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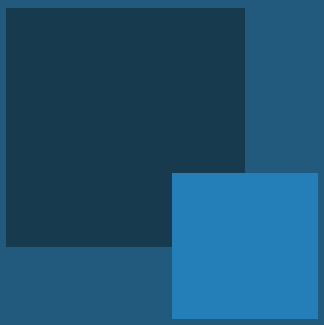
Competition in Philippine Markets: A Scoping Study of the Manufacturing Sector

Erlinda Medalla, Francis Mark Quimba, and Maureen Ane Rosellon



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I. INTRODUCTION

The Philippines has been undertaking major structural reforms characterized by liberalization, deregulation, and privatization, particularly during the three decades after the Marcos regime. A key reform measure was trade liberalization which brought down tariffs from an average of around 40 percent (arising from a structure with tariff peaks of over 100 percent) before reforms (in the early 1980s) to an average of 7 percent (with around 80 percent of tariff lines imposed duties of 5 percent or below) after a series of tariff reforms by 2000s. Trade liberalization also eased quantitative restrictions and import controls—from around a third of commodity classifications to less than 3 % by the end of the significant trade reforms (Medalla 1998).

The primary rationale for trade reforms has been the recognition of the huge costs of protection without the benefits that it was supposed to have produced—industrial development, sustained growth, and increased consumer welfare. Instead, protectionist trade policies have widely promoted rent-seeking, high prices, limited consumer choice, lack of innovation, and aging capacities. A liberal trade regime was seen to remove the market distortions from protectionist policies and promote a more dynamic economy in the long-run, with better allocation of resources to more productive sectors, innovation, and greater firm efficiency needed in a competitive environment.

While trade policy is the first layer of competition policy that can discipline the market, its cross-border impact is not enough to fully counter the hold of existing domestic companies with a dominant position that could arise from many factors such as imperfect substitution between foreign and local goods, the presence of structural barriers to entry of firms, the local distribution channels coopted by domestic suppliers, and the non-tariff barriers that still abound. Thus, the lack of effective policy for domestic competition (behind the border) minimizes the gains from trade liberation. In other words, competition policy is a necessary complementary measure to trade liberalization. The synergies between trade and competition policies cannot be overemphasized. (See Bartok and Miroudot 2008, and Aldaba 2005 and 2008 for example).

Republic Act 10667, also known as the Philippine Competition Act (RA 10667 or PCA), in 2015 is thus a landmark legislation that has long been overdue. It is a much-needed reform, primarily because of the new developments arising from new technologies that have revolutionized the way business is done and intensified international production sharing and (increasingly interlinked and broadened) supply chains. Possibly more than the past trade reforms, it could have a substantial potential impact on productivity, innovation, and even equity (as it levels the playing field for small and medium enterprises or SMEs).

The Philippine Competition Commission (PCC) is an independent quasi-judicial body mandated to implement the PCA. The task of the Commission and other related agencies to implement competition policy and law is enormous. First and foremost, there

is a clear need for a greater understanding of the state of markets and competition issues in the different sectors of the economy. The PCC has thus embarked on funding crucial studies and developing a work program on key sectors such as telecommunications, shipping, among others.

In particular, the PCC has commissioned this research project to do a scoping study on the Manufacturing Sector, which aims to assess the state of competition, identify problem areas, and formulate a prioritization matrix that would aid in achieving the objectives of competition law and policy. The scoping study would, at least, serve as the basis for the PCC in its advocacy initiatives and its selection of sectors for in-depth market studies. Also, it could serve as a benchmark for future studies that would gauge the impact of competition act and policy reforms that have been implemented.

Further, this paper reviews what was done in the past to assess the state of competition in Philippine manufacturing. Specifically, this paper leverages on the study done by Aldaba (2008) in the manufacturing sector for the Philippines. Findings from relevant studies that look at other industries are also presented. As to approach and methodology, this study adopts the underlying framework of the Structure-Conduct-Performance (SCP) Model, and estimates similar relevant indicators as Aldaba (2008). This section also formulates regression models that are tested to help understand the interaction among the three SCP elements and how they impact the state of competition. The succeeding section provides the empirical findings and analysis, which would aid in the assessment of competition and identify parameters and guides for prioritization. A separate section looks briefly at major external factors, specifically, selected government policies with significant impacts on competition in the manufacturing sector. This section, however, would be more exploratory and illustrative in nature, to understand their implications on the task of the PCC in promoting competition. Finally, the last section on the conclusion and recommendation suggests a prioritization matrix that could be used by the PCC.

II. REVIEW OF LITERATURE: RELEVANT FINDINGS FROM PAST STUDIES

This section covers the major studies done on competition in manufacturing and other past studies that could be relevant to this scoping study on the state of competition in the manufacturing sector.

Past Study by Aldaba (2008): summary of main findings

Aldaba (2008) provides the most recent and comprehensive work on assessing competition in Philippine markets. A summary of her main findings is presented below. Table 1 provides an overview of market structure, relevant government regulator, barriers to entry in major sectors and subsectors of the Philippine economy as of the time of the writing of the study. Despite trade liberalization, market structures could encourage monopolistic or

oligopolistic behavior and barriers to entry. Such could be detrimental to the state of competition in these markets.

Table 1. Market Structure, Barriers to Entry, and Competition (as of 2008)

Economic Sectors	Market Structure	Gov't Regulator	Barriers to entry		Studies
			Structural & regulatory	Behavioral	
Agriculture					
Rice	Importation: Monopoly	NFA	Import license		AGILE (2000); Intal and Garcia (2005); Reeder (2000); Mendoza and Rosegrant (1995)
	Trading: Oligopoly			Cartel	
Corn	Importation: Monopoly	NFA	Import license	Cartel	
	Trading: Oligopoly				
Sugar	Oligopoly	SRA	Tariff quota	Cartel	Borrel etl (1994); Philexport (1998), Tolentino (1999)
Poultry & chicken			Tariff quota		
Bananas (for export)	Oligopsony			Abuse of market power	Digal (2007)
Pineapplies (for export)	Oligopsony			Abuse of market power	
Manufacturing					Aldaba (2007, 2005, 2003 and 2002a); L. de Dios (1993); Imbat & Tanlapco (1993), E. de dios (1986); Lindsey (1977)
Motorcycles & parts	Oligopoly		Large capital requirements Economies of Scale		Pineda (1994)
Meat & dairy processing	Oligopoly		Tariff quotas: live swine Large capital requirements Product differentiation Sunk costs		L. de Dios (1994a)
Appliance	Oligopoly		Large capital requirements Product differentiation Economies of scale Technology acquisition Access to		Lapid (1994)

Economic Sectors	Market Structure	Gov't Regulator	Barriers to entry		Studies
			Structural & regulatory	Behavioral	
			distribution channels		
Packaging (glass-based)	Oligopoly		Large capital requirements Economies of scale		Medillo (1994)
Flat glass	Monopoly		Safeguard measure; Large capital requirements Skill intensive Economies of scale		Medillo (1994)
Synthetic resin	Oligopoly		Large capital requirements Economies of scale		Banzon (1994)
Agricultural machinery	Competitive				Trabajo (1994)
Shipbuilding & repair	Oligopoly		Large capital requirements		
Automotive	Oligopoly		Large capital requirements Economies of scale Strong parts supply base		Aldaba (1997, 2000b, 2008b)
Downstream oil	Oligopoly	DOJ-DOE task force to oversee competition	Large capital requirements Extensive retail network	Cartel	Salas (2002); Galang & Solleza (2001); Cabalu et al (2001); Fabella & Aldaba (2004)
Pharmaceutical drugs	Oligopoly Monopoly for patent holders	BFAD regulates entry	License & registration Patents, Intellectual Property Law Intensive advertising	Cartel Gift giving practices by drug firms to promote expensive drugs to physicians & pharmacists	Lecciones (2004) Lao (1999)
Cement	Oligopoly		Large capital requirements	Cartel	Aldaba (2007, 20002b), Lamberte, E. de Dios et al (1992)
Services					
Electricity	Generation: NPC, IPPs	ERC	regulatory capacity &		Llanto & Patalinghug

Economic Sectors	Market Structure	Gov't Regulator	Barriers to entry		Studies
			Structural & regulatory	Behavioral	
			independence of ERC		(2004); Fabella & Aldaba (2004); Tuano (2001)
	Transmission: TRANSCO Monopoly	ERC	Same		
	Distribution: MERALCO Monopoly	ERC	Same	Abuse of market Power, cross-ownership of distribution and generation firms	
Water	Monopoly	MWSS-RO	Independence of RO		Fabella (2006); Santos (2003); Llanto (2002); Solon and Pamintuan (2000)
Wholesale & Retail					Duenas-Caparas (2005)
Department stores & Supermarkets	Competitive: SM & Robinson's are the 2 biggest players				
Drug stores	Oligopoly: Mercury Drug, the dominant player		Economies of scale & scope Customer goodwill & loyalty Supplier network		
Tele-communications	Oligopoly	NTC	Congressional Franchise Network industry Regulatory capacity & independence of NTC	PLDT delaying interconnecti on PLDT & Smart merger	Llanto & Patalinghug (2004); Salazar (2007); Abrenica (2000); Aldaba (2000a); Serafica (1998a & b)
Ports	Monopoly	PPAs	Complex policy, regulatory, & institutional framework Conflicting roles of PPA		Llanto, E. Basilio, & L. Basilio (2005); PDP Australia/Meyrick and Associates (2005)
Water transport	Oligopoly	MARINA	Cabotage law Regulatory capacity & independence of MARINA	Mergers; cartel & market sharing	Austria (2003); Llanto, E. Basilio and L. Basilio (2005)

Economic Sectors	Market Structure	Gov't Regulator	Barriers to entry		Studies
			Structural & regulatory	Behavioral	
Air transport	Oligopoly Major routes: Duopoly Minor routes: Monopoly	CAB	Congressional Franchise , Cabotage law, Subsidies given only to PAL , Regulatory capacity & independence of CAB	Mergers; regulatory capture	Austria (2002); Forsyth et al (2004); Aldaba (2005c); Lim (2004)
Banking Institutions	Oligopoly: competitive behavior	BSP			Pasadilla & Milo (2004); Milo (2001); Manzano & Neri (2001); Montinola & Moreno (2001); Lamberte, M. & C. Manlangit (2005)

Source: Table 13 of Aldaba 2008

Aldaba (2008) computed the 4-firm concentration ratios for the manufacturing sectors. Her results are presented in Table 2. On average, concentration ratios rose for the period 1988-1998, following the major trade reforms in the mid-1980s, which continued up to the end of the 1990s. This increase in concentration ratio is not an inconsistent response to competition from a move to a more open trade regime, as firms restructure to be able to compete, and as inefficient firms are driven out.

Table 2. 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%)								
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 Chemical	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	77.00	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

Sectors	Concentration Ratios				Number of establishments			
	1988	1994	1995	1998	1988	1994	1995	1998
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	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	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	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 to 69%)								
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	678	497	439	68
Low (below 39%)								
Wearing Apparel ex 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 3-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 See: Aldaba (2007).
Source: Table 14 of Aldaba 2008

Indeed, Medalla (1998) finds that, on average, the efficiency of firms improved during trade reforms. See Table 3. More establishments, both in terms of number and value of production, became efficient in saving/earning foreign exchange.[1] As the table shows, for example, the share of productive firms in terms of production value rose from around 19 percent in 1983 to 44 percent in 1992 decline in the standard deviation of the DRC/SER ratios indicating that resources are better allocated. According to Medalla (1998), a wide variation implies room for movement of resources from high domestic resource cost sectors to lower domestic resource cost sectors.

[1] Clearly, the lower the DRC/SER ratio is (desirably not more than 1), the more efficient it is, especially from the point of view of society.

Table 3. Distribution of firms according to DRC/SER ratios

DRC/SER range	Efficiency classification	Share in production value (in percent)			Share in number of establishments (percent)		
		1983	1988	1992	1983	1988	1992
0<DRC/SER<1	Highly efficient	18.84	39.51	43.95	19.6	30.25	33.22
1<DRC/SER<1.5	Efficient/Mildly	28.75	22.76	29.48	17.16	27.73	31.17
1.51<DRC/SER<2.0	Inefficient	12.30	14.68	8.36	14.20	13.0	12.69
DRC/SER>2.0	Highly	39.58	21.77	18.07	46.01	26.61	21.87

Notes: DRC/SER ratio is the domestic resource cost per unit (social) value of foreign exchange earned/saved (earned for exporters and saved for local producers of import substitutes)

Source: Medalla (1998)

The increase in concentration ratios should not be ignored despite the efficiency of the market outcome because of the potential for collusion and abuse of market power with high firm concentration. Hence, there is a crucial need for competition policy that prevents the potential for abuse, and ensure that firms play fairly (within the competition law).

Aldaba (2008) also computed price cost margins (PCM) to look more closely at what these results could indicate in terms of possible monopoly rents. See Table 4.

Table 4. Simple Price Cost Margins in the Philippine Manufacturing Industry

Industry Sector	1972-98	1972-75	1976-80	1981-85	1986-90	1991-95	1996-98
High (50 to 69%)							
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 to 49%)							
Tobacco	0.47	0.44	0.40	0.31	0.50	0.57	0.66
Other Non-metallic mineral	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

Industry Sector	1972-98	1972-75	1976-80	1981-85	1986-90	1991-95	1996-98
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% 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	0.30	0.31	0.18	0.26	0.23	0.29	0.34
Standard deviation	0.14	0.14	0.32	0.17	0.20	0.15	0.14

Source: Table 15 of Aldaba (2008)

The results show that PCMs, despite the increasing concentration ratios, are still mostly moderate to low. The declining correlation coefficient between concentration relation (CR) and PCM (Medalla, 2003) supports the view that the observed increase in concentration ratio during the period of extensive trade reforms was likely less indicative of increased monopoly power in general. See Table 5.

Table 5. Manufacturing correlation matrix: concentration ratio and price-cost margin, 1988, 1994, 1995

	PCM 1988	PCM 1994	PCM 1995
CR 1988	0.4223	0.1854	0.12
CR 1994		0.272	0.1759
CR 1995			0.1423

Source: Obtained from Table 5 of Medalla 2003

Considering the trade reforms, improvements in efficiency, generally low to moderate PCMs, and the declining positive correlation between PCM and concentration ratio, the estimated CRs seem under control. Whether these results remain valid is something that this study would explore. The indicators used by Aldaba (2008), where feasible, are thus updated.

Relevant findings from past studies including other sectors

There are sectors, alleged of anti-competitive behavior (e.g. abuse of dominance) and other unfair trade practices, that have been the subject of research. A study by Abad et al. (2012) briefly reviewed the literature (e.g., Aldaba 2000, 2008, 2010, 2011; Lamberte et al. 1992) on some of these sectors; in particular, cement, telecommunications, energy, agriculture, food, and consumer products.

The cement industry is one of those industries alleged to have collusion among firms. An analysis by Aldaba (2010) found that the industry is highly concentrated, with three firms controlling almost 90% of the market. In the 1970s, during the protectionist regulations, a few producers dominated the market, and a pricing pattern was observed from them (Aldaba 2000; Lamberte et al. 1992). The issue of collusion waned when the industry was liberalized and deregulated in the 1980s. However, a trend in pricing behavior recurred in the late 1990s.

Price fixing and market allocation were two manifestations being connected to a cartel (explicit or tacit) in the cement industry (Abad et al. 2012). There were observed price increases at times of excess supply and weakened demand during the economic slowdown, such as during the 1997 and 2008 financial crises, or when fuel prices and power rates changed substantially (Aldaba 2000, 2010). Aldaba (2000) also found that despite having different cost structures, there is low variation in pricing and that changes/increases in prices happen in a rather 'harmonious fashion'. On the other hand, market allocation (production quotas and geographical division of the regional markets) was alleged to have been discussed in meetings held among cement firms (Lamberte et al. 1992).

In the past, the government conducted investigations on the cartel in the cement industry. However, as there was no clear and comprehensive competition law at that time that the investigation did not produce substantial findings (Abad et al. 2012). But with the enactment of the PCA and creation of the PCC, complaints on cement cartel are again being probed[2] but with guidance of a competition law.

Meanwhile, despite the liberalization and deregulation of the telecommunications sector, there are still cases of complaints and allegations of unfair business or anti-competitive practices. PLDT owns the domestic backbone system and can influence the speed and the terms and conditions for interconnection and for revenue-sharing agreements, which is perceived as disadvantageous, especially for new players (Aldaba 2008, 2011). PLDT also expanded its coverage in the market with its merger with Smart Communications, one of the top mobile network/ telecommunications companies. Globe, another telecommunications company, and Smart were the top and competing companies in the sector until a third up-and-coming player entered the market, Sun Cellular (owned by Digital Telecommunications Philippines or Digitel) in 2003.

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[2] Bongquin, C. and P. Quintos. "Cartel, price fixing fight gets boost as anti-trust law takes effect. ABS-CBN News Online. 02 August 2017.

It was also in 2003 when Globe and Smart filed separate complaints before the National Telecommunications Commission (NTC), charging Sun Cellular with predatory pricing when it offered unlimited call and text messaging (Abad et al. 2012). The two big firms petitioned to implement fixed call rates and prevent the newcomer, Sun Cellular, from charging much lower rates. The NTC ruled in favor of Sun Cellular. This incident intensified the competition as the two big firms offered attractive and competitive packages to the market.

Aside from predatory pricing, Sun Cellular had been accused of misleading or false advertisement. In 2009, Sun Cellular-owner Digitel filed a complaint before the NTC objecting to the false advertisements circulated by Red Mobile, another telecommunications company. The ad had given the impression that Sun Cellular had lower coverage (cellular sites) than it has.[3]

Mergers can lead to the lessening of competition. When PLDT acquired Digitel (including Sun Cellular) in 2011, industry observers assessed that PLDT would control a majority (about 70%) of the mobile network market. While it has benefits of improving and enhancing the efficiency of services, the merger could lead to increased market power. Aldaba (2011) recommended that the government ensure market contestability and regulate business practices that could restrict competition. Meanwhile, a more recent case was the acquisition by industry competitors PLDT Inc. and Globe of San Miguel Corporation's telecommunications business, which was believed to have hindered the entry of a third player. According to reports, the case has been pending because PLDT objects the investigation by the PCC.

Like the telecommunications sector, the energy sector has also been regulated and liberalized (in 2001). However, Aldaba (2008) finds that the early stages of deregulation lacked clear rules and regulatory framework, including regulations related to access rules for transmission and distribution (e.g., dispatching order) and pricing system that would allow consumers to share inefficiency gains.

There are claims that unfair business practices, particularly vertical agreement and unfair dealing affecting price, take place in the energy sector. Meralco received accusations of buying power from affiliated independent power producers (IPPs) when lower prices were available at the National Power Corporation (NPC). This business practice is said to impact on consumers who eventually pay higher prices as they subsidize the high-cost firms (presumed to be inefficient) (SEPO 2009). Nonetheless, it was reported that the PCC is investigating the alleged collusion in power rates.[4]

Similar to the cement industry, the agricultural sector, particularly rice, corn, and sugar sectors, have been accused of operating in cartels, which was manifested by the pricing behavior in these sectors. Low farm-gate and high retail prices were attributed to cartels in

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[3] TeleGeography.com, "Digitel calls foul over PLDT's 'unfair' ad-based service Red Mobile." 11 June 2009.

[4] Cahiles-Magkilat, B. "PCC includes DTI DAO in cement 'cartel' probe. Manila Bulletin Online. 02 August 2017.

rice and corn sectors and high local prices of sugar to 'integrated sugar mandates' that control mining, refining, and marketing. Thus, the PCC commissioned Dr. Roehlano Briones to conduct further studies on the rice and sugar industry.[5]

Moreover, a cartel in the garlic sector was also suspected in the mid-2010s, as prices increased unusually (even more than doubled) when there was no supply shortage. The Office for Competition of the Department of Justice investigated the case, and in a 2014 report, described the modus operandi and identified cartel operators. However, no case was filed at that time.[6] This garlic cartel is now one of the cases being investigated by the PCC.[7]

Further, in the food sector, a case of obstruction of competition and unfair trade practice was filed before the DTI in 2009 by a food manufacturing company, CDO-Foodsphere Inc, against a large canned tuna company, Century Pacific Group (CPG). CDO-Foodsphere accused CPG of blocking the entry of its new product, the corned tuna, into the market, and for convincing retailers to enter into voluntary loyalty programs that hold off competitors.[8]

These illustrate that there could be continuing cases of anti-competitive conduct in the absence of a working competition law.

III. APPROACH AND METHODOLOGY

The underlying framework commonly used for analyzing the state of competition in markets is the Structure-Conduct-Performance (SCP) model. (See Figure 1). This model was used by Aldaba (2008)[9] and will also be the underlying framework for this scoping study.

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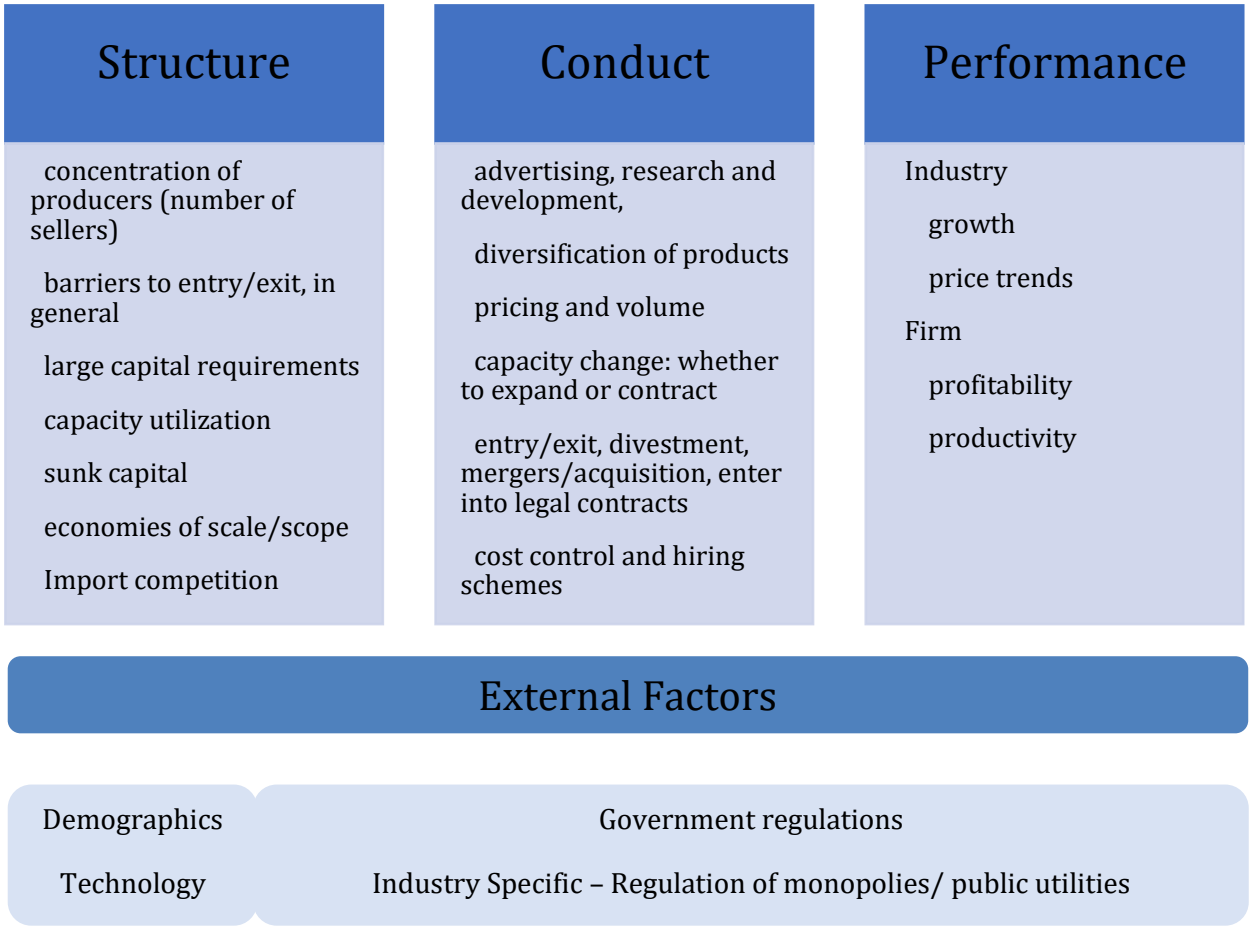
5 The published studies are accessible at the resources section of the PCC website (https://www.phcc.gov.ph/).
6 Uy, J. "DA to suspend 55 garlic importers". Philippine Daily Inquirer Online. 08 August 2017.
7 Bongquin, C. and P. Quintos, *op. cit.*
8 Manila Bulletin Newspaper Online, "DTI probes complaint on alleged unfair trade practices in canned tuna."13 November 2009.
9 The SCP is also the starting point of Porter's five forces of competitive position, and industrial organization.

Figure 1. The Structure-Conduct-Performance Framework



The SCP model highlights the roles of the industry structure (S), firm conduct (C), and performance (P) that contribute to the state of competition in any market.

Structure

The structure of the particular market is the primary indicator of competition one would need to assess. In simplest terms, competition exists when there are rival firms, not acting in collusion, to supply the market. Thus, in assessing the state of competition of markets, the first general indicator to look at is the fundamental element of the market structure–the degree of market concentration. How many players are competing in the market, in the first place? For this, a significant task of the study is to estimate two commonly used indicators: firm-concentration ratio (CR) and the Herfindahl-Hirschman Index (HHI).

The HHI is computed as the sum of the squared market shares of all suppliers in the market. The inverse of this 'raw' HHI is interpreted as the 'effective' number of competitors. Thus, for example, if there are four firms, all with equal market shares, the HHI is equal to 4 * 0.0652 = .25. The inverse of this is 4 (that is, equal to 1/.25), the number of rival firms. In addition, the higher the HHI, the higher the concentration ratio, and the lower the 'effective'

number of rival firms. The 'raw' HHI (sum of squares) is multiplied by 10,000 to come up with the conventional HHI. In our example. HHI is 2500. We do the same for this study.

The CR is computed as the market share (whether as share in value-added or share in sales) of top firms (e. g., the top 4 firms, CR4).

These are not perfect indicators, as would be elaborated on later. Also, considering which thresholds to apply could be arbitrary. For example, in the case of HHI, a standard guideline used (e.g., by the US and the EU on mergers) for HHI is:

HHI of below 1000 is considered 'unconcentrated'
HHI of between 1000 and 1800, as 'moderately concentrated'
HHI of above 1800, as 'highly concentrated'

Using these thresholds indicates that there should be more than four competing firms supplying the market for it to be considered as not concentrated.

This study proposes to use more 'lenient' thresholds, given the much smaller market, and investments in the case of the Philippines. Our proposed classification for the study is:

HHI of below 1500 is considered 'unconcentrated'
HHI of between 1500 and 2500, as 'moderately concentrated'
HHI of above 2500, as 'highly concentrated'

In the case of CR4, one could use the threshold of 70% for highly concentrated, between 40% and 70% as moderate, and below 40% as low concentration as done by Aldaba (2008).

It is not just the degree of concentration that matters in assessing the structure of the market and the state of competition. High concentration is a necessary condition for the existence of market power. Still, it is not a sufficient condition to indicate market power and the state (or lack) of competition. In the end, what is essential is market contestability, the ease of entry/exit of firms in a particular market. In this regard, even if one finds some market concentration, one would need to examine further other factors affecting supply, particularly, the presence of barriers to entry and the nature of these barriers. It would also help to understand the nature of the supply and value chain, and where the potential for competition squeeze can occur.

Hence, one looks at the concentration (number of sellers) as the first indicator of potential market power (and lack of competition). However, this should be supplemented by an assessment of barriers to entry conditions, and other supply and demand conditions.

For example, is there competition from imports (can imports come in freely)? If so, high firm concentration would be less indicative of market power. Is the good mainly exported? As such, the market is much broader than what firm concentration ratios (as estimated) capture. As such, it would be useful to supplement concentration estimates with indicators

such as the import penetration[10] or export ratio, and the tariff rate and existence of non-tariff barriers (NTB). In addition to imports, are there close local substitutes? How much do firms engage in product differentiation?

Aside from these market supply and demand conditions, are there government regulations that impede the entry of firms? Are there significant factors inherent in the nature of the industry that could affect the entry of firms? Some sectors could be characterized by economies of scale, huge capital requirements, and sunk capital. In such cases, there could be inherent asymmetries between new entrants and incumbent firms, where there could be costs that had to be borne by entrants but not by incumbents. For example, sunk capital could either make it easier for a firm to erect barriers to entry, or make it difficult for it to exit the market. Such a case is typical among industries with large capital requirements and economies of scale: similar to excess capacity, which could be an indicator of an entry barrier. In this case, capacity utilization is a useful indicator over time.

How elastic is the demand for the product? If demand is inelastic, the firm would have greater market power as it will be able to induce a more considerable price increase when limiting supply (the consumer is at greater mercy of the supplier). On the other hand, if demand is elastic, limiting supply leads to a commensurate decline in firm revenues, and the firm would thus have limited market power. The rate of growth of demand for the product also makes it more difficult to sustain market power. (See World Bank and OECD, 1998 for a more in-depth discussion of barriers to entry).

In sum, various elements of market structure that impact market contestability need to be examined. These include, among others:

- concentration of producers (number of sellers)
- barriers to entry/exit, in general
- large capital requirements
- capacity utilization (excess capacity could be an entry barrier)
- sunk capital (providing asymmetry between incumbent and potential entrants)
- economies of scale/scope (usually associated with sunk costs)
- import competition
- product homogeneity
- product differentiation
- elasticity of demand
- rate of growth

[10] For more in-depth studies, estimating concentration ratios should include supply of imports in total domestic supply (not just total local supply produced by local incumbent firms). This was attempted in the study but major differences in industry classification (PSIC) and commodity classification used for imports and lack of data did not make it possible for an overall manufacturing scoping study. What was done instead is to use imports as one of the explanatory variables, as would be seen in the later section of the study.

Conduct

What do firms do to compete with other firms? Different firms have varying strategies. The question is, are these within legal means (that is, not in violation of competition law)? Or do they compete by striving to be more innovative and efficient? Some examples of what a firm does to keep or enhance its market share or to maximize its profits are:

- advertising,
- research and development,
- diversification of products
- pricing and volume (which, in the presence of competition, should be close to marginal cost)
- capacity change: whether to expand or contract
- entry/exit, divestment, mergers/acquisition, enter into legal contracts
- cost control and hiring schemes
- process and product innovation

What the PCC should watch out for are signs of anti-competitive behavior. These are the prohibited acts under the law, which could include predatory pricing behavior, collusion and cartel behavior, or unlawful refusal to deal. These are often difficult to spot and verify. After finding a high concentration in the market, as earlier mentioned, more supplementary indicators are needed, such as significant structural barriers to entry (including government-photo-policy induced).

An example of an indicator that could reveal the anti-competitive conduct of a firm is the presence of excess capacity. The incumbent firm/s might invest in excess capacity to deter entry. It holds excess ability in reserve and threatens to use it if a new player would have plans to enter. It launches a price war, thereby rendering entry unprofitable. The criticism here is that the threat to utilize capacity post entry may not be credible because it will likely not be profit-maximizing to increase output. Can the incumbent credibly maintain or improve output post-entry? The question is thus whether or not an incumbent can credibly threaten to produce the limited output post entry.

Another argument that an incumbent might use excess capacity as an entry deterrent is to consider the excess capacity as sunk costs. It could become a strategic approach of the incumbent, as sunk costs would provide it a cost advantage by reducing its variable costs versus new firms post entry.

Such is an illustration of the complexity of proving anti-competitive conduct. Even the case of the PLDT/Globe Telecoms acquisition is not clear-cut. Nonetheless, this is a clear case for the investigation by the PCC because of the claim to a necessary resource (bandwidth) which could limit the entry of rival firms. Whether the deal would lower consumer welfare is not conclusive, as regulations and conditions could be imposed to make sure that overall welfare is enhanced.

Performance

Finally, in assessing the state of competition in particular markets, there is a need to look at firm performance, which is usually measured by productivity, firm growth, and profitability. For a competition policy body, the question is whether the firms are enjoying "monopoly rents" or "abnormal" profits (that is, earnings over and above the 'normal' returns to capital that results from competition). Is the profitability performance of a firm an indicator of efficiency or market power?

The second primary task of the study is to examine the performance of industries in the manufacturing sector that could indicate the existence of monopoly rents. Towards this end, a commonly used indicator is the (Lerner's) Price-Cost margin (PCM).

The Price-Cost Margin is supposed to capture how much the market price (P) deviates from marginal cost (MC). In a perfectly competitive market, P = MC and (P–MC)/P reflects market power (how much the monopolist can control price and maximize profits over and above the competitive level).

Hence, we want PCM to reflect a deviation from marginal costs. The problem is that Marginal Costs are not observable from the PSA data set, which is the source of data we need to come up with an assessment measure covering all manufacturing. Although PSA Census/Survey provides establishment data, at best, this would represent average costs and output values. It has been one of the criticisms about using the accounting PCM data. One suggestion is using estimates of marginal costs from econometrically derived coefficients (assuming a Cobb-Douglas production function). Aldaba (2008) did this and found, as most previous studies did, that results remain the same. Hence this study uses PCM from PSA's annual data.

Another critical question is the comparability of using PCM as such over different sectors. This arises mainly from differences in capital intensity and length of production cycle across industries. Price-cost margins that allow viability of the firm/sector would depend on how short (or long) the production cycle is and how much capital is leveraged. Higher PCM, for example, is needed for industries with longer production cycles and higher capital intensities. As such, some allowance should be given to this difference across sectors. Hence, this study looks at the potential "abnormal" profits of the firm, industry, or sector to use as a basis for the estimate of monopoly power, instead of directly looking at the wedge between price and marginal cost (the PCM).

For simplicity, we use a one-period analysis (and simple inputs and output). Let us denote the following (annual) variables as follows:

VO = value of output
RM = raw materials used
w = wage rate
L = labor used

d = depreciation rate
R = rental payments, interest and amortization
K = capital used.

The profit rate, $\prod/K$, (or return to equity) accruing to the activity is derived as:

$$\prod / K = (VO - RM - wL - dK - R)/K$$

Ideally, under perfect competition, excess profits (abnormal profits) are zero. Above that is rent. Specifically, if r denotes normal profits, $\prod/K - r$ would be excess profits (or an indicator of monopoly rent).

$$\prod/K - r = (VO - RM - wL - dK - R)/K - r. \text{ Or} \qquad \text{Equation 1}$$
$$\prod - rK = VO - RM - wL - dK - R - rK.$$

"Normal" rate of return, r, should equal the social rate of discount. We could assume, for now, for r to be 10% (Medalla 2014). This means that $\prod - rK$ is measured using census of manufacturing data as follows:

$$\prod - .10K = VO - RM - wL - dK - R - .10K$$
$$= \text{Sales} - \text{Cost of Goods Sold} - .10\,K$$

where Sales = VO;
Cost of goods sold includes RM, fuels, electricity, Labor, overhead costs.

The "normal" rate of return should be the same across sectors in the ideal world, where resources could move freely. Also, in assessing the state of competition and monopoly power across industries in manufacturing, it is not necessary to come up with absolute measures. Hence, we could simplify the estimation further by dropping the last term to come up with relative measures across sectors (and over time, as **r** would be relatively stable over the medium term).

Hence this brings us back to $\prod = VO - RM - wL - dK - R$, as a relative measure of 'monopoly' rents.

Note that $PCM = (VO - RM - wL)/VO$. Hence, dividing $\prod$ by (VO), we have:

$$\prod/(VO) = PCM - (dK + R)/VO. \qquad \text{Equation 2}$$

Aldaba (2008) refers to this as an adjusted PCM. Hence, this study estimates the adjusted PCM or APCM.

Using APCM, however, does not adequately address the earlier question about how much monopoly power is affected by capital intensity (or magnitude of capital requirement). Of course, capital intensity, in theory, should not affect the competitive outcome of P = MC, a marginal cost. In practice, however, businesses look at long-run average costs and long-run

returns to capital. Indeed, zero profits, even under perfect competition, do not mean zero returns to capital. Instead, capital should not earn more than the cost of money, which, from the society's longer-run perspective, is the social rate of discount. Again, this is what we consider the 'normal' return to capital.[11]

A possible adjustment to PCM that follows from the above discussion can be derived from Equation 1. As previously mentioned, we can use 10 percent as the 'normal' rate of return, which is the most recent estimate of the social discount rate (Medalla 2015).

If r= 10%, Equation 1 becomes:

$$\prod/K - .10 = (VO - RM - wL - dK - R)/K - .10$$

There is monopoly rent if this is greater than 0.

That is:

$$(VO - RM - wL - dK - R)/K - .10 > 0$$

Or

$$(VO - RM - wL - dK - R)/K > .10.$$

This suggests a modified PCM, MPCM which uses K as a divisor, instead of VO (in contrast with APCM used by Aldaba).

$$MPCM = (VO - RM - wL - dK - R)/K.$$

If MPCM is consistently above 10 percent (over a while), there is a significant indication that the firm is enjoying monopoly rents.[12]

It is assumed that the capital is not sunk cost. Note that, if indeed, part or all of the capital is sunk cost, MPCM will be underestimated. To illustrate, if we deduct sunk costs from K, and assume that this is close to 100% of K, the denominator will be close to zero and MCPM will be very high, which indicates monopoly power. It is consistent with the situation (earlier mentioned) that sunk capital could provide a barrier to entry arising from the asymmetry between incumbents and potential entrants.

This paper attempts to calculate both APCM and MPCM. There are more readily available data from PSA, e. g. sales and cost of goods sold (which include overhead costs like depreciation, fuel costs, electricity, etc.) to estimate APCM. For MPCM, an estimate of K (which ideally should be the replacement cost of capital) is needed. However, it poses a

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[11] The discussion about having 'normal' profits disregards differences in levels of risks across different types of investments. For this study, results are annual averages, as it uses PSA data, even at the disaggregated four-digit manufacturing PSIC level. This is enough for a general scoping study.

[12] It is important to see trends over time, rather than just looking at a single period, to arrive at a more robust conclusion.

more difficult constraint. Two possible statistics that can be obtained from the PSA census or survey to estimate K are (1) the book value of fixed assets (BVA) and (2) depreciation. BVA is the acquisition value of assets (capital) less depreciation. The problem is that the PSA survey does not provide the acquisition values,[13] nor the age and expected life of the asset/s. Capital expenditures could occur in different periods (but statistics provided would only be for the current year), while the annual depreciation reported is the total for all capital assets. Given these limitations, there are two stages of difficulties in coming up with the estimate of K. First, the acquisition value cannot be directly derived from reported BVA and depreciation for the year. And two, even if we are then able (using reasonable assumptions) to estimate the acquisition value, this should be adjusted for inflation (and possibly deflated by the difference in productivity between 'old' and 'new' capital). Unfortunately, given the limited time and resources, this study is not able to come up with enough information to make the necessary adjustments (either in BVA or depreciation) to estimate K. Hopefully, future efforts could produce better results.

SCP relationships

The discussion above also suggests that one needs to go further and understand better the relationships between the market structure, conduct, and performance of firms. The most evident direction of the relationship in the SCP model is that the market structure affects the behavior and performance of firms and the overall industry. However, the course of effects could be two-way. Conduct could affect the structure. A firm could choose to divest or merge with another (Conduct) for efficiency reasons (Performance) and thus influence the structure of the market. Performance could also affect conduct. For example, the higher the profits (Performance), the higher the firm could allocate to advertising or R&D (Conduct) and this would then again impact on the market structure and performance of the firm.

Outside these interactions in the SCP, there would also be external shocks that can affect these SCP elements. A major external blow is government policy or regulation itself. In the analysis, this is a crucial aspect to consider, mainly as it affects the entry and exit of firms and thus the market structure and market power.

There is no one size fits all configuration. Whether one element is more important than the other, or which is the primary factor to consider could vary. Economists also differ about which should be given emphasis. Does market structure largely determine market conduct? This is the traditional "structure performance hypothesis." Or is the market structure that is possibly characterized by high concentration an efficient market outcome? This is the "efficient structure" hypothesis.

The PCA implicitly recognizes this. In fact, various clauses of the PCA provide for the exemptions and exceptions, which are mainly based on the impact on efficiency and

[13] The PSA Census/Survey provides only capital expenditures for the year.

consumer welfare. In this regard, the PCC focuses on the conduct of firms. When firms invest in R&D activities, product and process innovation to keep their competitiveness and market share, there is evidence of pro-competitive impacts and pressure. The PCC's task is to watch out for anti-competitive firm conduct[14] that leads to harmful, 'unfairly gained' profits that counter innovation and efficiency.

To recapitulate, structure, conduct, and performance are interrelated. The market structure would have an impact on the conduct of firms, such as strategies, cost minimization, and measures taken, to name a few. Market structure could also make it easier for firms to collude if the market is highly concentrated. Inversely, conduct could also impact the market structure, as firms try to keep or enhance their respective market shares. They could do this within legal means, like advertising and R&D. Or they could use non-legal measures listed as prohibited acts under the competition law. Either way, it is the task of a Competition Authority to determine if the firm's conduct, whether it enabled or was enabled by the market structure, violates the competition law.

Furthermore, high profits could have been enabled by excellent and efficient strategy or anti-competitive conduct or, in turn, may have enabled firms to conduct individual acts or strategies. Nonetheless, compliance with the competition law has to be checked.

Estimates of concentration (CR4 or HHI) and PCM would be the starting point of this general assessment and scoping of competition in the manufacturing sector. Since the results could indicate the state of competition as well as its impact on the performance and market power, it would be interesting to identify these relationships empirically.

Past studies show mixed results. Some find a weak relationship between the structural variables and performance (Salinger, 1984). The same is likely to be the case as well for this study. Nonetheless, the regression results would still be useful and insightful either way. Is there a significant correlation between these two variables? A positive correlation between concentration and PCM generally suggests uncompetitive markets and a high potential for abuse of dominance. It is the expected result of a structural hypothesis of the SCP model. Again, even then, this would need to be supported by further analysis of barriers to entry and other performance indicators. For example, the conclusion could be strengthened by findings on lack of innovation or a decline in productivity. On the other hand, a negative or even an absence of correlation weakens the case for the presence of abuse of market power.[15]

Aside from APCM, the study attempts to get some measure (estimate) of total factor productivity (TFP), or at least, labor productivity. What happens to productivity would reveal a lot about the impact of market structure on performance. If the higher concentration is

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[14] Whether by unfairly shutting out and/or colluding with rival firms, or by exploiting its dominant position.

[15] Similarly, if we find no general correlation, are there particular sectors with consistently high concentration and PCM over time? What are they? And what are possible explanation. Is it the type of industry? Government policy?

accompanied by increased productivity, the opposite, or no correlation at all will show how important it would be to guard against monopolies.

Hence, possible regressions to be done would include:

(1) ones that look at the relationship between concentration and price-cost margins, and
(2) those that look at factors that could explain or correlate with concentration.

These are discussed further in the presentation of findings and results.

Given that this paper is a scoping study of the manufacturing sector, it aims to provide a bird's-eye view of the state of competition in manufacturing and trends related to it, and suggest a tool and some guidelines for prioritization. For this purpose, the study employs the most useful comprehensive data set collected by the PSA on the Census and Survey of manufacturing establishments, at the four-digit manufacturing PSIC (Philippine Standard Industrial Classification).[16] Whether the level of classification of the sector represents or defines the market is not considered in the use of such data sets from PSA. Identifying relevant markets requires more in-depth studies of the specific sectors, subject to investigation of the Commission.

IV. EMPIRICAL FINDINGS: SCOPING COMPETITION IN THE PHILIPPINE MANUFACTURING SECTOR

Brief Overview of Recent Manufacturing Performance

First, it is useful to keep in mind the general context of the results: the performance of the manufacturing sector.

The manufacturing sector constitutes about 68% of the industrial sector and 23% of GDP (2016). It employs around 8% of employed persons in all industries. The industry experienced sluggish growth in the past two decades but has demonstrated growth in the last five years. It has even surpassed the annual increase in the services sector, particularly in 2013 (at 10.3%) and 2014 (at 8%), and average growth in the period 2012-2016, with manufacturing growing at 7.3% and the services sector at 6.9%.

Labor productivity has also been increasing in manufacturing. The sector's labor productivity (computed as GVA per employed worker) grew by about 24% from 2012 to 2016. In the same period, the industry registered an average annual growth rate of 5.3%, which is higher than that of services (3.6%) and agriculture (3.2%).

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[16] This four-digit manufacturing PSIC is five-digit from the point of view of the census of the whole economy which covers services, agriculture, forestry fishing and mining as well.

Sectoral GVA distribution in manufacturing in 2012-2016 revealed some of the significant contributors to GDP. These include food manufactures, which posted an average share of 8.2%; radio, television and communication equipment and apparatus, 3.9%; chemical and chemical products, 2.6%; furniture and fixtures, 1.1%; and beverage industries, 1.0%.

However, in 2016, the top contributors to manufacturing GVA did not contribute significantly to the 7% growth in production (some of them even posted negative growth). The major contributors to growth include office, accounting and computing machinery, which grew by 43%; basic metal industries, 40.5%; machinery and equipment except electrical, 24.9%; transport equipment, 24.4%; rubber and plastic products, 24.4%; and wood, bamboo, cane and rattan articles, 18.5%.

Recent data also indicate that GVA has been increasing in some of the subsectors such as footwear and leather and leather products; basic metal; electrical machinery and apparatus; transport equipment; and food manufactures. (See Table 6)

Table 6. Manufacturing Sector Performance

	2012	2013	2014	2015	2016
Gross value added *(in million pesos, at 2000 constant prices)*	1,395,711	1,538,912	1,666,514	1,760,989	1,884,320
GVA growth rate (%)	5.4	10.3	8.3	5.7	7.0
Share to GDP (%)	22.1	22.8	23.3	23.2	23.2
Employment *(in thousand workers)*	3,112	3,159	3,212	3,209	3,390
Share to Total (%)	8.3	8.3	8.3	8.3	8.3
Labor Productivity *(in thousand pesos per worker)*	448.5	487.2	518.8	548.8	555.8
Manufacturing Value Added *(in million pesos, at 2000 constant prices)*					
Food manufactures	531,704	554,984	593,577	603,249	652,709
Beverage industries	60,303	58,632	73,080	72,375	79,341
Tobacco manufactures	4,675	4,349	4,307	5,480	5,854
Textile manufactures	30,102	26,435	30,428	32,384	29,737
Wearing apparel	39,554	33,330	31,994	31,258	31,332
Footwear and leather and leather products	6,269	6,993	7,137	7,478	8,110
Wood, bamboo, cane and rattan articles	14,316	13,316	13,567	17,366	20,572
Paper and paper products	13,592	12,708	13,437	15,392	16,401
Publishing and printing	8,509	8,225	15,308	17,916	18,791
Petroleum and other fuel products	48,790	43,266	49,683	49,035	49,689
Chemical & chemical products	95,267	184,363	191,229	220,902	242,814
Rubber and plastic products	22,516	23,208	24,561	25,398	31,596
Non-metallic mineral products	38,010	41,392	39,637	43,362	41,976
Basic metal industries	20,983	31,348	33,218	35,290	49,587
Fabricated metal products	13,961	14,063	20,335	21,994	21,986

	2012	2013	2014	2015	2016
Machinery and equipment except electrical	20,271	21,426	26,568	31,424	39,245
Office, accounting and computing machinery	20,940	20,936	23,638	20,342	29,090
Electrical machinery and apparatus	35,749	33,405	34,476	37,373	42,035
Radio, television and communication equipment and apparatus	238,396	262,166	276,537	311,241	305,489
Transport equipment	33,285	26,845	28,867	31,301	38,943
Furniture and fixtures	53,346	77,078	94,741	90,378	89,898
Miscellaneous manufactures	45,176	40,444	40,189	40,050	39,124
Manufacturing Value Added (% Share to GDP)*					
Food manufactures	8.4	8.2	8.3	7.9	8.0
Beverage industries	1.0	0.9	1.0	1.0	1.0
Tobacco manufactures	0.1	0.1	0.1	0.1	0.1
Textile manufactures	0.5	0.4	0.4	0.4	0.4
Wearing apparel	0.6	0.5	0.4	0.4	0.4
Footwear and leather and leather products	0.1	0.1	0.1	0.1	0.1
Wood, bamboo, cane and rattan articles	0.2	0.2	0.2	0.2	0.3
Paper and paper products	0.2	0.2	0.2	0.2	0.2
Publishing and printing	0.1	0.1	0.2	0.2	0.2
Petroleum and other fuel products	0.8	0.6	0.7	0.6	0.6
Chemical & chemical products	1.5	2.7	2.7	2.9	3.0
Rubber and plastic products	0.4	0.3	0.3	0.3	0.4
Non-metallic mineral products	0.6	0.6	0.6	0.6	0.5
Basic metal industries	0.3	0.5	0.5	0.5	0.6
Fabricated metal products	0.2	0.2	0.3	0.3	0.3
Machinery and equipment except electrical	0.3	0.3	0.4	0.4	0.5
Office, accounting and computing machinery	0.3	0.3	0.3	0.3	0.4
Electrical machinery and apparatus	0.6	0.5	0.5	0.5	0.5
Radio, television and communication equipment and apparatus	3.8	3.9	3.9	4.1	3.8
Transport equipment	0.5	0.4	0.4	0.4	0.5
Furniture and fixtures	0.8	1.1	1.3	1.2	1.1
Miscellaneous manufactures	0.7	0.6	0.6	0.5	0.5

Source: PSA

** Used data in 2000 constant prices (from www.industry.gov.ph)*

Note: Labor productivity was computed using data from PSA.

The manufacturing sector performance has thus been nothing short of outstanding during the last six years, a departure from its decades of lackluster performance in the past.

Findings on Concentration Ratios and the Herfindahl Index

Following Aldaba (2008), 4-firm concentration ratios were calculated for industries (four-digit manufacturing PSIC) and then summarized at the two-digit PSIC level (weighted average using share in total manufacturing value-added). In 2006, the manufacturing sector in the Philippines had, on average, a 4-firm concentration ratio of 68 percent. While this value increased slightly to 72.7 percent in 2008, it had settled to 65.4 percent in 2014 (see Table 6). These figures indicate that improvements in the overt measure of the degree of competition in the manufacturing sector did occur, albeit limited and with some losses over time.

Historically, only printing and reproduction of recorded media and manufacture of rubber and plastic products have 4CR less than 40 percent. In 2014, aside from the sectors mentioned earlier, paper and paper products manufacturing also has 4CR below 40 percent.

One of the criticisms about the use of the 4CR is that it fails to consider the market shares of all the firms in a given industry. The Herfindahl-Hirschman Index (HHI) of market concentration may be used to address this issue. HHI measures market concentration in the form of the sum of the squared market shares of all companies in the industry (equation 2).

$$HHI = \sum_{i=1}^{N} S_i^2 \qquad \text{(equation 3)}$$

By using the square of the market shares, the more significant weight is given to firms with larger market shares.

HHI value ranges from near zero, which reflects perfect competition, up to 10000, as in the case of a pure monopoly.[17] An industry or market is non-concentrated if the HHI is less than 1500, while the market is moderately concentrated if the value of the index ranges between 1500 and 2500. The value of HHI above 2500 represents a highly concentrated industry. Table 6 presents a summary of the HHI at the 2-digit PSIC level. Similar to the findings of Table 6, Table 7 shows that Total Manufacturing is highly concentrated with HHI values ranging from 2000 to 3000. In 2014, Total Manufacturing had an HHI value of 2541.

The HHI index confirms the consistently highly-concentrated sectors identified by 4CR: Tobacco products, Leather and related products, Coke and refined petroleum products, Machinery and equipment, n.e.c., and Manufacture of other transport equipment.

[17] Note that the inverse of HHI (times 10000) can be interpreted as the effective number of rival firms (players). HHI = 1000, for example is like having 10 rival firms or industry players, and HHI = 10000, one firm or monopoly.

Table 7. 4-firm Concentration Ratio summarized at 2-digit PSIC level

PSIC 2-digit	Description	2006	2008	2010	2012	2014
High concentration (80% and above)						
C19	Coke & refined petroleum prods	100	99.9	99.9	99.8	99.5
C12	Tobacco products	99.2	99.1	95.8	99.9	99.6
C30	Manufacture of other transport eqpt	92.3	93.1	97.7	97	93.7
C28	Machinery and equipment, n.e.c.	93.2	87	79.4	86.7	81
C15	Leather and related products	80.3	85.6	83.7	77.5	84.3
C16	Wood and cork products, etc.	59.1	82.5	83.2	88.9	87.2
C27	Electrical equipment	68.9	72	87.8	83.6	77.3
C32	Other manufacturing	76.9	73.7	72.9	81.5	76.2
C33	Repair/installation of mach & eqpt	82	57.5	78.6	75.4	67.1
C21	Pharmaceutical & pharmaceutical preps	70.2	77.7	72.1	65.4	72.7
C20	Chemical and chemical products	62.9	71.5	73.6	70.5	68.4
C24	Basic Metals	79.6	66.8	79.6	60.2	58.6
Moderate Concentration (40 - 69%)						
C10	Manufacturing of food products	67	70.8	69.6	65.9	62.8
C13	Textiles	73.9	62.4	65.8	67.6	54.1
C11	Beverages	63.8	54.9	62.1	59.3	66.9
C23	Non-metallic mineral products	55.5	56.1	64.2	62.8	68.1
C29	Vehicles, trailers, semi-trailers	61.1	66.3	56.7	39.2	81.3
C26	Computer, Electronic & electrical prods	63.9	59.6	55.9	63.1	47.9
C31	Manufacture of furniture	43.9	48.2	53.7	56.3	57.3
C25	Fabricated metal prods expt mach & eqpt	46.9	44.4	51.5	47.3	48.4
C17	Paper and paper products	45.7	47.8	45.3	42.6	37
Low concentration (40% and below)						
C14	Wearing apparel	32.8	36	44.7	42.9	46.1
C18	Printing/reproduction of recorded media	27.7	27.2	49	28.5	33.7
C22	Rubber and plastic products	26.5	25	26.5	24.3	21.6
C	Total Manufacturing	68	72.7	72	63.8	65.4

Note: Concentration ratios were calculated at the 5-digit PSIC level and then summarized at the 2-digit PSIC using GVA as weights.
Source: CPBI 2006; ASPBI 2008, ASPBI 2010, ASPBI 2014; CPBI 2012; Philippine Statistics Authority

The 4CR indicated only three unconcentrated industries in 2014. While the HHI identified more under the same classification in the same year, including *Textiles, Wearing apparel, Paper and paper products, Printing and reproduction of recorded media, Rubber and plastic products, Fabricated metal products expt machinery and equipment, Electrical equipment, Manufacture of furniture*.

Table 8. HHI summarized at 2-digit PSIC level

PSIC	Description	2006	2008	2010	2012	2014
High concentration, HHI > 2500						
C12	Tobacco products	4,479	4,641	3,243	9,082	7,181
C19	Coke and refined petroleum products	5,111	5,092	5,106	5,110	4,696
C30	Manufacture of other transport eqpt	4,693	4,836	4,488	4,580	5,474
C15	Leather and related products	4,773	5,976	5,158	3,894	3,332
C28	Machinery and equipment, n.e.c.	6,310	4,924	2,612	4,480	3,409
C24	Basic Metals	4,822	3,503	4,834	2,528	2,179
C16	Wood and cork products, etc.	1,720	3,571	3,473	3,980	3,706
C27	Electrical equipment	2,125	3,408	4,233	3,300	2,634
C32	Other manufacturing	2,408	3,057	2,982	3,277	2,741
C21	Pharmaceutical & pharmaceutical preps	1,954	3,273	3,011	2,549	3,259
C10	Manufacturing of food products	3,415	3,314	2,338	2,274	1,859
C23	Non-metallic mineral products	1,454	1,633	2,275	3,055	4,507
C33	Repair/installation of mach & eqpt	3,923	989	2,900	2,483	2,270
Moderate Concentration, 1500 < HHI < 2500						
C20	Chemical and chemical products	1,735	2,524	3,169	2,789	1,992
C29	Vehicles, trailers, semi-trailers	1,610	1,879	1,597	731	4,218
C13	Textiles	2,929	1,417	1,743	1,941	1,125
C11	Beverages	1,562	1,411	1,474	1,547	1,951
Low concentration, HHI < 1500						
C26	Computer, Electronic & electrical prods	1,804	1,513	1,265	1,586	953
C25	Fabricated metal products expt mach & eqpt	1,277	1,228	1,584	1,295	1,317
C31	Manufacture of furniture	813	964	1,148	1,598	1,291
C22	Rubber and plastic products	682	827	1,050	917	811
C17	Paper and paper products	831	847	899	733	572
C14	Wearing apparel	528	580	836	776	920
C18	Printing/reproduction of recorded media	393	414	1,027	427	517
C	Total Manufacturing	2,695	3,088	2,828	2,078	2,541

Note: Concentration ratios were calculated at the 5-digit PSIC level and then summarized at the 2-digit PSIC using GVA as weights.
Source: CPBI 2006; ASPBI 2008, ASPBI 2010, ASPBI 2014; CPBI 2012; Philippine Statistics Authority

Compared with the results of Aldaba (2008), which cover the country's substantial trade reform period, the manufacturing sector appears to have become less concentrated. However, as noted earlier, the average concentration ratio is still higher than 70 percent for specific years. The reduction, however, is significant and has fallen below the 'high concentration' threshold by 2014. It is worth noting that this trend coincided with a period of remarkably high growth in GDP and high growth in the number of establishments. (see Table 8 and Table 9)

Table 9. 4-firm Concentration Ratios and Number of Establishments, during and post-trade reform periods

Year	CR4	# of establishments
Trade Reform period		
1988	70.88	11208
1994	73.63	10726
1995	73.64	10373
1998	80.55	15674
Post Trade Reforms (pre-PCA)		
2006	68	18,331
2008	72.7	15,868
2010	72	15,849
2012	63.8	25,038
2014	65.4	25,166

Source: Trade reform Years: Aldaba 2008

Post-trade reform, before the Philippine Competition Act: Authors' Computations

Table 10. Number of Establishments by 2-digit PSIC manufacturing sector, 2006-2014

2-digit PSIC	Description	2006	2008	2010	2012	2014
C10	Manufacturing of food prods	6,185	5,403	5,525	9,891	10,232
C11	Beverages	1,263	1,142	1,160	2,322	2,537
C12	Tobacco products	19	18	18	16	18
C13	Textiles	357	289	305	451	397
C14	Wearing apparel	1,802	1,524	1,424	1,910	1,796
C15	Leather and related products	378	285	244	346	303
C16	Wood and cork products, etc.	580	472	463	571	536
C17	Paper and paper products	324	281	285	341	354
C18	Printing and reproduction of recorded media	1,109	991	1,161	1,557	1,610
C19	Coke refined petroleum prods	6	11	9	22	24
C20	Chemical & chemical prods	569	511	519	727	641
C21	Pharmaceutical and pharmaceutical preparations	81	76	98	124	117
C22	Rubber and plastic products	714	655	698	914	1,002
C23	Non-metallic mineral products	702	550	456	860	817
C24	Basic Metals	435	377	333	426	384
C25	Fabricated metal products expt machinery & equipment	1,060	869	846	1,191	1,200
C26	Computer, Electronic and electrical products	343	298	269	314	307
C27	Electrical equipment	290	214	184	238	223
C28	Machinery & eqpt, n.e.c.	442	211	160	319	251
C29	Vehicles, trailers, semi-trailers	219	201	225	216	226
C30	Manufacture of other transport equipment	117	98	65	109	94
C31	Manufacture of furniture	825	710	720	1,018	1,035
C32	Other manufacturing	270	218	277	418	367
C33	Repair and installation of machinery and equipment	240	464	405	737	695
C	Total Manufacturing	**18,331**	**15,868**	**15,849**	**25,038**	**25,166**

We also examine vertical and horizontal sectors and compare the 4CR and HHI at the PSIC 4-digit level. In particular, we look at tobacco products, leather and related products, textile and wearing apparel, and beverages (Table 11; complete listing in Annex 1).

Tobacco products have high concentrations based on the 4CR and HHI computations at the 2-digit PSIC level. A disaggregation of the industry indicates that the manufacture of

cigarettes composes mostly of the establishments (around 40%) of the tobacco industry and is classified to have high concentration based on 4CR and HHI in 2006-2014. The other sectors registered high density but have fewer establishments. The manufacture of chewing and smoking tobacco; and Curing and re-drying tobacco leaves had, on average five establishments from 2006-2014 and was decreasing in number during the same period. Meanwhile, the manufacture of cigarettes increased from 5 to 8 establishments.

The other sector with a high concentration ratio or index is the leather and related products. Generally, the leather and associated industries, from the tanning of leather to the manufacture of footwear, registered a decline in the number of establishments (except for manufacture of products of leather and imitation leather), but still classified as moderate to highly concentrated; though declining slightly over the years. The manufacture of products of leather and imitation leather increased in terms of the number of establishments (83 to 96 from 2006 to 2014), still moderate to highly concentrated, but is showing less concentration over the years, as indicated by the substantial decrease in HHI.

In the manufacture of shoes, leather shoes have the most number of establishments. The industry remains moderately concentrated during this period, though the number of establishments has decreased considerably over the years from about 160 in 2006 to 80 in 2014.

As for beverages, most establishments are engaged in the manufacture of drinking water. The number of establishments under this industry has increased over the years, while concentration declined from low high to moderate. Meanwhile, the manufacture of sports/energy drink has been highly concentrated, consisting of 3 establishments in 2006 and declining to 1 in 2014. For other beverages, there is an increase from 1 in 2010 to 3 in 2014, and a considerable decrease in HHI during this period. The sports or energy drink sector is an interesting and illustrative example of how nuances in the nature of the product matter. While there are only a few large manufacturers, the product has many substitutes that would limit their market power.

For textiles and wearing apparel, most industries are in garments manufacturing, custom tailoring, and custom dressmaking. These industries have low to moderate concentration, except for custom dressmaking, which is moderate to high. Along the industry chain, mainly, weaving or preparation of textiles, there are relatively fewer establishments, market concentration is moderate, and competition seems to be improving as indicated by concentration values decreasing over the years.

Table 11. 4CR and HHI for Selected Industries, at 4-digit PSIC Code

PSIC Code	Description	Number of establishments					Herfindahl-Hirschman Index (HHI) raw					4-Firm Concentration Ratio				
		2006	2008	2010	2012	2014	2006	2008	2010	2012	2014	2006	2008	2010	2012	2014
	Beverages															
C1105	Manufacture of drinking water	1149	1046	1080	2197	2434	0.1633	0.2262	0.2909	0.1627	0.129	0.666	0.889	0.883	0.736	0.618
C1106	Manufacture of sports and energy drink	.	.	.	3	1	.	.	.	1	1	.	.	.	1.000	1.000
C1109	Manufacture of other beverages, n.e.c.	.	.	1	4	3	.	.	1	0.5001	0.429	.	.	1.000	1.000	1.000
	Tobacco products															
C1201	Manufacture of cigarettes	5	5	6	5	8	0.4533	0.4681	0.4021	0.9147	0.716	0.997	0.997	0.964	0.999	0.995
C1202	Manufacture of cigars	2	2	1	1	1	0.6147	0.5488	1	1	1	1.000	1.000	1.000	1.000	1.000
C1203	Manufacture of chewing and smoking tobacco, snuff	5	5	6	5	4	0.6684	0.5127	0.4085	0.6922	0.663	0.976	0.983	0.985	0.997	1.000
C1204	Curing and redrying tobacco leaves	7	6	5	4	4	0.2476	0.4151	0.6671	0.314	0.32	0.830	0.933	0.983	1.000	1.000
C1209	Tobacco manufacturing, n.e.c.	.	.	.	1	1	.	.	.	1	1	.	.	.	1.000	1.000
	Textiles and Wearing Apparel															
C1311-1312	Preparation and spinning of textile fibers; weaving of textiles weaving of textiles	67	46	45	121	73	0.1448	0.1223	0.2896	0.302	0.177	0.696	0.625	0.790	0.828	0.736
C1313	Finishing of textiles	31	27	54	45	62	0.4787	0.1178	0.1064	0.1737	0.136	0.817	0.599	0.556	0.707	0.634
C1314	Preparation and finishing of textiles (integrated)	9	13	8	11	5	0.303	0.1968	0.2797	0.3799	0.308	0.878	0.744	0.910	0.993	0.946
C1391	Manufacture of knitted and crocheted fabrics	43	40	49	94	35	0.1129	0.1211	0.1192	0.2561	0.152	0.555	0.600	0.636	0.883	0.693
C1392	Manufacture of made-up textile articles, except wearing apparel	69	56	62	74	93	0.1907	0.154	0.0735	0.0655	0.075	0.648	0.605	0.450	0.410	0.433
C1393	Manufacture of carpets and rugs	13	12	8	25	28	0.4574	0.3428	0.208	0.5179	0.179	0.940	0.952	0.887	0.964	0.813
C1394	Manufacture of cordage, rope, twine and netting	42	21	11	13	19	0.1653	0.1288	0.1522	0.175	0.113	0.685	0.622	0.699	0.756	0.543
C1395	Manufacture of embroidered fabrics	33	30	29	22	25	0.7914	0.1815	0.1353	0.3022	0.161	0.954	0.676	0.654	0.917	0.649
C1399	Manufacture of other textiles, n.e.c.	50	44	38	47	57	0.4183	0.1062	0.1844	0.1893	0.15	0.811	0.529	0.703	0.673	0.599
C1411	Men's and boys' garment manufacturing	236	208	266	471	346	0.0479	0.0476	0.11	0.1389	0.185	0.372	0.370	0.563	0.537	0.608
C1412	Women's and girls' and babies' garment manufacturing	680	559	478	427	427	0.022	0.03	0.0414	0.0408	0.042	0.208	0.247	0.324	0.332	0.343
C1413	Ready-made embroidered garments manufacturing	39	48	31	50	63	0.1104	0.2635	0.4333	0.1916	0.3	0.591	0.864	0.956	0.796	0.854
C1419	Manufacture of other wearing apparel, n.e.c.	200	166	134	226	267	0.0626	0.0794	0.0598	0.0634	0.086	0.376	0.466	0.385	0.428	0.505
C1421	Custom tailoring	311	304	299	312	412	0.2601	0.1076	0.2666	0.2863	0.147	0.793	0.538	0.799	0.801	0.604
C1422	Custom dressmaking	282	196	159	385	247	0.1771	0.2278	0.3811	0.1773	0.21	0.761	0.776	0.886	0.702	0.810

C1430	Manufacture of knitted and crocheted apparel	54	43	58	39	34	0.1649	0.1774	0.1777	0.1685	0.124	0.595	0.699	0.747	0.670	0.590
	Leather and related products															
C1511	Tanning and dressing of leather	24	17	11	11	13	0.5346	0.704	0.7741	0.5665	0.423	0.938	0.949	1.000	0.999	0.984
C1512	Manufacture of products of leather and imitation leather	83	63	64	107	96	0.6582	0.7447	0.6319	0.4684	0.338	0.886	0.929	0.885	0.794	0.858
C1521	Manufacture of leather shoes	159	118	103	89	80	0.2103	0.1154	0.2396	0.1214	0.179	0.661	0.545	0.748	0.608	0.730
C1522	Manufacture of rubber shoes	18	13	12	28	13	0.2236	0.3055	0.1632	0.2542	0.19	0.794	0.845	0.756	0.913	0.788
C1523	Manufacture of plastic shoes	4	2	4	.	3	0.8186	0.851	0.4014	.	0.934	1.000	1.000	1.000	.	1.000
C1524	Manufacture of shoes made of textile materials with applied soles	5	4	3	7	7	0.4843	0.5737	0.4393	0.4115	0.36	1.000	1.000	1.000	1.000	0.932
C1525	Manufacture of wooden footwear and accessories	8	3	2	1	2	0.6054	0.4616	0.8484	1	0.988	0.987	1.000	1.000	1.000	1.000
C1529	Manufacture of footwear, n.e.c.	77	65	45	102	89	0.0946	0.1172	0.155	0.2007	0.177	0.563	0.596	0.608	0.752	0.724

Further analysis of the market structure could include the growth indicators, related markets other than local, e. g. exports or competing imports. Is the market growing, stable, or declining? One expects that there will be demand for new production capacity, and that entry will be easier if market demand is growing. In contrast, sectors which are declining over time will not attract new investments. If the firms are producing for exports, then a high concentration ratio as computed would lose much of its meaning as an indicator of monopoly power (at least within the local market. Similarly, if there is supply coming from imports, CR4 and HHI measures would be misleading indicators of monopoly power (real market share will, in effect, be lower if imports are taken into account). This consideration is thus included in the regression analysis presented below.

Table 12. Adjusted Price-Cost Margin summarized at the two-digit level

2-digit PSIC	Description	2006	2008	2010	2012	2014
C10	Manufacturing of food products	0.214	0.153	0.048	-0.053	0.122
C11	Beverages	0.193	0.148	0.153	0.124	0.252
C12	Tobacco products	0.167	0.238	0.338	0.089	0.011
C13	Textiles	-0.206	0.037	0.011	0.073	0.043
C14	Wearing apparel	0.090	0.093	0.060	-0.094	0.065
C15	Leather and related products	0.152	0.000	0.049	-0.062	0.090
C16	Wood and cork products, etc.	0.173	0.068	0.045	0.074	0.135
C17	Paper and paper products	0.111	0.126	-0.592	0.115	0.113
C18	Printing and reproduction of recorded media	-0.064	0.077	0.003	0.071	0.115
C19	Coke & refined petroleum prods	0.104	0.233	0.217	0.149	0.146
C20	Chemical and chemical products	0.104	0.096	0.053	-0.408	0.053
C21	Pharmaceutical and pharmaceutical preps	0.087	-0.172	-0.108	0.003	0.036
C22	Rubber and plastic products	0.134	0.080	0.082	0.029	0.075
C23	Non-metallic mineral products	-0.025	0.267	0.177	0.190	0.184
C24	Basic Metals	0.113	0.128	0.127	0.069	0.136
C25	Fabricated metal products expt machinery and equipment	-0.030	0.041	0.050	0.429	0.094
C26	Computer, Electronic and electrical products	0.103	-0.208	0.091	0.138	0.082
C27	Electrical equipment	0.140	0.078	-0.009	0.105	-74.955
C28	Machinery and equipment, n.e.c.	0.152	0.138	0.098	0.073	0.101
C29	Vehicles, trailers, semi-trailers	0.112	-0.010	0.071	-0.191	0.108
C30	Manufacture of other transport equipment	0.132	0.076	0.146	-0.038	-11.785
C31	Manufacture of furniture	-0.319	0.076	0.095	0.086	0.133
C32	Other manufacturing	0.148	0.063	0.106	0.062	0.102
C33	Repair and installation of machinery and equipment	0.110	0.023	0.007	0.152	0.080
C	Total Manufacturing	0.118	0.094	0.095	0.066	-2.107

Initial results indicate that sector PCMs from 2006 to 2014 as shown in Table 12 are mostly low to moderate. Some sectors that have over 10% PCM and have reached reasonable margins (over 20%) at some point between 2006 and 2014 are manufacture of food

products; tobacco; beverages; coke and refined petroleum products; and fabricated metal products expt machinery and equipment. Beverages have had higher margins (from 19% to 25%) while the other four sectors' margins decreased, though still over 10% (except for tobacco and fabricated metal products expt machinery and equipment). Most of the sectors/products' PCM decreased from 2006 to 2014, except for printing and reproduction of recorded media; manufacture of furniture; and basic metals, whose margins increased by about 4 to 6 percentage points.

Estimates appear very low, mainly driven down by the high negative PCMs of -75 and -11.8 for sectors C27 (electrical equipment) and C30 (manufacture of transport equipment), respectively. A possible explanation is accelerated depreciation for these sectors. On the whole, however, the overall downward trend could be a temporary outcome of rapid growth in the number of establishments. [18]

It would be useful and interesting to find out what happens if we remove the two sectors with large negative APCMs. Doing such could be justified not only because these may be considered to be outliers, but even more because these are sectors that are mainly for exports. Table 13 presents what has happened to the average APCM during and post-trade reform periods, including and excluding these observations. With or without these observations, the general reduction in ACPM is evident between the two periods. The range went down from 23-34 percent to around 12 percent.

Table 13. PCM during and post-trade reform periods

Year	Adj PCM	
Trade Reform Period		
1981-85	0.26	
1986-90	0.23	
1991-95	0.29	
1996-98	0.34	
Post Trade Reforms (pre-PCA)		
	all Mfg C sectors	Exc. C27, C30
2006	0.12	0.12
2008	0.09	0.12
2010	0.10	0.12
2012	0.07	0.23
2014	-2.11	0.13

[18] Scheduling limitations in accessing PSA establishment data have been a major constraint in cleaning up the data and sorting out methodological problems.

Findings on the relationships between Structure-Conduct-Performance

Regression results

As discussed in the earlier section, a positive correlation between concentration and PCM could suggest the presence of uncompetitive markets and a high potential for abuse. This result is expected in a structuralist hypothesis. Our initial findings on the regression estimates, however, are the opposite, showing a negative and significant correlation.

Using the single-variable regression analysis, we tried to calculate the correlation between measures of concentration and price-cost margin (Table 14). Ordinary least squares estimates show that there is a negative correlation between APCM and measures of concentration. The same regression specification was estimated using panel fixed effects to control the time-invariant omitted variable bias. The correlations still reveal a negative and significant relationship between concentration and price-cost margin. See Table 14 .

Table 14. Correlation between concentration indices and price-cost margin

	(1)	(2)	(3)	(4)
VARIABLES	CR4	HHI	CR4	HHI
APCM	-0.000819***	-0.000178	-0.000593***	-0.000279***
	(0.000199)	(0.000130)	(1.76e-05)	(4.63e-05)
Constant	0.772***	0.347***	0.772***	0.347***
	(0.00747)	(0.00911)	(4.59e-06)	(1.21e-05)
Observations	886	886	886	886
F statistics	16.99	1.871	1141	36.25
Number of id			188	188

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

At first glance, these results appear counter-intuitive, as we do not expect a correlation between sectors with higher concentration and low price-cost margins. It therefore implies that the market environment for the manufacturing sector is competitive. This means that the high concentration is correlated with a low price-cost margin. Because even in highly concentrated industries, the incumbent firms appear to be not enjoying 'rents' or abnormal

profits. However, further consideration of its overall condition and performance at the time, this may not seem improbable and may explain this general assessment of the state of competition in the manufacturing sector. It was a period of high, accelerating, and sustained growth for the manufacturing sector in particular. Firms will tend to go where returns are high.

Nonetheless, we considered the possibility that this could be a 'misleading' result of the high negative APCM in two sectors noted earlier. It would be interesting to find out what happens if we remove the observations showing large negative APCM (sectors C27 and C30).

The relationship between concentration and PCM became positive, but has also become insignificant. Table 15 shows that it is more in line with the usual expectation. The sign of the correlation suggests that the state of the 'domestic' market is not as competitive as indicated by the previous results, and that, indeed, the competition authority should look at concentration ratios. However, the weak (insignificant) finding magnifies the need to consider other factors as previously discussed.

Table 15. Correlation between concentration indices and price cost margin: excluding 'outliers'

	Panel FE (3)	Panel FE (4)
VARIABLES	**CR4**	**HHI**
APCM	-0.00291	0.00553
	(0.0094)	(0.0133)
Constant	0.772***	0.346***
	(0.00088)	(0.00125)
Observations	884	884
R-squared	0	0
F statistics	0.0959	0.172
Number of id	188	188
Robust standard errors in parentheses		
*** p<0.01		

Still, it is not clear that the high negative observations should be considered outliers. These could be brought about by many factors such as fluctuations in the export market where the sectors in question belong, or capital intensity and accelerated depreciation. Perhaps, the modified regression results, excluding C27 and C30, would be more reflective of the state of competition, if one would consider only the domestic market. However, the entire manufacturing sector including those producing for exports, the original results would perhaps be more applicable.

Conducting further analysis by estimating other specifications suggests that there might be other factors contributing to the degree of concentration in the industry. While we still obtain a negative and significant correlation between CR4 and PCM, the relationship has weakened for HHI, which is no longer significant. What needs to be explained further is the relationship of other markets to concentration ratios. Table 16 [(3) and (4)] shows that industry groups that have external markets tend to have higher degrees of concentration, as reflected by a positive and significant correlation between exports of the industry and the dependent variable. Similarly, the positive association between imports of similar products and concentration ratios shows that the presence of foreign competition fosters further concentration in the industry. This is consistent with our earlier explanation about Aldaba's initial finding of increasing concentration ratios during trade reforms. Foreign competition drives out inefficient firms that could lead to a higher concentration.

In sum, there appears to be a significant negative correlation between the degree of concentration and PCM. A possible interpretation is that in general, a low PCM provides a disincentive to new entrants or drives out less efficient firms, and thus a higher degree of concentration. Additionally, a higher PCM encourages more firms to engage in the market and hence more players and lower degree of concentration. This is the opposite of what is expected from a monopolistic structural outcome, and more in line with an efficient, more or less competitive market outcome. Furthermore, these results are not entirely surprising, given the steady growth of the manufacturing sector during the period in question.

Table 16. Regression results including other explanatory variables

VARIABLES	(1) CR4	(2) HHI	(3) CR4	(4) HHI
APCM	- 0.000834***	-0.000231	- 0.000274***	2.02e-05
	(0.000202)	(0.000140)	(2.14e-05)	(3.78e-05)
No. of establishments (growth rate)	0.00500	0.0152	-0.00278	0.00869
	(0.00715)	(0.0115)	(0.00339)	(0.00646)
Value added in the industry (growth rate)	0.000403***	0.000743***	8.87e-06	0.000339***
	(0.000101)	(0.000203)	(3.87e-05)	(8.22e-05)
Exports of the industry (ratio of total output)	-0.00182	0.00299	0.0340***	0.109***
	(0.0195)	(0.0568)	(0.00363)	(0.0212)
Imports of similar products (ratio of total output)	0.0214	0.0465	0.0208***	0.0422*
	(0.0206)	(0.0612)	(0.00531)	(0.0228)
Constant	0.767***	0.333***	0.767***	0.329***
	(0.00860)	(0.0102)	(0.000708)	(0.00179)
Observations	693	693	693	693
R-squared	0.011	0.035	0.022	0.069
F statistics	8.169	5.285	73.90	15.67
Number of id			184	184

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 17. Regression results on the relationship of concentration on productivity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Change in labor productivity							
dHHI	14,054***	9,399**	14,486***	9,759**				
	(4,821)	(3,815)	(4,889)	(3,849)				
HHI	-3,228	6,160	-3,623	5,451				
	(3,285)	(4,691)	(3,382)	(4,727)				
dCR4					12,392***	7,836**	12,471***	7,758**
					(3,631)	(3,742)	(3,645)	(3,776)
CR4					-5,052	2,409	-5,254	2,497
					(5,117)	(3,440)	(5,167)	(3,505)
rvagr			24.46*	20.61			20.07*	21.89*
			(12.78)	(13.16)			(10.55)	(12.18)
Constant	-2	-3,217**	74	-3,024*	2779	-2983	2886	-3105
	(555)	(1,593)	(563)	(1,605)	(2,931)	(2,656)	(2,958)	(2,710)
Estimation method	OLS	Panel, FE	OLS	Panel FE	OLS	Panel FE	OLS	Panel FE
Observations	693	693	693	693	693	693	693	693
R-squared	0.007	0.007	0.008	0.007	0.003	0.001	0.004	0.002
F statistics	4.38	3.25	3.36	2.76	6.73	3.83	4.84	3.11
Number of id		184		184		184		184

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

We tried to look for other variables/factors that could affect the market structure. Table 17 above presents the relationship between concentration and labor productivity. Models (1)-(4) reflects the relationship between HHI and labor productivity while Models (5)-(8) demonstrates the correlation between CR4 and labor productivity. The positive and significant coefficient in the model reflects that increases in concentration measured by the change in concentration index correlates with increases in labor productivity, regardless of the measure of concentration (HHI or CR4). The relationship is positive and significant, indicating that concentration may be associated with increased efficiency more than increasing the cost. The link seems robust across models even after controlling for time-invariant omitted variables (models 2, 4, 6, 8).

Another explanation for the unexpected results could be deduced from the significant positive correlation found between imports and concentration, along with a negative correlation between PCM and concentration. This suggests that indeed, imports place competitive pressure on the market, and that the concentration ratios as defined, i.e., 'local' firm concentration could be misleading.[19]

[19] Imports summarized at the ISIC level (4-digit) is incorporated in the regressions but incorporating it to the calculation of the 4CR and HHI (calculated at the 5 digit industry group) is problematic. There are several factors:

While the results are encouraging, the presence of relatively high concentration in specific sectors implies that the PCC should remain vigilant in preventing anti-competitive acts, and safeguarding the competitive process.

V. EXTERNAL FACTORS AFFECTING COMPETITION: SOME CRITICAL GOVERNMENT POLICIES AND REGULATIONS

The government makes policies and regulations for various (valid) reasons and objectives. These could include security, safety, environmental safeguards, health and sanitary reasons, and provision of public goods. Generally, the market fails when either the market, on its own, would not advance the social objective, or even when the market, would independently operate against these objectives.

Government regulations could be industry-specific. The most notable examples are those dealing with 'natural' monopolies and public utilities. Often, these industry-specific regulations would have multiple objectives, like, safety and affordability. There are also horizontal government regulations, such as, business regulations that are related to ease of doing business. These serve particular purposes, such as taxation, accountability, and traceability. However, these would always have impacts on markets- demand, supply, cost of goods, and resources. No matter how good the intentions are for these government policies and regulations, there will always be unintended consequences among which

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(1) ISIC lumps together industries which we have distinctly differentiated in the calculation of concentration ratios using the PSIC. For example: Manufacture of virgin coconut oil, Manufacture of fish oil and other marine animal oils etc. belong in one group (Manufacture of oils). Another example would be: manufacture of leather shoes, manufacture of rubber shoes, etc. also belong in one group (Manufacture of footwear). Lumping them in one category implies that the firms in this "industry group" compete with each other in terms of market share. It is not clear whether these products are substitutes to each other and thus compete for a share in the market.

(2) Using the ISIC instead of the PSIC expands the industry groups by incorporating too many firms which will surely affect the concentration ratios. This is evident in the example on shoes (footwear). There are 6 sub-industries in footwear (Manufacture of leather shoes, Manufacture of rubber shoes, Manufacture of plastic shoes, Manufacture of shoes made of textile materials with applied soles, Manufacture of wooden footwear and accessories, Manufacture of footwear, n.e.c) and to use the ISIC to incorporate imports would result to concentration ratios decreasing because of the increased number of establishments dividing the market.

(3) Related to number 2 would be the limitation to assess the impact of imports because the same concentration ratios that were initially calculated (using the PSIC) could not be compared with the ISIC.

(4) Finally, the ISIC does not distinguish between horizontal relationships (Example: Manufacture of leather shoes, Manufacture of rubber shoes, Manufacture of plastic shoes, Manufacture of shoes made of textile materials with applied soles, Manufacture of wooden footwear and accessories, Manufacture of footwear, n.e.c) versus vertical relationships (Example: Preparation and spinning of textile fibers, Weaving of textiles, Finishing of textiles Preparation and finishing of textiles (integrated)). The horizontal relationships are competing with the market while those in the vertical relationships are actually part of a value chain. This actually complicates the interpretation of the concentration ratios that could be calculated using these.

would be on the competitive process. Regulations have thus been a significant subject of concern for competition impacts. As such, the PCC has noteworthy studies on law and competition.

Horizontal laws related to governing business, particularly regulations on starting a business and its operations have a direct significance to the manufacturing sector. They directly affect the ease of entry and exit of firms, which have primary impacts on competition. In terms of policy recommendations, the general principle is streamlining these regulations and removing those that are counter-productive. Reforms along these lines would possibly have the most positive impact, not just on competition, but on the efficiency and viability of the manufacturing sector. Again, this has been a subject of study by the PCC, and a grave concern shared by many government agencies, like the Department of Trade and Industry (DTI).

Perhaps a less unified view is in the area of industrial policy. Indeed, there could be some limitation of competition in the chosen industrial strategy of the DTI, especially where there are interventions in preferred sectors, such as granting incentives that promise long-run benefits. The main rationale of industrial policy is to address 'market failures' that make the sector, firm, and industry unable to realize its potential. The 'exemptions and exclusions' are incorporated in the PCA for this purpose. In this sense, there is no conflict between PCC and the DTI mandates. However, it should not prevent PCC from coming up with a review and recommendations that could point out the possible anti-competition impact that could go against the overall economic objectives. In the same manner, the industrial policy should recognize 'competition' policy as one of its pillars. This means, for example, sunset provisions in its preferential incentives and cooperation with the PCC in promoting competition.

An excellent example of where competition and industrial policy could go hand in hand is in SME development policy. Competition policy and SME development policy are mutually reinforcing. Competition policy is a prerequisite for SME development. First of all, competition policy and law, in general, would lower transaction costs for SMEs, especially in terms of the potential impact of competition policy on reducing the costs of infrastructure services, including ICT, transportation, and logistics. At a more micro-level, it prevents more prominent firms from abusing their 'bigger' market power arising from more significant market shares. Addressing abusive conduct that is prohibited or sanctioned by the PCA levels the playing field for SMEs. In addition, the PCC's implementation of competition policy and law would promote an environment of trust and mitigate some risks of doing business provided that the rules are fairly implemented, and the SMEs ensure that market players use only efficiency and innovation strategies to compete. This element of creating trust in the market environment would have invaluable benefits in terms of reducing the cost of doing business.

On the other hand, SME development could reinforce Competition Policy. The primary element of SME policies is not just the provision of subsidies to address market failure and additional distortion arising from firm size but promoting ease of entry and regulations, and

providing facilitating measures, for example, in border trade and creating the right environment for start-ups and then growing the business. In the end, these start-ups and viable, growing SMEs would create significant competitive pressure on incumbents. Even just a potential threat that start-ups could quickly emerge could pose a competitive threat. Growing SMEs would create even more threatening potential competitive pressure. Thus, the SME Development Policy lays a good foundation for a competitive market.

These points are well summarized by Allan Fels (Fels 2001),[20] the former Chairman of the Australian Competition and Consumer Commission (ACCC), as follows.

"A competition regime needs to cooperate in conjunction with other government policies. Inevitably, conflict between policies will arise, and it will, therefore, be necessary to determine priorities based on an assessment of national interests."

In this regard, it is good to note that monitoring anti-competitive behavior is indeed a mutual agenda of DTI and PCC and that they are seeking ways for better coordination and exchange of relevant information.

VI. CONCLUDING REMARKS: MATRIX FOR PRIORITIZATION

The PCC is not a regulator in the usual sense. The PCA lays down rules of fair play, and it is an essential task of the PCC to remove or ease barriers to entry. In essence, it has a facilitative role in running the economy. Aside from this facilitative role, it also has a vital role as an advocate for regulatory reforms.

Medalla (2000) prioritized the review and reform of regulations as a crucial task of competition policy, especially for developing countries like the Philippines, where infrastructure regulations are of utmost importance. The regulations impact the price and efficiency of backbone infrastructure affecting the costs across all sectors of the economy. However, it is not just infrastructure regulations that impose unnecessary costs and impediments. The overall Ease of Doing Business (EODB) has pervasive impacts on the entry and exit of firms, which is essential in promoting competition. As such, among its priorities, PCC should add support to other agencies, particularly DTI/BOI, in getting rid of unnecessary, harmful regulations. Even if its findings may only be recommendatory, its position on certain issues would bolster actions for regulatory reform, especially when it has established enough track record and credibility in recommending well thought out policies.

Nonetheless, its core function remains to be the implementation of the PCA, which focuses on preventing harmful anti-competitive acts. Competition analysis and investigations are

[20] Presented in the conference on The Future of Canadian Competition Policy in the 21st Century in 2001.

complex endeavors. Studies, information and education, and quasi-judicial functions would be regular components of PCC functions, covering theoretically all sectors of the economy. It is a huge task, especially for a new competition authority. This study hopes to aid in the prioritization process by providing some benchmark and guidelines.

Step 1. Prioritization Matrix. Categorize sectors, according to concentration and price-cost margin.

The first step in coming up with the priority list is categorizing sectors, according to the degree of concentration, in this case based on HHI and the estimated Price-Cost Margin (PCM). Where there is both high PCM and high concentration would be a greater possibility of market power and abuse thereof.[21] See Table 18.

Table 18. Prioritization matrix

	Low APCM (<10%)	Moderate PCM (10-15%)	High PCM (>15%)
1500 < HHI < 2500 Low to moderate concentration	**O**	**C1**	**B1**
HHI > 2500 High concentration	**C2**	**B2**	**A**

Sectors that are highly concentrated and with consistently high price-cost margin would be the top priority (Category A) for investigation. These are the sectors where there is highest possibility of monopoly power and abuse. The cut-off levels suggested here are arbitrary, and would likely need adjustments. Also, concentration groups could be adjusted if deemed more appropriate. For now, we use below 10% as low, between 10-15% as moderate, and greater than 15% as high. The next categories are B1 and B2. The lines between B1 and B2 are more blurred. The high concentration means greater opportunities for collusion, even if it does not show in the estimate of APCM that could arise from estimation errors, given the data limitation.

On the other hand, the high APCM could be an indicator of rents, and the estimated HHI could be high enough. An example of the latter is the case of cement. It appears to have only a moderate degree of concentration, but among the highest APCM.[22] For those falling in these categories, consideration would be based on reports of anti-competitive conduct, and other important, transparent, and known factors affecting barriers to entry.

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[21] We tried fewer categories using four quadrants, having only two groupings of PCM- high and low. However, we found this to be too broad.

[22] The APCM estimates for cement over the period ranges from 22-28 percent. On the other hand the moderate/low concentration ratio could have been underestimated, as geographic location (and possible market segregation) is not considered.

Judging by the list of sectors alone, it appears that the majority of sectors are at least moderately unconcentrated. In contrast, there is a much shorter list of industries falling in the highest priority- Category A (HHI > 2500, and PCM>15%).[23] See Table 19.

Table 19. PSIC sectors with highest priority, Category A (HHI > 2500, and APCM> 15%)

PSIC Code	Description	Number of establishments	HHI	APCM (in %)	GVA share (in %)
C1920	Manufacture of refined petroleum products	23	4686	15.09	1.3727
C1101	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	13	4050	25.81	1.2552
C2012	Manufacture of fertilizers and nitrogen compounds	31	2912	22.92	0.6052
C1201	Manufacture of cigarettes	8	7162	19.93	0.5413
C1056	Manufacture of milk-based infants' and dietetic foods	1	10000	16.59	0.4163
C1059	Manufacture of dairy products, n.e.c.	16	4495	16.45	0.3698
C2821	Manufacture of agricultural and forestry machinery	29	5390	24.78	0.1295
C3299	Manufacture of other articles, n.e.c.	92	2914	15.50	0.1105
C3109	Manufacture and repair of other furniture and fixtures, n.e.c.	32	3229	15.71	0.0501
C3291	Manufacture of pens and pencils of all kinds	4	6636	19.22	0.0372
C2811	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	4	8654	21.70	0.0362
C1106	Manufacture of sports and energy drink	1	10000	28.81	0.0252
C2391	Manufacture of refractory ceramic products	17	8680	24.11	0.0237
C2818	Manufacture of power-driven hand tools	2	9694	24.91	0.0235
C2429	Manufacture of basic precious and non- ferrous metal, n.e.c.	6	8055	19.66	0.0214
C1209	Tobacco manufacturing, n.e.c.	1	10000	80.54	0.0162
C1203	Manufacture of chewing and smoking tobacco, snuff	4	6628	17.41	0.0156
C1043	Manufacture of nata de coco	14	5308	15.62	0.0146
C2825	Manufacture of machinery for food, beverage and tobacco processing	21	2766	19.08	0.0144
C2030	Manufacture of man-made filament tow or staple fibers, except glass fiber	2	7518	19.06	0.0127
C3319	Repair of other equipment	6	5973	37.37	0.0094
C2824	Manufacture of machinery for mining, quarrying and construction	3	7615	46.92	0.0085
C3320	Installation of industrial machinery and equipment	6	6731	33.06	0.0082
C1524	Manufacture of shoes made of textile materials with applied soles	7	3600	21.91	0.0041
C1511	Tanning and dressing of leather	13	4227	17.98	0.0039
C3313	Repair of electronic and electrical equipment	8	5038	40.41	0.0014
C1202	Manufacture of cigars	1	10000	25.63	0.0012

[23] This very lopsided result should be expected, given the positive correlation between concentration and PCM.

Those sectors with 1500 < HH <2500 and APCM <10% are in Category O (see Annex 6). These are treated similarly as those with HHI < 1500 (unconcentrated). These are considered competitive markets, and thus not in the priority list. Industries falling in this category with HHI < 1500 are presented in Annex 7.

Step 2. Importance in the economy

The benefits of enforcing competition related to a particular sector or firm would depend on its importance in the economy. If the PCC is to maximize the benefits from its review and investigation, it must consider essential market activities as indicated by a share in value-added, forward linkages, or place in supply and value chain. Applicability and significance to social objectives and data resources should also be considered. A good example would be the importance of a sector (product) in terms of consumption patterns.

To illustrate, one can use the data from the Family Income and Expenditure Survey 2012 (FIES 2012) to calculate the total household expenditure on consumer goods and match these with their corresponding industries in the PSIC. Annex 8 presents the industries with the highest expenditure share. Expenditure categories that have a significant share in consumer expenditure would be those that are related to the following:

1. key food items (rice, meat and meat products, fish and other food items like sugar, bakery products);
2. water, drinking water, and soft drinks;
3. clothes and footwear (ready-made embroidered garments, women's and girls' garments);
4. manufacture of leather shoes; and
5. cigarettes.

Similarly, using the data from the 2012 Input-Output table (Annex 9), the industries with the highest share in a firm's expenditure were used to trim the list further. Essentially, the intermediate products that have the largest share of intermediate demand belonging to the following broad categories: electronics export industry (C2612), petroleum and fuel inputs (C1920), chemical inputs (C2011-C2013; C2021-C2023), fertilizers (inputs to construction steel (C2411), and cement (C2394).

Table 18, including sectors in Category A, could thus be trimmed down. For this study, share in manufacturing value-added is used. The cut-off level for the percentage of value-added share would depend on how much could be handled by the PCC. We could trim down the list by including only those whose value-added in manufacturing is greater than .02 percent. Thus, trimming down the number of 4-digit sectors to 15.

Many of the important sectors that have a high share in value-added will not be in Category A. Hence, there may be higher priority sectors to be found in Categories B and C if we consider its importance in terms of value-added share. Thus, we suggest including sectors

from the lower Categories B1 and B2 in the priority, moving them up to the priority levels that have high value-added share. For example, we can prioritize those sectors in Category B whose value-added contribution is more than 1%. Hence, providing additional sectors of cement and meat processing. We can go further to Category C to include those with a high share in Value-added (greater than 1%), adding two more PSIC sectors—sugar, and motor vehicles parts and accessories.

Table 20. PSIC sectors in other categories (B1 and C1) with Value-added share exceeding 1%

PSIC Code	Description	HHI	CR4 in %	APCM	Share in Mfg. value added
B 1 Category					
C2394	Manufacture of cement	821	43.1	0.269	3.31
C1012	Production, processing and preserving of meat and meat products	723	42.9	0.183	1.18
C1 Category					
C2930	Manufacture of parts and accessories for motor vehicles	458	29.7	0.120	4.16
C1072	Manufacture of sugar	853	46.5	0.105	1.26

Next Steps is the analysis of entry barriers and other significant factors affecting the sector's state of competition.

The next steps would involve further analysis of barriers to entry. This could start with the existing government policies. First and foremost is the trade regime environment within which the sector operates. For example, if the firm is mainly producing for exports, this would be a reasonable explanation for high CR4/HHI, hence these sectors should be deleted from the priority list. This is indicated by significant export ratio for the sector; or trade in the commodity is open enough to import competition, effectively constraining its monopoly power. This could be indicated by significant import penetration ratio. Also, some products may have many apparent close substitutes. As such, we could also delete sector C1106 (Manufacture of sports and energy drink).

Another government policy to consider is the imposition of 'sin' tax. The 'sin' tax does not only indicate the social valuation of the government on the product, but could also act as a tax on monopoly. This would further trim down the list by two items—C1101 (distilled spirits) and C1201 (cigarettes).

There would be other factors that could affect the list of priorities. For this exercise, we look at two more: (1) the homogeneity, and (2) the place of the sector in the industrial policy of

the government. If the product is homogenous, the sector would be a strong candidate for inclusion in the priority list. In contrast, heterogeneity would weaken the case for inclusion. For the second factor, PCC could leave the matter to DTI, and remove it from the prioritization list. Hence, for the new sectors suggested in Table 20, meat processing, is heterogenous and could be removed from Category B1 'candidate' for the priority list. In the case of Category C1 'candidate', the manufacture of parts and accessories for motor vehicles could also be removed. The sector covers products under the Industrial program of the DTI. Besides, the sector is heterogenous products, and has very low HHI. In sum, we could only add cement and sugar in the priority list, on top of the Category A products whose share in manufacturing value-added is greater than .02 %. From category A, candidate for deletion as they are under DTI industrial priorities are sectors C2811 (engines and turbines) and C3101 (furniture and fixtures).

The trimmed-down list is presented in Table 21 below. In sum, the first step was to prioritize those sectors with high concentration and high PCM. Consequently, the list is trimmed down, considering its importance in the economy. For this study, we use its value-added contribution (.02 % of manufacturing value-added cut-off for Category A and 1% for categories B and C).

The list is further trimmed down concerning how they relate to other government policies.

Table 21. Suggested Priority List

PSIC Code	Description	Number of establishments	HHI	APCM (in %)	% GVA share in Manufacturing
C1920	Manufacture of refined petroleum products	23	4686	15.1	1.373
C2012	Manufacture of fertilizers and nitrogen compounds	31	2912	22.9	0.605
C1056	Manufacture of milk-based infants' and dietetic foods	1	10000	16.6	0.416
C1059	Manufacture of dairy products, n.e.c.	16	4495	16.5	0.370
C2821	Manufacture of agricultural and forestry machinery	29	5390	24.8	0.130
C3291	Manufacture of pens and pencils of all kinds	4	6636	19.2	0.037

PSIC Code	Description	Number of establishments	HHI	APCM (in %)	% GVA share in Manufacturing
C2391	Manufacture of refractory ceramic products	17	8680	24.1	0.024
C2818	Manufacture of power-driven hand tools	2	9694	24.9	0.023
C2394	Manufacture of cement		821	26.9	3.31
C1072	Manufacture of sugar		853	10.5	1.26

There would be 'priority' sectors that may not have been captured by this matrix and prioritization steps. These would be the low hanging fruits that could provide a good demonstration of how the PCC works. These would be cases of reported anti-competitive conduct, which are relatively easy to confirm (cost of administration is low). The redress need not be in the form of litigation, but utilizing the other provisions (administrative measures) of the PCA.

The list could also be further shortened, as earlier suggested, if the sector is too heterogeneous and many product substitutes are available, or by using a higher cut-off rate in value-added.

In many cases, opening up markets by easing entry that government policy or regulation itself impeded would be the ideal solution. Beyond this would be to examine industry characteristics, as suggested in the discussion in the earlier sections. It includes defining markets by looking at product substitutability, heterogeneity, geography, and looking at other factors affecting SCP, such as capacity utilization, capital intensity, and technology considerations, more rigorously.

Finally, the results and findings of this study could provide benchmarks for future evaluation and assessment of the impact of the PCA.

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ANNEX 1. Number of observations, HHI and CR4 at 5-digit PSIC level

PSIC Code	Description	Number of es 2006	Number of est 2008	Number of est 2010	Number of est 2012	Number of est 2014	HHI 2006	HHI 2008	HHI 2010	HHI 2012	HHI 2014	CR4 2006	CR4 2008	CR4 2010	CR4 2012	CR4 2014
C1011	Slaughtering and meat packing	57.5417	53.0000	56.0000	73.0000	83.0000	0.2917	0.4813	0.1902	0.0776	0.0489	0.9475	0.8265	0.6542	0.4788	0.3264
C1012	Production, processing and preserving of meat and meat products	98.2226	88.0000	98.0000	178.0000	167.0000	0.1987	0.1980	0.1450	0.1046	0.0723	0.7678	0.8095	0.6550	0.6068	0.4287
C1020	Processing and preserving of fish and fish products and other seafoods	247.6970	187.0000	176.0000	337.0000	300.0000	0.0400	0.0613	0.0374	0.0491	0.0350	0.2967	0.3929	0.2886	0.3487	0.2773
C1030	Processing and preserving of fruits and vegetables	117.5720	115.0000	119.6667	195.0000	182.0000	0.1350	0.1775	0.2091	0.1838	0.1333	0.6702	0.7516	0.7818	0.7106	0.6518
C1041	Manufacture of virgin coconut oil	20.0000	20.0000	28.0000	39.2667	36.0000	0.1855	0.2225	0.1310	0.1950	0.1798	0.7917	0.8235	0.6025	0.7979	0.7120
C1042	Manufacture of desiccated coconut	13.0000	12.0000	10.0000	17.3000	21.0000	0.1044	0.1177	0.1476	0.1323	0.1119	0.5009	0.5635	0.6632	0.6210	0.5656
C1043	Manufacture of nata de coco	32.0000	9.0000	8.0000	10.1667	14.0000	0.6122	0.3642	0.2834	0.6999	0.5308	1.0000	0.9624	0.8981	0.9872	0.9150
C1044	Manufacture of crude vegetable oil, cake and meals, other than virgin coconut oil	71.9667	71.0000	6.0000	10.6333	13.0000	0.1067	0.0779	0.4495	0.3047	0.1975	0.5360	0.4504	0.9879	0.9034	0.7669
C1045	Manufacture of refined coconut and other vegetable oil (including corn oil) and margarine	.	.	57.0000	70.7167	62.0000	.	.	0.2635	0.0845	0.0655	.	.	0.6936	0.4715	0.3970
C1047	Manufacture of unprepared animal feeds from vegetable, animal oils and fats	.	.	5.0000	2.6667	4.0000	.	.	0.4919	0.7659	0.5676	.	.	0.9962	1.0000	1.0000
C1049	Manufacture of vegetable and animal oil and fats, n.e.c.	.	.	1.0000	5.2500	3.0000	.	.	1.0000	0.9943	0.8285	.	.	1.0000	1.0000	1.0000
C1051	Processing of fresh milk and cream	10.0000	6.0000	6.3333	13.3333	13.0000	0.8660	0.7240	0.3599	0.2126	0.9633	0.9872	0.9860	0.9987	0.8326	0.9986
C1052	Manufacture of powdered milk (except for infants) and condensed or evaporated milk (filled, combined or reconstituted)	4.0000	6.0000	6.0000	4.7500	8.0000	0.5842	0.3507	0.4735	0.5005	0.2947	1.0000	0.9988	0.9995	1.0000	0.9767
C1053	Manufacture of infants' powdered milk	1.0000	1.0000	3.0000	3.0000	2.0000	1.0000	1.0000	0.4136	0.3638	0.5048	1.0000	1.0000	1.0000	1.0000	1.0000
C1054	Manufacture of butter and cheese	2.0000	3.0000	3.0000	11.5000	5.0000	0.7862	0.4068	0.4867	0.5805	0.4645	1.0000	1.0000	1.0000	1.0000	0.9999
C1055	Manufacture of ice cream and sherbet, ice drop, ice candy and other flavored ices	31.0000	25.0000	29.0000	77.7500	70.0000	0.3911	0.6168	0.4870	0.4657	0.6654	0.9708	0.9878	0.9825	0.9691	0.9583
C1056	Manufacture of milk-based infants' and dietetic foods	2.0000	2.0000	1.0000	1.0000	1.0000	0.5020	0.5094	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
C1059	Manufacture of dairy products, n.e.c.	3.0000	4.0000	6.0000	13.6667	16.0000	0.9816	0.5419	0.7333	0.6845	0.4495	1.0000	1.0000	0.9910	0.9654	0.9482
C1061	Rice/corn milling	1077.0000	928.0000	834.6191	1120.6333	1193.0000	0.0672	0.1523	0.0815	0.0707	0.0621	0.4381	0.5833	0.4790	0.4450	0.4083
C1062	Manufacture of grain and vegetable mill products, except rice and corn	45.5000	34.0000	31.5000	107.7000	66.0000	0.0922	0.1039	0.0859	0.0883	0.1086	0.4766	0.5323	0.4847	0.4863	0.5684
C1063	Manufacture of starches and starch products	17.9333	12.0000	10.0000	8.6667	6.0000	0.4963	0.3680	0.3546	0.3571	0.4067	0.8957	0.8749	0.8945	0.9580	0.9993
C1071	Manufacture of other food products	3781.9998	3326.0001	3371.9863	6439.7423	6844.0000	0.0354	0.0592	0.0843	0.0421	0.0596	0.2766	0.3928	0.4726	0.3219	0.4084

C1072	Manufacture of sugar	25.0000	26.0000	28.0000	26.9424	55.0000	0.7167	0.7444	0.0993	0.0930	0.0853	0.8758	0.9137	0.5468	0.5186	0.4645
C1073	Manufacture of cocoa, chocolate and sugar confectionery	124.4167	89.0000	88.0000	301.7679	136.0000	0.1315	0.0955	0.1892	0.1728	0.1200	0.6622	0.5214	0.7704	0.7257	0.6163
C1074	Manufacture of macaroni, noodles, couscous and similar farinaceous products	83.8333	101.0000	80.0000	68.1310	144.0000	0.1350	0.1568	0.3874	0.4646	0.2620	0.6627	0.7384	0.8955	0.9482	0.8389
C1075-1079	Manufacture of prepared meals and dishes Manufacture of food supplements from herbs and other plants Manufacture of other food product, n.e.c.	166.0000	142.0000	315.3500	518.7894	579.0000	0.1140	0.1035	0.2166	0.2820	0.1383	0.5731	0.5168	0.8475	0.7115	0.6060
C1077	Coffee roasting and processing	13.3333	8.0000	8.0000	51.6271	21.0000	0.9593	0.3212	0.3098	0.3158	0.2593	0.9994	0.9391	0.8993	0.9433	0.8957
C1080	Production of prepared animal feeds	138.5667	135.0000	138.5000	183.0000	188.0000	0.0802	0.0640	0.0771	0.0815	0.0842	0.4825	0.4020	0.4776	0.5028	0.4862
C1101	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	32.1458	30.0000	21.0000	9.0000	13.0000	0.1808	0.3227	0.2845	0.2950	0.4050	0.7437	0.7966	0.9631	0.8992	0.9279
C1102	Manufacture of wines	20.2708	9.0000	7.0000	12.1667	20.0000	0.2294	0.4702	0.6319	0.5973	0.4249	0.9123	0.9450	0.9956	0.9997	0.9657
C1103	Manufacture of malt liquors and malt	11.2299	6.0000	8.0000	9.0000	9.0000	0.2442	0.2168	0.1557	0.1481	0.1601	0.9063	0.8590	0.7161	0.6924	0.7184
C1104	Manufacture of soft drinks	49.8411	51.0000	43.0000	87.6667	57.0000	0.0405	0.0427	0.0852	0.0386	0.0381	0.2696	0.2587	0.4021	0.2458	0.2326
C1105	Manufacture of drinking water	1149.5124	1046.0000	1080.2500	2197.5000	2434.0000	0.1633	0.2262	0.2909	0.1627	0.1287	0.6662	0.8885	0.8832	0.7364	0.6179
C1106	Manufacture of sports and energy drink	.	.	.	3.0000	1.0000	.	.	.	1.0000	1.0000	.	.	.	1.0000	1.0000
C1109	Manufacture of other beverages, n.e.c.	.	.	1.0000	3.6667	3.0000	.	.	1.0000	0.5001	0.4290	.	.	1.0000	1.0000	1.0000
C1201	Manufacture of cigarettes	5.0000	5.0000	6.0000	5.0000	8.0000	0.4533	0.4681	0.4021	0.9147	0.7163	0.9967	0.9965	0.9637	0.9993	0.9953
C1202	Manufacture of cigars	2.0000	2.0000	1.0000	1.0000	1.0000	0.6147	0.5488	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
C1203	Manufacture of chewing and smoking tobacco, snuff	5.0000	5.0000	6.0000	5.0000	4.0000	0.6684	0.5127	0.4085	0.6922	0.6628	0.9764	0.9829	0.9845	0.9973	1.0000
C1204	Curing and redrying tobacco leaves	7.0000	6.0000	5.0000	4.0000	4.0000	0.2476	0.4151	0.6671	0.3140	0.3195	0.8302	0.9329	0.9829	1.0000	1.0000
C1209	Tobacco manufacturing, n.e.c.	.	.	.	1.0000	1.0000	.	.	.	1.0000	1.0000	.	.	.	1.0000	1.0000
C1311-1312	Preparation and spinning of textile fibers; weaving of textiles Weaving of textiles	67.1739	46.0000	45.3333	120.8333	73.0000	0.1448	0.1223	0.2896	0.3020	0.1774	0.6960	0.6249	0.7896	0.8280	0.7358
C1313	Finishing of textiles	31.4348	27.0000	54.1667	44.5833	62.0000	0.4787	0.1178	0.1064	0.1737	0.1363	0.8166	0.5992	0.5563	0.7073	0.6338
C1314	Preparation and finishing of textiles (integrated)	9.0000	13.0000	8.0000	10.5833	5.0000	0.3030	0.1968	0.2797	0.3799	0.3081	0.8781	0.7444	0.9096	0.9931	0.9456
C1391	Manufacture of knitted and crocheted fabrics	42.5391	40.0000	49.0000	94.2065	35.0000	0.1129	0.1211	0.1192	0.2561	0.1517	0.5551	0.6004	0.6363	0.8833	0.6928
C1392	Manufacture of made-up textile articles, except wearing apparel	69.2783	56.0000	62.0000	74.1884	93.0000	0.1907	0.1540	0.0735	0.0655	0.0753	0.6482	0.6050	0.4495	0.4102	0.4331
C1393	Manufacture of carpets and rugs	13.4348	12.0000	8.0000	25.1522	28.0000	0.4574	0.3428	0.2080	0.5179	0.1792	0.9401	0.9515	0.8868	0.9639	0.8131
C1394	Manufacture of cordage, rope, twine and netting	41.7205	21.0000	11.0000	12.6522	19.0000	0.1653	0.1288	0.1522	0.1750	0.1129	0.6845	0.6222	0.6989	0.7559	0.5428
C1395	Manufacture of embroidered fabrics	32.8857	30.0000	29.0000	22.2065	25.0000	0.7914	0.1815	0.1353	0.3022	0.1606	0.9540	0.6755	0.6540	0.9173	0.6489

C1399	Manufacture of other textiles, n.e.c.	50.0124	44.0000	38.3333	46.5942	57.0000	0.4183	0.1062	0.1844	0.1893	0.1501	0.8107	0.5292	0.7029	0.6729	0.5989
C1411	Men's and boys' garment manufacturing	235.6762	208.0000	266.4812	470.9408	346.0000	0.0479	0.0476	0.1100	0.1389	0.1848	0.3718	0.3701	0.5634	0.5365	0.6080
C1412	Women's and girls' and babies' garment manufacturing	680.1238	559.0000	478.1949	427.4334	427.0000	0.0220	0.0300	0.0414	0.0408	0.0422	0.2079	0.2468	0.3236	0.3321	0.3427
C1413	Ready-made embroidered garments manufacturing	39.2000	48.0000	31.0000	49.5261	63.0000	0.1104	0.2635	0.4333	0.1916	0.2999	0.5907	0.8639	0.9556	0.7957	0.8540
C1419	Manufacture of other wearing apparel, n.e.c.	200.3333	166.0000	133.6573	226.0997	267.0000	0.0626	0.0794	0.0598	0.0634	0.0862	0.3755	0.4655	0.3847	0.4284	0.5054
C1421	Custom tailoring	311.2667	304.0000	298.6667	312.3571	412.0000	0.2601	0.1076	0.2666	0.2863	0.1470	0.7930	0.5379	0.7989	0.8009	0.6041
C1422	Custom dressmaking	281.7333	196.0000	158.6667	384.6429	247.0000	0.1771	0.2278	0.3811	0.1773	0.2097	0.7609	0.7760	0.8860	0.7018	0.8095
C1430	Manufacture of knitted and crocheted apparel	53.5205	43.0000	57.5000	39.0000	34.0000	0.1649	0.1774	0.1777	0.1685	0.1236	0.5950	0.6992	0.7465	0.6698	0.5896
C1511	Tanning and dressing of leather	23.9417	17.0000	11.0000	11.3000	13.0000	0.5346	0.7040	0.7741	0.5665	0.4227	0.9375	0.9490	1.0000	0.9985	0.9839
C1512	Manufacture of products of leather and imitation leather	83.3667	63.0000	64.0000	106.7000	96.0000	0.6582	0.7447	0.6319	0.4684	0.3376	0.8863	0.9290	0.8847	0.7936	0.8580
C1521	Manufacture of leather shoes	159.2667	118.0000	103.0000	89.2153	80.0000	0.2103	0.1154	0.2396	0.1214	0.1785	0.6611	0.5450	0.7483	0.6078	0.7295
C1522	Manufacture of rubber shoes	17.7750	13.0000	12.0000	28.3589	13.0000	0.2236	0.3055	0.1632	0.2542	0.1902	0.7936	0.8446	0.7563	0.9131	0.7877
C1523	Manufacture of plastic shoes	4.2750	2.0000	4.0000	.	3.0000	0.8186	0.8510	0.4014	.	0.9339	1.0000	1.0000	1.0000	.	1.0000
C1524	Manufacture of shoes made of textile materials with applied soles	4.6667	4.0000	3.0000	7.1316	7.0000	0.4843	0.5737	0.4393	0.4115	0.3600	1.0000	1.0000	1.0000	1.0000	0.9318
C1525	Manufacture of wooden footwear and accessories	7.8000	3.0000	2.0000	1.0000	2.0000	0.6054	0.4616	0.8484	1.0000	0.9878	0.9869	1.0000	1.0000	1.0000	1.0000
C1529	Manufacture of footwear, n.e.c.	76.9083	65.0000	44.5000	102.2943	89.0000	0.0946	0.1172	0.1550	0.2007	0.1768	0.5632	0.5962	0.6084	0.7519	0.7237
C1610	Sawmilling and planning of wood	95.0476	70.0000	60.6667	122.0000	108.0000	0.1149	0.1050	0.0985	0.3704	0.1963	0.5893	0.5718	0.5702	0.7424	0.6693
C1621	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board and other panels and boards	45.9810	45.0000	41.0000	45.8081	50.0000	0.1180	0.1760	0.1547	0.1782	0.1622	0.5072	0.6525	0.6102	0.6645	0.6801
C1622	Manufacture of wooden window and door screens, shades and venetian blinds	9.7333	3.0000	19.0000	27.8636	11.0000	0.4817	0.8630	0.9359	0.4493	0.2465	1.0000	1.0000	1.0000	1.0000	0.9179
C1623	Manufacture of builders' carpentry and joinery; mill working	110.4282	81.0000	84.0000	62.8939	81.0000	0.4737	0.5031	0.4928	0.4804	0.4926	0.9787	0.9748	0.9768	0.9780	0.9935
C1625	Manufacture of wood carvings	137.0345	114.0000	88.0000	110.4242	115.0000	0.0677	0.1048	0.1655	0.1538	0.1847	0.4247	0.5224	0.7859	0.7333	0.6287
C1626	Manufacture of charcoal outside the forest	14.1000	8.0000	8.0000	14.5000	13.0000	0.5344	0.5629	0.3747	0.5244	0.2932	0.9680	0.9852	0.9416	1.0000	0.9136
C1627-1624	Manufacture of wooden wares Manufacture of wooden containers	13.8000	13.0000	8.0000	39.7525	26.0000	0.2204	0.2462	0.3108	0.4069	0.2398	0.8418	0.8892	1.0000	0.9705	0.8232
C1628	Manufacture of products of bamboo, cane, rattan, and the like, and plaiting materials except furniture	102.7401	101.0000	113.0000	128.0303	92.0000	0.2104	0.4244	0.1523	0.0999	0.1050	0.8249	0.8673	0.6561	0.5330	0.5842
C1629	Manufacture of other products of wood; manufacture of articles of cork and plaiting materials, except furniture, n.e.c.	51.4747	37.0000	41.5000	19.7273	40.0000	0.1586	0.1398	0.2541	0.2104	0.0874	0.6729	0.6520	0.7712	0.7860	0.4662

C1701	Manufacture of pulp, paper and paperboard	77.0833	71.0000	65.6667	95.1839	87.0000	0.1367	0.1110	0.1512	0.1203	0.0745	0.6380	0.5700	0.6328	0.5737	0.4628
C1702	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	152.7500	121.0000	136.5000	129.2356	141.0000	0.0435	0.0403	0.0430	0.0489	0.0454	0.3233	0.3040	0.2905	0.3398	0.3015
C1709	Manufacture of other articles of paper and paperboard	94.1667	89.0000	83.1667	116.5805	126.0000	0.0592	0.0825	0.0746	0.0665	0.0495	0.3766	0.4864	0.4317	0.4218	0.3344
C1811	Printing	1014.2540	914.0000	1083.6001	1390.4340	1472.0000	0.0259	0.0265	0.0585	0.0301	0.0412	0.2585	0.2181	0.4142	0.2623	0.3004
C1812	Service activities related to printing	65.2239	71.0000	66.6970	158.5660	133.0000	0.0610	0.1520	0.1678	0.1749	0.1337	0.3732	0.6857	0.7094	0.7253	0.6607
C1820	Reproduction of recorded media	29.0931	6.0000	11.0000	8.0000	5.0000	0.6451	0.2839	0.4196	0.6638	0.3336	0.9574	0.9953	0.9856	0.9784	0.9526
C1910	Manufacture of coke oven products	.	1.0000	.	.	.	.	1.0000	.	.	.	.	1.0000	.	.	.
C1920	Manufacture of refined petroleum products	6.0000	10.0000	9.0000	22.0000	23.0000	0.5111	0.5092	0.5106	0.5110	0.4686	0.9998	0.9993	0.9990	0.9976	0.9949
C1990	Manufacture of other fuel products	.	.	.	.	1.0000	.	.	.	.	1.0000	.	.	.	.	1.0000
C2011	Manufacture of basic chemicals except fertilizers and nitrogen compounds	142.1754	125.0000	123.5000	178.2496	171.0000	0.0773	0.1087	0.1079	0.0912	0.1318	0.4921	0.5644	0.4707	0.5094	0.4941
C2012	Manufacture of fertilizers and nitrogen compounds	19.6667	19.0000	17.6667	42.6429	31.0000	0.3960	0.5155	0.3053	0.3648	0.2912	0.9360	0.9757	0.8950	0.9914	0.9651
C2013	Manufacture of plastics in primary forms and of synthetic rubber	108.3246	85.0000	89.2500	120.1075	40.0000	0.1224	0.1947	0.1561	0.1048	0.2099	0.5289	0.6757	0.7544	0.5680	0.7740
C2021	Manufacture of pesticides and other agro- chemical products	15.8275	16.0000	9.0000	22.7294	22.0000	0.4049	0.3816	0.4498	0.4844	0.2063	0.9390	0.9652	0.9467	0.9635	0.7795
C2022	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	93.4812	84.0000	79.6667	93.0941	111.0000	0.1086	0.1155	0.1873	0.2138	0.1259	0.5122	0.4933	0.5715	0.7053	0.5688
C2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	109.1870	118.0000	138.6667	151.0451	191.0000	0.2168	0.3012	0.4272	0.4279	0.2401	0.7370	0.7913	0.8185	0.8277	0.7423
C2029	Manufacture of other chemical products, n.e.c.	73.3275	62.0000	61.0000	116.1314	73.0000	0.0655	0.0818	0.0766	0.0760	0.0823	0.4137	0.4898	0.4522	0.4337	0.4771
C2030	Manufacture of man-made filament tow or staple fibers, except glass fiber	6.5217	2.0000	.	3.0000	2.0000	0.9105	0.5108	.	0.6260	0.7518	1.0000	1.0000	.	1.0000	1.0000
C2100	Manufacture of pharmaceuticals, medicinal chemicals and botanical products	81.4884	76.0000	98.2500	124.0000	117.0000	0.1954	0.3273	0.3011	0.2549	0.3259	0.7015	0.7772	0.7208	0.6540	0.7274
C2211	Manufacture of rubber tires and tubes; retreading and rebuilding of rubber tires	39.9667	34.0000	21.0000	34.4583	21.0000	0.4253	0.5039	0.7627	0.7541	0.8137	0.9528	0.9455	0.9686	0.9750	0.9751
C2219	Manufacture of other rubber products	105.0333	95.0000	98.5000	157.5417	144.0000	0.0708	0.0630	0.0693	0.0656	0.0738	0.4449	0.3867	0.4277	0.4311	0.4493
C2220	Manufacture of plastic products	569.0000	526.3333	578.2500	722.0000	837.0000	0.0109	0.0106	0.0145	0.0130	0.0109	0.1237	0.1123	0.1502	0.1397	0.1142
C2310	Manufacture of glass and glass products	68.0000	67.0000	65.3333	106.0000	94.0000	0.1398	0.1664	0.1900	0.1481	0.1340	0.6859	0.6966	0.7560	0.6515	0.6452

C2391	Manufacture of refractory ceramic products	13.9383	8.0000	3.0000	9.1538	17.0000	0.2542	0.3551	0.5060	0.5700	0.8680	0.9249	0.9952	1.0000	1.0000	0.9828
C2392	Manufacture of structural, non-refractory clay and ceramic products	15.5455	16.0000	18.0000	27.0952	28.0000	0.2507	0.1906	0.2830	0.3014	0.2351	0.7916	0.7957	0.8037	0.8214	0.8387
C2393	Manufacture of porcelain and other ceramic products	79.3913	53.0000	39.5000	118.6465	60.0000	0.6695	0.8063	0.0000	0.9570	0.9515	0.9061	0.9588	0.9890	0.9951	0.9933
C2394	Manufacture of cement	15.0000	15.0000	14.0000	18.0000	17.0000	0.0900	0.0929	0.1037	0.0864	0.0821	0.4719	0.4851	0.5367	0.4673	0.4306
C2395	Manufacture of lime and plaster	16.9167	17.0000	11.0000	10.5962	9.0000	0.2084	0.1824	0.2034	0.3246	0.3318	0.7891	0.7558	0.8622	0.9750	0.8767
C2396	Manufacture of articles of concrete, cement and plaster	409.6911	307.0000	250.6667	503.2207	507.0000	0.0823	0.0863	0.0728	0.0577	0.0513	0.3926	0.4566	0.4750	0.3656	0.3566
C2397	Cutting, shaping and finishing of stone	24.4004	29.0000	31.3333	41.7628	35.0000	0.2372	0.1798	0.4828	0.5757	0.5710	0.7681	0.7340	0.8642	0.9804	0.9311
C2399	Manufacture of other non-metallic mineral products, n.e.c.	59.1167	38.0000	23.5000	25.5247	50.0000	0.4999	0.2539	0.4377	0.2807	0.1581	0.9380	0.8098	0.8847	0.9305	0.7289
C2411	Operation of blast furnaces and steel making furnaces	98.0500	83.0000	48.0000	120.6833	116.0000	0.1400	0.1422	0.3210	0.3368	0.2303	0.6757	0.6614	0.7725	0.7076	0.6425
C2412	Operation of steel works and rolling mills	222.1625	195.0000	182.0000	188.3167	166.0000	0.0462	0.0387	0.0487	0.0653	0.0543	0.3287	0.2925	0.3387	0.3835	0.3756
C2421	Gold and other precious metal refining	5.0000	4.0000	4.0000	7.0000	3.0000	0.4992	0.5804	0.8961	0.8629	0.7849	0.9998	1.0000	1.0000	0.9974	1.0000
C2422	Non-ferrous smelting and refining, except precious metals	14.0313	10.0000	7.0000	10.0000	11.0000	0.8187	0.8005	0.7251	0.6457	0.6669	0.9976	0.9973	0.9996	0.9967	0.9941
C2423	Non-ferrous rolling, drawing and extrusion mills	15.2313	11.0000	11.0000	6.3333	5.0000	0.4898	0.3825	0.3959	0.6393	0.5284	0.9805	0.8977	0.9259	1.0000	0.9950
C2424	Manufacture of pipe fittings of non-ferrous metal	7.5000	5.0000	3.0000	10.0000	7.0000	0.5925	0.3415	0.4838	0.2450	0.2864	1.0000	0.9775	1.0000	0.7947	0.8641
C2429	Manufacture of basic precious and non- ferrous metal, n.e.c.	4.0000	1.0000	1.0000	4.6667	6.0000	0.7557	1.0000	1.0000	0.9244	0.8055	1.0000	1.0000	1.0000	1.0000	0.9893
C2431	Casting/foundry of Iron and steel	24.0938	30.0000	34.0000	31.3810	30.0000	0.1725	0.1403	0.1155	0.4468	0.1619	0.7283	0.5957	0.6064	0.9124	0.7035
C2432	Casting of non-ferrous metals	44.9313	38.0000	43.0000	47.6190	40.0000	0.3094	0.2698	0.3380	0.2191	0.2469	0.8444	0.7664	0.7949	0.6917	0.7399
C2511	Manufacture of structural metal products	450.1009	324.0000	287.0000	423.2782	406.0000	0.0333	0.0532	0.0797	0.0724	0.1289	0.2798	0.3704	0.4935	0.4319	0.5396
C2512	Manufacture of tanks, reservoirs and containers, of metal	26.3158	23.0000	25.0000	28.7218	44.0000	0.1359	0.1426	0.2075	0.1874	0.1185	0.6968	0.7194	0.7781	0.6926	0.6514
C2513	Manufacture of steam generators, except central heating hot water boilers	7.7619	1.0000	2.0000	2.0000	6.0000	0.7735	1.0000	0.9908	0.6422	0.5518	1.0000	1.0000	1.0000	1.0000	0.9757
C2520	Manufacture of weapons and ammunition	35.3913	10.0000	4.0000	11.0000	15.0000	0.6544	0.7626	0.7367	0.7760	0.7868	0.9906	0.9810	1.0000	0.9787	0.9880
C2591	Forging, pressing, stamping and roll- forming of metal;	77.4419	90.0000	112.0000	188.3656	117.0000	0.1526	0.1516	0.1764	0.1249	0.0954	0.5711	0.5571	0.6457	0.5644	0.5019
C2592	Treatment and coating of metals; general mechanical engineering on a fee or contract basis	34.2769	30.0000	38.0000	20.8429	58.0000	0.2160	0.2260	0.1389	0.2935	0.2401	0.8404	0.8106	0.6870	0.8484	0.7341
C2593	Manufacture of cutlery, hand tools and general hardware	177.0634	146.0000	121.6667	216.4449	219.0000	0.1688	0.3012	0.3561	0.3000	0.1444	0.7354	0.8013	0.8118	0.7806	0.6320

C2599	Manufacture of other fabricated metal products, n.e.c.	252.0391	245.0000	256.2029	300.3466	335.0000	0.0351	0.0298	0.0336	0.0348	0.0273	0.2711	0.2546	0.2730	0.2872	0.2334
C2611	Manufacture of electronic valves and tubes	9.0000	2.0000	.	2.0000	.	0.6020	0.9489	.	0.5715	.	0.9792	1.0000	.	1.0000	.
C2612	Manufacture of semi-conductor devices and other electronic components	167.5000	153.0000	144.0000	163.0000	157.0000	0.1722	0.1347	0.0976	0.1356	0.0558	0.6207	0.5215	0.5039	0.5881	0.3872
C2620	Manufacture of computers, computer peripheral equipment and accessories	56.0000	42.0000	42.5000	44.0000	47.0000	0.1220	0.1848	0.1525	0.2181	0.1309	0.6152	0.7784	0.6427	0.7520	0.6562
C2630	Manufacture of communication equipment	.	.	4.0000	8.0000	12.0000	.	.	0.5952	0.7157	0.5288	.	.	1.0000	0.9727	0.9527
C2640	Manufacture of consumer electronics	31.5000	30.0000	31.0000	32.0000	32.0000	0.2268	0.3378	0.3889	0.3183	0.3512	0.7401	0.8300	0.8094	0.9254	0.9199
C2651	Manufacture of measuring, testing, navigating and control equipment	12.0000	11.0000	11.0000	17.6667	18.0000	0.6559	0.1884	0.2255	0.6897	0.2194	0.9403	0.8331	0.8933	0.9365	0.8334
C2652	Manufacture of watches and clocks	6.0000	5.0000	6.0000	9.3333	7.0000	0.8017	0.4401	0.6901	0.4550	0.5341	0.9955	0.9996	0.9982	0.9874	0.9891
C2660	Manufacture of medical and surgical equipment and orthopedic appliances	36.0000	27.0000	2.0000	1.0000	1.0000	0.1323	0.1284	0.7194	1.0000	1.0000	0.6582	0.5715	1.0000	1.0000	1.0000
C2670	Manufacture of optical instruments and photographic equipment	25.0000	28.0000	28.0000	37.0000	32.0000	0.1216	0.0913	0.1333	0.0947	0.0977	0.6110	0.5107	0.5809	0.5340	0.5455
C2680	Manufacture of magnetic and optical media	.	.	.	.	1.0000	.	.	.	.	1.0000	.	.	.	.	1.0000
C2711	Manufacture of electric motors, generators and transformers and electric generating sets	31.7273	23.0000	20.0000	43.0000	33.0000	0.1204	0.2254	0.3021	0.1082	0.0951	0.6045	0.6771	0.7924	0.5671	0.5212
C2712	Manufacture of electricity distribution and control apparatus	26.1818	25.0000	32.0000	26.0000	31.0000	0.6911	0.8899	0.1910	0.1945	0.2221	0.9616	0.9716	0.6705	0.7951	0.7821
C2720	Manufacture of batteries and accumulators	19.1818	12.0000	9.0000	8.0000	10.0000	0.4518	0.5464	0.7314	0.9131	0.5035	0.9685	0.9255	0.9783	0.9976	0.9777
C2731-2733	Manufacture of fiber optic cables Manufacture of other electronic and electric wires and cables Manufacture of wiring devices	47.3636	53.0000	45.0000	43.0000	48.0000	0.1370	0.0882	0.2367	0.1912	0.1406	0.6748	0.5060	0.7231	0.7138	0.6049
C2740	Manufacture or electric lighting equipment	37.5455	29.0000	31.0000	41.0000	35.0000	0.1175	0.1713	0.1724	0.1402	0.1580	0.5855	0.6890	0.7179	0.6661	0.6824
C2750	Manufacture of domestic appliances	74.4913	34.0000	30.5000	56.0000	41.0000	0.2809	0.2408	0.3155	0.2565	0.2455	0.8615	0.8560	0.8768	0.8152	0.7704
C2790	Manufacture of other electrical equipment	54.0000	38.0000	16.0000	21.0000	25.0000	0.1052	0.1376	0.5600	0.4518	0.3904	0.5704	0.6580	0.9867	0.9745	0.9433
C2811	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	31.6304	4.0000	2.0000	12.8636	4.0000	0.4170	0.4539	0.9801	0.8174	0.8654	0.9821	1.0000	1.0000	0.9896	1.0000
C2812-2813	Manufacture of fluid power equipment Manufacture of other pumps, compressors, taps and valves	46.0217	14.0000	13.3333	24.3636	14.0000	0.3563	0.3796	0.4090	0.4631	0.4519	0.9068	0.8900	0.9620	0.9971	0.9653

C2814	Manufacture of bearings, gears and driving elements	27.2304	8.0000	5.0000	9.5000	8.0000	0.2416	0.5353	0.5125	0.5106	0.3663	0.9389	0.9784	0.9990	0.9995	0.9302
C2815	Manufacture of ovens, furnaces and furnace burners	20.1304	4.0000	2.0000	6.0000	1.0000	0.7793	0.4848	0.6054	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
C2816	Manufacture of lifting and handling equipment	15.1304	8.0000	12.0000	13.0000	14.0000	0.6296	0.3967	0.1591	0.2542	0.1494	0.9559	0.8774	0.7384	0.9050	0.7070
C2817	Manufacture of office machinery and equipment	10.0000	10.0000	6.0000	4.5000	9.0000	0.8530	0.5538	0.7937	0.9969	0.8754	0.9965	0.9998	0.9978	1.0000	0.9916
C2818	Manufacture of power-driven hand tools	39.2609	24.0000	1.0000	3.5000	2.0000	0.1054	0.0789	1.0000	0.9531	0.9694	0.5642	0.4567	1.0000	1.0000	1.0000
C2822	Manufacture of metal-forming machinery and machine tools	.	.	18.3333	51.0697	28.0000	.	.	0.2196	0.1362	0.0935	.	.	0.7686	0.6553	0.4842
C2819	Manufacture of general-purpose machinery	98.4913	56.0000	43.3333	62.2727	53.0000	0.2428	0.2000	0.1811	0.1597	0.1560	0.8185	0.6836	0.6887	0.6630	0.6338
C2821	Manufacture of agricultural and forestry machinery	60.1667	30.0000	20.0000	22.3333	29.0000	0.1959	0.2048	0.2298	0.3924	0.5390	0.7750	0.7584	0.8666	0.8604	0.9083
C2823	Manufacture of machinery for metallurgy	22.2609	20.0000	19.5000	32.3121	33.0000	0.1363	0.1436	0.0000	0.1506	0.1403	0.6813	0.7123	0.6946	0.7252	0.7230
C2824	Manufacture of machinery for mining, quarrying and construction	35.3304	5.0000	1.0000	2.0000	3.0000	0.4038	0.4298	1.0000	0.8053	0.7615	0.9898	0.9858	1.0000	1.0000	1.0000
C2825	Manufacture of machinery for food, beverage and tobacco processing	17.0000	10.0000	9.0000	22.0788	21.0000	0.4736	0.2557	0.4641	0.3571	0.2766	0.9738	0.9080	0.8995	0.9047	0.8626
C2826	Manufacture of machinery for textile apparel and leather production	2.0000	3.0000	1.0000	5.4333	3.0000	0.7960	0.4788	1.0000	0.8751	0.6610	1.0000	1.0000	1.0000	1.0000	1.0000
C2829	Manufacture of other special purpose machinery	17.1304	15.0000	7.0000	47.7727	29.0000	0.9353	0.8833	0.1685	0.2629	0.1279	0.9878	0.9760	0.7518	0.7578	0.6235
C2910	Manufacture of motor vehicles	27.5000	26.0000	26.0000	43.0000	56.0000	0.2589	0.2840	0.2969	0.2101	0.5156	0.8558	0.8761	0.8793	0.8554	0.9404
C2920	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	68.0000	63.0000	46.0000	39.0000	40.0000	0.2802	0.1476	0.2479	0.2281	0.2113	0.8087	0.7097	0.8938	0.8226	0.7999
C2930	Manufacture of parts and accessories for motor vehicles	123.5000	112.0000	153.3333	134.0000	130.0000	0.0515	0.0597	0.0458	0.0444	0.0458	0.3457	0.3759	0.3044	0.2958	0.2966
C3011	Building of ships and floating structures	58.3333	54.0000	16.0000	20.0000	21.0000	0.4420	0.4423	0.4515	0.5001	0.4575	0.8808	0.8954	0.9883	0.9990	0.9756
C3012	Building of pleasure and sporting boats	5.3333	3.0000	3.0000	2.0000	1.0000	0.4530	0.4834	0.4400	0.5489	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
C3030	Manufacture of air and spacecraft and related machinery	12.6667	13.0000	15.0000	11.0000	11.0000	0.6334	0.8564	0.7494	0.6001	0.6533	0.9891	0.9950	0.9644	0.9644	0.9764
C3091	Manufacture of motorcycles	29.0000	24.0000	25.0000	59.0000	52.0000	0.3183	0.3454	0.3314	0.2428	0.3627	0.8837	0.9348	0.9275	0.8756	0.8244
C3092	Manufacture of bicycles and invalid carriages	11.6667	4.0000	4.0000	15.0000	6.0000	0.5431	0.9704	0.9186	0.6851	0.8995	0.9935	1.0000	1.0000	0.9961	0.9952
C3099	Manufacture of other transport equipment, n.e.c.	.	.	2.0000	2.0000	3.0000	.	.	0.9916	0.8376	0.5829	.	.	1.0000	1.0000	1.0000
C3101	Manufacture and repair of wood furniture	581.1161	472.0000	443.5000	762.0957	750.0000	0.0632	0.0634	0.0498	0.0486	0.0680	0.3937	0.4087	0.3451	0.3468	0.4352
C3102	Manufacture and repair of rattan furniture (reed, wicker, and cane)	88.3169	85.0000	93.0000	49.0517	67.0000	0.0620	0.0636	0.1287	0.2839	0.2178	0.4086	0.4190	0.6455	0.9113	0.7919

C3103	Manufacture of box beds and mattresses	33.7917	28.0000	30.0000	25.3282	39.0000	0.1152	0.1495	0.1351	0.1995	0.1026	0.5848	0.6800	0.6391	0.7324	0.5415
C3104	Manufacture of partitions, shelves, lockers and office and store fixtures	9.6667	8.0000	13.0000	38.5120	30.0000	0.3971	0.2859	0.2571	0.2168	0.2542	0.9800	0.9438	0.9043	0.8553	0.7640
C3105	Manufacture of plastic furniture	17.5833	12.0000	12.0000	20.3590	22.0000	0.5926	0.4793	0.6441	0.6329	0.2009	0.9870	0.9192	0.9530	0.9748	0.7466
C3106	Manufacture and repair of furniture and fixtures of metal	79.1919	79.0000	103.6667	102.8882	95.0000	0.0809	0.1202	0.1673	0.2782	0.1534	0.4866	0.5386	0.7296	0.8191	0.6512
C3109	Manufacture and repair of other furniture and fixtures, n.e.c.	15.3333	26.0000	24.3333	19.7653	32.0000	0.2262	0.2295	0.1994	0.4814	0.3229	0.8198	0.7685	0.8190	0.9776	0.8775
C3211	Manufacture of jewelry	15.2351	7.0000	52.0000	78.2667	74.0000	0.1410	0.2018	0.0835	0.1012	0.0743	0.5813	0.6917	0.4446	0.5662	0.4524
C3212	Manufacture of imitation jewelry	5.7128	0.0966	0.2945	0.1735	0.2018	0.0836	0.0966	0.2945	0.2732	0.2018	0.9908	0.0966	0.2945	0.8561	0.2018
C3220	Manufacture of musical instruments	22.8512	10.0000	5.0000	13.0000	11.0000	0.4893	0.4863	0.5494	0.2634	0.3838	0.9795	1.0000	0.9794	0.9054	0.9517
C3230	Manufacture of sports goods	20.9653	14.0000	18.0000	21.0000	14.0000	0.2926	0.3453	0.1873	0.1901	0.1985	0.9163	0.9380	0.7394	0.7633	0.7768
C3240	Manufacture of games and toys	34.7688	29.0000	29.0000	41.0000	32.0000	0.3698	0.4666	0.1917	0.3621	0.2937	0.9181	0.9169	0.7330	0.8858	0.8341
C3250	Manufacture of medical and dental instruments and supplies	.	.	26.0000	50.0000	46.0000	.	.	0.4004	0.3103	0.2116	.	.	0.7929	0.7190	0.7197
C3291	Manufacture of pens and pencils of all kinds	7.3750	4.0000	3.0000	6.6000	4.0000	0.8956	0.8249	0.8184	0.8237	0.6636	1.0000	1.0000	1.0000	1.0000	1.0000
C3292	Manufacture of umbrellas, walking sticks, canes, whips and riding crops	9.9653	2.0000	2.0000	.	5.0000	0.8127	0.9217	0.5012	.	0.5244	1.0000	1.0000	1.0000	.	0.9967
C3293	Manufacture of articles for personal use, e.g., smoking pipes, combs, slides and similar articles	16.2500	11.0000	13.0000	30.5000	37.0000	0.2304	0.2222	0.3162	0.3665	0.2443	0.8005	0.8636	0.9544	0.9664	0.8846
C3294	Manufacture of candles	23.3125	22.0000	20.0000	19.4500	22.0000	0.3194	0.3690	0.5665	0.6263	0.4103	0.9009	0.9207	0.9514	0.9887	0.8985
C3295	Manufacture of artificial flowers, fruits and foliage	18.8403	3.0000	1.0000	10.0000	3.0000	0.6982	0.8877	1.0000	1.0000	0.9756	0.9876	1.0000	1.0000	1.0000	1.0000
C3296	Manufacture of wooden coffin	25.6606	12.0000	5.0000	29.8333	27.0000	0.1646	0.3078	0.2831	0.1737	0.1632	0.7432	0.9895	0.9864	0.7034	0.6954
C3299	Manufacture of other articles, n.e.c.	69.0397	104.0000	103.0000	118.6167	92.0000	0.0719	0.1800	0.2190	0.3603	0.2914	0.4480	0.5766	0.6445	0.9043	0.8461
C3311	Repair of fabricated metal products	.	.	39.9825	328.6326	300.0000	.	.	0.1181	0.1048	0.1676	.	.	0.5857	0.5494	0.6850
C3312	Repair of machinery	240.3333	464.0000	307.8496	237.9728	293.0000	0.3923	0.0989	0.2106	0.2865	0.2586	0.8199	0.5747	0.7679	0.8231	0.6969
C3313	Repair of electronic and electrical equipment	.	.	2.0000	.	8.0000	.	.	0.6170	.	0.5038	.	.	1.0000	.	1.0000
C3314	Repair of electrical equipment	.	.	2.3333	36.1449	9.0000	.	.	0.5007	0.6902	0.2196	.	.	1.0000	1.0000	0.8745
C3315	Repair of transport equipment except motor vehicles	.	.	53.0000	75.4163	73.0000	.	.	0.3469	0.2180	0.2199	.	.	0.8045	0.6944	0.6382
C3319	Repair of other equipment	.	.	.	47.8333	6.0000	.	.	.	0.4360	0.5973	.	.	.	0.9930	1.0000
C3320	Installation of industrial machinery and equipment	.	.	.	11.0000	6.0000	.	.	.	0.2742	0.6731	.	.	.	0.9678	1.0000

Annex 2. Determinants of Concentration Ratios

VARIABLES	(1) CR4	(2) HHI	(3) CR4	(4) HHI
APCM	-0.000716***	0.000326	-0.000302***	0.000162
	(0.000272)	(0.000261)	(8.87e-05)	(0.000134)
No. of establishments (growth rate)	0.00152	0.0133	-0.0115**	0.000737
	(0.00833)	(0.0126)	(0.00476)	(0.00817)
Value added in the industry (growth rate)	0.000408***	0.000784***	-2.29e-05	0.000327***
	(0.000104)	(0.000197)	(4.20e-05)	(9.76e-05)
Exports of the industry (ratio of total output)	0.0946***	0.212***	0.0432***	0.134***
	(0.0252)	(0.0446)	(0.00868)	(0.0327)
Imports of similar products (ratio of total output+imports-exports)	0.129***	0.279***	0.0122	0.0837
	(0.0375)	(0.0672)	(0.0496)	(0.196)
R&D Expenditure (ratio of total output)	3.902**	11.04***	4.598**	8.059**
	(1.743)	(2.554)	(2.040)	(3.342)
Labor productivity	6.11e-07***	6.53e-07**	1.17e-07	3.66e-07
	(1.73e-07)	(2.56e-07)	(1.13e-07)	(3.21e-07)
2010 year dummy	0.0217	0.0137	0.0307***	0.0240
	(0.0240)	(0.0274)	(0.00942)	(0.0156)
2012 year dummy	0.0287	0.0257	0.0458***	0.0430**
	(0.0259)	(0.0292)	(0.0125)	(0.0182)
2014 year dummy	-0.00594	0.00993	-0.00732	0.00132
	(0.0242)	(0.0274)	(0.0106)	(0.0159)
Constant	0.750***	0.305***	0.748***	0.308***
	(0.0176)	(0.0191)	(0.00814)	(0.0113)
Observations	693	693	693	693
R-squared	0.029	0.089	0.122	0.118
Number of id			184	184

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The variables that were incorporated in the above regression results include: Year dummies with 2008 as the base year, labor productivity and indicators for RDE expenditure. The calculation of the import concentration ratio is also modified with the denominator incorporating total imports and total exports.

The results still indicate a negative correlation between APCM and measures of concentration, particularly 4-firm concentration ratio.

Annex 3. PSIC sectors with highest priority, Category A (HHI > 2500, and APCM> 15%)

PSIC Code	Description	Number of establishments 2014	HHI	VA2014	APCM	Labor2014	Labor productivity	GVA share	Labor share
C1920	Manufacture of refined petroleum products	23	4686.11	1.32E+10	15.09393	2571	5124854	1.372747	0.211026
C1101	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	13	4050.29	1.2E+10	25.81068	668	18035928	1.255225	0.054829
C2012	Manufacture of fertilizers and nitrogen compounds	31	2911.63	5.81E+09	22.92267	2211.5	2627086	0.605296	0.181519
C1201	Manufacture of cigarettes	8	7162.56	5.2E+09	19.92661	4252	1221966	0.541326	0.349002
C1056	Manufacture of milk-based infants' and dietetic foods	1	10000	4E+09	16.58934	894	4469575	0.416304	0.073379
C1059	Manufacture of dairy products, n.e.c.	16	4494.95	3.55E+09	16.45408	3252	1091697	0.369879	0.266923
C2821	Manufacture of agricultural and forestry machinery	29	5389.74	1.24E+09	24.77609	644	1930124	0.129502	0.052859
C3299	Manufacture of other articles, n.e.c.	92	2913.78	1.06E+09	15.49662	2502.5	423936.1	0.11053	0.205404
C3109	Manufacture and repair of other furniture and fixtures, n.e.c.	32	3229.48	4.81E+08	15.71399	1300	369756.1	0.05008	0.106703
C3291	Manufacture of pens and pencils of all kinds	4	6635.7	3.57E+08	19.22055	215	1658609	0.037153	0.017647
C2811	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	4	8653.62	3.48E+08	21.69766	410	847967.6	0.036222	0.033653
C1106	Manufacture of sports and energy drink	1	10000	2.42E+08	28.81482	52	4654037	0.025214	0.004268
C2391	Manufacture of refractory ceramic products	17	8680.02	2.27E+08	24.11129	263.5	862241.3	0.023671	0.021628
C2818	Manufacture of power-driven hand tools	2	9694.35	2.25E+08	24.90986	97	2321174	0.023458	0.007962
C2429	Manufacture of basic precious and non-ferrous metal, n.e.c.	6	8054.73	2.06E+08	19.65943	276	745861.9	0.021447	0.022654
C1209	Tobacco manufacturing, n.e.c.	1	10000	1.56E+08	80.54217	347	449165.6	0.016238	0.028482
C1203	Manufacture of chewing and smoking tobacco, snuff	4	6628.47	1.5E+08	17.4122	824	181888.2	0.015615	0.067634
C1043	Manufacture of nata de coco	14	5307.67	1.4E+08	15.62131	486.5	288215.9	0.014609	0.039932
C2825	Manufacture of machinery for food, beverage and tobacco processing	21	2765.87	1.38E+08	19.07969	750.5	183710.8	0.014365	0.061601
C2030	Manufacture of man-made filament tow or staple fibers, except glass fiber	2	7517.83	1.22E+08	19.06488	109	1120352	0.012723	0.008947
C3319	Repair of other equipment	6	5973.12	90258664	37.36542	211	427766.2	0.009404	0.017319
C2824	Manufacture of machinery for mining, quarrying and construction	3	7614.88	81904832	46.92677	285	287385.4	0.008533	0.023393
C3320	Installation of industrial machinery and equipment	6	6731.18	78638468	33.0622	65	1209823	0.008193	0.005335
C1524	Manufacture of shoes made of textile materials with applied soles	7	3599.98	38982571	21.90847	175	222757.5	0.004061	0.014364
C1511	Tanning and dressing of leather	13	4227.09	37477169	17.98211	296	126612.1	0.003905	0.024296
C3313	Repair of electronic and electrical equipment	8	5038.1	13706396	40.40562	32	428324.9	0.001428	0.002627
C1202	Manufacture of cigars	1	10000	11962544	25.63035	103	116141.2	0.001246	0.008454

Annex 4. PSIC sectors with priority Category B

PSIC Code	Description	Number of est 2014	HHI	VA2014	APCM	Labor2014	Labor productivity	GVA share	Labor share
C2910	*Manufacture of motor vehicles*	*56*	*5156.37*	*1.6124E+11*	*11.77264*	*7783.5*	*20715616*	*16.79885011*	*0.638866*
C1103	Manufacture of malt liquors and malt	9	1600.77	2.9089E+10	58.56963	3888	7481739	3.030648418	0.319125
C2393	*Manufacture of porcelain and other ceramic products*	*60*	*9514.56*	*2.7015E+10*	*14.73328*	*8545.33333*	*3161375*	*2.814567947*	*0.701397*
C1052	*Manufacture of powdered milk (excep for infants) and condensed or evaporated milk (filled, combined or reconstituted)*	*8*	*2947.12*	*2.3191E+10*	*14.80029*	*3071*	*7551612*	*2.416163067*	*0.252066*
C1074	*Manufacture of macaroni, noodles, couscous and similar farinaceous products*	*144*	*2620.39*	*8616700000*	*13.58261*	*7942*	*1084953*	*0.897734134*	*0.651876*
C1623	*Manufacture of builders' carpentry and joinery; millworking*	*81*	*4926.29*	*7082600000*	*14.33984*	*5095.16668*	*1390062*	*0.737903348*	*0.418209*
C2812-2813	*Manufacture of fluid power equipmentManufacture of other pumps, compressors, taps and valves*	*14*	*4519.39*	*6248300000*	*14.71756*	*1260.85713*	*4955597*	*0.650981488*	*0.103491*
C1054	*Manufacture of butter and cheese*	*5*	*4645.07*	*5775800000*	*10.60044*	*1547*	*3733549*	*0.601753898*	*0.126977*
C2640	*Manufacture of consumer electronics*	*32*	*3511.63*	*5124000000*	*10.67788*	*13539*	*378462.2*	*0.533845869*	*1.111275*
C1053	*Manufacture of infants' powdered milk*	*2*	*5048.16*	*4900700000*	*14.70373*	*724*	*6768923*	*0.510581275*	*0.059426*
C2720	*Manufacture of batteries and accumulators*	*10*	*5035.09*	*2317100000*	*14.45943*	*1779*	*1302473*	*0.241407936*	*0.146019*
C1055	*Manufacture of ice cream and sherbet, ice drop, ice candy and other flavored ices*	*70*	*6653.65*	*1665700000*	*10.51143*	*1670*	*997425.1*	*0.173541582*	*0.137073*
C2211	*Manufacture of rubber tires and tubes; retreading and rebuilding of rubber tires*	*21*	*8137.23*	*1662500000*	*11.6196*	*3441*	*483144.4*	*0.173208188*	*0.282436*
C1041	Manufacture of virgin coconut oil	36	1797.93	1490300000	19.26947	1504	990891	0.155267467	0.123448
C1049	*Manufacture of vegetable and animal oil and fats, n.e.c.*	*3*	*8285.32*	*1350200000*	*10.91406*	*283*	*4771025*	*0.140671095*	*0.023229*
C1610	Sawmilling and planing of wood	108	1963.21	1240300000	30.12758	2523.83333	491435	0.129221123	0.207155
C3312	*Repair of machinery*	*293*	*2585.97*	*964113051*	*12.93575*	*4610.16666*	*209127.6*	*0.100446481*	*0.3784*
C3240	*Manufacture of games and toys*	*32*	*2937.19*	*878275324*	*11.22643*	*3275*	*268175.7*	*0.091503445*	*0.26881*
C2513	*Manufacture of steam generators, except central heating hot water boilers*	*6*	*5518.24*	*662043316*	*14.33584*	*1233*	*536937*	*0.068975232*	*0.101204*
C2520	*Manufacture of weapons and ammunition*	*15*	*7867.82*	*534953137*	*14.03269*	*940.833335*	*568595*	*0.055734294*	*0.077223*
C3102	Manufacture and repair of rattan furniture (reed, wicker, and cane)	67	2177.69	471281277	16.16713	2274.5	207202.1	0.049100617	0.18669
C1529	Manufacture of footwear, n.e.c.	89	1767.76	463263763	17.42574	3203.66666	144604.2	0.04826531	0.262955
C1063	*Manufacture of starches and starch products*	*6*	*4066.79*	*399307231*	*12.02525*	*1177*	*339258.5*	*0.041601974*	*0.096608*
C2397	*Cutting, shaping and finishing of stone*	*35*	*5710.22*	*367656170*	*12.86113*	*821.166664*	*447724.2*	*0.038304397*	*0.067401*
C1422	Custom dressmaking	247	2097.01	337947170	22.359	2140.33331	157894.6	0.035209153	0.175678
C1625	Manufacture of wood carvings	115	1847.11	231145993	20.77602	2244.66667	102975.6	0.024082032	0.184241
C1523	*Manufacture of plastic shoes*	*3*	*9338.96*	*176112158*	*11.79685*	*142*	*1240226*	*0.018348311*	*0.011655*
C1622	Manufacture of wooden window and door screens, shades and venetian blinds	11	2464.56	155651983	22.2827	516	301651.1	0.01621666	0.042353
C3092	*Manufacture of bicycles and invalid carriages*	*6*	*8994.5*	*73784282*	*10.57672*	*1182*	*62423.25*	*0.007687243*	*0.097018*
C1525	*Manufacture of wooden footwear and accessories*	*2*	*9877.67*	*34403050*	*13.15421*	*105*	*327648.1*	*0.003584295*	*0.008618*
C2826	*Manufacture of machinery for textile apparel and leather production*	*3*	*6609.51*	*3215801*	*10.40615*	*42*	*76566.69*	*0.000335039*	*0.003447*

Rows in italics pertain to B2 (HHI>2500 and 10%<APCM<15%), otherwise B1(1500<HHI<2500 and 15%<APCM).

Annex 5. PSIC sectors with Category C

PSIC Code	Description	Number of establishments	HHI	VA	APCM	Labor	Labor productivity	GVA share	Labor share
C2100	*Manufacture of pharmaceuticals, medicinal chemicals and botanical products*	*117*	*3258.67*	*3.31E+10*	*4.499387*	*13752*	*2409540*	*3.452287*	*1.128758*
C2023	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	191	2400.92	2.4E+10	12.92846	11075	2167946	2.501491	0.909031
C2790	*Manufacture of other electrical equipment*	*25*	*3903.58*	*8.45E+09*	*-24404.2*	*7607*	*1110635*	*0.880221*	*0.624379*
C1411	Men's and boys' garment manufacturing	346	1847.76	4.5E+09	11.3397	22864	196929.7	0.469105	1.876666
C1512	*Manufacture of products of leather and imitation leather*	*96*	*3375.5*	*4.4E+09*	*9.529244*	*15939.17*	*276055.8*	*0.458426*	*1.308279*
C3250	Manufacture of medical and dental instruments and supplies	46	2116.28	3.84E+09	10.10421	5606	684088.5	0.399551	0.460138
C2630	*Manufacture of communication equipment*	*12*	*5287.77*	*3.78E+09*	*-1.88236*	*7435*	*508460*	*0.393862*	*0.610261*
C2740	Manufacture or electric lighting equipment	35	1580.25	3.07E+09	12.22826	5878	522847.9	0.320193	0.482463
C3030	*Manufacture of air and spacecraft and related machinery*	*11*	*6532.88*	*3.07E+09*	*-7.08126*	*3016.333*	*1016897*	*0.319568*	*0.247579*
C2750	Manufacture of domestic appliances	41	2455.34	2.87E+09	12.69411	2982	961938.3	0.298856	0.244761
C1621	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board and other panels and boards	50	1622.23	1.94E+09	11.5967	5781.5	336331.4	0.202588	0.474543
C2021	Manufacture of pesticides and other agro- chemical products	22	2062.68	1.71E+09	12.08411	1204.5	1417435	0.177876	0.098865
C2422	*Non-ferrous smelting and refining, except precious metals*	*11*	*6668.55*	*1.51E+09*	*3.796564*	*1954.667*	*772305.6*	*0.157278*	*0.160438*
C2013	Manufacture of plastics in primary forms and of synthetic rubber	40	2098.93	1.5E+09	10.12259	1536.5	974943.1	0.15607	0.126115
C3091	*Manufacture of motorcycles*	*52*	*3627.13*	*1.46E+09*	*7.672475*	*3168*	*460479.8*	*0.151986*	*0.260028*
C3311	Repair of fabricated metal products	300	1675.94	1.31E+09	12.79316	5715	228643.9	0.136139	0.469084
C3106	Manufacture and repair of furniture and fixtures of metal	95	1534.33	1.23E+09	12.07896	2977.667	411866.1	0.127773	0.244405
C3230	Manufacture of sports goods	14	1984.58	9.66E+08	11.8285	3089	312571.9	0.100595	0.253544
C3011	*Building of ships and floating structures*	*21*	*4575.04*	*9.28E+08*	*-7043.23*	*16057.5*	*57770.75*	*0.096648*	*1.317992*
C2652	*Manufacture of watches and clocks*	*7*	*5340.9*	*8.27E+08*	*4.120924*	*2898*	*285528*	*0.086209*	*0.237866*
C2399	Manufacture of other non-metallic mineral products, n.e.c.	50	1581.25	5.47E+08	14.26163	2187	249953.4	0.056953	0.179508
C3295	*Manufacture of artificial flowers, fruits and foliage*	*3*	*9756.29*	*4.13E+08*	*3.535915*	*164*	*2518499*	*0.043032*	*0.013461*
C2817	*Manufacture of office machinery and equipment*	*9*	*8754.45*	*3.63E+08*	*4.27927*	*934*	*389152.8*	*0.037868*	*0.076662*
C1413	*Ready-made embroidered garments manufacturing*	*63*	*2998.64*	*3.08E+08*	*7.898496*	*2684.833*	*114631.3*	*0.032065*	*0.22037*
C3105	Manufacture of plastic furniture	22	2009.28	3.06E+08	10.51831	1260	243026.7	0.031903	0.10342

C2814	*Manufacture of bearings, gears and driving elements*	*8*	*3663.47*	*3.01E+08*	*-26.8266*	*1037*	*289825.9*	*0.031313*	*0.085116*
C1627-1624	Manufacture of wooden wares Manufacture of wooden containers	26	2398.208	2.35E+08	12.28403	408.2308	574911	0.024452	0.033507
C1077	*Coffee roasting and processing*	*21*	*2593.13*	*2.13E+08*	*9.639923*	*2309.333*	*92143.74*	*0.02217*	*0.189549*
C3104	*Manufacture of partitions, shelves, lockers and office and store fixtures*	*30*	*2541.9*	*1.85E+08*	*3.083491*	*892.5*	*207624.8*	*0.019306*	*0.073256*
C1051	*Processing of fresh milk and cream*	*13*	*9632.74*	*1.69E+08*	*1.484257*	*153.3333*	*1103764*	*0.017633*	*0.012586*
C3212	Manufacture of imitation jewelry	0	2018.14	1.35E+08	10.25119	1072	125922.6	0.014064	0.087989
C1314	*Preparation and finishing of textiles (integrated)*	*5*	*3080.77*	*1.12E+08*	*9.484338*	*463*	*242728.6*	*0.011709*	*0.038003*
C1626	*Manufacture of charcoal outside the forest*	*13*	*2932.17*	*1.03E+08*	*9.780329*	*329*	*313342.8*	*0.01074*	*0.027004*
C3296	Manufacture of wooden coffin	27	1631.85	1.02E+08	14.40706	454.3333	224717.8	0.010637	0.037291
C1204	*Curing and redrying tobacco leaves*	*4*	*3194.86*	*73469792*	*-6.0776*	*857*	*85729.05*	*0.007654*	*0.070342*
C2423	*Non-ferrous rolling, drawing and extrusion mills*	*5*	*5283.72*	*65736984*	*-4.29524*	*135*	*486940.6*	*0.006849*	*0.011081*
C3294	*Manufacture of candles*	*22*	*4103.28*	*54709181*	*-0.81502*	*336.6667*	*162502.5*	*0.0057*	*0.027633*
C2424	*Manufacture of pipe fittings of non-ferrous metal*	*7*	*2864.33*	*48276917*	*6.499545*	*307*	*157253.8*	*0.00503*	*0.025198*
C1820	*Reproduction of recorded media*	*5*	*3335.96*	*46340652*	*9.118344*	*328*	*141282.5*	*0.004828*	*0.026922*
C1047	*Manufacture of unprepared animal feeds from vegetable, animal oils and fats*	*4*	*5675.97*	*33833299*	*5.440163*	*163*	*207566.3*	*0.003525*	*0.013379*
C2680	*Manufacture of magnetic and optical media*	*1*	*10000*	*31150240*	*5.016383*	*106*	*293870.2*	*0.003245*	*0.0087*
C3292	*Manufacture of umbrellas, walking sticks, canes, whips and riding crops*	*5*	*5243.52*	*31063687*	*5.528012*	*145*	*214232.3*	*0.003236*	*0.011902*
C2421	*Gold and other precious metal refining*	*3*	*7849.45*	*27887851*	*9.668501*	*83*	*335998.2*	*0.002906*	*0.006813*
C3220	*Manufacture of musical instruments*	*11*	*3838.33*	*26333084*	*4.571333*	*229*	*114991.6*	*0.002744*	*0.018796*
C3099	*Manufacture of other transport equipment, n.e.c.*	*3*	*5828.76*	*25208443*	*-1.40714*	*325*	*77564.44*	*0.002626*	*0.026676*
C1990	*Manufacture of other fuel products*	*1*	*10000*	*23663232*	*1.141696*	*112*	*211278.9*	*0.002465*	*0.009193*
C2815	*Manufacture of ovens, furnaces and furnace burners*	*1*	*10000*	*3771200*	*-4.50067*	*16*	*235700*	*0.000393*	*0.001313*
C3012	*Building of pleasure and sporting boats*	*1*	*10000*	*2362573*	*5.25597*	*24*	*98440.54*	*0.000246*	*0.00197*
C2660	*Manufacture of medical and surgical equipment and orthopedic appliances*	*1*	*10000*	*2037877*	*-30.6399*	*14*	*145562.6*	*0.000212*	*0.001149*
C1109	*Manufacture of other beverages, n.e.c.*	*3*	*4290.18*	*1703527*	*-1.02928*	*34*	*50103.74*	*0.000177*	*0.002791*
C2395	*Manufacture of lime and plaster*	*9*	*3318.28*	*-1.9E+07*	*4.88382*	*354*	*-54906*	*-0.00203*	*0.029056*
C1102	*Manufacture of wines*	*20*	*4249.24*	*-2.1E+07*	*-201.696*	*214.5*	*-96185.8*	*-0.00215*	*0.017606*

Rows in italics pertain to C2 (HHI>2500 and APCM<10%), otherwise C1(1500<HHI<2500 and 10%<APCM<15%).

Annex 6. PSIC sectors with Category O (HHI > 2500, and APCM> 15%)

PSIC Code	Description	Number of establishments	HHI	VA	APCM	Labor	Labor productivity	GVA share	Labor share
C2819	Manufacture of general-purpose machinery	53	1560.16	4.81E+09	8.387349	2880	1671563	0.501559	0.236389
C2411	Operation of blast furnaces and steel making furnaces	116	2303.22	4.39E+09	6.091781	5902.5	743041.1	0.456936	0.484474
C3315	Repair of transport equipment except motor vehicles	73	2199.23	3.5E+09	6.765488	6692.333	523076.2	0.364711	0.549304
C2712	Manufacture of electricity distribution and control apparatus	31	2220.78	1.87E+09	5.901552	2888	647714.7	0.194889	0.237046
C2592	Treatment and coating of metals; general mechanical engineering on a fee or contract basis	58	2401.34	9.08E+08	8.351301	1992.667	455692	0.094605	0.163557
C2392	Manufacture of structural, non-refractory clay and ceramic products	28	2351.32	7.92E+08	-30.4378	4486	176574.5	0.082527	0.368209
C1311-1312	Preparation and spinning of textile fibers; weaving of textiles Weaving of textiles	73	1774.114	7.8E+08	3.905174	1491.603	523257.3	0.081316	0.12243
C2432	Casting of non-ferrous metals	40	2468.78	7.5E+08	6.13412	3170	236447.3	0.078091	0.260192
C3293	Manufacture of articles for personal use, e.g., smoking pipes, combs, slides and similar articles	37	2442.9	6.5E+08	6.480239	3319.333	195677.8	0.06767	0.272449
C2920	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	40	2113.28	5.62E+08	8.45847	1453.5	386797.3	0.058574	0.119303
C1521	Manufacture of leather shoes	80	1785.33	3.93E+08	8.272322	3056.667	128525	0.04093	0.25089
C1044	Manufacture of crude vegetable oil, cake and meals, other than virgin coconut oil	13	1975.33	3.76E+08	4.895432	878	428438.8	0.039191	0.072066
C2431	Casting/foundry of Iron and steel	30	1618.98	3.42E+08	6.738934	1124	304499.7	0.035658	0.092257
C2651	Manufacture of measuring, testing, navigating and control equipment	18	2194.21	3.34E+08	6.360324	1075	310653	0.034793	0.088235
C1399	Manufacture of other textiles, n.e.c.	57	1500.77	2.31E+08	2.072643	1806.333	127613.2	0.024016	0.148263
C1393	Manufacture of carpets and rugs	28	1791.79	1.41E+08	8.360385	970	144984.1	0.014652	0.079617
C1391	Manufacture of knitted and crocheted fabrics	35	1516.79	1.33E+08	-18.9899	852.3333	155747.4	0.01383	0.069959
C1395	Manufacture of embroidered fabrics	25	1606.06	1.31E+08	8.476851	627	208614.1	0.013628	0.051464
C1522	Manufacture of rubber shoes	13	1902.23	1.3E+08	5.452813	1049	124377.4	0.013593	0.086101
C3314	Repair of electrical equipment	9	2195.89	61874569	1.440664	129	479647.8	0.006446	0.010588

Annex 7. Unconcentrated sectors (HHI<1500)

C2670	Manufacture of optical instruments and photographic equipment	32	977.32	4.41E+09	4.854131	10196	432091	0.458999	0.836883
C1702	Manufacture of corrugated paper and paperboard and of containers of paper and paperboard	141	453.55	4.36E+09	8.719468	8863.417	491920.9	0.454259	0.727505
C2029	Manufacture of other chemical products, n.e.c.	73	822.65	3.96E+09	6.456786	4193.5	944652.4	0.41272	0.3442
C1709	Manufacture of other articles of paper and paperboard	126	494.92	3.82E+09	11.88626	8766.5	436171.8	0.398374	0.71955
C2591	Forging, pressing, stamping and roll-forming of metal;	117	954.19	3.53E+09	9.342901	7726.333	456697.9	0.367629	0.634174
C1045	Manufacture of refined coconut and other vegetable oil (including corn oil) and margarine	62	655.45	3.17E+09	-23.8224	3501.667	905054.7	0.330184	0.287415
C1392	Manufacture of made-up textile articles, except wearing apparel	93	753	3.1E+09	3.102128	11700.67	264839.6	0.32285	0.960385
C1042	Manufacture of dessicated coconut	21	1119.35	3.05E+09	6.760446	11369	268546	0.318088	0.933162
C3101	Manufacture and repair of wood furniture	750	680.49	2.87E+09	18.61	17225.87	166604.1	0.299002	1.413891
C2310	Manufacture of glass and glass products	94	1339.51	2.44E+09	11.89007	4683.167	520096.8	0.253764	0.384392
C1073	Manufacture of cocoa, chocolate and sugar confectionery	136	1200.2	2.35E+09	11.85189	6145.5	382312.3	0.244784	0.50442
C2396	Manufacture of articles of concrete, cement and plaster	507	513.42	2.16E+09	21.4614	8672.667	248504.9	0.22454	0.711848
C2219	Manufacture of other rubber products	144	737.92	2.04E+09	-1.25088	8404	243181.8	0.212924	0.689796
C2711	Manufacture of electric motors, generators and transformers and electric generating sets	33	950.73	1.83E+09	3.659035	5475	333461.2	0.190211	0.449385
C3103	Manufacture of box beds and mattresses	39	1025.92	1.31E+09	12.52544	3230.5	405231.4	0.136389	0.265158
C2823	Manufacture of machinery for metallurgy	33	1402.91	1.08E+09	9.993772	2800.667	385194	0.112395	0.229877
C1011	Slaughtering and meat packing	83	489.46	1.03E+09	13.03287	5490	187996.4	0.10753	0.450617
C1430	Manufacture of knitted and crocheted apparel	34	1235.94	1E+09	3.108948	4394	228334.1	0.104529	0.360657
C2593	Manufacture of cutlery, hand tools and general hardware	219	1444.36	8.46E+08	7.680468	5594.167	151242.2	0.088149	0.459167
C1394	Manufacture of cordage, rope, twine and netting	19	1128.85	8.25E+08	14.51286	2443	337682.1	0.085948	0.20052
C2829	Manufacture of other special purpose machinery	29	1279.28	7.62E+08	-16.3427	1148	664192.8	0.079441	0.094227
C1105	Manufacture of drinking water	2,434	1287.13	6.54E+08	4.028151	9781.833	66870.49	0.068149	0.802888
C3211	Manufacture of jewelry	74	742.67	6.48E+08	12.67654	3901	166105.1	0.06751	0.320192
C2822	Manufacture of metal-forming machinery and machine tools	28	934.6	5.97E+08	1.14106	1633	365353.3	0.062159	0.134036
C1313	Finishing of textiles	62	1363.04	5.45E+08	8.665703	3389	160705	0.056742	0.278168
C1812	Service activities related to printing	133	1336.75	4.76E+08	19.8707	2294.833	207219.9	0.049544	0.188359
C2512	Manufacture of tanks, reservoirs and containers, of metal	44	1185.2	4.34E+08	7.588045	1552.833	279266.7	0.04518	0.127456
C1701	paperboard	87	744.79	4.72E+09	13.22694	6948.333	679817.7	0.49213	0.370316

C2816	Manufacture of lifting and handling equipment	14	1494.27	4.11E+08	10.84946	759	541271.5	0.042802	0.062298
C1421	Custom tailoring	412	1470.16	3.35E+08	11.33985	4345	77196.99	0.034946	0.356636
C1629	Manufacture of other products of wood; manufacture of articles of cork and plaiting materials, except furniture, n.e.c.	40	874.2	2.67E+08	13.70393	1299.333	205445.5	0.027811	0.106649
C1628	Manufacture of products of bamboo, cane, rattan, and the like, and plaiting materials except furniture	92	1049.54	2.48E+08	8.730164	1869.5	132630.6	0.025833	0.153448

Annex 8. Industries with the highest share in consumer expenditure

PSIC 4-digit	PSIC 4-digit Description	% of Total Expenditure (FIES 2012)
C1011	Slaughtering and meat packing	5.86
C1020	Processing and preserving of fish and fish products and other	5.39
C1030	Processing and preserving of fruits and vegetables	3.76
C1041	Manufacture of virgin coconut oil	0.72
C1052	Manufacture of powdered milk (excep for infants) and condensed or evaporated milk (filled, combined or reconstituted)	1.77
C1061	Rice/corn milling	9.02
C1062	Manufacture of grain and vegetable mill products, except rice and	0.67
C1071	Manufacture of bakery products	1.82
C1072	Manufacture of sugar	0.64
C1073	Manufacture of cocoa, chocolate and sugar confectionery	0.45
C1074	Manufacture of macaroni, noodles, couscous and similar farinaceous	0.45
C1077	Coffee roasting and processing	0.95
C1079	Manufacture of other food product, n.e.c.	1.07
C1104	Manufacture of soft drinks	0.87
C1105	Manufacture of drinking water	0.42
C1201	Manufacture of cigarettes	0.86
C1412	Women's and girls' and babies' garment manufacturing	1.62
C1413	Ready-made embroidered garments manufacturing	1.69
C1521	Manufacture of leather shoes	0.75

Annex 9. Industries with the largest share of intermediate demand

PSIC Code	Description	IO % of Total
C1311-	Preparation and spinning of textile fibers; weaving	1.02
C1621	Manufacture of veneer sheets; manufacture of plywood,	0.57
C1701	Manufacture of pulp, paper and paperboard	0.59
C1920	Manufacture of refined petroleum products	5.50
C1990	Manufacture of other fuel products	0.80
C2011	Manufacture of basic chemicals except fertilizers and	0.93
C2012	Manufacture of fertilizers and nitrogen compounds	0.56
C2013	Manufacture of plastics in primary forms and of synthetic	0.48
C2021	Manufacture of pesticides and other agro- chemical	0.47
C2022	Manufacture of paints, varnishes and similar coatings,	0.51
C2023	Manufacture of soap and detergents, cleaning and polishing	0.57
C2029	Manufacture of other chemical products, n.e.c.	0.61
C2100	Manufacture of pharmaceuticals, medicinal chemicals and	0.65
C2394	Manufacture of cement	0.75
C2411	Operation of blast furnaces and steel making furnaces	2.09
C2421	Gold and other precious metal refining	0.44
C2511	Manufacture of structural metal products	0.44
C2612	Manufacture of semi-conductor devices and other	14.55
C2720	Manufacture of batteries and accumulators	0.58
C2817	Manufacture of office machinery and equipment	0.54

PHILIPPINE COMPETITION COMMISSION

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