	-
Hog Farming	-	-	-	0.24
Livestock farming (except hog)	-	-	-	0.39
Poultry and poultry products / Raising of other animals, incl their prodts	0.31	0.51	0.46	-
Chicken broiler production (including operation of chicken hatcheries)	-	-	-	0.54

**: This covers palay and corn production, vegetable, including root & tubers, fruit & nut, coconut including copra, fiber crops, and other agricultural crop production.
*:This covers only palay production.

The high mark-up ratios in the agriculture sub-sector may indicate weak competition due to the presence of government-sponsored trade barriers. Agricultural inputs such as coffee, corn, sugar, chicken and hogs are subject to tariff quotas while rice is covered by import restriction. Aside from high tariffs, import restriction and tariff quotas on sensitive agriculture sectors, the presence of traditional government regulations in some product markets continue to act as government-induced barriers to competition. Case 2 (Appendix 4) describes the government's monopoly control on rice and corn trading while Case 3 illustrates the government's heavy regulation of the sugar industry. Case 4 depicts the administrative difficulty of implementing the MAV program.

Food processing sub-sectors such as coffee roasting and processing, meat and meat products as well as the manufacture of beverages, confectionary products and preserved fruits and vegetables are closely linked with the agricultural sector as the latter provides the major intermediate inputs to these sub-sectors. Given the high level of protection on these products, the government has to provide higher levels of protection not only on these

products but as well as on the food processing and manufacturing sub-sectors that use them. The high level of protection on sugar negatively affects the competitiveness of industrial users like food processors and beverage companies. With the presence of high tariff and non-tariff barriers in these sectors, import competition is weakened. On the overall, it is the consumer who ends up bearing the cost of the government policy of selective protection, which weakens competition.

6.2 Banking

After more than 30 years of interventionist financial policies, the Philippines initiated a financial liberalization program in the early 1980s. The program entailed a gradual liberalization of interest rates between 1981 and 1983 and the easing of restrictions on the operations of financial institutions. Further reforms were instituted in 1986 to address the interlinked problems of fraud or insider abuse of bank owners or officers and ineffective prudential supervision and regulation. In the 1990s, other banking sector reforms were pursued including the deregulation of entry of new domestic banks and domestic bank branching as well as the easing of restrictions on the entry of foreign banks. In 2000, the General Banking Law was enacted to replace the 52-year old General Banking Act. With this law, a seven-year window has been provided during which foreign banks may own up to 100 percent of one locally-incorporated commercial or thrift bank, without the no obligation of divesting later. This law also encouraged the establishment of microfinance-oriented banks.

Table 24: PCMs in the Banking Sector

Year	1984	1987	1988	1989	1990	1991	1992	1993	1994	1995	1997	1998
Banking Institutions	0.64	0.36	0.28	0.34	0.31	0.36	0.32	0.48	0.32	0.30	0.36	0.32
Deposit money banks	0.62	0.43	0.26	0.35	0.30	0.35	0.32	0.51	0.30	0.34		
Thrift Banks	0.49	0.37	0.42	0.46	0.45	0.43	0.32	0.45	0.40	0.33		
Regional unit banks (rural banks)	0.34	0.31	0.31	0.32	0.32	0.22	0.26	0.33	0.25	0.21		
Government specialized banks	0.82	0.35	0.58	0.55	0.55	0.51	0.37	0.30	0.34	0.03		
Banking institutions, N.E.C.	0.73	0.06	0.12	0.04	0.12	0.11	0.20	0.26	0.06	0.06		

Note: No sub-sector PCMs were computed after 1995 because of changes in subsector definition and classification by the National Statistics Office.

Initial research on the impact of the above financial reforms on competition and efficiency in the sector found only modest effects. Montinola and Moreno (2001) concluded that this small impact of the reforms on competition and efficiency was due to the limited scope of liberalization. Manzano and Neri (2001) indicated that the macroeconomic policy pursued by the government masked the competitive pressure that foreign banks would have exerted on the local banking industry. Milo (2001) found that while the concentration ratios in the banking sector fell, there was no significant effect on bank spreads.

Table 24 presents the calculated PCMs in the Philippine banking sector. It is evident from the table that since 1984, PCMs in general have been declining. From a very high price cost margin of 64 percent for the whole banking sector in 1984, this declined to 36 percent in 1987 and to 28 percent in 1988. Except in 1993 when margins went up to 48 percent, PCMs in the sector have ranged from 30 percent to 36 percent between 1989 and 1998. For deposit money banks, PCMs declined from 62 percent in 1984 to 34 percent in 1995; for thrift banks, from 49 percent to 33 percent; and for rural banks, PCMs dropped from 34 percent to 21 percent during the same period. The decline was very dramatic for government specialized banks and banking institutions, not elsewhere classified. For government banks, PCMs decreased from 82 percent to 3 percent and for the latter, from 73 percent to 6 percent.

These results tend to suggest that the financial reforms have led to an overall decline in market power in the financial sector. Using an econometric model assessing the impact of financial reforms on competition in the banking sector, Pasadilla and Milo (2004) found that firms were behaving competitively with the entry of foreign and domestic banks increasing banking competition. Another study by Manlangit and Lamberte (2004) found that small banks seemed to be more profit and cost efficient than large banks. They also found that foreign banks were more profit and cost efficient than domestic banks with the gap between domestic and foreign banks declining after the reforms.

6.3 Electricity

The electric power industry encompasses four major activities:

1. Generation: production of high-voltage electricity that ranges from 12 kilovolts to 500 kilovolts (kV).
2. Transmission (grid network phase): conduction of large blocks of high voltage electricity at the power plants to distribution companies.
3. Distribution: delivery of electricity from the transmission system to the final consumers at a usable level of voltage (usually 220 volts).
4. Supply: contracting for the delivery of electricity to the customer, metering and billing.

The industry is characterized by the following: essential to most productive processes and is an element in final demand, has strong externalities, investment is specific and cannot be divided, economies of scale and scope are present, network takes a long time to build, and demand is highly inelastic to price changes. Because the features of the electricity industry closely resemble those of a natural monopoly, the industry has been under direct state control through ownership and regulation. Scale economies can provide the network owner with substantial market power. Other characteristics such as non- storability of electricity supply, the consumers' dependence on the suppliers, and the essential nature of the service can further enhance the market power of the supplier.

In most countries, the electricity industry is traditionally vertically integrated. The traditional approach in analyzing the electric power industry has changed with the technological innovations in the 1980s. The reduction in the optimal size of generation plants combined with the growth in market size have undermined the natural monopoly characteristics of the electricity industry and challenged the traditional paradigm of the vertically-integrated monopoly. While high-tension transmission and low-tension distribution systems are natural monopolies, generation and supply are now considered competitive. This allowed countries to adopt a market approach to power supply and introduce competition and unbundling of the industry.

In the case of the Philippines, the first wave of power sector reforms took place in 1987 as the generation sector was opened up to competition through the issuance of Executive Order 215. EO 215 abolished the monopoly of the government-owned National Power Corporation (NPC) by allowing the private sector to invest and participate in augmenting the sector's generation base capacity. In 1990, the government passed Republic Act 6957, the first build-operate-transfer [5](BOT) law in Asia. This relaxed the rules on entry of private firms and reduced the scope for government intervention.

In 1992, Republic Act 7638 established the Department of Energy, which was responsible for policy formulation on, planning for, and management of, the energy sector. Republic Act 7648 was legislated in 1993, which enabled the Ramos administration to expedite independent power producers (IPP) contracts for the construction, rehabilitation, improvement, and maintenance of power projects. In 1994, the BOT law was replaced with Republic Act 7718, which increased the number of variants of the BOT concept.

In June 2001, another wave of deregulation was implemented through the legislation of RA 9136 or the Electric Power Industry Reform Act (EPIRA), which aimed to accelerate the total electrification of the country. It also aimed to ensure the quality, reliability, security, and affordability of electric power in a regime of free and fair competition. Under this law, the industry would be restructured by separating the natural monopolies from the potentially competitive parts: the National Power Corporation's remaining power facilities and its transmission system would be privatized and a wholesale spot market for bulk power would be created.

The law distinguishes four separate segments in the power sector: generation, transmission, distribution, and supply. Generation and supply would be competitive and open while transmission and distribution segments would be regulated. The law also spells out the main rules for the regulation of these four segments as well as the rules for transition and the obligations and rights of all players involved: the service providers and government agencies.

[5] Under BOT, the assets revert to the state at the end of the concession terms while under BOO, the ownership of the existing assets and the responsibility for their future expansion and maintenance are transferred to the private sector.

The participation of private investors in the generation sector started in 1988 when NPC signed its first BOT contract with Hopewell Energy Management of Hong Kong for the construction of two 110-megawatt turbine power plants in Luzon which became operational in 1991. To generate additional capacity, the NPC contracted with several independent power producers (IPPs) through build-operate-transfer (BOT) and related schemes. Appendix 5 contains a list of 41 IPP projects with signed contracts that were initially awarded through negotiation but later through bidding procedures. The World Bank (2000) described the standard NPC contract as an energy conversion agreement, under which NPC purchases all fuel and pays the generator for converting it into electricity at a predetermined heat rate.

Between 1993 and 1998, the generation sector evolved from a monopoly to a monopsony of NPC to a de facto deregulated sector in which private power producers can sell electricity to distributors and large industrial users. In 1998, the total generating capacity was 11,988 megawatts distributed as follows: 8,619 megawatts in Luzon, 1,554 megawatts in the Visayas, 1,552 megawatts in Mindanao, and 263 megawatts scattered throughout the country belonging to small island grid.

NPC accounted for about 54 percent of the total installed generating capacity while independent power producers contracted by NPC generated the rest. In addition, a total of 518 megawatts of privately owned installed generation capacity served distributors.

Table 25 shows the PCMs calculated for the electricity generation and distribution sub-sectors. With the opening up of the generation segment of the electricity sector that paved the way for the entry of independent power producers or IPPs in the early 1990s, the margins for generation increased to around 50 percent in 1994 and 1997. The PCMs for power generation remained almost the same at about 30 percent in 1987 and 1991. In the distribution segment, the margins are much lower at 14 percent in 1987, 17 percent in 1991, and 20 percent in 1994.

Table 25: PCMs in Electricity

	1987	**1991**	**1994**	**1997**
Generating and distributing electricity	0.323	0.310	0.534	0.500
Distributing electricity to consumers	0.140	0.169	0.201	

Note: Because of the changes in definition and classification by the NSO, no PCM can be computed for distribution since 1996.

The PCM results tend to suggest that despite the entry of IPPs in the generation sector, market power has gone up. It is important to note that even with the IPP scheme, competition was limited. What transpired in the sector was another form of public procurement with the IPPs becoming a contractor to the existing monopoly, NPC, for a set of specialized services. The contracts allowed a generous off-take (take-or-pay) where NPC agreed to purchase power from IPPs regardless of the required level of dispatch. NPC management locked the company into multi-year power purchase agreements which were at

least 25 percent more expensive than its own generated power and which must be paid 75-80 percent even if it chose not to actually get the electricity (Tuano, 2001).

In the absence of clear rules and appropriate regulatory framework during that time, negotiated deals were carried out by NPC and the private contractors. Under these circumstances, the deals negotiated unduly favored investors while NPC became a monoposonist in the market for capacity and energy. To protect their investments, the private investors focused on obtaining satisfactory power purchase contracts and looked to the government to underwrite the risks. Given the lack of credible rules or operating experience with pricing regimes in the Philippines, the procurement of private generation capacity became possible only with the government assuming all risks with respect to prices and quantities. The IPP received a physical quantity of fuel from NPC and then converted this to kilowatt hours for a processing fee, taking no risks with respect to either input or output prices. As Box 2 reveals, the government has borne virtually all risks except construction costs and some risks associated with the efficiency of operation and availability.

Box 2: Risk Allocation in the Typical Energy Conservation Agreement

Category of risk	Risk borne by government	Risk borne by others
Construction cost		√
Interest rate		√
Operation and maintenance cost		√
Plant efficiency		√
Change in cost equity		√
Demand	√	
Exchange rate	√	
Fuel cost	√	
Availability, convertibility, transferability	√	
Retail tariff	√	
Sovereign	√	

Source: The World Bank Country Framework Report for Private Participation in Infrastructure, 2000.

Deregulation is not a trivial process. As the case of the Philippine electric power industry has shown, designing an effective regulatory framework and enforcing it is not easy. The absence of clear rules and an appropriate regulatory framework in the early stage of deregulation led to discretionary decision making which resulted in high long-term costs and a societal backlash. More needs to be done particularly in terms of ensuring competition in the industry. Access rules for transmission and distribution (who will be dispatched, in what order, and when) as well as a pricing system (price caps or rate of return minus adjustments for efficiency changes) that would allow consumers to share in efficiency gains are still in need of attention. The Philippines is currently in the process of shifting towards price cap regulation for retail tariffs of all distribution utilities. The regulatory approach for distribution retail tariffs are still based on the rate of return regulation principle with assets revalued on a replacement cost basis. The rate of return base cannot be greater than 12 percent.

With respect to the competition-related provisions of the EPIRA, Llanto and Patalinghug (2004), found some weakness in the cross-ownership stipulation which allows a company to operate or control 30 percent of the installed generating capacity of a grid and/or 25 percent of the national installed generating capacity. This stipulation allows a distribution company to enter into supply contracts with its generation subsidiaries. The classic example is the case of MERALCO's supply contracts with Lopez-owned power plants. Against this context, it is important to study policies prohibiting cross ownership across monopolistic and competitive segments of the production process as this might lead to access problems and conflict of interest.

6.4 Water

The water sector covers three major areas: Metro Manila, provincial urban areas, and rural areas. In Metro Manila, the government privatized water supply and sanitation systems that used to be operated by the government-owned corporation, Metro Manila Water and Sewerage System (MWSS). Through competitive bidding, two private firms, the Ayala-led Manila Water Company, Inc. (MWCI) and Maynilad Water Services Inc. (MWSI) of the Lopezes were granted concessions in 1997 to bill and collect for water and sewerage services in two separate areas[6] for 25 years. In return, the concessionaires would be responsible for the expansion and improvement of water and sewerage services and would assume payment of the loans incurred by MWSS to develop water resources as concession fees. The MWSS Regulatory Office was created to monitor and enforce compliance with contract terms. In the provincial urban areas, the Subic Water and Sewerage was granted, through a competitive bidding, a 25-year exclusive right to provide water supply services within the urban areas of the Subic Bay Metropolitan Authority, Olongapo, and Subic.

Outside the MWSS service area, the supply of water is highly fragmented and installed in a piecemeal method resulting in gaps in the availability of water especially in the rural areas (Llanto, 2002). Water supply facilities have been put up by either water districts, private entities and, to some extent, by local government units in the rural areas. The rural areas are serviced by the rural waterworks and sanitation associations, barangay waterworks and sanitation associations, and LGUs. Under this system Llanto identified two problems, namely, the absence of an able and independent regulator that will regulate water prices and quality and the financial constraints facing new investors. Currently, the Local Water Utilities Administration (LWUA) regulates the water districts while local governments regulate provincial or municipal-based water utilities. The National Water Resource Board (NWRB) regulates and controls the operation of utilities outside the jurisdiction of the MWSS, LWUA, and the local governments.

Table 26 presents the PCMs calculated in the water sector prior to the privatization. It is evident from the table that the PCMs in the sector are very sizeable, although a reduction is

[6] The east concession (awarded to MWCI) covers Angono, Baras, Binagonan, Cainta, Cardona, Jala-Jala, Makati, Madaluyong, Marikina (parts), Morong, Pasig, Pateros, Pililia, Rodriguez, San Juan, San Mateo, Tanay, Taytay, and Taguig while the west concession (awarded to MWSI) covers Bacoor, Cavite City, Imus, Kawit, Las Pinas, Malabon, Manila, Muntinlupa, Navotas, Noveleta, Paranaque, Pasay, Quezon City (parts), Rosario, Taguig (parts), and Valenzuela.

observed in both steam and hot water supply and in the collection, purification, and distribution of water between 1987 and 1997.

Table 26: PCMs in Water

	1987	1991	1994	1997
Steam and hot water supply	0.91	0.87	0.77	0.87
Collection, purification and distribution of water	0.78	0.68	0.63	0.66

Privatization in the water sector has been limited to Metro Manila and the Subic and Olongapo areas. The on-going experience in the privatization of MWSS in Metro Manila is instructive, particularly in the failed privatization in the west zone where lessons for future privatization could be drawn. Four companies submitted bids for the east and west water concessions. In both zones, MWCI won because of its very low base price bid of P2.32 per cubic meter versus MWSI's P4.96 per cubic meter[7]. These were both way below the MWSS base price of P8.78 per cubic meter and even lower than the P5.36 per cubic meter which MWSS charged its customers in 1991. MWSS requested technical assistance from the International Finance Corporation (IFC) in assessing MWCI's bid which some people thought was unsustainable and a stray one. The IFC believed that the MWCI bid was attainable but it expressed concern over the company's access to debt financing, considering that cash flow would be negative in the first ten years of its operation.

The MWSS Regulatory Office applied a price cap mechanism in regulating the two concessionaires. Effectively, the bid base price served as cap on the final tariff that the two concessionaires could charge. In addition, the two firms face a cap on the rate of return, which was set at 12 percent. The price cap could be changed through the extra-ordinary price adjustment (EPA)[8] and rate rebasing process. Yardstick competition could also be used by the MWSS-RO in evaluating the cost and efficiency of the two firms (for as long as collusion is absent).

Immediately after the privatization of the MWSS, prices dropped from P8.78 per cubic meter to P2.32 per cubic meter in the east service area and to P4.96 per cubic meter in the west service area. Before the privatization, MWSS rates rose continuously from P4.61 in 1990, P6.28 in 1992, P6.43 in 1995, P7.41 in 1996 and P8.78 in 1997. Part of the increase was implemented to avoid the probability of a substantial rate increase after privatization, which was deemed politically unsound. The rate increases were also effected to improve water supply and quality.

After less than a year, the two concessionaires filed for EPA increases in 1998 due to the 52 percent increase in the peso-dollar rate and the occurrence of the El Nino phenomenon. Having aggressively bid to win the concession, the impact of the Asian

[7] This draws from Solon and Pamintuan, 2000, "Opportunities and Risks in the Privatization –Regulation of the MWSS" in Philippine Review of Economics, Vol. XXXVII, No.1, UP School of Economics and PES.

[8] This comes every ten years unless the MWSS-RO allows for an early rebasing after 5 years.

financial crisis was heavier on MWCI. The latter requested to raise its base price to P5.55 while MWSI requested P5.70. In October 2001, the contracts between MWSS and the two concessionaires were amended to allow both firms to double their base rates in 2002. This was intended to help MWCI and MWSI cope with the impact of the financial crisis on their costs as well as on the costs of servicing the debt that they agreed to inherit from MWSS. This also paved the way for the firms to revise the concession targets leading to further rate increases beginning in 2003 under the rate rebasing process. The amendment allowed the rate rebasing exercise to take place every five years.

Towards the end of 2002, MWSI announced its decision to terminate the concession agreement because of massive financial losses and failure to pay its loan payments, also called concession fees. Despite two hefty rate increases in 2001 and 2002, it failed to meet its concession targets and its water losses from leaks and theft continued to go up. While MWCI does not face the same financial difficulties due to mismanagement and inefficiency, it has also underperformed the targets that it made when it submitted and won the bid.

In 2003, a Paris-based arbitration panel ordered MWSI to pay the government about P8 billion in overdue concession payments. MWSI in turn petitioned the regional court for debt relief and corporate rehabilitation. In March 2004, the government decided to take over the west concession area with the MWSS controlling the company to be named New Maynilad.

6.5 Air Transport

In 1995, Executive Order 219 deregulated the air transport industry and thus challenged the supremacy of the only designated flag carrier, Philippine Airlines (PAL). It eliminated restrictions on domestic routes and frequencies as well as government controls on rates and charges. In international air transport, it legislated changes in the number of carriers that can be designated as the country's flag carriers and changes in the basis for the negotiation of traffic rights and routes with emphasis on national interest and reciprocity between the Philippines and other countries. In 1992, the government privatized PAL after controlling it for 14 years. PR Holdings won 67 percent shares of PAL. In 1999, Lucio Tan was able to control 90 percent of PAL.

The PCMs in transport services substantially dropped from 67 percent in 1987 to 52 percent in 1991 and further to 49 percent in 1997 (see Table 27). The reduction in margins can be attributed to the substantial competition that resulted after the deregulation of the industry. The initial efforts to liberalize the airline industry started in 1988 with the abolition of the one airline policy. In 1995, deeper market reforms were carried out with the removal of restrictions on domestic routes and frequencies as well as government controls on rates and charges. These reforms allowed the entry of new airlines, namely, Cebu Pacific, Air Philippines, Grand Airways, Asian Spirit, and Mindanao Express, in the industry which was dominated by only one airline, Philippine Airlines, for 22 years. Austria (2002) noted that with greater competition on the major routes, domestic travel has grown rapidly after

deregulation. Competition arising form promotional and discount fares continues to open the air industry to travelers who could not afford to travel by air prior to deregulation. Competition has intensified resulting in lower airfare, improved quality of service and overall efficiency in the industry (see Tables 28 and 29).

Table 27: PCMs in the Air Transport Sector

Year	1987	1995	1997
Air transport	0.674	0.524	0.485

Table 28: Domestic Airline Capacity

Route	1995	1999	2000	2001	2002	2003	2004
Mla-Cebu	1,378,697	1,422,322	1,410,683	1,345,845	1,250,787	1,315,406	1,439,421
Mla-Davao	579,147	711,420	695,368	732,283	747,646	763,270	884,993
Mla-Zam	196,539	218,003	224,613	216,813	213,312	220,252	254,326
Others	4,264,058	3,720,694	3,743,209	3,756,887	3,587,097	3,794,076	4,511,964
Total	6,418,441	6,072,439	6,073,873	6,051,828	5,798,842	6,093,004	7,090,704

Source: Philippine Civil Aeronautics Board

Table 29: Domestic Air Fares (in pesos)

Routes	1995	1999	1999 Prices
Manila-Cebu-Manila	2846	2598	2028
Manila-Davao-Manila	5128	3796	2963
Manila-Zamboanga-Manila	5070	3396	2651

Source: Philippine Civil Aeronautics Board (1995 fares); Philippine domestic airlines (1999 fares) in V.S. Limlingan , October 2002, Open Skies – Is It Time for the Philippines? AIM Policy Center, Vol. 5 No. 8

While deregulation and liberalization have been pursued vigorously in domestic air services, restrictive policies and regulations remain in international air services and the government has yet to adopt deeper reforms. Open skies will allow entry on all routes as well as unlimited capacity and frequency. Currently, trade in air services occurs through a common regulatory framework of bilateral air services agreement (ASAs) between pairs of countries where two countries agree to exchange air rights that would provide their respective carriers equal access to each other's market. The ASAs determine the countries' carriers, capacities and frequencies (in terms of number of flights and number of seats that a designated carrier can operate) for a particular route. Local carriers like PAL continue to oppose accelerated liberalization of air traffic rights as this would prejudice the operations of the local industry with foreign airlines competing more aggressively by offering lower rates (Batino, 2004).

PAL is still the country's uncontested flag carrier in international routes. Austria (2002) noted that the absence of competition in the international routes has resulted in PAL's poor performance and growth. PAL is unable to use all the entitlements in the country's ASAs. It used only 61 percent of the country's traffic rights per week compared to 81 percent by foreign airlines. In nine countries, PAL failed to use any of the country's entitlements.

The limited competition in international air services resulted in reduced passenger traffic, tourists and tourist receipts. For instance, when the Philippines abrogated the RP-Taiwan ASA in 1999, the number of arrivals from Taiwan dropped from 182,914 to only 91,650. This was very costly for the country; as Lim (2004) estimated, the abrogation resulted in foregone losses of 900,000 incoming seats from Taiwan and US$50 million in terms of tourist spending. Lim also indicated that the Middle East market is currently underserved. For instance, while in Asia, there are 0.9 million OFWs and 320 flights, in the Middle East, where there are 1.2 million OFWs, there are only 34 flights weekly. The UAE has requested more flight frequency from the government but apparently had failed to elicit any action on the part of the latter. PAL and Gulf Air (designated carrier of UAE) also have a code-share service between Manila and Abu Dhabi. Gulf Air was also requesting that the second code-shared frequency on the route from Abu Dhabi to Manila and vice versa be regularized. While the Department of Transportation and Communications was in favor of the request, for unknown reasons the Civil Aeronautics Board did not approve the application. PAL also opposed the said request.

In air cargo[9], the Diosdado Macapagal International Airport (Clark Field) and Subic Bay International Airport have been opened to foreign freight carriers through Executive Order 253 issued last December 2003. Since 1995, Fedex, one of the world's largest freight carriers, has been operating in Subic Bay, which it has chosen as its Asia Pacific hub. The facility connects with 19 destinations worldwide and allows the company to do overnight deliveries to the US West Coast. In 2002, UPS invested US$300 million to establish its Asian hub in Clark. UPS delivers packages from Clark to Malaysia, Thailand, China, Singapore, India, Australia, Hong Kong, Japan, and Taipei. Recently, Fedex decided to move its operations to Clark due to space limitations in Subic.

Early this year, the Philippines was set to sign open skies agreement on cargo with Singapore, Thailand, and Brunei. However, the Civil Aeronautics Board decided to defer action until a thorough study is carried out. PAL has strongly opposed the policy citing that only Singapore Airlines, one of the world's biggest cargo airlines, would stand to gain from the agreement.

6.6 Water Transport

Changes in policies and regulations in the shipping industry were first introduced in 1989. These included the removal of the ad valorem charges and deregulation of first and second class passage rates. In 1990, the 3/10 percent valuation surcharge for insurance premiums was abolished and freight rates for refrigerated cargoes, transit cargoes, and livestock were also deregulated. In 1992, further deregulation was made in the freight rates between Class A and Class B cargoes. Through Executive Order 213 of 1994, all freight rates were deregulated except for noncontainerized basic commodities. However, the operators

[9] Air cargo accounts for only two percent of the country's total export volume but in terms of total export revenues, it constitutes around 80 percent of the total.

were not allowed to set their own rates, the Domestic Shipping Consultative Councils (DOSCONs) were created in various regional centers of the country to serve as a forum for negotiating the rates. In 1999, the DOSCON process was finally abolished.

While the reforms led to increases in the number of ship operators and investments in modern facilities, mark-up ratios remained persistently high at around 69 percent for all years under study: 1987, 1995, and 1997. This is in contrast to the experience of the domestic air transport industry where margins declined as new players enter the market.

Table 30 : PCMs in the Water Transport Sector

Year	1987	1995	1997
Water transport	0.675	0.694	0.686

The shipping industry is currently dominated by WG& A, the biggest shipping company in the country in terms of both passenger and cargo businesses. It operates 23 vessels nationwide. It was formed in 1995 after the three shipping giants, William Lines, Gothong Shipping Lines, and Aboitiz Transport merged their operations in response to the market deregulation implemented by the government. In 1998, WG&A posted an increase in sales and landed in the top 500 corporations on sales performance in the Philippines.

Aside from WG&A, there are four other players in the industry consisting of Negros Navigation, Sulpicio Lines, Philippine Fast Ferry Corporation, and Cebu Ferries Corporation. These five corporations control around 90 percent of the total number of passengers (Austria, 2003). Negros Navigation and Sulpicio Lines are incumbent players while Philippine Fast Ferry Corporation and Cebu Ferries Corporation were established after the 1995 reforms. Philippine Fast Ferry is a product of the merger of Universal Aboitiz and Sea Angels Ferry Corporation (a subsidiary of Negros Navigation) in 1998. Cebu Ferries is a new firm established in 1996 as a subsidiary of WG&A.

Austria (2003) noted the weak competition in the industry with only the five players controlling most of the primary routes. Austria also observed that the major players seemed to have divided the market among themselves. About 50 percent of the primary routes only have one operator. Although there are at least two operators in the remaining 50 percent, this has not resulted in effective competition. Out of 26 routes with at least two operators, substantial competition exists only in seven routes, five routes are monopolized and mild competition in the remaining routes. For the secondary and the tertiary routes, almost 59 percent and 78 percent of the routes has been monopolized, respectively.

WG&A, Sulpicio Lines, and Negros Navigation are also top players in the cargo service sub-sector. Together with Lorenzo Shipping and Solid Shipping (purely engaged in cargo services), they account for about 91 percent of the total revenue of the cargo service sub-sector. As in passenger services, Austria (2003) indicated that these five firms control the cargo services market in both the primary and secondary routes.

6.7 Telecommunications

The telecommunications sector, which was dominated by a private monopoly, the Philippine Long Distance Company (PLDT), for more than half a century was liberalized in the late 1980s. This reform process was accelerated with the implementation of substantial policy changes in the early 1990s. In 1992, the cellular mobile service was liberalized. In 1993, Executive Order 59 mandated the interconnection of all carriers while Executive Order 109 opened the basic telephone service to new entrants. These changes together with Republic Act 7925 of 1995 led to the demonopolization of the telecommunications industry. Llanto and Patalinghug (2004), however, noted that RA 7925 tempered EOs 59 and 109 by reducing the roll-out period from five years to three years, thereby making it difficult for new entrants to raise capital. It also reduced the power of the National Telecommunications Commission (NTC) by allowing firms to negotiate their interconnection and access tariffs instead of imposing a standard interconnection contract on the carriers. This resulted in delays in interconnection which is crucial in promoting competition in the sector.

Table 31 : PCMs in the Telecommunications Sector

Year	1987	1995	1997
Telephone service	0.771	0.782	0.841
Telegraph service	0.818	0.827	-
Communication services. N.E.C.	0.884	0.766	-

Table 31 presents substantial price cost margins in the telecommunications sector. Between 1987 and 1995, there was not much change in the PCMs which remained at around 78 percent. This went up to about 84 percent in 1997. It is to be noted that although there are currently more than 280 telecommunications firms, the market is dominated by only three players with PLDT being the most dominant. Due to its ownership of the backbone network and its dominant position in the sector as it accounts for the largest share in the total number of fixed lines and mobile phone subscribers, PLDT has retained its market power. As Abrenica (2000) noted, the biggest challenge for NTC is how to prevent PLDT, which owns and controls the bottleneck facility (the local loop), from discriminating in favor of itself.

6.8 Wholesale and Retail Trade

In the wholesale and retail trade sector, the PCMs seem to be relatively low for both years 1988 and 1995. Exceptions to these are those for two sub-sectors: petroleum wholesaling whose mark-up increased from 11 percent to 28 percent during the two years under study and office and household furniture and appliances wholesaling whose mark-up also rose from 13 percent to 28 percent.

Table 32: Mark-up Ratios for Wholesale & Retail Trade

	1988	1995
Wholesale trade		
Farm, forest and marine products	0.05	0.10
Processed food, beverage & tobacco products.	0.15	0.16

Dry goods, textiles & wearing apparel, wholesaling	0.12	0.17
Construction materials & supplies, wholesaling	0.11	0.09
Office & HH furn., furnishing & appliances and ware, wsalg	0.13	0.28
Machinery and equiptment, including transport equipt., dealing	0.16	0.19
Minerals, metals & industrial chem'ls excpt crude petr prodts, dealing	0.13	0.19
Petroleum prodts, wholesaling	0.11	0.28
Wholesale trade, N.E.C.	0.16	0.18
Retail trade		
Books, office, & schl supplies, incl newspapers & mags, rtlg	0.22	0.22
Food, beverages & tobacco, retailing	0.07	0.10
Construction materials & supplies, retailing	0.12	0.15
Dry goods, textile and wearing apparel, retailing	0.06	0.08
Office & HH furn. & furnishings, appliances and wares, retailing	0.09	0.14
Transport machinery and equipt accessories & supplies, rtlg	0.09	0.11
Medical supplies & equiptment, retailing	0.05	0.02
Petroleum & other fuel products, retailing	0.04	0.08
Petroleum trade, N.E.C.	0.10	0.15

6.9 Productivity

A competitive market economy[10] can allocate scarce resources more efficiently than any alternative system. However, the presence of market imperfections like trade barriers or government regulations that limit market entry can create inefficiencies and lead to reduced long-term growth. This weakens competition and prevents structural changes from taking place resulting in resources being tied to low-productivity industries. Weak competition reduces the pressure on firms to adopt new technology or innovate, resulting in low growth of productivity and a loss of competitiveness.

Table 33 compares the levels and trends in the productivity of labor across the different economic sectors from the mid-1970s to the current period. The results indicate that labor productivity is low and disparities across the three major sectors are wide. Industry has the highest labor productivity, which declined from the mid-seventies to the nineties and showed some signs of improvement in the current period, although it still has not reached its highest average level registered in the mid-1970s.

Within the industry sector, electricity, gas, and water together with mining and quarrying are the leading sub-sectors. Both sub-sectors experienced increases in productivity levels between the mid-1970s and the current period. At present, the electricity, gas, and water sub-sectors posted an average labor productivity level of P 279,600 while mining and quarrying had a productivity level of P 117,280. The average labor productivity in manufacturing remained almost constant till the eighties and even dropped during the nineties. Currently, its average labor productivity is P85,950, which is roughly the same as its mid-1970 level.

[10] A market economy in which every relevant good is traded in a market at publicly known prices and all agents act as price takers. (Mas-colell, Whinston and Green, 1995)

The average labor productivity in the services sector has declined since the mid-1970s. All services sub-sectors have witnessed decreasing labor productivity. The financial and private services sub-sector has the highest average level of labor productivity, although this has been falling after reaching its peak of P272,140 in the 1980s. Transportation, communication, and storage has an average labor productivity of P35,020 which is a slight improvement over its average 1990s level, but still behind its mid-1970s level.

The agriculture, fishery, and forestry sector has the lowest level of labor productivity which remained stagnant from the mid-1970s up to the nineties. Currently, some improvements are evident as its level increased, though modestly, to P18,160.

Table 33: Labor Productivity (in thousand pesos, 1985 constant prices)

Economic Sector	1976-1978	1980s	1990s	2000-2002
Agriculture, Fishery and Forestry	15.87	15.18	15.56	18.16
Industry	87.76	84.00	68.28	76.45
Mining and Quarrying	96.56	82.20	85.80	117.28
Manufacturing	84.09	83.98	78.02	85.95
Construction	90.44	70.61	35.21	40.40
Electricity, Gas and Water	178.96	230.34	216.24	279.61
Services	38.39	34.75	33.00	33.11
Transportation, Storage & Communication	40.79	38.10	32.56	35.02
Wholesale and Retail Trade	41.19	35.79	32.80	30.98
Financing, Insurance, Real Estate & Business Services	184.89	272.14	242.67	214.93
Community, Social & Personal Services	12.21	8.54	8.73	8.83

The considerable profit margins earlier presented along with the low labor productivity in all the major sectors seem to suggest a lack of competition in the economy as well as the presence of substantial market power among firms to raise their prices profitably away from competitive levels. Herrin and Pernia (2003) attributed the deterioration in the country's labor productivity to three factors. These are: the failure of firms to invest in state-of-the-art technology and implement best practice, the lack of investments in human capital due to rapid population growth, and the relatively quick expansion of employment in low productivity services sector.

Table 34: Total Factor Productivity

Year	Unadjusted TFP	Business Fluctuation Adjusted TFP	Year	Unadjusted TFP	Business Fluctuation Adjusted TFP
1981	-2.12	-1.34	1991	-4.63	-1.88
1982	-1.94	-0.15	1992	-3.41	-1.24
1983	-4.63	-1.16	1993	-1.26	-0.84
1984	-8.82	-1.81	1994	0.47	-0.55
1985	-7.81	-2.61	1995	2.09	-0.50
1986	2.30	-2.71	1996	0.91	-1.34
1987	1.26	-1.45	1997	0.48	0.38
1988	6.29	-1.59	1998	-2.02	0.14
1989	1.51	-1.24	1999	2.61	0.54
1990	0.13	0.44	2000	4.27	0.70

Source: Cororaton, PIDS Paper 2002-01

Table 34 presents total factor productivity (TFP) estimates from the 1980s to the late 1990s. As the table shows, TFP estimates were generally negative especially during the 1990s. New estimates are encouraging as these reveal positive TFPs in 1999 and 2000.

7.0 Good Policies, Bad Policies in the Philippine Market Reform Process

7.1 A Summing Up

In the past two decades, the Philippines has implemented a substantial number of appropriate policies, ranging from trade liberalization, deregulation, privatization and other market reforms to promote competition, increase productivity and stimulate economic growth. Against the chaotic years marked by domestic, natural, and external crises, the country struggled to implement these economic reforms. The reforms have yielded some positive results, however, while the Philippine industrial sector was rated second in Asia to that of Japan in the early 1950s, today the country is ranked close to the least successful economic performers. Among the ASEAN countries, the Philippines has the lowest record of industrial growth.

There are many possible reasons, both domestic and international, that could explain the limited gains. The country has gone through a lot of adverse shocks such as the debt and political crises of the 1980s, bouts of political instability in the late 1980s, natural calamities, the recession of the early 1990s, the Asian financial crisis of 1997-98, and another political crisis in the late 1999 up to early 2000. All these could have easily wiped out the gains from previous economic reforms.

A more fundamental reason for the country's low growth is the apparent lack of competition in the economy. Despite the substantial economic reforms that the Philippines has instituted, competition remains weak in a lot of major economic sectors. Sizeable margins have been found in sectors such as beverages, glass and glass products, and cement whose PCMs ranged from 55 percent to 66 percent. In other countries like India, for example, the average PCM during the same period was about 22 percent for beverages, tobacco and nonmetallic mineral products. In Spain, average PCMs were approximately 18 percent for beverages and glass products and 22 percent for nonmetallic mineral products. In the Philippines, the PCM for tobacco was around 66 percent and for chemicals it was 46 percent.

In agriculture, the margins were also found to be relatively large. In 1997, the PCM was around 54 percent in palay as well as in corn and chicken broiler production while sugarcane production had a margin of about 43 percent. In Spain, agricultural and livestock production had a PCM of around 16 percent.

Exceptions are found in the wholesale and retail trade where the lowest PCMs are registered. Except for two sub-sectors, PCMs ranged from 10 percent to 19 percent in

wholesale trade and from 2 percent to 15 percent in retail trade. Substantial reductions in PCMs were observed in the banking sector, particularly in deposit money banks whose PCM declined from 64 percent in 1984 to 34 percent in 1995. PCMs in thrift banks also fell from 49 percent to 33 percent during the same years. Within the manufacturing sector, low PCMs were found in wood and cork, nonferrous metal, petroleum and coal, fabricated metal, leather and leather products, and machinery except electrical where the margins ranged from 13 percent to 22 percent. Significant reductions in PCMs were witnessed in three manufacturing sub-sectors: nonmetallic mineral products, nonferrous products, and petroleum and coal products.

The high margins in certain manufacturing sector may be attributed to the government policy of selective protection. In agriculture, weak competition may be attributed to the presence of high trade barriers along with traditional government regulation and controls particularly in rice and sugar. Note that despite our generally low average import duties, the overall system of protection is highly uneven which has promoted trade and economic distortions. The number of tariff peak products, which are mostly concentrated in agriculture products and related food manufactures, went up especially between 1998 and 2004. The structure of protection has also remained biased for importables as these continue to receive higher levels of protection than exportables. With tariff distortions, problems of inefficient resource allocation arise and this tends to favor highly protected importables at the expense of exportables. Moreover, the highly dispersed protection has promoted lobbying and rent-seeking activities, corrupt practices, and smuggling of products that are subject to high tariffs.

With weak competition, the pressure on firms to adopt new technology or innovate is reduced resulting in low growth of productivity and a loss of competitiveness. The current weak evidence on the increase in competition and productivity may be attributed to the policy reversals that characterized the trade reform process and the adoption of selective protection in the economy. Furthermore, the poor state of the country's infrastructures and the absence of effective competition laws and clear regulatory framework may have undermined the supply side response to the policy changes.

The Philippine trade liberalization experience has spanned more than two decades. However, the transition has been very difficult because of the many backsliding episodes that the trade policy reform process must withstand. Though the average nominal and effective protection rates seem to be low, the reform process is far from complete. The government policy of selective protection has created widely dispersed tariffs and wide variation in protection that has resulted in economic distortions and prevented the reallocation of resources from less to more productive activities within the economy. Moreover, the widely increasing petitions for and use of safeguard measures, anti-dumping and countervailing duties seem to have increased protection.

Since the anti-export bias of the protection system has remained, there is no incentive for firms to export and take advantage of the scale economies arising from trade liberalization. Given the uncertainty created by the government's practice of policy flip-

flopping, there is also no incentive to engage in innovation, which is a risky activity. With the large variation in protection, which creates gains to rent seeking activities, firms would rather engage in lobbying for more protection. All these factors have prolonged the adjustment process and hence, the expected positive results have not been quickly felt. As Rodrik (1989) points out, the primary need for a government engaged in trade liberalization is to establish and bolster its credibility. Allowing the possibility of providing protection amidst the transition process sends a signal to firms that the government will not commit itself to a given policy reform. This can negatively affect the performance of firms and can lead to so-called time-inconsistency problems. The firms do not adjust because they expect to obtain further protection in the future. When the future comes, it may not be politically optimal for the government not to grant such protection.

All the infrastructure sub-sectors have very large margins that are generally much higher than those found in the manufacturing and agriculture sectors. In 1997, the PCM for electricity was 50 percent, water transport: 69 percent, air transport: 49 percent, and telecommunications: 84 percent. While high margins are expected in most of the infrastructure sectors like electricity, water, and telecommunications because they require high sunk costs and economies of scale in order to be profitable, the PCM trends in the various infrastructure sectors seem to vary in response to the liberalization and deregulation.

In the power sector, PCMs increased despite the opening up of the generation sector to private sector participation. A closer examination of the deregulation and liberalization that took place would reveal that the competition that emanated from these reforms was very limited. In the absence of a clear regulatory framework, the National Power Corporation carried out negotiated deals resulting in generous take or pay contracts that unduly favored the independent power producers and merely transformed the National Power Corporation from a monopolist to a monopsonist in the energy market.

In the air transport sector, there were clear reductions in PCMs between 1987 and 1997 as the sector was deregulated. PCMs declined from 67 percent to 48 percent during this period as new players entered into the domestic air transport services sector which used to be a monopoly. In Spain, the PCM for activities related to air and sea transport is around 46 percent. It is important to note, however, that restrictive policies remain in the international air services sector.

In the water transport sector, PCMs remained unchanged at around 69 percent during the period 1987 to 1997 despite the entry of new players owing to the liberalization of the sector. In the telecommunications sector, the liberalization resulted in a wide range of benefits. Nevertheless, the PCMs went up from 77 percent in 1987 to 84 percent in 1997. While there are a lot of new players in the telecommunications sector, incumbent PLDT which is vertically-integrated still dominates the market and owns and controls the bottleneck facility. Interconnection still remains a regulatory challenge.

7.2 Policy Implications

The question of how trade liberalization affects competition and productivity growth is a real and important one. Competition is the main channel through which liberalization affects the economy. Competition fosters innovation and technology adoption which leads to increases in competitiveness and growth that will have large consequences for poverty and inequality.

Institutional and physical environment are important

The country's more than twenty years of trade reform show that the institutional environment matters in the extent to which trade liberalization will be able to enhance competition and growth. The **policy environment of backsliding and conflicting policy pronouncements create a lot of uncertainty such that the government loses its credibility** in implementing reforms. This has dampened firms' incentives to become efficient and has fostered rent-seeking behavior.

Adoption of uniform tariff policy

To reduce market power and stimulate competition, the government needs to reduce current high tariffs towards the adoption of a more uniform tariff rate. A uniform tariff policy will reduce the gains to industry lobbying and thus, reduce the incentive to lobby for protection. This will also address the current distortion in the protection system where intermediate inputs (such as petrochemicals, float glass, steel) have higher tariffs than final user products.

Replace tariff quotas with high single tariffs

In agriculture, government-induced barriers to imports such as import restrictions in rice, tariff quotas in other agriculture crops and related food manufactures and traditional government regulations and price controls continue to be significant. The presence of non-tariff barriers in agriculture continues to adversely affect the competitiveness of food manufactures that use agriculture inputs such as sugar and other crops including livestock products.

To encourage competition, the government should contemplate the removal of these trade and regulatory barriers. This would entail the removal of quantitative restrictions on rice and replacing these with high tariffs as well as the removal of tariff quotas under the Minimum Access Volumes and replacing these with single tariffs. A reassessment of the roles of the National Food Authority and Sugar Regulatory Administration is also needed in the light of new market realities.

Strengthen regulation and competition laws in the infrastructure sector

In the infrastructure sectors which are characterized by the presence of sunk costs and economies of scale, while deregulation and entry liberalization are powerful instruments to discipline incumbent monopolies, by themselves, these policies are not sufficient to ensure that markets perform efficiently. In the absence of clear rules and appropriate regulatory framework as well as efficient regulators, effective competition cannot be guaranteed. In telecommunications, interconnection remains a regulatory challenge. In air transport, reforms need to be deepened through the liberalization of international air transport. In water transport, the regulatory framework and competition laws especially mergers and consolidations need to be drawn.

Increase investment: infrastructure, human capital, computers, machines, state of the art technology and other forms of capital

Currently, complementary policies and institutions that are necessary to support the reforms in order to generate supply-side responses that lead to employment and growth are missing. If market reforms such as trade liberalization, deregulation, and privatization are to have their intended effects, "behind the border" complementary policies that define the business environment or the so-called "competitive infrastructure" need to be addressed. These policies would include investment in human capital, infrastructure, and the quality of governance in the country.

Equally important is the need to increase investment in computers, machines, and other forms of capital. Both capital accumulation and innovation are critical ingredients to long-run growth. In line with Joseph Schumpeter's idea of creative destruction[11], Aghion and Howitt (1998) emphasized that openness to change and innovation is an important characteristic of countries that become the economic leaders of their time. Firms that survive the competitive struggle do not do so much by varying price and quantity but by innovating.

Unify existing competition laws and promote education and information dissemination programs

Considering the lack of a competition tradition in the country, significant emphasis should be placed on the development of broad public support through education programs along with efforts to unify the existing competition law which are currently fragmented and implemented by many different government agencies. Note that the shift from import substitution to a more open economy requires the rule of law together with efficient institutions that will support growth and institutional change. While the Philippines has done a lot of market-oriented reforms; much remains to be done in terms of legislating effective rules and regulations as well as in creating efficient institutions.

[11] The competitive process by which firms are constantly seeking for new ideas to make their rivals' ideas obsolete.

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APPENDIX 1: PCMs in India and Spain

Table 1 : Average PCMs in India

Code	Description	73-74 to 90-91 average	1995-96 to 97-98 average
20-21	Food products	0.077	0.094.
22	Beverages & tobacco	0.155	0.223
23	Cotton textiles	0.098	0.099
24	Wool, silk & man-made fiber textiles	0.138	0.149
25	Jute textiles	0.050	0.040
26	Textile products	0.112	0.166
27	Wood, wood products, furniture	0.135	0.165
28	Paper, paper products, printing & publishing	0.166	0.160
29	Leather, leather products	0.078	0.116
30	Chemicals, chemical products	0.173	0.224
31	Rubber, plastic, petroleum & coal products	0.105	0.140
32	Non metallic products	0.182	0.221
33	Basic metals & alloys	0.131	0.183
34	Metal products	0.142	0.144
35	Machinery	0.164	0.175
36	Machinery	0.163	0.173
37	Transport equipment	0.138	0.165
38	Other manufacturing	0.133	0.169

Source: B. Goldar and S.C.Aggarwal, April 2004, "Trade Liberalization and PCM in Indian Industries", Working Paper 130, Indian Council for Research on International Economic Relations.
PCM=(Gross Value Added – Total Emoluments)/Value of Output

Table 2: Average PCMs in Spain

Code	Description	1983-96 average
6	Meat industry	0.087
7	Fish based products	0.095
8	Dairy industry	0.099
9	Beverages	0.184
10	Other food products	0.120
14	Basic chemicals	0.178
15	Pharmaceuticals	0.166
16	Other chemical industries	0.147
17	Glass products	0.186
18	Ceramics	0.175
19	Other non-metallic mineral products	0.219
21	Metal products except machinery & equipment	0.145
22	General use machinery	0.145
23	Industrial & agricultural machinery	0.142
25	Domestic apparatus	0.132
27	Electrical machinery & equipment	0.137
28	Electronic components, tv & radio equipment	0.149
29	Watch making, medical & optical equipment	0.148
31	Vehicle bodywork & equipment	0.142
34	Textile fibers	0.169
35	Textile cloth	0.148
36	Other textiles	0.143
37	Clothing: textile & leather	0.125
38	Shoes & other leather products	0.103
39	Wood & cork	0.127
40	Pulp & paper	0.139
41	Printing & publishing, graphics arts	0.207
42	Rubber products	0.136
43	Plastic products	0.155
44	Other manufacturing industries	0.137

Source: G. Siotis, 2003, "Competitive Pressure and Economic Integration: An Illustration for Spain, 1983-1996", International Journal of Industrial Organization.
PCM = (value of sales +△inventories – payroll – cost of materials)/(value of sales +△ inventories) where △ stands for "changes in".

APPENDIX 2: Alternative Methods of Measuring Price Cost Margins

A. Hall Method

Hall's approach in estimating mark up draws on Solow's (1957) seminal article on estimating productivity growth. The Solow residual or total factor productivity under perfect competition is given by:

$$\Delta q_t - \alpha_t \Delta \eta_t = \theta_t \qquad (1)$$

where
Δq: rate of growth of output/capital ratio or $\Delta \log(Q/K)$
α: factor share earned by labor or wN/pQ (ratio of compensation wN to total revenue pQ)
$\Delta \eta$: rate of growth of labor/capital or $\Delta \log(N/K)$
θ: rate of Hicks-neutral technical progress or $\Delta \log \Theta$

Assuming that the rate of technological progress can be described as a random deviation from an underlying constant term, that is, $\theta_t = \theta + \varepsilon_t$ where θ is a constant growth rate and ε_t is a random term, the above equation becomes

$$\Delta q_t - \alpha_t \Delta \eta_t = \theta + \varepsilon_t \qquad (2)$$

For a firm with a fixed capital stock and unchanging technology over time, marginal cost x is measured as

$$x = w\Delta N / \Delta Q \qquad (3)$$

where
ΔN: change in labor input
w: wage rate
ΔQ: change in output.

Multiplying both sides by 1/Q, equation (3) can be rewritten as

$$\Delta Q/Q = (wN/xQ)(\Delta N/N) \qquad (4)$$

where
$\Delta Q/Q$: rate of growth of output
wN/xQ: factor share or ratio of compensation to output valued at marginal cost
$\Delta N/N$: rate of growth of labor input.

Let $\mu = p/x$, then the relationship becomes

$$\Delta q_t = \mu_t \alpha_t \Delta \eta_t \qquad (5)$$

with perfect competition, $\mu=1$.

Allowing capital stock to vary over time and technical progress, marginal cost is measured as

$x = (w\Delta N + r\Delta K)/(\Delta Q - \theta Q)$ (6)

where
$r\Delta K$: cost of the change in capital stock
r: service cost of capital
θQ: amount by which output would have increased in the absence of additional labor or capital assuming Hicks neutral technical progress occurs at rate θ.

Multiplying both sides of equation (6) by $(\Delta Q - \theta Q)$ and dividing both sides of the result by Q, the equation becomes

$\Delta Q/Q = (wN/xQ)(\Delta N/N) + (rK/xQ)(\Delta K/K) + \theta$ (7)

where β is equal to (rK/xQ) or factor share earned by capital.
Without constant returns to scale, $(\alpha + \beta) > 1$.

With constant returns to scale, $(\alpha + \beta) = 1$. By substituting $\beta = [1 - (wN/xQ)]$ into equation (7) and rearranging the terms,

$\Delta Q/Q - \Delta K/K = (wN/xQ)(\Delta N/N - \Delta K/K) + \theta$ (8)

With imperfect competition and using the earlier notations, this becomes

$\Delta q_t = \mu_t \alpha_t \Delta \eta_t + \theta_t$ (9)

The relation between price and marginal cost is found by comparing the actual growth in the output/capital ratio with the growth that would be expected given the rate of technical progress and the growth in the labor/capital ratio.

By adding and subtracting the term $(\alpha_t \Delta \eta_t)$ in the LHS of the above equation, the Solow residual under imperfect competition becomes

$\Delta q_t - \alpha_t \Delta \eta_t = (\mu_t - 1)\alpha_t \Delta \eta_t + \theta_t$ (10)
where $\theta_t = \theta + \varepsilon_t$.

This cannot be directly estimated by simple OLS because the error term includes productivity shocks that are correlated with the explanatory variables leading upwardly biased mark up coefficients. Hall proposed the use of instrumental variables to overcome this problem, but the relative merits of the instrumental variable estimates over the simple OLS are not clear cut.

B. Roeger Method

Werner Roeger (1995) proposed a different way to overcome the identification problems arising from the correlation between the explanatory variable and the error term. The basic intuition of Roeger's approach is that both the primal and dual Solow residuals contain the same unobservable productivity term which can be cancelled out if one residual is subtracted from the other.

Consider a firm with a linear homogeneous production F $(N_t, K_t)E_t$ for value added Y_t where N_t represents labor input, K_t is capital input, and E_t a shift variable representing changes in productive efficiency, Roeger started with Hall's equation (28). He rewrote the Solow residual (SR) under imperfect competition as:

$$\Delta y_t - \Delta k_t = \mu_t \alpha_t (\Delta \eta_t - \Delta k_t) + \theta_t \qquad (11)$$

where lowercase variables indicate log differences.

By substituting $\mu = 1/(1-B)$ which gives the relationship between the price cost margin B and the mark up μ, the Solow residual (SR) can be rewritten as:

$$SR_t = (\Delta y_t - \Delta k_t) - \alpha_t (\Delta \eta_t - \Delta k) = B (\Delta y_t - \Delta k_t) + (1-B) \Delta e_t \qquad (12)$$

In deriving the dual residual under imperfect competition, Roeger assumed a general cost function C(.) for a representative firm operating under constant returns to scale:

$$C(W_t, R_t, Y_t, E_t) = [G(W_t, R_t)Y_t]/E_t \qquad (13)$$

where
W_t :price of labor
R_t : price of capital
Y_t : value added
E_t : technical progress

The function C(.) is homogeneous of degree 1. The marginal costs (MC_t) are given by:

$$\partial C_t/\partial Y_t = MC_t = G(W_t, R_t)/E_t \qquad (14)$$

Taking the logarithm of both sides of equation (14)

$$\text{Log } [\partial C_t/\partial Y_t] = \text{Log } [G(W_t, R_t)/E_t] \qquad (15)$$

Differentiating with respect to time yields

$$(\partial MC_t/\partial t)/MC_t = [G_W (\partial W_t/\partial t)]/G(W_t, R_t) + [G_R (\partial R_t/\partial t)]/G(W_t, R_t)] - (\partial E_t/\partial t)/E_t \qquad (16)$$

where $G_W = \partial G(W_t, R_t)/\partial W$ and $G_R = \partial G(W_t, R_t)/\partial R$

Multiplying the first and second terms of the RHS by W_t/W_t and R_t/R_t, respectively, equation (14) can be rewritten as

$$(\partial MC_t/\partial t)/MC_t = [(G_W W_t)/ G] [(\partial W/\partial t)/W_t] + [(G_R R_t)/ G] [(\partial R/\partial t)/R_t] - (\partial E_t/\partial t)/E_t$$

Then,

$$\Delta mc_t = [(G_W W_t)/ G]\Delta w_t + [(G_R R_t)/ G]\Delta r_t - \Delta e_t \qquad (17)$$

Using Shephard's lemma,
$G_W = E_tN_t/Y_t$
$G_R = E_tK_t/Y_t$

By substituting the above into equation (15)

$$\Delta mc_t = [(E_tN_tW_t)/ Y_t G(.)]\Delta w_t + [(E_tN_tR_t)/ Y_t G(.)]\Delta r_t - \Delta e_t \quad (18)$$

With constant returns to scale, $[(E_tN_tW_t)/ Y_t G(.)] + [(E_tN_tR_t)/ Y_t G(.)] = 1$

By substitution, $\Delta mc_t = [(E_tN_tW_t)/ Y_t G(.)]\Delta w_t + [1- \{(E_tN_tW_t)/ Y_t G(.)\}]\Delta r_t - \Delta e_t$

Replacing the cost function (see equation 11) into the above yields

$$\Delta mc_t = [(N_tW_t)/ C(.)]\Delta w_t + [1- \{N_tR_t/ C(.)\}]\Delta r_t - \Delta e_t \quad (19)$$

We know that $P/ \mu = MC$. By substituting equation $\mu = 1/(1-B)$ and equation (14), the relation between price and marginal cost can be defined as

$$(1-B)P_t = MC_t = G(W_t, R_t)/E_t \quad (20)$$

$(1-B)\Delta p_t = \Delta mc_t$

By substituting equation (19), the difference between the change in price and a weighted average of changes in factor prices, the dual or price-based Solow residual is defined by

$(1-B)\Delta p_t = [(N_tW_t)/ C(.)]\Delta w_t + [1- \{N_tR_t/ C(.)\}]\Delta r_t - \Delta e_t$

This can be rewritten as

$$\alpha_t\Delta w_t + (1-\alpha_t)\Delta r_t - \Delta p_t = -B[\Delta p_t - \Delta r_t] + (1- B)\Delta e_t \quad (21)$$

Denote the left-hand side of the above equation by SRP_t. By subtracting it from SR_t (equation 12), the unobservable productivity term is cancelled out. Adding an error term u_t, the following expression is obtained

$SR_t - SRP_t = B\Delta x_t + u_t$ or

$$\Delta y_t = B\Delta x_t + u_t \quad (22)$$

where Δy_t, the difference between the primal and the dual Solow residual, and Δx_t are defined as:

$\Delta y_t = (\Delta y_t + \Delta p_t) – \alpha_t (\Delta \eta_t + \Delta w_t) – (1- \alpha_t) (\Delta k_t+\Delta r_t)$
$\Delta x_t = B[(\Delta y_t + \Delta p_t) + (\Delta k_t+\Delta r_t)]$

The above (equation 22) is a very simple equation which can be used to estimate the Lerner index B through standard OLS.

C. The Model

The methodology in this paper is based on Hall and Roeger, with a slight variation. Raw material costs are added as an additional input in the production function following Oliviera Martins et al (1996) and Warzynski (2002).

Assume a Cobb-Douglas production function of the type:

$Q_j = \theta_j F(L_j, M_j, K_j) = \theta_j L_j^{\alpha j} M_j^{\beta j} K_j^{1-\alpha j-\beta j}$
where :
j is the industry-sector index
θ_j is level of productivity
K_j is capital
L_j is labor input
M_j is raw material input
$\alpha_j = (W_j L_j)/P_j Q_j$ is the share of wage payments to labor in total income
$\beta_j = (P_j^m M_j)/P_j Q_j$ is the share of raw material costs in total income
$(1-\alpha_j-\beta_j) = R_j K_j/P_j Q_j$ is the share of rental payments to capital in total income

Following Solow (1957), the growth rate of aggregate output is decomposed as the growth rate of productivity and the weighted average of the growth rates of the three inputs, where the weights are the corresponding input shares:

$$dQ_j/Q_j = d\theta_j/\theta_j + \alpha_j dL_j/L_j + \beta_j dM_j/M_j + (1-\alpha_j-\beta_j) dK_j/K_j$$

where d denotes time derivative

Under perfect competition, the Solow residual which indicates the rate of change of total factor productivity is denoted as

$$SR^{pc} = dQ_j/Q_j - \alpha_j dL_j/L_j - \beta_j dM_j/M_j - (1-\alpha_j-\beta_j) dK_j/K_j = d\theta_j/\theta_j$$

Based on Hall's approach, under imperfect competition, the Solow residual takes the form

$$SR = dQ_j/Q_j - \alpha_j dL_j/L_j - \beta_j dM_j/M_j - (1-\alpha_j-\beta_j) dK_j/K_j = B_j (dQ_j/Q_j - dK_j/K_j) + (1-B_j) d\theta_j/\theta_j$$

where $B_j = (P_j - MC_j)/P_j = 1 - 1/\mu$ is the price cost margin or Lerner index.

Werner's price based or dual Solow residual under imperfect competition is given by

$$SR^* = \alpha_j dW_j/W_j - \beta_j dP_j^m/P_j^m + (1-\alpha_j-\beta_j) dR_j/R_j - d P_j/P_j = - B_j (dP_j/P_j - dR_j/R_j) + (1-B_j) d\theta_j/\theta_j$$

By subtracting SR^* from SR,

$$SR - SR^* = (dQ_j/Q_j + d P_j/P_j) - \alpha_j (dL_j/L_j + dW_j/W_j) - \beta_j (dM_j/M_j - dP_j^m/P_j^m) - (1-\alpha_j-\beta_j) (dK_j/K_j + dR_j/R_j) = B_j [(dQ_j/Q_j + d P_j/P_j) - (dK_j/K_j + dR_j/R_j)] + u_j$$

where u_j is a white noise error term.

The above equation is used to estimate price cost margins as indicated by $B_j = (P_j - MC_j)/P_j$. Empirically, the equation is measured as follows

$$(dq_j + d p_j) - \alpha_j (dl_j + dw_j) - \beta_j (dm_j - dp_j^m) - (1-\alpha_j - \beta_j) (dk_j + dr_j) = B[(dq_j + d p_j) - (dk_j + dr_j)] + u_j$$

denoting

$$dy_j = (dq_j + d p_j) - \alpha_j (dl_j + dw_j) - \beta_j (dm_j - dp_j^m) - (1-\alpha_j - \beta_j) (dk_j + dr_j)$$

$$dx_j = (dq_j + d p_j) - (dk_j + dr_j)$$

where the small letters denote logarithms and d (logarithmic) differences approximating growth rates.

The final equation becomes

$$dy_j = Bdx_j + u_j.$$

The above equation is used to estimate average price cost margin as an indicator of market power. In estimating the price cost margin, we used the following information from the National Statistics Office Annual Survey of Manufacturing Establishments and Census of Manufacturing Establishments: sales, wage bill, raw material costs, book value of fixed tangible assets, and depreciation. The rental price of capital R_j was calculated using the following method (Jorgenson and Hall, 1967):

$$R_j = PI (RI + \delta)$$

where PI stands for index of investment goods prices, RI stands for the real interest rate and δ is depreciation rate. It is assumed that the markups are constant for all firms within the same sector.

APPENDIX 3: Industry Case Studies

Case 1: Cement

The cement industry developed under a complex policy package of protection, promotion and regulation. A government sponsored-cartel evolved as a government regulator was established in 1973 to regulate entry, allocate supply, and control prices. During the 90s, deregulation and trade liberalization were implemented in the industry.

Prior to 1997, the industry was dominated by three big domestic Filipino groups. A wave of mergers and acquisitions took place right after 1997 Asian crisis. Currently, the industry is divided into three major groups: Phinma/Holcim, Lafarge/Blue Circle, and Cemex.

Between 1987 to 1999, the cement industry remained highly concentrated with CR4 ranging from 93% to 100%. After the mergers and acquisitions, cement price increases were observed beginning in 1999. Prior to this, big drops in prices starting in mid 1997 eventually leading to a price war were observed. After hitting a price of P45/bag in December 1998, the lowest level hit during the price war period, prices began to increase in a simultaneous fashion between January 1999 up 2000. In May 2000, ex plant price/bag was already P110 and reached around 140-145 per bag in 2001.

These price increases occurred at a time characterized by excess supply, which ballooned from 5 million bags in 1996 to 10 million bags in 1998 and 1999. While demand remained depressed and the industry wallowed in excess capacity which was below 50% in 1999, prices kept on rising. Their sales revenues grew by 25% despite a 12% reduction in production growth and a 130% increase in import growth in 2000. Note that the price increases coincided with reduced tariffs as well as entry of imports.

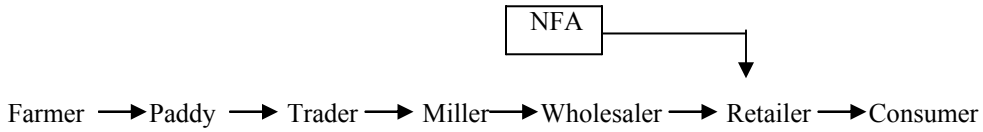
Indicators	1995	1996	1997	1998	1999	2000
Total Domestic Supply (in '000 bags)	277810	328288	380280	332620	318772	
Total Domestic Demand (in '000 bags)	277237	323821	372210	322362	308594	
Excess Supply (in '000 bags)	573	4467	8070	10258	10178	
Ave.Ex-plant Price (in pesos per bag)	92.33	100.97	94.92	72.75	85.17	
Capacity Utilization Rate (in %)	93.44	88.15	80.05	50.26	48.97	
Production (in million MT)		12.43	14.68	12.89	12.56	11.96
Sales (in MT)		12.27	14.54	12.7	11.87	10.48
Revenues ('000 pesos)					22.77	29.3
Imports (in million bags)	12.01	16.99	8.79	4.5	11.86	39.48

Source of basic data: Philcemcor
Note: Total supply = [domestic production + imports + inventory – exports]
Total demand = [domestic sales + imports]

Consumer groups threatened to file a criminal case against the industry which they accused of engaging in cartel activities, but this never prospered. The House Committee on Trade and Industry and the Department of Trade and Industry immediately conducted investigations but no resolution was made. The industry, through its very strong association, Philcemcor, was able to divert government's attention from the cartel issue by filing an antidumping case against imports. The Tariff Commission (TC), however, failed to find sufficient evidence to prove that the industry suffered serious injury from imports. However, DTI reversed the decision of the Tariff Commission by granting safeguard measures to protect the industry against imports. Recently, the Supreme Court voided the safeguard duty on imported cement, thus nullifying the earlier DTI decision.

Case 2: Rice

Rice is a staple food in the country and the single most important crop in the agriculture sector, hence it has become a political commodity.



The figure above outlines the different marketing channels where rice flows through from the farmer to the consumer. Paddy traders purchase paddy from farmers for resale to rice millers, wholesalers, and retailers. Ricemillers dry, store, and mill paddy into rice, subsequently transporting and selling the rice to wholesalers and retailers.

The government through the state-owned National Food Authority (NFA) has monopoly control over international trade in rice and corn. The NFA also engages in domestic marketing operations to stabilize rice prices and lessen regional differences in rice. NFA intervenes in domestic pricing through its policy of setting a price floor to maintain a reasonable return to farmers and defending a price ceiling to ensure low prices to consumers. It also controls rice imports through a quantitative restriction on imported rice. Given its conflicting objectives, studies showed that NFA has suffered considerable losses while prices have been volatile and farmers' incomes have been low. Excessive and costly government regulation in rice failed to stabilize supply and prices. Studies also indicated that NFA's inefficient management of rice importing and buffer stock operations often resulted in abnormal seasonal fluctuations and widening regional price differences.[1]

Farm prices have continued to remain below palay support prices. The profit squeeze has resulted in less investment in postharvest facilities and reduced planting due to the lack of incentives in terms of more attractive palay prices. Meanwhile, newspaper reports blame the price manipulations being done by the rice cartel to maintain low farmgate prices. The high level of protection conferred on rice has resulted in domestic wholesale rice prices being double what they would be if unrestricted private sector imports were allowed (Cororaton, 2004). In terms of the gap between the domestic retail price of ordinary rice and the world price for the same rice variety, the same study indicated that the gap has widened from 20 percent in 1989 to 130% in 2001. Currently, farmers and other private sector importers are allowed to make some of the importations, however, the NFA still has full authority on the quantity of imports and who receives the import licenses and the rules and procedures that must be adhered to.

Case 3: Sugar

The sugar industry is another agricultural crop that has been heavily regulated and protected by the government. Government intervention in the industry has been extensive because of the need to divide the higher than normal returns among millers and planters due to the Philippine's preferential access to the US sugar market which the country enjoyed till the 1980s.

The government set up the Sugar Regulatory Administration (SRA) to control and regulate the sugar market. It classifies all sugar produced and imported in the country into different classes by type of market: "A" for US, "B" for domestic consumption, "C" is reserve sugar, and "D" is sugar for export to other countries other than the US and E for input into processed for export. SRA also enforces the production sharing system (known as quedan system) between domestic planters and millers. At the start of the crop year, SRA estimates total domestic production and issues a Sugar Order stating the percentage allocations for various categories. These percentages are applied to the raw sugar produced at the sugar mill from the cane produced from each farm.

Aside from traditional regulation, sugar has been heavily protected. Although the quantitative restrictions on sugar were lifted in 1992, these were replaced with tariff quotas under the MAV. This allowed the importation of raw and refined sugar within the minimum access volume (MAV) at 50% in-quota tariffs in 1996. Volumes of imported refined sugar beyond the MAV are levied a higher tariff rate of 100% in 1996. This declined to 80% in 1997 and to 65% in 1999.

In terms of performance, output and industry productivity have declined. The industry's costs of production are higher than Thailand, Australia, Brazil, or South Africa. Investments in new technology are limited to only a few firms. In 1991-92, the average recovery rate of Philippine mills was 78% while in Australia the average was 92%. To improve recovery rates, the country's sugar mills need to be upgraded.

Because of the declining sugar production in the country, the Philippines has been a net importer of sugar such that every year the MAV has to be raised. In 1999, the Philippines imported 500,000 metric tons of sugar. In 1998, domestic prices of sugar in the country skyrocketed despite a worldwide sugar glut because of delays in importation and the milling process. There are reports that the presence of a cartel in sugar trading pushed the prices of sugar upward, in spite of the falling sugar prices abroad. Large groups were able to corner the bulk of importations The group of controversial trader Margarita Sia (who also controlled a big sugar conglomerate) was able to get one-half of the total 300,000 metric tons of the Philippine sugar trade (Dumlao, 2000). The same report noted that her group was also engaged in sugar smuggling. Despite the worldwide glut in sugar, Filipino consumers never get to enjoy low sugar prices as they continue to pay high prices due to the heavy protection provided by the government to the industry. Domestic food processors and beverage companies have been clamoring for the reduction of sugar tariffs.

The present quedan system and the Sugar Regulatory Administration's powers of market classification remain as barriers to effective competition in the industry. The high mark-ups in the industry can be attributed to the weak competition in the sugar sub-sector. The sugar sharing system poses a disincentive for producers to make the necessary investments which would lead to the uptake of the best technology and practices to increase productivity and lower costs. Under the quedan system, which provides cane growers and millers equal access to premium markets, producers are penalized for increasing productivity and output. A small increase in production would lower the domestic price for all output and reduce gross revenues. In the absence of effective competition, there is very little incentive for firms to modernize and improve their efficiency.

Case 4: Poultry and Chicken

The poultry and chicken subsector together with the livestock industry that includes other animals are the main sources of meat and eggs in the economy. The poultry subsector is dominated by five major integrators that control almost 80 percent of the chicken supply in the Philippines, with the remaining 20 percent supplied by other commercial farms and backyard raisers. The five biggest firms consist of Swift Foods, Vitarich Corporation, San Miguel Foods, Purefoods, and Tyson's Agroventures. The San Miguel Group owns both San Miguel Foods and Purefoods.

Tariff quotas under the minimum access volume (MAV) are imposed on poultry and chicken. The MAVs are set by the Department of Agriculture in consultation with the domestic industry. The DA is also responsible for allocating the MAV as well as the issuance of MAV certificates.

	1998	1999	2000	2001	2002	2003	2004	2005
In-quota	45	45	45	45	40	40	40	40
Out-quota	80	60	60	60	60	40	40	40

Beginning in 2003, the in and out quota rates imposed on chicken (fresh, chilled, or frozen) imports have been reduced to a uniform rate of 40 percent. However, an additional duty of 15 percent under Republic Act 8800 known as the Safeguard Measures Act has been imposed on out-quota imports.

In the last quarter of 2003, the price of dressed chicken started to go up from a monthly average of P85.80 per kilo in September to P89.43 per kilo in October. In anticipation of the high demand in December, the Department of Trade and Industry moved to allow the importation of one million kilos of dressed chicken. The DTI even announced that the government would not allow chicken prices to go beyond P100 per kilo and considered reducing the tariff on chicken imports. The Department of Agriculture and local growers, however, disagreed and insisted that there was sufficient supply of chicken to last till the December holidays. The Bureau of Animal Industry argued that total broiler output would reach 152.02 million birds in the fourth quarter of 2003, 17 percent higher than the 129.8 million birds in 2002. By 2004, the DA added that the Philippines would start to export chicken meat. The DA noted that the rising chicken prices was not due to a supply shortage but to the high prices of corn, a major ingredient in feed production. The storms badly affected corn production during the second and third quarters of 2003 and this was aggravated by the failure of NFA to import corn during the period.

While government officials engaged in endless arguments, chicken prices further went up to P95.48 in November, P107.2 in December and P113.22 in January 2004. In December 2003, prices soared to unheard of levels of P140-150 per kilo. Prices, however, dropped to P92.81 in February and to P85.32 in March 2004 as a result of the bird flu outbreak that hit Asia. With the government announcement that Philippine chicken was safe, in May, another shortage occurred as prices again started to increase. This time, however, the Department of Agriculture correctly decided to allow the importation of 10 million kilos of chicken in order to ease the shortage and temporarily suspended the imposition of the 15% special safeguard measure duty.

The local poultry raisers did not welcome this move and complained that they have not been consulted by the DA in setting these import volumes. The United Broiler Raisers Association, meanwhile, pointed at the wet markets as the sources of the price increases. The Philippine Association of Broiler Integrators, Inc. indicated that their price increases have been due to the rising price of feeds. It is common knowledge in the industry that when feed prices are high, broiler integrators would rather kill young chicks. Although, in early March, the DA approved the tariff-free importation of 350,000 metric tons of yellow corn. Recent newspaper articles expressed concerns on what was perceived as price manipulation and cartel behavior among chicken raisers.

APPENDIX 4: Estimating Total Factor Productivity (TFP)

A. Levinsohn-Petrin (LP) Method

While plant entry and exit, employment and wages are directly observable, productivity can not be directly observed and is often difficult to measure. The traditional way of measuring productivity at the plant level is to compute value-added per worker. While this is easy to calculate and reflects labor productivity, it focuses productivity measurement only on labor which can be misleading. Levinsohn and Petropolous (2000) cited two problems:

Suppose it was possible to purchase a machine that allowed a single person to run an entire textile plant, but that this machine cost several billion dollars. Output per worker would be huge, but as a business decision, purchasing the machine would be stupid. One needs to account for the other inputs into the production process and this quickly leads one to measures of total factor productivity.

Another, more subtle, problem with using output per worker to measure productivity is this strongly biases one toward finding a trade-off between productivity changes and employment changes. Holding output constant, the only way plant-level productivity (by this measure) will increase is if workers are laid off. With more accurate measures of productivity, it is easier to have both jobs and increased productivity.

Measures of total factor productivity capture the efficiency with which inputs of capital and labor are used. The simplest way of computing TFP is to estimate a production function using ordinary least squares (OLS) and use the residual from such a regression as the measure of productivity. The problem with this method as pointed out by Marschak and Andrews (1944) is the correlation between unobservable productivity shocks and input levels, which is the key issue in the estimation of production function. Profit-maximizing firms respond to positive productivity shocks by expanding output which requires additional inputs. Negative shocks lead firms to pare back output, decreasing their output usage. When this happens, OLS estimates of production functions will yield biased estimates and by implication, biased estimates of productivity.

The usual way to address this econometric endogeneity is to use Instrumental Variables estimator. However, finding a valid instrument is difficult. The current state-of-the-art in measuring productivity was developed by Olley and Pakes (1996). They developed an estimator that uses investment as a proxy for unobservable shocks. Building on the work of Olley and Pakes, Levinsohn and Petrin (2000) developed a methodology for estimating plant-level productivity that uses intermediate inputs as proxies. Levinsohn and Petrin argue that intermediates may respond more smoothly to productivity shocks. Investment is very lumpy and requires substantial adjustment cost. Hence, the investment proxy may not respond smoothly to productivity shocks.

B. Technical Notes: LP Method[12]

[12] Levinsohn and W.Petropoulos (2000), Appendix A in "Creative Destruction or Just Plain Destruction", and Levinsohn and A. Petrin (2000), "Estimating Production Functions Using Inputs to Control for Unobservables", Review of Economic Studies (2003) 70, 317-341.

Estimation proceeds in two steps. The first step is the estimation of the production function coefficients on those factors of production that are assumed to be freely variable and which will respond quickly to productivity shocks. In the second stage, the estimates of the coefficient on capital{ a state variable in the plant's optimization problem) is obtained.

Assume a Cobb-Douglas production function for value-added

$$y_t = \beta_o + \beta_k k_t + \beta_s l_t^s + \beta_u l_t^u + \omega_t + \eta_t \qquad (1)$$

where y_t is the log of value added in year t, k_t is the log of the plant's capital stock, l_t^s is the log of the skilled labor input (number of non-production workers) and l_t^u is the log of the unskilled labor input (number of production worker hours). The two disturbance terms, ω_t and η_t comprise the productivity term and any measurement error on output. The first component of the productivity term contains the "transmitted" part of productivity, that is, the part that is observed by plants before they choose variable input levels and that may be serially correlated within a plant over time. The second component contains any i.i.d. differences in productivity that are not observed by plant before they choose input levels, as well as measurement error on plant-level output. The first component, therefore, is likely to be correlated with variable inputs.

To get consistent estimates of the coefficients on variable inputs, the effect that unobserved productivity has on plant choices of input levels must be controlled. With increasing marginal costs and a perfectly elastic demand for their good, plants will respond to an increase in productivity by using strictly more of variable inputs. This strictly monotonic relationship between productivity and variable input use allows the unobserved productivity term to be written as some exact function of the capital stock (on which variable input levels will also depend) and employment of a variable input:

$$\omega_t = h_t(e_t; k_t) \qquad (2)$$

where h_t is the inverted function describing optimal energy use. Energy, e_t, is used since it is excluded from the value-added production function.

Rewrite (1) as

$$y_t = \beta_s l_t^s + \beta_u l_t^u + \varphi(e_t; k_t) + \eta_t \qquad (3)$$

$$\text{where } \varphi(e_t; k_t) = \beta_o + \beta_k k_t + h_t(e_t; k_t) \qquad (4)$$

Equation (3) is partially linear; it is linear in variable inputs, and non-linear in electricity and capital. The goal in this first stage is to obtain estimates on the coefficients of the inputs that enter (3) linearly (i.e. β_s and β_u). Here the approach for semi-parametric estimation of a partially linear equation described in Olley and Pakes (1996) is followed. Value added on l^s and l^u are projected and on a fourth- or fifth-order polynomial expansion in e and k. Consistent estimates of coefficients on the included variable inputs (skilled and unskilled labor) are obtained and completes the first stage of the estimation routine.

In order to obtain estimates of productivity, an estimate of the coefficient on capital is required. β_k is estimated in the second step. Notice that capital enters $\varphi(.)$ twice, i.e. $\varphi(e_t; k_t) = \beta_o + \beta_k k_t + h_t(e_t; k_t)$ and and hence β_k (and ω_t) are not identified without further restrictions.

Identification of the capital coefficient obtains from assuming that capital is quasi-fixed, and is slow to adjust to the productivity shock. While capital might well adjust to the expected part of a productivity shock, the identifying assumption maintains that capital does not instantaneously adjust to the unexpected part. To operationalize this notion, some structure on the stochastic process of the transmitted productivity shock, ω, is imposed. Following Olley and Pakes (1996), it is assumed that ω_t follows a first order Markov process. In particular, we can write

$$\omega_t = E(\omega_t / \omega_{t-1}) + \xi_t \qquad (5)$$

where ξ_t is the "news" in the transmitted shock. To control for the endogeneity of capital, we only need to proxy for the $E(\omega_t / \omega_{t-1})$. The first stage regression provides an estimate of $\varphi_t = \omega_t + \beta_k k_t$, a nonparametric function of which serves as the proxy for each plant's expected productivity.

The moment condition that identifies the coefficient on capital is then given by:

$$E(\xi_t + \eta_t / k_t) = E(\xi_t / k_t) + E(\eta_t / k_t) = 0 \qquad (6)$$

This moment condition simply states that capital does not respond to the innovation in productivity. Estimation proceeds by employing a Generalized Method of Moments estimator to find the parameter estimate that most closely matches the sample to the population moment analog.

Once the coefficients of the production function are estimated, the plant-level measure of productivity, $\varphi_{it} - \beta_k k_{it,}$ is computed.

A Stata program was created to implement the LP approach and is used in estimating TFP in the Philippine manufacturing industry .

C. Data Sources and Definitions

Data on output and inputs for Philippine manufacturing industries are from the Annual Survey and Census of Manufacturing Establishments published by the National Statistics Office. The following are census years: 1972, 1975, 1978, 1983, 1988, and 1994.

Real Output is approximated using sales revenue in Philippine peso deflated by an output price deflator at the three-digit PSIC level. The output price deflator is taken from the implicit price deflator of sector value added taken from the National Income Accounts.

Real raw materials used is measured as raw materials in Philippine peso deflated by a materials price deflator at the three-digit PSIC level. The materials price deflator is taken from the wholesale price index.

Employment is measured by the total number of employees (production and non-production) in the industry.

The capital stock is obtained by the perpetual inventory method. Nominal investment flows in Philippine peso are available for all three-digit level industries from the Annual Survey and Census of Manufacturing Establishments. These flows are deflated by the implicit price deflator taken from gross fixed capital formation from the National Income Accounts to generate real investment flows.

The capital stock for industry i and year t is obtained by cumulating real flows of investment (I_t) according to the following formula:

$K_{t+1} = (1-\delta)K_t + I_t$

Where I is investment in constant 1985 prices, δ is depreciation rate, and K is capital stock.

The initial capital stock[13] is obtained according to the following formula: $K_t = (n-T)*D$

where
t is the year of the Annual Survey of Manufacturing
n is average standard life (in years) and is given by the following ratio [book value of asset/accumulated depreciation]
K_t is depreciated or book value at the beginning of year t
D is depreciation cost in year t
T is average age at the beginning of year t and is given by the ratio [acquisition cost/depreciation cost] where acquisition cost = book value + accumulated depreciation

[13] The methodology closely follows Power, 1978, "Estimating the Replacement Cost of Fixed Capital" in Bautista, Power et al, Industrial Promotion Policies in the Philippines, PIDS.

Appendix 5: List of IPP Projects

Project	Operator	Type	Capacity in mega watts	Cost (P/kwh) As of bid date	Cooperation period (years)	Commercial operation date	Contract Expiration date
1.Casecnan hydro electric plant	National Irrigation Administration	PPA	140	$0.165	20	Jan 2000	Jan 2020
2.Natural gas project	KEPCO	BOT	1200	1.2560	20	Jan 2002	Jan 2022
3.Sual Pangasinan Coal fired power Plant (1-10) (11-20) (21-25)	Hopewell Holdings Ltd	BOT	1000	 1.4370 1.3230 1.2070	25	Mar 1999 (phase I) June 1999 (phase II)	June 2024
4. Mindanao II (Mt. Apo) Geo.	PNOC-EDC	PPA	48.25	1.550	25	Jul 1999	July 2024
5.Bakun A/B and C HEP	NMHC/Ever/ AEV/Pacific Hydro	BOT	65	2.650	25	Jan 2000	Jan 2025
6. San Pascual Cogeneration plant (1-6) (7) (8) (9) (10) (11) (12) (13-25)	San Pascual Cogen Co. International	BOO	304	 1.6420 1.6210 1.4530 1.3280 1.2670 1.2230 1.2020 0.9510	25	June 2001	June 2026
7. Pagbilao coal fired TPP	Hopewell Energy Ltd	BOT	700	1.7840	30	Ap 1996 (phase I) June 1996 (phase II)	June 2026
8.Caliraya-Botocan-Kalayaan HEP (1-3) (4-9) (10-25) Without pumping (1-3) (4-9) (10-25)	IMPSA	BROT	640	 0.700 1.600 1.040 0.700 1.040 0.430	25	Jan 2004	Jan 2029
9.Mindanao coal-fired plant I (1-5) (6-10) (11-15)	State/Harbin	BOT	200	 1.453 1.494 1.541	25	Jan 2004	Jan 2029

(16-20) (21-25)				1.591 1.767			
10.San Roque multi Purpose HEP	Marubeni/SITHE/Italian-Thai	BOT	345	3.3550	25	Jan 2005	Jan 2030
11.Ambuklao Hydro Power Plant	Miescor	ROL	75	1.350	5	Oct 1995	Oct 2000
12.Baung, La Union Diesel PP	First Private Power Corp	BOT	215	1.373	15	Feb 1995	Feb 2010
13.Bataan EPZA Diesel Plant	Edison Global Electric	BOO	58	1.634	10	Jun 1994	Jun 2004
14.Benguet (Amphohaw) Minihydro	Hydro Elect. Dev. Corp	ROL	22	88%*NPC rate	5	Jun 1992	Jun 2002
15.Binga Hydro Power Plant	Chiang Jiang Energy Corp	ROL	100	1.150	15	Aug 1993	Aug 2008
16.Calaca Batangas Diesel Plant	Far East Levingston (FELS)	BOO	90	1.779	5	Sept 1993	Sept 1998
17.Cavite EPZA Diesel Plant	Magellan Cogen Utilities	BOO	43	1.346	10	Dec 1995	Dec 2005
18.Clark Air Base Diesel Plant	Electrobus Consolidated Inc	ROM	50	1.140	7	Jul 1992	Jul 1999
19.Engineering Island Power Barge	Sabah Shipyard SDN, BHD	BOO	100	1.568	5	Oct 1994	Oct 1999
20.Gas Turbine (GT) power Barges	Hopewell Tileman Ltd	ROM	270	1.963	10	1993	2003
21.General Santos Diesel Plant	Alsons/Tomen	BOO	50	1.526	18	Ap 1998	Ap 2016
22.Iligan City Diesel Plant I	Alsons/Tomen	BOT	58	1.437	10	Jul 1993	Jul 2003
23.Iligan City Diesel Plant I(1-7) (8-12)	Alsons/Tomen	BOT	40	1.525 1.318	12	Dec 1993	Dec 2005
24.Leyte A (Leyte-Cebu) Geo	PNOC-EDC	PPA	200	1.650	25	Nov 1997	Nov 2022
25.Leyte A (Leyte-Cebu) Geo	PNOC-EDC	PPA	440	1.550	25	Jul 1998	Jul 2023
26.Limay Bataan CC, Block A	ABB/Marubeni/ Kawasaki	BTO	300	0.920	15	SC May 1994 CC Oct 1994	Oct 2009
27.Limay Bataan CC, Block A	ABB/Marubeni/ Kawasaki	BTO	300	0.934	15	SC Apr 1993 CC Jan 1995	Jan 2010
28.Makban Binary Geo Plant	ORMAT Inc	BTO	15.73	0.337	10	Mar 1994	Mar 2004

29.Malaya Thermal Power Plant Unit I (1-4) (5-15) Unit II (1-4) (5-15)	KEPCO	ROM	650	 0.167 0.307 0.153 0.279	15	Jun 1995	Jun 2010
30.Mindanao Diesel Power Barge (1-7) (8-15)	Mitsui/BWSC	BTO	200	0.7840 0.7950	15	Apr 1994 Jul 1994	Apr 2009
31.Mindanao I (Mt. Apo) Geo	PNOC-EDC	PPA	47	1.5578	25	Feb 1997	Feb 2022
32.NAGA Thermal Complex CTPP-1 CTPP-2 CDDP-1 GT	SALCON	ROM	203	 1.2790 1.7980 1.3790 1.8600	15	May 1994	May 2009
33.Navotas Diesel Power Barge I	East Asia Power Corp.	BOO	60	1.5598	5	Sept 1994	Sept 1999
34.Navotas Gas Turbine No. 4	Hopewell Energy Int'l Ltd	BOT	100	2.0690	12	Mar 1993	Mar 2005
35.Navotas Gas Turbines Nos. 1-3	Hopewell Holdings Ltd.	BOT	210	2.0640	10	Jan 1993	Jan 2003
36.North Harbor Diesel Barges	Far East Levingston (FELS)	BOO	90	1.5670	5	Jul 1994	Jul 1999
37.Pinamucan, Batangas Diesel PP	Enron Power Corp	BOT	105	2.0190	10	Jan 1993	Jan 2003
38.Subic Zambales Diesel Plant I	Enron Power Corp.	ROM	28	1.5487	5	Jan 1993	Jan 1998
39.Subic Zambales Diesel Plant II	Enron Power Corp.	BOT	108	1.6590	15	Mar 1994	Mar 2009
40.Toledo Cebu Coal Thermal Plant	Atlas Consolidated Mining	PPA	55	1.00	10	Jul 1993	Jul 2003
41.Zamboanga Diesel Power Plant	Alsons/Tomen	BOO	100	1.4730	18	Dec 1997	Dec 2015

PPA: Power purchase agreement, BOT: Build-own-transfer, BOO: Build-own-operate, BROT: Build, rehabilitate, operate and transfer

Source: Reside (2001) and National Power Corporation as cited in The World Bank Country Framework Report for Private Participation in Infrastructure, 2000