

Concentration and market power in the Philippine manufacturing industry

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Abstract

This paper looks at the presence of barriers to competition that prevent domestic and international prices from converging. These barriers may dampen, even reverse the gains from trade liberalization. Three decades of protectionism and import substitution in the Philippines have led to high levels of industrial concentration in a few wealthy families and small groups. Most of all, the experience has led to the deterioration of the culture of competition in the country. While liberalization may be a precondition for the growth of a free market, it does not, by itself, guarantee effective competition. For effective competition to emerge, trade reforms must be accompanied by the creation of competitive market and industry structures. The transition from import substitution to a more open economy requires not only the rule of law, but efficient institutions to support growth and institutional change.

JEL classification: L11, L60

Keywords: Competition, concentration, market power

1. Introduction

The post-war Philippine manufacturing industry developed under a complex policy package of protection, promotion, and regulation. After more than twenty years, the policies not only resulted in an inefficient allocation of resources, but also encouraged greater concentration as a way to compete against imports and achieve economies of scale. The presence of regulatory barriers such as import restrictions and high tariffs, behavioral barriers like cartels, structural barriers such as economies of scale and huge capital requirement impeded competition from abroad. Cartel-like practices, which were sanctioned by the government and state-controlled monopolies limited the potential for price competition among producers, thus failing to nurture the culture of competition in the country.

With the demise of the import substitution model, the government was prompted to institute policy reforms consistent with the requirements of a

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competitive market environment. Over the last two decades, there have been three major liberalization episodes in the country. The first major trade policy reform was implemented in 1981 as part of the conditionalities associated with a series of World Bank structural adjustment loans. Between 1981 and 1985, peak tariff rates of 70 to 100 percent were reduced from 0 to 50 percent. This led to a significant reduction of both the average tariff and the variation in tariff protection across industries.

The second trade policy reform was Executive Order 470, legislated during the Aquino administration. This narrowed down the tariff range from 3 to 30 percent by the year 1995. The third and most important tariff reform was pursued during the Ramos administration—Executive Order 264. It further reduced the tariff range from 3 to 10 percent by the year 2000¹. Simultaneous with the implementation of the tariff reduction policy, quantitative restrictions were also eliminated. The number of import restrictions fell from around 32 percent of the total number of PSSC (Philippine Standard Commodity Classification) lines in 1985, to only about three percent in 1996 (de Dios [1997]).

Clearly, there has been real progress in the liberalization of tariff and non-tariff barriers in the Philippine manufacturing sector. However, the import substitution era had left many industries characterized by high concentration and the ability to exercise market power. An important issue that needs to be examined is whether trade liberalization has resulted in reduced concentration and market power in the manufacturing sector. To assess this, this paper estimates concentration ratios and makes rough estimates of price-cost margins using firm level data from the Annual Survey and Census of Manufacturing Establishments of the National Statistics Office. The computations are based on 11,208 firms for 1988, 10,726 firms for 1994 and 10,373 firms for 1995.

The rest of the paper is structured as follows: Section II discusses the basic concepts underlying the importance of competition and competition policy. Section III reviews the economic performance and composition of the Philippine manufacturing sector. Section IV presents rough estimates of price-cost margins and assesses their relationship with concentration ratios in the manufacturing sector. Section V presents the policy implications and recommendations of the paper.

2. A theoretical background

The World Bank and OECD Study [1998] defines competition as a process that allows a sufficient number of producers in the same market or industry to independently offer different ways to satisfy consumer demands. As competition is often equated with rivalry, it pressures firms to become efficient and offers a wider choice of products and services to consumers at lower prices. Competitive rivalry may take place in terms of price, quantity, service, or combinations of these and other factors that customers value.

¹ For a full discussion of the various trade policy reforms, see Medalla, Tecson, et al [1995].

2.1. *Competition, market power and barriers to entry*

Competition forces firms to become efficient and to sell a wider range of goods and services at lower prices. A competitive economy enables individuals to exercise economic freedom, or, for consumers, the freedom to choose what they value most, and for entrepreneurs, to choose where they want to invest. The competition process allows consumers and producers to exercise their freedom of choice without any price fixing conspiracies and monopolistic bullying. As the World Bank and OECD Study [1998] noted, "In a competitive economy, price and profit signals tend to be free of distortions and create incentives for firms to reallocate resources from lower to higher-valued uses." Decentralized decision making by firms promotes efficient allocation of society's resources, thereby increasing consumer welfare, and giving rise to dynamic efficiency in the form of innovation, technological change, and economic progress.

It is important to recognize that high levels of market concentration as well as the presence of monopolies and oligopolies are not necessarily detrimental to competition. Large firms may achieve a dominant position in the market through legitimate ways like innovation, superior production or distribution methods, or greater entrepreneurial skills. For as long as markets remain contestable², we can expect large firms in an oligopolistic environment to act independently, or monopolies to behave in a competitive manner. If entry is easy and costless, the potential threat from imports and from domestic competitors can be expected to make incumbent firms behave competitively. As soon as one firm or group of firms attempts to increase prices or lower quality from competitive levels, a new firm may enter to serve the market and drive prices back down to competitive levels.

Competition can be lessened significantly by (a) government regulatory policies, (b) behavioral restraints and (c) structural characteristics of the markets that act as barriers to entry. Regulatory barriers include investment licensing, tariff and non-tariff measures, anti-dumping and countervailing duties. Behavioral barriers represent abuse of dominant position when larger firms engage in anti-competitive conduct, thereby preventing entry or forcing competitors to exit through various kinds of monopolistic conduct, i.e., predatory pricing and market foreclosure.

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, i.e., price-fixing, bid rigging, allocation of territories or customers, and output restriction agreements. Vertical restraints are contractual agreements between supplier and purchaser/retailer in both upstream and downstream markets. These include re-sale price maintenance agreements: where the retail price is fixed by the producer or price floors and ceilings are imposed; exclusive distribution agreements where

²See Baumol, Panzar, and Willig [1982].

distributors are assigned exclusivity within a geographic area or over particular types of clients, and products; exclusive dealing agreements where downstream firms are prohibited from dealing with competing producers or distributors; and tie-in sale agreements where downstream firms are required to purchase a certain range of products before being allowed to purchase a particular product.

Economies of 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 as low an average cost as possible. If the minimum efficient scale is so large that only one firm can serve the entire market, a monopoly exists. This situation often occurs with public utilities, i.e., distribution of water, electricity, and piped gas.

Firms may gain market power by limiting competition, i.e., by erecting barriers to trade, entering into collusive arrangements that restrict price and output, and by engaging in other anti-competitive business practices. The presence of barriers to entry impedes competition and allows firms to acquire and exercise market power. Market power enables firms, unilaterally (monopoly), or in collusion with others (cartel), to profitably raise prices and maintain these over a significant period of time without competitive response from other firms. Barriers to entry are necessary for market power. Market power can be created through mergers and agreements between competitors not to compete, or through restrictive vertical arrangements and predatory pricing that abuse pre-existing market power. Large firms may take advantage of their market power by abusing their dominant position or through monopolization. These entail the suppression of competition by restricting or foreclosing the entry of smaller rivals, i.e., by increasing competitors' costs of entering a market, or charging predatory prices which harm the competitive process. A firm's exercise of market power can harm consumers and other producers through higher than competitive prices, reduced output, and poorer quality products. In general, market power results in inefficient allocation of resources and negatively affects industry performance and economic welfare.

2.2 Structuralist vs Chicago school

There are two opposing schools of thought in industrial organization explaining the need to preserve competition: the structuralist school as developed by Bain and contemporaries and the market efficiency model developed by the Chicago school, which is mainly attributed to Stigler and Demsetz. According to the structuralist theory of market performance, firms respond to entry but are able to earn persistent profits when the structural characteristics of markets make entry difficult. Bain identified the conditions of entry as technological features of markets that affect the exercise of market power. Economies of scale, absolute cost advantages, and product differentiation are the primary entry barriers that enable a firm to maintain price above average cost (Gilbert [1990]).

The structuralist school emphasizes the interaction between market structure and collusive and exclusionary business practices by firms that enable them to exercise market power and persistently earn excess profits (Khemani and Dutz [1995]). The structuralist school is rooted in the traditional structure-conduct-performance (SCP) paradigm of industrial concentration. It states that a concentrated industry (structure) will facilitate collusion (conduct) and hence monopoly pricing (performance). Firms operating in oligopolistic industries with large market shares are more likely to coordinate their pricing and output or to unilaterally engage in anti-competitive behavior. Khemani and Dutz [1995] noted that in the past, the emphasis was on the role of market structure. Today, however, the focus is more on pricing and output policies affecting market structure while aiming to exclude competition through such means as advertising, research and development, contractual arrangements, the preemption of input sources and distribution channels.

The Chicago school was developed in reaction to the structuralist viewpoint that industrial concentration fostered collusion and hence, monopoly pricing. Demsetz [1973] argued that superior low cost firms would have higher profits and would grow to dominate their industries. Low cost leads to competition which in turn leads to concentration of industry (Leach [1997]). Advocates of the Chicago school say that a policy of industrial de-concentration would destroy efficiency with no benefit of lower prices to consumers.

Economists associated with the Chicago school maintain that markets are workably competitive and the market structure reflects differential efficiency, not strategic behavior. According to Stigler [1968], collusion is difficult to practice profitably in all but the most highly concentrated industries, and is, therefore, not a serious problem. Where competition is limited, collusion is primarily due to barriers to entry created by the government. They advocate the pursuit of economic efficiency as the unequivocal goal for competition policy. Failure to consider economic efficiency distorts the basic intent of competition policy. As a result, they favor a minimalist approach toward the implementation of competition policy. Competition law, in particular, should be restricted to preventing collusion, especially price fixing agreements³.

2.3 Oligopoly

Oligopoly theory provides a way of thinking about strategic behavior and its anti-trust implications and helps in the understanding of strategic interactions among rival firms in game theory. The basic models of oligopoly are the Cournot model of quantity-setting oligopoly and the Bertrand model of price-setting oligopoly. In the Cournot Model, all firms choose their outputs simultaneously. The Cournot equilibrium is a Nash equilibrium in quantities, and like any Nash equilibrium, the Cournot equilibrium is the set of self-enforcing actions from which no firm would

³ Bork [1978] and Posner [1969] as cited in Khemani and Dutz [1995].

unilaterally wish to deviate. In the Bertrand Model, prices are the strategic variables and rival firms have a strong incentive to undercut prices in order to capture the entire market. With equally efficient firms, homogeneous outputs and identical constant marginal costs, the only Nash equilibrium and Bertrand equilibrium is for firms to price at marginal cost. This model has a problem known as the Bertrand paradox because it is hard to believe that firms in highly concentrated industries ever succeed in manipulating the market price to generate profits. The model concludes that even in a duopoly model, firms do not make profits and would engage in competition. When product differentiation is assumed, the Bertrand paradox is mitigated.

The other leading oligopoly models include:⁴

Stackelberg Model: a leader makes a choice of output, the other firms act as followers and make their profit-maximizing response to this output. The leader takes account of these responses in choosing its output and is able to do better than it would under Cournot reactions.

Kinked Demand Curve Model: each firm believes that an increase in its output with a corresponding reduction in its price will be matched by its rivals, while a reduction in output with a corresponding increase in price will not be followed. This creates a kink in the firm's perceived demand curve at its current price-output pair. This tends to remain the same despite changes in marginal cost because of a discontinuity in the firm's marginal revenue at the kink.

Edgeworth Model: firms choose prices as in the Bertrand model, with identical constant marginal costs, but with fixed output capacities. There is a range of possible outcomes and the possibility of price cycles. There is a range of prices the upper and lower limits of which are determined by demand, cost, and capacity parameters. As firms set prices alternately over consecutive periods, price falls by small steps from the upper limit of the interval until it reaches the lower limit, and then jumps back to the upper limit before the cycle begins again.

All these oligopoly models are examples of non-cooperative games. It is important to recognize that oligopolies are not necessarily detrimental to competition. Large firms may achieve a dominant position in the market through legitimate ways like innovation, superior production distribution methods, or greater entrepreneurial skills. These firms may act on their own and do not come to an agreement governing their behavior.

According to Rees [1993], many theorists see the above models as giving analytical precision to the idea of tacit collusion. This would not involve explicit agreement but simply the unspoken acceptance by the firms that it is in their best interest to produce the monopoly output on the understanding that failure to do so would provoke a price war.

⁴ This portion is based on Rees [1993].

2.4 Competition policy

Competition policy aims to preserve and promote competition through the prevention of restrictive business practices by firms and their abuses of economic power, including inefficient government regulation. Competition laws prohibit firms from attaining or exercising substantial market power obtained through improper means. Competition laws do not prosecute firms that have gained market power through legitimate behavior, i.e., skill, foresight, and hard work. Competition law is concerned with the elimination of abusive monopoly conduct, price fixing and other cartels. It is also concerned with the prohibition of mergers and acquisitions that limit competition. Competition law prevents artificial barriers to entry. It facilitates market access, enhances competition and ensures that benefits flow both to individual consumers and firms that buy intermediate goods and capital assets, including governments.

Khemani and Dutz [1995] defined competition policy as government measures that include both (1) policies that enhance competition in local and national markets i.e., liberalized trade policy, relaxed foreign investment and ownership requirements, and economic deregulation; and (2) competition laws⁵ that consist of a clear set of enforceable legal rules applying to commercial tactics, behavior, and transactions by commercial establishments designed to prevent anti-competitive business practices by firms, as well as unnecessary government intervention in the marketplace. The goal of competition policy is to achieve economic efficiency to maximize consumer welfare.

2.5 Measures of concentration and market power

The four-firm concentration ratio (CR4) and the Herfindahl-Hirschman index (HHI) are often used to measure concentration. CR4 is the proportion of an industry's gross output accounted for by the four leading firms in the industry, i.e. it is the sum of the leading four firms' market shares. The measure $HHI = \sum ms_i^2$, where m_i is the market share of the i th firm and n the number of firms, i.e., it is the sum of the squared market shares of all firms in an industry. HHI ranges from a minimum of $1/n$ for n firms of equal size to a maximum of 1 when there is only one firm. The HHI is the most common measure used to assess concentration from shares of industry participants. In the US, the following thresholds are used as guidelines: 0-1000 unconcentrated; 1000 - 1800 moderately concentrated; and above 1800 highly concentrated.

Price-cost margins are commonly applied as measures of profitability in most profit concentration studies. In diagnosing market dominance, the price-cost margin or Lerner index L_i , is defined in terms of marginal costs. Following Tirole [1988], the Lerner index L_i is given by⁶: $L_i = \alpha/\epsilon$ where $\alpha = q_i/Q$, is firm i 's market share and $\epsilon = (P/Q)(\partial Q/\partial P)$, is the elasticity of demand.

⁵These are also referred as anti-trust or anti-monopoly law

The Lerner index is proportional to the firm's market share and inversely proportional to the elasticity of demand. The price-cost margin is used as a direct measure of market power. Market power implies that a firm is able to charge prices substantially above its marginal cost while a firm without market power must charge a price that approximates its marginal cost. Under perfect competition, firms selling homogeneous products cannot affect market prices. Free entry ensures that price, equated with marginal cost, just covers average cost, and firms that attempt to raise price above marginal cost will lose all customers⁷. In contrast, market power is exercised as soon as firms have the ability to increase their own price above marginal cost without losing all customers. Market power arises when a firm produces a differentiated product so that customers do not switch easily to competitors as the price increases. Neven [1993] noted that market power also arises when there is coordination of behavior or collusion between firms such that a price increase is accommodated by competitors.

Market power is expressed by the extent to which firms are able to raise price profitably. Market power, therefore, is concerned with the own-price elasticity of demand. The own-price elasticity of demand measures the proportionate decline in sales following an increase in price (assuming that the prices of other products are held constant). The more elastic the demand curve, the more sales will be lost for any given level of price increase. Under these circumstances, firms will not possess market power. The power to control price requires a low own-price elasticity of demand. If the own-price elasticity is low, firms will have significant ability to raise prices profitably since price increases will not result in large reduction in sales. The own-price elasticity determines the extent of market power and can be used to directly assess the market power issue.

In this paper, price-cost margins are estimated based on the following formula: (Gross Output – Cost of Materials – Salaries and Wages)/Gross Output. Note that in the absence of marginal cost data, average variable cost is used as a proxy.

⁶Let the reduced form for the Cournot profit function be:

$$\Pi^i(q_i, q_j) = q_i P(q_i + q_j) - C_i(q_i)$$

First-order condition for profit maximization

$$P(q_i + q_j) + q_i P'(q_i + q_j) - C_i'(q_i) = 0$$

$$Q = q_i + q_j$$

$$P(Q) - C_i'(q_i) + q_i P'(Q) = 0$$

$$P/Q [P(Q)/P - C_i'(q_i)/P] = -[q_i P'(Q)/Q]$$

$$P(Q)/P - C_i'(q_i)/P = -[q_i P'(Q)/Q] Q/P$$

$$P(Q)/P - C_i'(q_i)/P = -[q_i/Q] / [(P/Q)(\partial Q/\partial P)]$$

$$L_i = [P - C_i'] / P \text{ is the Lerner index (price-cost margin for firm } i).$$

⁷ Assuming that economies of scale do not prevail over the whole range of output and that the minimum efficient scale of production is small relative to the overall market demand (see Neven, [1993]).

3. Analysis of industry structure and performance of the manufacturing sector

With the introduction of trade reforms, we can expect profound changes in industry structure involving both substantial shifts of resources between economic sectors and restructuring within industries. Trade liberalization is expected to drive the process of restructuring and reallocation of resources within and across sectors of the economy so that unprofitable activities contract while profitable ones expand.

Table 1. Structure of value added in percent of GDP (1985=100)

Sector	Year				
	1980	1985	1988	1994	1997
Agriculture	23.50	24.58	23.58	22.36	20.68
Industry	40.50	35.07	35.24	34.71	35.91
Manufacturing	27.60	25.15	25.71	24.84	25.05
Services	35.98	40.35	41.19	42.93	43.41

Source: National Statistical Coordination Board, National Income Accounts.

Table 1 reveals that there has been very little systematic movement of resources in industry and manufacturing. It is the service sector that has been experiencing a major increase in size. The share of services has been increasing since 1980 from about 36 percent to 43.4 percent in 1997. At the outset of the trade reforms, industry had the largest share of 40.5 percent. Its share declined between 1980 and 1985 and since then, there has been no major change in terms of shifts in resources. Agriculture value added slightly increased its share between 1980 and 1985 and has dropped from 24.6 percent to 20.7 percent between 1985 and 1997.

In terms of changes in employment, Table 2 reveals that there has been no substantial change in terms of the contribution of industry to total employment. The manufacturing sector failed in creating enough employment to absorb new entrants to the labor force as well as those who move out of the agricultural sector. As Table 2 shows, prior to the trade reforms, the distribution of employment was biased against industry and manufacturing. The labor force was highly concentrated in agriculture with a share of 51.8 percent while industry had a share of only 15.4 percent. After the trade reforms, the share of agriculture continuously dropped at a moderate pace while the share of services increased as it continually absorbed the labor force to become the largest provider of employment from 1997 to 1999.

Table 2. Structure of employment (in percent)

Sector	Year						
	1980	1985	1988	1994	1997	1998	1999
Agriculture	51.8	49.6	46.1	44.7	40.4	39.9	39.1
Industry	15.4	13.8	15.6	15.8	16.7	15.7	15.6
Manufacturing	10.8	9.5	10.4	10.3	9.9	9.5	9.6
Services	32.8	36.5	38.3	39.5	42.9	44.4	45.3
Total	100.0	99.9	100.0	100.0	100.0	100.0	100.0

Sources: Yearbook of Labor Statistics October Rounds [various years].

Table 3 compares the performance of the Philippines in terms of value added distribution and average annual growth rates with other Southeast Asian developing countries. It is evident from the data that the latter countries registered significant reductions in the share of agriculture and substantial increases in the size of industry during the period 1986 to 1996. For the years 1993-1996, the average annual share of Philippine agriculture remained at 22 percent while industry was only 6.3 percent. In contrast, the average annual share of agriculture in Indonesia dropped to 17.5 percent, 14.5 percent in Malaysia, and 10.6 percent in Thailand while the average annual industry share increased to 40.6 percent in Indonesia, 43 percent in Malaysia, and 39.4 percent in Thailand. In these countries, manufacturing played a leading role with high average annual growth rates of 11.7 percent in Indonesia, 14.1 percent in Malaysia, and 11.8 percent in Thailand. On the other hand, the Philippines only managed to grow at an average rate of 5.8 percent during the years 1993-1996. Indeed, the Philippines needs a significant amount of adjustment before there is complete convergence of sectoral shares to those of its neighbors.

Table 4 presents the distribution of manufacturing value added for the years 1972, 1983, 1988, and 1994. Prior to the trade reforms, intermediate goods comprised the bulk of manufacturing value added with its unchanged share of 45 percent in both 1972 and 1983. Consumer goods followed with a share of 40 percent in 1972 and 34 percent in 1983. Capital goods registered a share which increased from 16 percent in 1972 to 20 percent in 1983.

After the trade reforms, the share of consumer goods rose to 44 percent in 1988 making it the most important sector in terms of value added contribution. Although its share dropped to 40 percent in 1994, the sector still represented the bulk of manufacturing value added. The share of intermediate goods dropped to 39 percent in 1988 and to 37 percent in 1994. Due to the growing importance of electrical machinery (whose share steadily increased from 3 percent in 1972 to 7 percent in 1983 and 1988 and to almost 10 percent in 1994), the capital goods sector slowly increased its share of 16 percent in 1988 to 22 percent in 1994.

Table 3. Sector shares and growth rates
Philippines, Indonesia, Malaysia and Thailand

	Philippines		Indonesia		Malaysia		Thailand	
	1986-1992	1993-1996	1986-1992	1993-1995	1986-1992	1993-1995	1986-1992	1993-1995
<i>Value Added</i>								
Agriculture	23.32	21.95	21.20	17.50	18.50	14.50	14.30	10.60
Industry	34.96	34.98	37.80	40.60	37.90	43.00	35.90	39.40
Manufacturing	25.32	25.04	19.60	23.40	22.60	31.50	26.20	28.70
Services	41.72	43.07	41.00	41.90	43.60	42.50	49.80	50.00
<i>Growth Rates</i>								
GDP	3.31	4.97	7.40	7.60	7.20	9.00	9.80	8.60
Agriculture	1.94	2.42	3.80	2.10	4.00	2.50	4.10	1.90
Industry	3.17	6.31	8.90	10.50	9.90	12.10	13.40	11.00
Manufacturing	3.49	5.79	10.80	11.70	13.30	14.10	14.10	11.80
Services	4.21	5.21	8.00	7.30	6.20	8.30	9.10	8.30

Source: For the Philippines, estimates were based on National Income Accounts data from the National Statistical Coordination Board. For Indonesia, Malaysia, and Thailand, the estimates were taken from Sachs et al, *Promotion of Broad-Based Economic Growth in the Philippines*, [1998].

Table 4. Distribution of manufacturing value added

Manufacturing Sector	1972	1983	1988	1994
<i>Consumer Goods</i>	40.00	34.00	44.00	40.00
Food Processing	57.00	29.00	21.00	22.00
Food Manufacturing	10.00	26.00	22.00	23.00
Beverages	13.00	23.00	27.00	22.00
Tobacco	16.00	11.00	15.00	14.00
Wearing Apparel except Footwear	2.00	8.00	12.00	16.00
Leather Footwear	0.00	1.00	0.00	1.00
Furniture except Metal	2.00	2.00	3.00	2.00
Metal Furniture	N.D.	0.00	0.00	0.00
Sub total	100.00	100.00	100.00	100.00
<i>Intermediate Goods</i>	44.82	45.45	38.90	36.93
Textiles	16.31	12.83	11.74	8.39
Leather and Leather Products	0.26	0.35	0.40	0.42
Wood and Cork Products	16.60	8.82	7.26	2.70
Paper and Paper Products	7.59	5.58	6.95	5.55
Printing and Publishing	4.36	2.95	3.21	4.00
Industrial Chemicals	5.02	7.64	10.37	7.11
Other Chemicals	18.20	16.87	23.87	28.17
Petroleum Refineries	12.11	29.99	15.64	21.86
Petroleum and Coal Products	0.07	0.12	0.27	0.14
Rubber Products	4.83	3.84	6.04	3.74
Plastic Products	2.85	3.54	4.35	5.35
Pottery, China and Earthenware	0.28	0.55	0.89	1.27
Glass and Glass Products	3.02	1.58	3.45	2.85
Cement	0.00	3.54	3.72	5.84
Other Nonmetallic Mineral Prods	8.50	1.83	1.85	2.61
Sub total	100.00	100.00	100.00	100.00
<i>Capital Goods</i>	14.95	20.12	16.06	22.42
Iron and Steel	16.12	38.72	23.98	20.42
Nonferrous Metal Products	0.53	2.86	14.21	4.77
Fabricated Metal Products	25.05	9.04	8.86	8.26
Machinery except Electrical	10.65	4.48	4.68	5.09
Electrical Machinery	19.84	29.51	35.46	44.24
Transport Equipment	27.27	15.12	11.74	15.89
Professional and Scientific Eqpt	0.53	0.26	1.07	1.33
Sub total	100.00	100.00	100.00	100.00
Miscellaneous Manufacture	0.31	0.54	0.95	1.00
<i>Total</i>	100.00	100.00	100.00	100.00

Sources: National Statistics Office, Census of Manufacturing Establishments [1972, 1983, 1988, and 1994].

N.D.: No data

In the consumer goods sector, food processing, food manufacturing and beverages were the most important sub-sectors in 1994 as they comprised 67 percent of the sector's value added. In the intermediate goods sector, other chemicals and petroleum refineries represented almost 50 percent of the sector's value added while in the capital goods sector, electrical machinery together with iron and steel were the top sub-sectors with their combined shares of about 65 percent of the sector's value added.

A comparison of the economic performance of the manufacturing sector and its components for the periods 1972-1983, 1983-1988, and 1988-94 is presented in Table 5. The period 1972-83 represents the pre-tariff reform years while the following periods capture the post-tariff reform years. On the overall, manufacturing census value added measured at 1985 prices grew at an annual average rate of 3.5 percent during the pre-trade reform period 1972-1983. This declined to 0.6 percent annually during the period 1983-1988, but recovered to 6.4 percent annually in the later period 1988-1994.

On the average, employment growth dropped markedly from 4.5 percent per year prior to the trade reforms to 3.7 percent per year in 1983-1988, then to only 1 percent per year in 1988-94. During the latter period, some sectors such as pottery, china and earthenware, electrical machinery, professional and scientific equipment, leather footwear, metal furniture and transport equipment were able to register relatively high average growth rates that ranged from 9 percent per year to 12 percent per year.

The growth in the number of establishments increased from 2.3 percent annually before the trade reforms to 9.8 percent annually in 1983-1988, but this fell to 2.7 percent annually in 1988-1994. During this period, the following sub-sectors posted the highest average growth rates ranging from 7.5 to 10 percent per year: glass and glass products, pottery, china and earthenware, industrial chemicals, and iron and steel.

Value added growth at the sub-sector level was highly variable. Beverages, wearing apparel except footwear, printing and publishing, other chemicals, plastic products, pottery, china and earthenware, electrical machinery, and miscellaneous manufactures posted positive annual growth rates for the three periods under review. Electrical machinery posted the highest average growth rate at 16 percent during the periods 1972-1983 and 1988-94.

Textiles, wood and cork products performed poorly for all three periods under review, especially wood and cork, as it experienced substantial reduction in its value added growth. Food processing posted negative growth rates for the two succeeding periods under study, but was able to bounce back in the third period. Glass and glass products and petroleum and coal both had negative average annual growth rates prior to the trade reforms; although their performance improved immediately after the implementation of trade reforms, this was not sustained as they again posted negative growth rates in the third period. Other sub-sectors like

Table 5. Average annual growth rates of selected performance indicators

PSIC	Manufacturing Sector	Number of Establishments				Total Employment				Census Value Added (1985=100)			
		1972- 1983	1983- 1988	1988- 1994		1972- 1983	1983- 1988	1988- 1994		1972- 1983	1983- 1988	1988- 1994	
311	Food Processing	-6.6	9.5	2.5	-4.7	8.9	2.1	-2.5	-4.0	3.8			
312	Food Manufacturing	19.6	6.4	4.7	14.1	0.3	-0.2	12.4	-1.5	3.5			
313	Beverages	0.5	1.9	-2.5	5.7	1.6	-3.1	8.3	11.1	1.2			
314	Tobacco	-3.8	1.3	-6.5	-0.9	-4.6	-3.4	-4.3	6.7	7.1			
321	Textiles	2.2	8.4	1.5	3.6	0.8	-5.6	-0.2	-2.5	0.0			
322	Wearing Apparel ex Footwear	3.3	22.4	3.6	12.9	12.5	0.6	13.6	13.3	9.2			
323	Leather and Leather Products	2.9	13.2	-1.3	10.3	6.5	3.8	7.9	-0.7	10.5			
324	Leather Footwear	4.8	16.8	2.8	11.8	0.6	9.4	14.2	-19.4	17.5			
331	Wood and Cork Products	-2.3	10.4	-6.0	0.6	-1.3	-13.9	-3.4	-4.7	-10.0			
332	Furniture except Metal	3.7	12.9	-1.9	8.4	14.9	-8.6	2.1	-3.4	-14.5			
341	Paper and Paper Products	-0.5	10.2	4.9	-2.1	2.7	2.6	-0.9	6.6	5.6			
342	Printing and Publishing	2.2	8.6	3.2	1.7	5.3	2.2	4.2	0.2	9.7			
351	Industrial Chemicals	3.4	3.0	7.5	3.7	0.9	1.2	10.4	1.7	-1.9			
352	Other Chemicals	2.8	7.6	0.5	2.4	3.8	0.8	5.9	2.6	7.1			
353	Petroleum Refineries	0.0	0.0	0.0	5.9	4.1	1.6	4.0	-3.3	14.1			
354	Petroleum and Coal Products	8.9	13.9	-2.2	13.5	4.0	5.4	-0.1	26.3	-2.3			
355	Rubber Products	2.2	7.9	3.0	5.4	8.0	-1.5	4.8	5.3	-0.8			
356	Plastic Products	1.8	12.6	5.6	6.5	0.8	6.6	5.9	5.0	5.2			
361	Pottery, China and Earthenware	9.1	15.4	8.4	8.7	15.6	12.2	10.1	10.7	7.5			
362	Glass and Glass Products	-1.3	1.4	10.0	0.7	-4.7	-1.7	-1.9	16.4	-1.5			

Table 5. Average annual growth rates of selected performance indicators (continued)

PSIC	Manufacturing Sector	Number of Establishments				Total Employment				Census Value Added (1985=100)			
		1972-1983	1983-1988	1988-1994		1972-1983	1983-1988	1988-1994		1972-1983	1983-1988	1988-1994	
363	Cement	ND	0.0	1.0	ND	-4.2	3.1		ND	1.8	9.2		
369	Other Nonmetallic Mineral Prods	0.3	8.3	2.2	0.0	-2.4	4.3		-10.0	1.0	7.5		
371	Iron and Steel	4.7	0.5	7.5	6.3	-2.3	5.5		16.8	-13.9	7.0		
372	Nonferrous Metal Products	6.0	-1.9	2.1	18.0	-6.7	5.5		27.7	26.8	-5.7		
381	Fabricated Metal Products	0.5	6.1	6.1	1.6	1.8	5.4		3.2	-5.6	11.3		
382	Machinery except Electrical	4.7	6.4	1.0	4.6	1.6	3.3		2.9	-5.5	13.8		
383	Electrical Machinery	3.7	6.1	4.7	12.3	0.7	11.4		15.7	4.1	15.9		
384	Transport Equipment	-1.5	2.0	5.3	3.0	-9.5	9.2		6.2	-11.0	16.7		
385	Professional and Scientific Eqpt	-1.7	1.9	2.8	2.6	27.3	9.8		-0.4	21.3	13.4		
386	Metal Furniture	ND	0.7	2.1	ND	1.2	9.0		ND	-3.3	9.4		
390	Miscellaneous Manufacture	3.5	17.7	-0.3	6.5	20.8	1.8		8.6	8.7	4.9		
	Total	2.3	9.8	2.7	4.5	3.7	1.0		3.5	0.6	6.4		

Sources: National Statistics Office, Census of Manufacturing Establishments [1972, 1983, 1988, and 1994].

ND: no data

PSIC: Philippine Standard Industrial Classification

industrial chemicals, non-ferrous metal products and rubber products, which had positive value added growth rates before and immediately after the trade reforms, performed poorly in the last period 1988-1994.

The level of capital intensity in the manufacturing sector initially dropped from P114,800 per worker per year in 1983 to P100,100 per worker per year in 1988, but increased to P130,900 per worker per year in 1994 (Table 6a). These levels correspond to a negative growth rate of 2.7 percent annually during the period 1983-1988, but increased to 4.5 percent annually during the period 1988-1994 (Table 6b). In 1994, petroleum refineries had the highest capital/labor ratio followed by non-ferrous metal products, cement, iron and steel, and industrial chemicals. For the two periods 1983-1988 and 1988-1994, the average capital intensity growth of three manufacturing subsectors were relatively high and increasing. These covered other chemicals with growth rates increasing from 3.8 percent to 7.3 percent annually, petroleum refineries that grew from 10.4 percent to 22.2 percent annually, and cement with growth rates rising from 4.1 percent to 8.6 percent annually for the two periods under study (Table 6b).

The level of capital productivity of manufacturing slightly increased from 1.2 in 1983 to 1.4 in 1988. However, this dropped back to its pre tariff reform ratio of 1.2 in 1994. In terms of growth, this meant an increase in capital productivity by 3.2 percent annually during the period 1983-1988 which dropped to 2.4 percent annually during the next period. Three sub-sectors experienced positive growth in capital productivity, though declining, for the two periods under study. These covered transport equipment which grew by 10.6 percent in 1983-1988 and 5.1 percent in 1988-1994; professional and scientific equipment which grew by 6.3 percent in 1983-1988 and 4.3 percent in 1988-1994; and metal furniture which grew by 11.8 percent in 1983-1988 and 4.2 percent in 1988-1994 (Table 6b). Tobacco had the highest capital productivity in 1994 while wearing apparel except footwear was far second.

The level of labor productivity declined from P149,200 per worker annually in 1983 to P127,500 per worker annually in 1988, but rose to P176,500 per worker annually in 1994. In terms of growth, labor productivity declined by 3.1 percent annually during the period 1983-1988 but rose by 5.4 percent annually during the second period. In 1994, petroleum refineries had the highest labor productivity followed by beverages and other chemicals. While most sub-sectors witnessed improvements in their labor productivity for the periods under study, petroleum and coal products, non-ferrous products, and transport equipment witnessed reductions in their labor productivity between 1988 and 1994.

Table 7 presents the size structure of the manufacturing industry. The World Bank [1993] characterized Philippine manufacturing as having a dualistic size structure since the import substitution phase of the 1950s. The table indicates that the industry is still dominated by a small number of very large firms. In 1995, large-scale establishments accounted for 76 percent of manufacturing value added

Table 6.a Capital intensity, capital productivity, and labor productivity

PSIC	Manufacturing Sector	Capital Intensity K/L ('000)			Capital Productivity CVA/K			Labor Productivity CVA/L ('000)		
		1983	1988	1994	1983	1988	1994	1983	1988	1994
311	Food Processing	166.0	84.4	137.7	1.4	2.1	1.3	290.5	152.0	168.8
312	Food Manufacturing	132.2	88.5	103.9	0.7	1.4	1.4	119.1	108.9	136.6
313	Beverages	205.2	152.9	336.8	1.3	3.1	1.5	223.0	357.5	464.4
314	Tobacco	128.4	40.2	59.7	1.6	13.4	11.4	234.2	412.6	773.0
321	Textiles	121.4	85.4	94.4	0.5	0.7	0.7	70.5	59.9	83.5
322	Wearing Apparel ex Footwear	13.6	8.9	13.8	2.6	5.2	4.5	36.1	37.5	62.7
323	Leather and Leather Products	24.9	20.2	19.5	1.7	1.8	1.8	45.7	31.8	47.5
324	Leather Footwear	19.2	9.4	14.3	2.8	2.6	2.2	54.2	20.0	32.4
331	Wood and Cork Products	60.1	28.6	46.1	1.1	2.1	1.3	62.6	52.9	66.9
332	Furniture except Metal	15.7	12.9	19.7	2.4	2.8	2.2	178.2	71.4	49.9
341	Paper and Paper Products	343.1	134.2	200.9	0.5	1.6	0.8	148.6	180.2	214.8
342	Printing and Publishing	56.0	36.0	55.3	1.6	2.1	1.7	102.7	79.7	125.6
351	Industrial Chemicals	405.7	1165.2	486.4	0.8	0.4	0.7	317.1	329.6	272.9
352	Other Chemicals	89.2	108.1	167.0	3.4	3.5	2.9	296.4	278.4	405.9
353	Petroleum Refineries	805.5	1356.0	5124.4	8.3	2.2	0.8	6535.1	4510.2	9520.1
354	Petroleum and Coal Products	104.4	70.5	77.0	1.1	3.2	1.3	111.4	341.2	215.4
355	Rubber Products	40.3	59.3	45.8	2.4	1.8	1.8	120.8	105.8	110.0
356	Plastic Products	65.3	53.6	74.2	1.4	2.2	1.5	89.2	110.3	101.1
361	Pottery, China and Earthenware	103.5	52.8	53.7	1.0	1.6	1.2	102.1	79.6	60.3
362	Glass and Glass Products	204.6	123.2	425.0	0.5	2.3	0.7	92.7	265.9	269.0
363	Cement	472.5	581.3	973.2	0.5	0.5	0.4	206.1	278.9	402.2
369	Other Nonmetallic Mineral Prods	90.8	52.2	89.1	0.7	1.5	1.1	64.1	76.2	92.0

Table 6.a Capital intensity, capital productivity, and labor productivity (continued)

PSIC	Manufacturing Sector	Capital Intensity K/L ('000)		Capital Productivity CVA/K		Labor Productivity CVA/L ('000)				
		1983	1988	1983	1988	1983	1988			
369	Other Nonmetallic Mineral Prods	90.8	52.2	89.1	0.7	1.5	1.1	64.1	76.2	92.0
371	Iron and Steel	359.6	506.5	596.7	1.2	0.6	0.5	487.9	274.2	299.4
372	Nonferrous Metal Products	335.6	3587.9	1272.2	0.5	0.3	0.3	171.5	919.6	469.8
381	Fabricated Metal Products	61.3	43.9	59.3	1.5	1.8	1.5	101.5	69.9	99.6
382	Machinery except Electrical	37.5	30.0	63.2	1.4	1.7	1.2	73.7	51.7	97.4
383	Electrical Machinery	56.9	80.9	100.9	1.9	1.6	1.3	90.8	107.7	140.3
384	Transport Equipment	171.4	124.4	119.7	0.8	1.3	1.8	142.3	131.5	206.1
385	Professional and Scientific Eqpt	41.2	31.2	28.3	1.3	1.8	2.3	72.1	53.4	66.2
386	Metal Furniture	134.7	62.2	50.2	0.4	0.7	0.8	43.2	34.5	35.4
390	Miscellaneous Manufacture	33.1	11.6	29.2	1.9	4.1	1.8	82.2	44.8	53.8
	Total	114.8	100.1	130.9	1.2	1.4	1.2	149.2	127.5	176.5

K: book value of fixed assets measured at 1985 prices (capital formation implicit price index from the National Income Accounts was used as deflator), L: number of workers, CVA: census value added measured at 1985 prices (manufacturing value added implicit price index from the National Income Accounts was used as deflator)

Source: National Statistics Office, Census of Manufacturing Establishments [1983, 1988, and 1994].

Table 6.b Average growth rates in capital intensity, capital productivity, and labor productivity

PSIC Manufacturing Sector	Capital Intensity K/L		Capital Productivity CVA/K		Labor Productivity CVA/L	
	1983- 1988	1988- 1994	1983- 1988	1988- 1994	1983- 1988	1988- 1994
311 Food Processing	-13.5	8.2	8.3	-8.1	-13.0	1.8
312 Food Manufacturing	-8.0	2.7	14	-0.5	-1.8	3.8
313 Beverages	-5.9	13.2	16.9	-11.7	9.4	4.4
314 Tobacco	-23.2	6.6	43.0	-2.7	11.3	10.5
321 Textiles	-7.0	1.7	5.8	0.5	-3.2	5.5
322 Wearing Apparel ex Footwear	-8.4	7.3	13.6	-2.4	0.8	8.6
323 Leather and Leather Products	-4.2	-0.5	1.3	-0.4	-7.3	6.7
324 Leather Footwear	-14.3	7.0	-1.3	-2.7	-20.0	8.1
331 Wood and Cork Products	-14.8	8.0	13.3	-8.3	-3.4	3.9
332 Furniture except Metal	-3.9	7.1	3.3	-4.1	-18.3	-5.9
341 Paper and Paper Products	-18.8	6.7	21.5	-10.9	3.9	2.9
342 Printing and Publishing	-8.8	7.2	6.4	-3.5	-5.1	7.6
351 Industrial Chemicals	21.1	-14.6	-14.9	9.4	0.8	-3.1
352 Other Chemicals	3.8	7.3	0.5	-3.1	-1.3	6.3
353 Petroleum Refineries	10.4	22.2	-26.4	-16.0	-7.4	12.5
354 Petroleum and Coal Products	-7.9	1.5	21.7	-15.4	22.4	-7.7
355 Rubber Products	7.7	-4.3	-5.5	0.0	-2.7	0.6
356 Plastic Products	-3.9	5.4	8.5	-6.3	4.2	-1.4
361 Pottery, China and Earthenware	-13.5	0.3	8.9	-4.4	-5.0	-4.6
362 Glass and Glass Products	-10.1	20.6	31.6	-19.9	21.1	0.2

Table 6.b Average growth rates in capital intensity, capital productivity, and labor productivity (continued)

PSIC Manufacturing Sector	Capital Intensity K/L		Capital Productivity CVA/K		Labor Productivity CVA/L	
	1983- 1988	1988- 1994	1983- 1988	1988- 1994	1983- 1988	1988- 1994
363 Cement	4.1	8.6	2.5	-2.1	6.1	6.1
369 Other Nonmetallic Mineral Prods	-11.0	8.9	14.9	-5.3	3.5	3.1
371 Iron and Steel	6.8	2.7	-14.4	-2.3	-11.5	1.5
372 Nonferrous Metal Products	47.4	-17.3	-8.5	2.0	33.6	-11.2
381 Fabricated Metal Products	-6.7	5.0	4.2	-3.0	-7.4	5.9
382 Machinery except Electrical	-4.5	12.4	3.5	-5.8	-7.1	10.5
383 Electrical Machinery	7.0	3.7	-4.3	-2.9	3.4	4.4
384 Transport Equipment	-6.4	-0.6	10.6	5.1	-1.6	7.5
385 Professional and Scientific Eqpt	-5.6	-1.7	6.3	4.3	-6.0	3.6
386 Metal Furniture	-15.4	-3.6	11.8	4.2	-4.5	0.4
390 Miscellaneous Manufacture	-21.0	15.5	15.7	-13.4	-12.1	3.1
Total	-2.7	4.5	3.2	-2.4	-3.1	5.4

Source: Table 6a.

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 a 21 percent share of employment and only 11 percent of manufacturing value added. Medium-scale establishments which numbered 8 percent of all establishments accounted for 12 percent of employment and 13 percent of manufacturing value added.

**Table 7. Firm size distribution in Philippine manufacturing
1972, 1983, 1988, 1994 and 1995 (in percent)**

<i>Number of Firms</i>	1972	1983	1988	1994	1995
Small	83	78	84	72	82
Medium	7	9	7	12	8
Large	10	13	9	16	10
<i>Employment</i>	1972	1983	1988	1994	1995
Small	22	18	24	21	21
Medium	10	10	12	13	12
Large	68	72	64	66	67
<i>Census Value Added</i>	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.

Sources: National Statistics Office, 1972, 1983, 1988, and 1994 Census of Establishments.

4. Concentration and price-cost margin

The Philippine manufacturing industry is characterized not only by protectionism and heavy regulation but also by high concentration (see Lindsey [1977]; E. de Dios [1986]; Lamberte, E. de Dios, et al, [1992]; and World Bank [1993]) notably in slaughtering, dairy processing, appliance, flat glass, pulp and paper, cement, sugar, synthetic fiber, textile, and local car manufacture and assembly as well as in motorcycles and parts where the government has deliberately limited the number of industry participants. Government involvement in the economy has also directly impeded competition through the creation of a state-controlled monopoly in the iron and steel industry.

The policy of high trade barriers combined with generous long-term investment incentives to domestic industries deterred competition from abroad and contributed

to the oligopolistic structure of the Philippine manufacturing industry. With agreements to fix prices in sugar and cement, for instance, prices were no longer a product of competition among rival producers, but more an outcome of negotiations between the government and a small number of producers. Price controls thus resulted not only in limiting the potential for price competition among producers, but also in preventing the development of a culture of competition in the country.

Table 8 presents the estimates of four-firm concentration ratios which were estimated as the ratio of census value added by the four largest firms to the total in each five-digit PSIC sector. The concentration ratios shown in the table are weighted averages of the three-digit PSIC. They are divided into three groups: low concentration (39 percent and below), moderate (40 percent to 69 percent), and high (70 percent and above).

After trade liberalization, the average four-firm concentration ratio in manufacturing remained high for all three years under review. It even went up slightly from 70.88 in 1988 to 73.63 in 1994, and remained at the same level in 1995. The estimates show that the manufacturing sector is highly concentrated with roughly two-thirds of the manufacturing industry having concentration ratios ranging from 70 to 100 percent. The estimates also imply that on average, 73.6 percent of value added was accounted for by the top four firms in each manufacturing sub-sector.

Sub-sectors with high levels of concentration are mostly intermediate and capital goods such as petroleum refineries, glass and glass products, industrial chemicals, pottery, china and earthenware, petroleum and coal products, rubber products, other nonmetallic mineral, paper and paper products, professional and scientific equipment, non-ferrous metal products, transport equipment, iron and steel, machinery except electrical, textiles, other chemicals (a borderline case as it lies between 69 percent and 70 percent, upper and lower bounds of the moderate and high concentration range, respectively) and fabricated metal products. Consumer goods like tobacco, food manufacturing, and food processing also belong to the high concentration group.

In 1995, the moderate concentration group consisted of 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. Only wearing apparel, except footwear, fell under the low concentration group.

Since it is very difficult to calculate marginal cost, price-cost margins (PCM) were estimated as follows:

$$\text{PCM} = \frac{\text{Value of Output} - \text{Cost of Raw Materials} - \text{Total Compensation}}{\text{Value of Output}}$$

Table 8. Concentration ratios, price-cost margins, and number of establishments in the manufacturing sector

Sectors	Concentration Ratios			Number of Establishments			Price-Cost Margins		
	1988	1994	1995	1988	1994	1995	1988	1994	1995
High									
Petroleum Refineries	100.00	100.00	100.00	4.00	4.00	4.00	0.18	0.22	0.32
Professional and Scientific	100.00	100.00	99.97	14.00	13.00	20.00	0.32	0.23	0.24
Tobacco	96.64	99.56	99.41	25.00	21.00	22.00	0.48	0.56	0.57
Nonferrous Metal Products	99.67	99.28	98.57	35.00	34.00	40.00	0.24	0.18	0.24
Glass and Glass Products	96.33	90.58	92.05	35.00	53.00	46.00	0.46	0.50	0.52
Industrial Chemicals	90.14	87.52	84.65	112.00	171.00	197.00	0.37	0.34	0.31
Transport Equipment	80.98	86.2	84.40	230.00	264.00	265.00	0.28	0.23	0.23
Pottery, China and Earthen	92.82	86.05	93.74	59.00	68.00	61.00	0.34	0.34	0.35
Food Processing	79.51	81.37	81.74	915.00	751.00	717.00	0.30	0.30	0.32
Iron and Steel	84.18	80.64	70.55	128.00	191.00	201.00	0.23	0.43	0.24
Machinery except Electrical	63.59	77.47	79.43	556.00	464.00	460.00	0.28	0.32	0.28
Petroleum and Coal Products	81.10	77.00	87.40	16.00	14.00	16.00	0.24	0.14	0.26
Fabricated Metal Products	73.45	74.48	74.32	469.00	555.00	550.00	0.28	0.32	0.28
Other Chemicals	66.37	75.64	69.09	300.00	288.00	295.00	0.40	0.46	0.46
Rubber Products	79.15	73.50	73.66	137.00	187.00	181.00	0.24	0.28	0.37
Other Nonmetallic Mineral	68.92	71.31	74.54	353.00	304.00	253.00	0.34	0.37	0.40
Paper and Paper Products	78.97	71.23	70.40	167.00	215.00	206.00	0.32	0.30	0.29
Miscellaneous Manufacture	70.87	70.62	76.76	342.00	312.00	309.00	0.27	0.23	0.31
Textiles	64.12	64.14	72.37	549.00	537.00	508.00	0.28	0.24	0.30
Food Manufacturing	63.48	69.74	77.92	2003.00	1879.00	1798.00	0.32	0.33	0.41

Table 8. Concentration ratios, price-cost margins, and number of establishments in the manufacturing sector (continued)

Sectors	Concentration Ratios			Number of Establishments			Price-Cost Margins		
	1988	1994	1995	1988	1994	1995	1988	1994	1995
Moderate									
Beverages	48.19	70.08	63.43	91.00	86.00	88.00	0.31	0.56	0.57
Electrical Machinery	64.80	69.36	63.73	217.00	271.00	310.00	0.21	0.22	0.28
Metal Furniture	80.88	79.49	62.67	36.00	34.00	35.00	0.30	0.10	0.21
Leather and Leather Products	57.70	63.89	64.02	120.00	84.00	85.00	0.17	0.16	0.23
Wood and Cork Products	40.50	55.47	65.35	683.00	401.00	354.00	0.22	0.24	0.23
Cement	45.30	48.30	45.37	17.00	18.00	18.00	0.28	0.37	0.42
Printing and Publishing	42.13	47.26	51.08	636.00	637.00	636.00	0.25	0.28	0.32
Leather Footwear	30.33	41.70	55.00	425.00	384.00	373.00	0.19	0.14	0.20
Furniture except Metal	19.51	40.91	41.64	678.00	497.00	439.00	0.22	0.24	0.25
Plastic Products	49.41	40.75	50.87	300.00	377.00	365.00	0.27	0.29	0.29
Low									
Wearing Apparel except Footwear	34.70	31.69	26.52	1556.00	1512.00	1521.00	0.25	0.13	0.32
Total Manufacturing	70.88	73.63	73.64	11208.00	10726.00	10373.00	0.30	0.34	0.36

The price-cost margins given in Table 8 are weighted averages for three-digit PSIC code.

On the average, the manufacturing industry posted a price-cost margin of 30 percent in 1988. This increased to 34 percent in 1994 and to 36 percent in 1995. The table shows that in 1995, price-cost margins remained high particularly for tobacco (57 percent), other chemicals (46 percent), other nonmetallic minerals (40 percent), food manufacturing (41 percent) and glass and glass products (52 percent). These manufacturing industries were among the sub-sectors with very high degrees of concentration. Even sub-sectors classified under medium and low degrees of concentration have relatively high price-cost margins. For instance, moderately concentrated sub-sectors like beverages had a price cost-margin of 57 percent in 1995, cement posted a price-cost margin of 42 percent, while a non-concentrated sub-sector such as wearing apparel registered a price-cost margin of 32 percent. A combination of high price-cost margins and high concentration ratios tend to suggest that firms are able to exercise market power and that some monopoly rents are being incurred.

Concentration drives a wedge between price and marginal cost and results in high industry profits. For symmetric firms with equal market shares and low concentration, profitability & concentration are unrelated. For asymmetric firms particularly those with intrinsic asymmetric cost, the relationship is likely to be positive.

Table 9 confirms the positive correlation between concentration and industry profitability for the Philippine manufacturing sector. The table shows a positive and highly significant correlation between profitability and concentration for all three years: 1988, 1994, and 1995.

Table 9. Correlations between concentration and industry profitability

	Price-Cost Margin		
	1988	1994	1995
Four-firm concentration ratio	0.0031	0.00298	0.00338

Table 10 presents results using a conventional regression specification of the concentration-profits relationship, including capital intensity. This variable is added to control the result that a positive relationship between concentration and profitability could wrongly reflect the firms' large capital costs per unit of output. In future price regressions, it is also important to include variables representing barriers to entry like product differentiation, economies of scale, and absolute cost advantages. The absence of reliable data has prevented the present analysis from taking these into account.

Table 10: Estimates of the concentration-profits relationship

	Dependent variable: Price-cost margin
1988	
Constant	0.19008**
Concentration Ratio	0.00094**
Capital Intensity	-0.01133
R ²	0.025
1994	
Constant	0.17405**
Concentration Ratio	0.00098**
Capital Intensity	0.01355
R ²	0.03
1995	
Constant	0.24560**
Concentration Ratio	0.0005
Capital Intensity	0.02867*
R ²	0.024
Pooled Data	
Constant	0.19450**
Concentration Ratio	0.00089**
Capital Intensity	0.01707*
R ²	0.03

**Significant at the 1 percent level

*Significant at the 5 percent level

Except for 1995, the results show that concentration is highly significant for the Philippine manufacturing industry. The coefficient for capital intensity has the expected positive sign but is significant only for 1995 and for the pooled data. Although it is negative in 1988 (implying that capital-intensive industries performed badly in 1988), this is statistically insignificant.

Firms may achieve a dominant position in a market through methods that are perfectly legitimate. Examples include the adoption of efficient business practices such as innovation, superior production/distribution methods, or simply greater entrepreneurial efforts. When this is the case, the presence of high concentration and high price-cost margins are not necessarily detrimental to competition.

However, the positive relationship between concentration and price-cost margin may also indicate abuse of market power and dominant position. The Philippine economy is characterized not only by high concentration and high market power in manufacturing, but also by a high concentration of wealth and resources in a few families representing the country's elite group. The Foundation for

Economic Freedom⁸ reported that the top 5.5 percent of all land-holding families own 44 percent of all tillable land. The richest 15 percent of all families account for 52.5 percent of total national income. Only a few family-owned conglomerates control the bulk of industry sales, employment, and assets. Claessens et al [1999] noted that 17.1 percent of total market capitalization is controlled by the Ayala family while the top ten families in the country control more than half of the corporate sector or 53 percent of market capitalization. Saldana [2001] indicated that the top 10 percent and 25 percent of publicly listed companies accounted for 89 percent and 96 percent of market capitalization and 81 percent and 96 percent of trading volume, respectively.

The concentration of economic wealth among a small number of families and groups combined with high levels of industrial concentration may raise competition problems. Interlocking directorates are common in the country and this may encourage the sharing of information and coordination of anti-competitive behavior.

The Philippines has antitrust laws. Its constitution as well as the criminal and civil codes prohibit unlawful monopolies and anti-competitive practices. There are special laws to address unfair competition like the Intellectual Property Code and the Corporation Code. The Corporation Code provides for rules on mergers and acquisitions but it does not address the possible abuse of dominant position that could arise in horizontal mergers, i.e., the merger of the three shipping lines into WGA, the merger of telecommunications giants PLDT and Smart, and the merger of Sky Cable and Home Cable. There are other competition legislations like the Price Act and the Consumer Act for the protection of consumer welfare. However, these laws have proven to be completely ineffective in achieving their objectives. They have been hardly used as indicated by the absence of cases litigated in court. The same laws have even worked to discourage competition. As Abad [2002] noted, "the law has been to prevent and destroy competition in order to protect the dominant political and economic elite. Monopolies and cartels have been the standard means for wealth creation, hence, laws and regulations were structured in such a way that competition could never flourish. Since the early 1980s, there have been various attempts to legislate new competition laws. Up to now, however, none of these have actually been acted upon.

With the interplay of these factors, there is always the danger that with high price-cost margins, high concentration ratios, and high concentration of ownership around family-based conglomerates, large firms may take advantage of their market power and abuse their dominant position.

5. Conclusions and policy recommendations

Since the 1980s, the Philippines has witnessed substantial trade reforms which included tariff reduction and removal of quantitative import restrictions. These

⁸ Economic Policy Agenda Series No.5, undated.

policy changes intended to expose industries to international competition and the need to improve quality, costs, and technology. After more than a decade of implementation, these reforms have not resulted in a major increase in the size of industry and systematic movement of resources towards the manufacturing sector. Despite real progress in implementing trade liberalization, the real growth of the manufacturing sector has been slow.

One possible reason for this slow growth is that barriers to competition continue to exist and are preventing industries from maximizing the gains from trade liberalization. As liberalization progresses, private enterprises may continue to engage in restrictive business practices to offset the effect of liberalization. Mergers and acquisitions, especially those between large scale firms, may result in an increase in market concentration and a reduction in competition.

Estimates showed that for the manufacturing industry as a whole, concentration in most sectors remained high from the late 1980s to the mid-1990s. The four-firm concentration level for the whole manufacturing industry increased from 70.88 in 1988 to about 74 in 1994 to 1995. Around two-thirds of the manufacturing sub-sectors had very high concentration levels ranging from 70 to 100 percent.

Available data also indicated that rough estimates of price-cost margins moved in the same direction as concentration levels. The price-cost margins (PCM) increased from 30 percent in 1988 to 34 percent in 1994 and to 36 percent in 1995. Some highly concentrated sub-sectors were found to have very high price-cost margins such as tobacco (PCM: 57 percent), glass and glass products (PCM: 52 percent), food manufacturing (PCM: 41 percent), and other non-metallic mineral products (PCM: 40 percent).

The relationship between concentration and profitability is estimated using regression techniques. The results confirmed the positive relationship between concentration and profitability in Philippine manufacturing. The high concentration of industries in a few family-owned conglomerates coupled with high levels of concentration and profitability may also indicate the presence of market power that may raise competition problems. Future studies should take a more in-depth analysis of this issue.

To sum up, liberalizing the trade regime — removing tariff and non-tariff barriers, removing anti-export bias, and increasing import competition — constitutes the basic agenda for the deregulation of the international trade regime, and complements similar efforts in the domestic market. Even if trade barriers are removed, there are other factors that can impede the pro-competitive effects of trade liberalization: (1) the presence of non-tradables, which include not only high weight-to-value products with high transport costs, but also perishables, as well as legal, financial, and other services; and (2), the absence of effective competition due to the presence of regulatory, structural, and behavioral barriers to entry.

The presence of these barriers prevent domestic and international prices from converging, thus muting the gains from trade liberalization. While liberalization may be a precondition for the growth of a free market, it does not, by itself, guarantee effective competition. In the absence of competition laws, there is a risk that liberalization may not be sufficient to foster effective competition and it would also be difficult to control possible abuses of dominant positions by large firms, including multinationals. If effective competition has to emerge, trade reforms have to be accompanied by the creation of competitive market and industry structures.

It is thus necessary to design safeguards that would ensure market contestability and regulate anti-competitive business conduct that can damage emerging competition. A well-drafted competition law is an important policy measure that the government should undertake. The adoption of a sound competition policy, and establishment of an effective competition agency, should buttress measures such as trade liberalization and deregulation with more domestic market competition. It is also essential to remove the remaining barriers to competition and enforce a competition policy that would foster the efficient use of resources, and promote consumer welfare while protecting the freedom of economic action of various economic agents. Markets and their development require rules to orient the behavior of agents and institutions. Given the legacy of import substitution and the lack of a culture of competition in the country, a competition agency has a critical role to play not only in fostering effective competition, but also in changing the mindset of enterprise managers and the behavior of firms.

Competition should be viewed as a means and not an end in itself. Focus on economic efficiency rather than on size or market structure alone should be maintained. Not all increases in concentration from mergers are inimical to competition. Not all monopolists are inefficient and abusive. The emphasis should be on business conduct, market power and keeping markets competitive – using discipline, whenever necessary, over those who exercise market power to reduce output or increase prices.

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