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Impact of the Expansion of Private Brands on Korean Retail and Manufacturing†

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The private brands (PB) of corporate retailers are booming in Korea. This paper examines the effect of the rise of PB on Korean retail and manufacturing. By utilizing both store-level data and firm-level data, I find that the expansion of PB elevates the profits of corporate retailers but does not significantly affect, and in some cases even reduces, those of subcontracting manufacturers. This occurs not only because sales of national brands (NB) decline due to the launch of similar PBs but also because the imbalance in the bargaining positions of the two parties has caused retail margins to be set high while manufacturers' operating profits are set low. The paper provides policy recommendations for fair contracts and cooperative development between retail and manufacturing companies.

Key Word: Private brands, Store brands, Retailers, Buyer power
JEL Code: L11, L13, L16, L22, L81

I. Introduction

Beginning with food and daily necessities and now spanning across all consumer goods, private brands (PB) of corporate retailers are booming in Korea. An increasing number of PBs are rising as top sellers, and product quality now rivals that of national brands (NB).[1] The overall market size of PBs accounts for one fourth of all sales in the corporate retail industry. Indeed, we have entered the golden age of PBs, with large discount stores, super supermarkets (SSM) and convenience stores at the helm.

This impressive growth of the market necessitates a concrete understanding of

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[1] A private brand (PB) product is a type of good produced by one company (manufacturer) for exclusive sale under another company's (retailer) brand and available only at its stores. A national brand (NB) product refers to manufactured goods for sale under the manufacturer's brand and available at any store around the country.

and objective views on the PB business in Korea. However, official statistics are very insufficient, and thus data from several sources and numerous calculations are required even to begin to understand the size of the PB market.

Moreover, key issues that are critical when attempting to understand the PB business—the industrial background of market growth, its impact on the growth of retail and manufacturing industries, PB development methods, and types of unfair trade practices—have yet to be analyzed.[2]

Focusing on these issues, the study empirically examines the domestic PB industry. To the best of my knowledge, this is the first paper which utilizes micro-level data to analyze the effects of PB expansion on both Korean retail and manufacturing sectors. Thereupon, suggestions will be presented with regard to policy directions for sustainable growth and a fair market order.

II. Related Literature

Previous studies of PB have mainly dealt with the issues of price and quality levels, rivalry between PBs and NBs, and the influence on related firms and sectors. These studies mostly focused on the European and U.S. markets, where PBs have been actively launched and thus have a strong market presence.

With reference to the price level, Griffith *et al*. (2009) analyzed the UK food market. Using household scanner data in 2006, they found that economy store brands are 39% less expensive than NBs and that standard store brands are 25% less expensive than NBs.[3]

Bontemps *et al*. (2008) showed that there existed a positive correlation between PB entry and NB prices and that this relationship was particularly evident in NBs with high market shares. Olbrich and Grewe (2009) also found that consumer prices rose after the launch of a PB, whereas the overall product diversity decreased. Considering that PBs are usually less expensive than NBs of similar quality levels, one may think that the introduction of PBs contributes to lowering the overall price level. However, as both of the aforementioned studies show, retailers who set final consumer prices are tempted to raise NB prices to increase the market share of their PBs, making the overall price level increase or decrease depending on their market shares.

Another group of studies discusses the effect of PB expansion on retailer earnings. Ailawadi and Harlam (2004) found that PBs had higher percentage margins than NBs and that retailers with higher PB shares tended to have higher percentage margins on NBs as well.[4] With a more microscopic approach, Richards *et al*. (2010) investigated the US California ice cream market. By estimating a structural model, he found that retailers' percentage margins tended to be higher, especially in cases when PBs imitated NBs.

[2]Although some of these issues have been addressed in the European and US markets, there has been scant analysis of the Korean PB market.

[3]In the United Kingdom and Europe, the term ‘store brand’ is commonly used to refer to PBs. Griffith *et al*. (2009) divided PBs into standard own brands (cheaper than NBs), economy own brands (cheaper than NBs but with poor packaging) and premium own brands (comparable to NBs).

[4]‘Percentage margin’ in these studies refers to the retail margin relative to the final consumer price.

Further, Raju *et al*. (1995) shows that retailers' profits from PB launches increase when price competition between NB goods is low and price competition between PBs and NBs is severe. This implies that certain conditions need to be met in order for higher PB sales to lead to higher profitability of retailers.

With regard to the effect on the manufacturer, Cho *et al*. (2012) analyzed the effects of PB delivery on the performance of Korean manufacturers. They conducted surveys of 55 manufacturers and reported that 51% of manufacturers were worried about decreased operating profits due to the low delivery price of PBs. The paper also showed that manufacturers with sales exceeding 10 billion won experienced more of a decline in their operating profits than those with lower sales volumes.

Other papers studied the factors influencing PB market development. For example, Dhar and Hoch (1997) analyzed the food sales data of 50 U.S. retailers and found that the variety of PB items, the availability of premium PBs, the number of PB stores, and consumers' incomes and ages in a region to be the main causes of differential PB outcomes. On the development gap of PB markets across countries, Cuneo *et al*. (2015) discussed the distribution structure, logistics structure, and retailer typology as the main contributing factors.

As Korea's PB market has grown, public surveys have been steadily continuing. The Korea Consumer Agency (2008; 2011; 2014) investigated differences in prices, quality levels, and raw materials between PBs and NBs. It also surveyed PB sales trends, consumers' purchase behaviors and satisfaction levels, and so on. While the survey has only focused on large discount stores thus far, it is becoming more necessary to broaden the scope of the investigation so as to include SSMs and convenience stores, which are leading the growth in the Korean PB market at present.

III. Current Status of the Korean PB Market

In PB sales took off in earnest starting in the late 2000s. The market grew 2.5 fold in five years, from 3.6 trillion won in 2008 to 9.3 trillion won in 2013 (left panel of Figure 1).[5] Although the economic slowdown weakened consumer sentiment overall during this period, the PB market maintained its upward momentum owing to the increasing demand for economical products and the supply at all types of retail channels.

Large discount stores, the originators of the PB market, remain the largest sellers of PBs. However, heated competition and market restrictions have dampened their sales growth since 2011.

Rather, convenience stores are now spurring new growth. The three largest chains (GS25, 7-Eleven and CU) increased their PB sales by a staggering 16 fold such that the share of PB sales rose to 28.8% in 2013 (right panel of Figure 1). This

[5]The market size of PBs refers to the sum of PB sales at all samples (=3 major large discount store chains + 3 major SSM chains + 3 convenience store chains). PB sales at other retailers in addition to these are reported, though irregularly, in the Korea Chain Store Association's Yearbook of Retailers, but their share is less than 1% of the total PB sales for each business type.

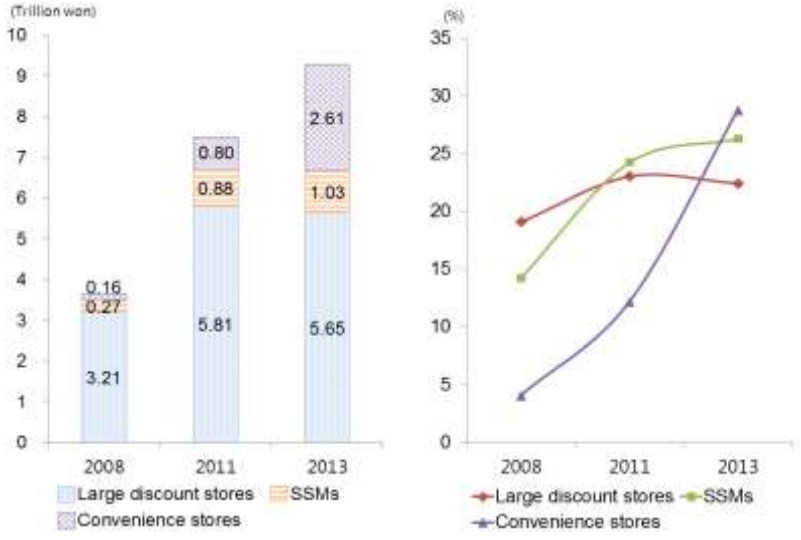

FIGURE 1. PB SALES (LEFT) AND SHARE OF PB TO TOTAL SALES (RIGHT): COMPARISON BETWEEN LARGE DISCOUNT STORES, SSMS AND CONVENIENCE STORES.

Note: Each category represents the top three chains with the highest sales volumes.

Source: Calculated using the Yearbook of Retailers (2009~2015) and companies' annual reports (same period).

was possible because, unlike large discount stores and SSMs, convenience stores are not bound by restrictions in terms of opening new stores. Moreover, 24-hour operations and PBs based on convenience foods met the needs of both the local community and single-person households.

Indeed, the axis of the PB market is shifting towards convenience stores at an accelerated pace. Accordingly, large discount stores such as Emart and HomePlus are now entering the convenience store business.[6]

When compared to foreign retailers (left panel in Figure 2), Korean retail chains' overall share of PB sales is not much lower than that of other global retail chains; it is below those of Aldi & Lidl, Sainsbury and Tesco but similar to those of Kroger, Costco and Walmart.

On the other hand, PB sales when compared to all retail trade in Korea (general retail + specialized retail) account for a mere 3.1% of total sales (right panel in Figure 2).[7] This is slightly higher than the average for Asia but far below that of Europe, Oceania and America, where retail industries are more advanced. Nonetheless, considering that Korea's PB market is in its infancy, there is potential for further growth. This may be true particularly as Korea's PB market is exhibiting a development pattern similar to those of its counterparts in Europe—wherein an oligopoly of a few companies has stimulated the PB business.

[6]Since starting their respective convenience store businesses, Emart and HomePlus have actively expanded their numbers of stores (With Me and 365PLUS, respectively). As of July of 2016, there were 1,422 With Me stores and 402 365PLUS stores nationwide (The Korea Economic Daily, Aug. 22 2016). Recently, With Me was rebranded to Emart 24.

[7]Nielsen (2014) determined a country's PB sales share by calculating the share of PB sales in total sales in the retail business. This study applies the same calculation to gauge Korea's PB sales to make international comparisons easier.

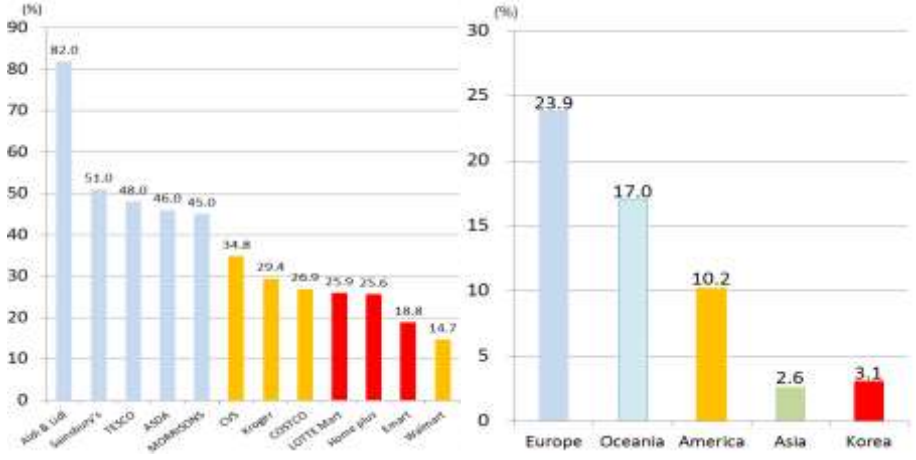

FIGURE 2. SHARE OF PB SALES BY RETAIL CHAIN (LEFT) AND CONTINENT (RIGHT):

Note: 1) Share of PB sales by company (%, as of 2014) = PB sales / Company sales. 2) Share of PB sales by country (%, as of 2013) = Total PB sales / Total retailer sales. 3) Share of PB sales by continent is the mean of the share of PB sales by country within the continent.

Source: Calculated using PLMA (2014); Nielsen (2014); Korea Chain Store Association (2014); Statistics Korea, "Wholesale and Retail Trade Survey Microdata," 2013.

IV. Structural Changes Underlying the PB Expansion in the Korean Retail Industry

A. *Market Concentration in General Retail*

The following section examines the structural changes within the retail sector that spurred on and nurtured the PB industry. Above all, it is important to note that the recent growth of the general retail business was heavily dependent on the growth of corporate retailers. Figure 3 shows that the market for general retail expanded by 53.7 trillion won in the period of 2003~2014, of which 78% (41.9 trillion won) stemmed from increased sales by corporate retailers.

Accordingly, the share held by corporate retailers in general retail advanced from 67.8% to 73.1% over the same period. This implies that corporate retail businesses have taken a larger stake in the distribution of manufactured goods, thus strengthening the influence of this sector over consumers.

However, these changes may aggravate the imbalance in the bargaining position between corporate retailers and manufacturers. As sellers, manufacturers have a greater economic incentive to supply their products to large retailers who dominate the retail market. Conversely, this means that the business loss to the manufacturing company can be significant when the transaction is halted for any reason.

On the other hand, as buyers, retailers have little difficulty in finding alternative suppliers who can offer similar or more favorable contract terms. Additionally, even when a contract is terminated, there is little impact on the total sales of corporate

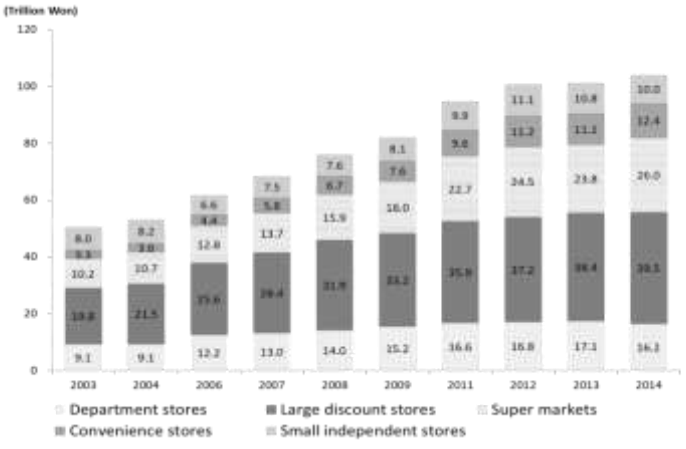

FIGURE 3. CHANGES IN SALES BY RETAIL BUSINESS TYPE

Note: Corporate retail encompasses department stores, large discount stores, SSMs within supermarkets, and convenience stores.

Source: Based on Statistics Korea, "Wholesale and Retail Trade Survey Microdata," 2003~2014.

retailers, as they have tens of thousands of products on their shelves.

PBs are created when corporate retailers participate in the planning, production, and labeling of products, all of which were traditionally conducted by manufacturing companies. This intervention is only possible when such retailers possess strong buyers' power. In other words, market concentration in general retail is a prerequisite to the creation of PBs; accordingly, small independent stores do not have PBs.

B. *Intensifying Competition between Large Retailers*

As much as the level of buyers' power determines the creation of PBs, the competition between corporate retailers affects the economic incentive to release them. In fact, the Herfindahl-Hirschman Index (HHI) of corporate retailers (diamond line in Figure 4)[8] has been in decline since 2006, pointing to more heated competition between rivals.

In the midst of the intensifying competition, if shelves were stocked with NB products, corporate retailers would have no other choice but to engage in a discount war as a means to gain a competitive edge. This strategy, however, cannot serve as a long-term solution, as the ensuing price competition would eventually diminish the delivery price and retail margin.

In contrast, PBs offer product differentiation because corporate retailers are able to decide on the product features and sell the products exclusively at their stores. Thus, retailers are free from consumers' direct comparisons of price and quality and can set a stable retail margin. Additionally, differentiated products contribute to

[8]This study calculates HHI using the market share of each retail store, taking into account the level of observation in the Wholesale and Retail Trade Survey MDIS: $HHI = 10,000 \times \Sigma_i s_i^2$.

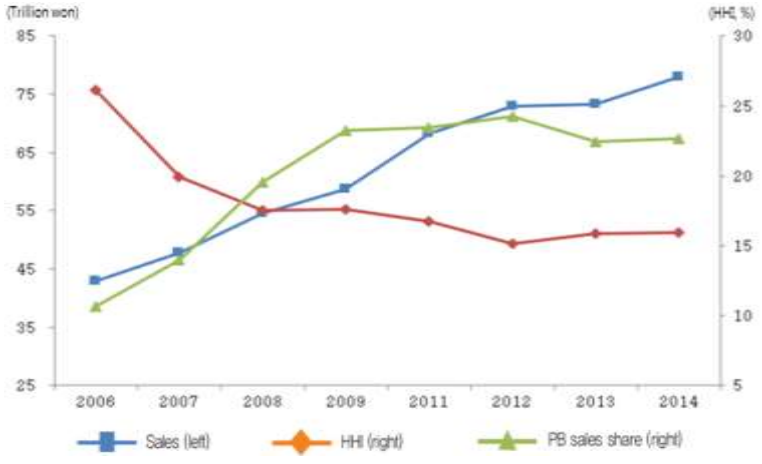

FIGURE 4. HHI, SALES AND PB SALES SHARE IN CORPORATE RETAIL BUSINIESS

Note: Corporate retailers include large discount stores, SSMs within supermarkets, and convenience stores. The share of PB sales is the share of the three largest chains of large discount stores and SSMs.[9]

Source: Based on the Korea Chain Store Association, Yearbook of Retailers (2009~2015) and companies' annual reports (2009~2015).

differentiation among stores, which, in turn, strengthens customer loyalty.

In all, it is evident that PBs are a profit-maximizing solution created by retailers in response to such structural changes as greater market concentration levels and intensifying competition within the market.

V. Impact of Increased PB Sales on the Growth of Corporate Retailers

A. *Data and Empirical Specifications*

While retailers have been thrilled with the launch of PBs, there is very little evidence pertaining to whether the strategy has actually helped their growth. To identify this, this paper secured two groups of data. The first group refers to the Wholesale and Retail Trade Survey MDIS (2006~2014, Statistics Korea), including information on sales, expenses, and profits for individual stores.[10]

The second dataset should be PB sales information. Because the observations in MDIS are at the store level, obtaining PB sales information at the store level would be ideal for merging data and identifying this effect. However, in that such data do not exist at present, I construct an average PB sales ratio by distribution type and year, where the distribution type includes large discount stores, SSMs, convenience

[9]Three major convenience store chains are excluded from the calculation of the PB sales share due to limited data. If sufficient annual data could be applied, it is expected that the share of PB sales (square line in Figure 4) would rise steeply to the right.

[10]This data also include business information such as the store location, number of employees, number of annual business months, average daily business hours, store floor area and other information, making it easy to create various control variables.

stores, and small independent stores.[11]

Finally, I merge the PB sales ratio with the MDIS data based on the subcategories (at the five-digit level) in the standard industry classification code. Table 1 shows summary statistics of the retail data.

TABLE 1—SUMMARY STATISTICS OF RETAIL DATA

Variables		No. of Obs	Mean	Std. Dev	Min	Max
Sales (100 million won)		39,391	90.09	272.28	0.01	4,898.51
PB Sales Ratio (0~1)		38,296	0.15	0.06	0.04	0.33
Large Discount Store (0/1)		39,391	0.10	0.30	0.00	1.00
Supermarket (0/1)		39,391	0.35	0.48	0.00	1.00
Convenience Store (0/1)		39,391	0.55	0.50	0.00	1.00
Headquarters (0/1)		39,391	0.23	0.42	0.00	1.00
Branch (0/1)		39,391	0.09	0.28	0.00	1.00
Independent Store (0/1)		39,391	0.68	0.47	0.00	1.00
Shop Area (m^2)		39,391	1,358.02	4,125.40	10.00	98,461
Business Period (months)		37,604	106.29	77.79	1.00	706.00
Business Months per Year		39,391	11.01	2.57	1.00	12.00
Average Business Hours per Day		39,391	4.67	0.76	1.00	5.00
Days Closed per Month		39,391	4.35	2.21	1.00	6.00
Sales Composition Ratio	Between Headquarters and Branch	39,388	0.08	1.75	0.00	100.00
	Wholesaler	39,389	0.05	1.23	0.00	98.00
	Retailer	39,384	0.69	6.61	0.00	100.00
	Industrial Activity	39,389	0.56	6.15	0.00	100.00
	Consumer	39,390	98.56	9.48	0.00	100.00
	Overseas Exports	39,388	0.01	0.69	0.00	100.00
	Etc.	39,386	0.06	1.21	0.00	100.00
Purchase Composition Ratio	Between Headquarters and Branch	39,379	19.27	38.13	0.00	100.00
	Producer	39,386	13.92	31.35	0.00	100.00
	Wholesaler	39,391	65.28	45.19	0.00	100.00
	Overseas Exports	39,386	0.27	4.12	0.00	100.00
	Etc.	39,388	1.26	9.90	0.00	100.00

Source: Statistics Korea, "Wholesale and Retail Trade Survey MDIS," 2006~2014; Statistics Korea, "Economic Census MDIS," 2010; Korea Chain Store Association, the Yearbook of Retailers (2009~2015); Companies' Annual Reports (2006~2015).

[11]Specifically, because PB sales data could not be established at the store level, I constructed it at the enterprise level instead using the Yearbook of Retailers and a range of other sources. However, the enterprise level of PB sales data could not be merged and utilized due to missing business registration numbers and corporation registration numbers in MDIS. Finally, I derive the average PB sales ratio by year and distribution type (five-digit code in KSIC).

The estimation model has the following form:

$$y_{ijst} = \alpha PB_{jt} + X_{ijst}\beta + \sum_{s} \gamma_s D_s + \sum_{t} \delta_t T_t + u_{ijst} \quad (1)$$

The dependent variable y_{ijst} denotes the sales (or profits) of store i of distribution type j located in region s in year t. For example, y_{ijst} can represent the sales of a certain large discount store located in Seoul in 2013.

PB_{jt} is the PB sales ratio, which is the proportion of PB sales to total sales by distribution type and year. When constructing the PB sales ratio at the distribution type level, we need a relatively strong assumption that stores in the same category have the same PB sales ratio. This assumption is generally realistic in that stores operated by a corporate retailer are standardized in terms of their supply characteristics, product composition, sales method, and shopping environment.[12],[13]

X_{ijst} is a vector of various store characteristics, including the distribution type, annual business months, average daily business hours, number of holidays, and store floor area. D_s is a vector of region dummies at the metropolitan city level. T_t is a vector of year dummies controlling for the effects of the overall economic downturn on domestic demand since the mid-2000s. u_{ijst} is an i.i.d. error term.[14]

B. *Estimation Results*

Model (1) in Table 2 reports OLS estimates, which show that a 1%p rise in the PB sales ratio tends to increase a store's sales by 165 million won. This estimate is statistically significant, but its magnitude appears to be relatively large, as 165 million won is equivalent to around 2% of sales.[15]

Meanwhile, the error terms may not satisfy the IID condition. Because stores in the same category (i.e., discount store, SSM, or convenience store) can be influenced by common factors, the distribution of the error terms can vary with the category. Considering this heteroscedasticity, model 2 estimates the equation with iterative reweighted least square (IRLS) method, a robust type of regression. According

[12]Nevertheless, given that the demand characteristics of each store may differ, it is necessary to utilize PB sales shares by each store or company. In the future, more abundant PB sales information must be generated and constructed in order to promote further studies.

[13]If the PB sales ratio can be merged at more micro-levels (enterprise or store level), there is an advantage in that the potential endogeneity problem can be mitigated in a regression analysis. Because PBs tend to be released in profitable categories, adverse causality may exist. To address this, Ailawadi and Harlam (2004) estimated a simultaneous equation system, using one equation with the distribution profit as a dependent variable and the other equation with PB sales as the dependent variable.

[14]As the PB ratio is generated at the aggregated level according to the distribution type and year, it is likely that the correlation between the PB ratio and various fixed effects will increase. Accordingly, various fixed effects (time, location, distribution type) were controlled. Therefore, 'α' measures how much sales increase when the PB ratio of the average or representative store rises. Because the coefficient measures the average effect, a large discount store will have a greater impact and convenience stores will have relatively smaller impacts compared to the average effect.

[15]The average sales amount for retail stores in the sample is 9 billion won.

TABLE 2—EFFECTS OF AN INCREASE IN THE PB SALES RATIO ON THE SALES OF RETAIL STORES

Dep. Var.: Sales (100 million won)	(1) OLS	(2) IRLS	(3) WLS_Firm	(4) WLS_Emp
PB Sales Ratio (0~1)	164.71***	22.33***	25.18***	28.52***
	(28.18)	(0.69)	(3.81)	(3.92)
Large Discount Store (0/1)	482.42***	382.04***	513.18***	512.90***
	(5.25)	(0.13)	(2.07)	(2.09)
Supermarket (0/1)	25.65***	0.55***	10.63***	10.77***
	(2.63)	(0.06)	(0.44)	(0.45)
Headquarters (0/1)	30.18***	3.88***	21.14***	21.33***
	(2.56)	(0.06)	(0.53)	(0.55)
Branch (0/1)	56.63***	6.91***	34.49***	34.88***
	(4.61)	(0.11)	(1.10)	(1.12)
Shop Area (m^2)	0.01***	0.02***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)
Business Period (months)	0.16***	0.00***	0.03***	0.03***
	(0.01)	(0.00)	(0.00)	(0.00)
Number of Stores in Region	-0.02***	0.00***	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Business Months per Year	1.48***	0.31***	0.86***	0.88***
	(0.33)	(0.01)	(0.07)	(0.07)
Average Business Hours per Day	13.43***	-0.37***	3.38***	3.44***
	(1.40)	(0.03)	(0.30)	(0.31)
Closed Days per Month	7.41***	0.29***	1.20***	1.17***
	(0.96)	(0.02)	(0.21)	(0.21)
Number of Households	0.00***	0.00***	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Sales Composition Ratio (between Headquarters and Branch)	2.75***	1.38***	-0.33	-0.32
	(0.84)	(0.02)	(0.28)	(0.28)
Sales Composition Ratio (Wholesaler)	6.13***	7.01***	3.49***	3.50***
	(0.97)	(0.02)	(0.36)	(0.36)
Sales Composition Ratio (Retailer)	0.04	-0.01	-0.99***	-0.99***
	(0.68)	(0.02)	(0.26)	(0.26)
Sales Composition Ratio (Industrial Activity)	-0.87	-0.02	-1.03***	-1.03***
	(0.68)	(0.02)	(0.26)	(0.27)
Sales Composition Ratio (Consumer)	-1.07	-0.01	-1.21***	-1.22***
	(0.67)	(0.02)	(0.26)	(0.26)
Sales Composition Ratio (Overseas Exports)	2.03	18.12***	0.11	0.17
	(1.59)	(0.09)	(0.63)	(0.64)
Constant	263.54***	-1.27	84.55***	89.27***
	(71.79)	(1.77)	(26.00)	(26.47)
Year_dummy	Y	Y	Y	Y
Region_dummy	Y	Y	Y	Y
Observations	37,604	37,603	204,191	199,598
Adj R^2	0.61	-	0.62	0.62

Note: Standard errors are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Source: Statistics Korea, "Wholesale and Retail Trade Survey MDIS," 2006~2014; Statistics Korea, "Economic Census MDIS," 2010; Korea Chain Store Association, the Yearbook of Retailers (2009~2015); Companies' Annual Reports (2006~2015).

to model 2, a 1%p rise in the PB sales ratio is likely to increase store sales by 22 million won on average. It is still found that a higher PB sales ratio contributes to sales growth, but now the magnitude of the coefficient is decreased to 1/7 of the OLS estimate.

The IRLS assigns low weight values to observations with large absolute values of residuals, while giving large values to those with small absolute values of residuals. Therefore, the IRLS helps to induce homoscedasticity such that more efficient and accurate estimates can be derived.

Additionally, models 3 and 4 adopt the weighted least square (WLS) approach with a business multiplier and an employee multiplier as the weights, respectively. While both estimates are statistically significant at the 1% level, they are relatively close to the IRLS estimate as compared to that by OLS.

Moving on to the impact of PB sales on retail profit (see Table 3),[16] the IRLS model shows that a 1%p increase in the PB sales ratio tends to raise the retail profit by 2.65 million won. This tendency was consistently estimated in the following two WLS models, where retail profits are likely to rise by 8.31 and 9.04 million won, respectively. The coefficient fluctuates somewhat depending on the model, but all estimates confirm that higher PB sales contribute to increasing the sales and profits of retail stores.

These findings are consistent with those by Ailawadi and Harlam (2004), who demonstrated a positive impact of PB expansion on retailer earnings. Indeed, the strategy of expanding PBs in response to a sluggish economy and heated competition appears to have been successful.

TABLE 3—EFFECTS OF AN INCREASE IN THE PB SALES RATIO ON THE PROFITS OF RETAIL STORES

Dep. Var.: Sales (100 million won)	(1) OLS	(2) IRLS	(3) WLS_Firm	(4) WLS_Emp
PB Sales Ratio (0~1)	51.94*** (8.56)	2.65*** (0.19)	8.31*** (1.15)	9.04*** (1.18)
Large Discount Store (0/1)	150.43*** (1.60)	146.66*** (0.03)	160.55*** (0.62)	160.49*** (0.63)
Supermarket (0/1)	5.24*** (0.80)	-0.12*** (0.02)	1.36*** (0.14)	1.39*** (0.14)
Headquarters (0/1)	8.67*** (0.90)	1.09*** (0.02)	5.56*** (0.17)	5.58*** (0.17)
Branch (0/1)	0.44 (1.42)	1.84*** (0.03)	2.71*** (0.33)	2.73*** (0.34)
Shop Area (m^2)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Business Period (months)	0.05*** (0.00)	0.00*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Number of Stores in Region	-0.01*** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)
Business Months per Year	0.37*** (0.10)	0.10*** (0.00)	0.21*** (0.02)	0.21*** (0.02)

[16]Retail profit corresponds to value-added created by the retailer, which is calculated as the amount of total annual sales minus the total amount of goods purchased.

TABLE 3—EFFECTS OF AN INCREASE IN THE PB SALES RATIO ON THE PROFITS OF RETAIL STORES *(CONT'D)*

Dep. Var.: Sales (100 million won)	(1) OLS	(2) IRLS	(3) WLS_Firm	(4) WLS_Emp
Average Business Hours per Day	1.24***	-0.03***	0.32***	0.33***
	(0.43)	(0.01)	(0.09)	(0.09)
Closed Days per Month	1.97***	0.04***	0.39***	0.40***
	(0.29)	(0.01)	(0.06)	(0.06)
Number of Households	0.00***	0.00***	0.00**	0.00**
	(0.00)	(0.00)	(0.00)	(0.00)
Sales Composition Ratio (between Headquarters and Branch)	0.37	0.16***	-0.03	-0.02
	(0.25)	(0.01)	(0.08)	(0.08)
Sales Composition Ratio (Wholesaler)	0.35	0.02***	0.25**	0.25**
	(0.30)	(0.01)	(0.11)	(0.11)
Sales Composition Ratio (Retailer)	0.07	0.00	-0.13*	-0.13*
	(0.21)	(0.00)	(0.08)	(0.08)
Sales Composition Ratio (Industrial Activity)	-0.11	0.00	-0.19**	-0.19**
	(0.21)	(0.00)	(0.08)	(0.08)
Sales Composition Ratio (Consumer)	-0.08	0.00	-0.17**	-0.17**
	(0.2)	(0.00)	(0.08)	(0.08)
Sales Composition Ratio (Overseas Exports)	-1.94***	-0.20***	-1.46***	-1.46***
	(0.49)	(0.01)	(0.19)	(0.19)
Purchase Composition Ratio (between Headquarters and Branch)	-0.02	0.00	0.00	0.00
	(0.03)	(0.00)	(0.01)	(0.01)
Purchase Composition Ratio (Producer)	-0.01	0.00	0.00	0.00
	(0.03)	(0.00)	(0.01)	(0.01)
Purchase Composition Ratio (Wholesaler)	-0.02	0.00	-0.01	-0.01
	(0.02)	(0.00)	(0.01)	(0.01)
Purchase Composition Ratio (Overseas Exports)	1.33***	-0.01***	1.28***	1.28***
	(0.07)	(0.00)	(0.03)	(0.03)
Constant	80.42***	-0.21	10.93	12.42
	(21.83)	(0.47)	(7.84)	(7.98)
Year_dummy	Y	Y	Y	Y
Region_dummy	Y	Y	Y	Y
Observations	37,604	37,604	204,191	199,598
Adj R^2	0.62	-	0.63	0.63

Note: Standard errors are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Source: Statistics Korea, "Wholesale and Retail Trade Survey MDIS," 2006~2014; Statistics Korea, "Economic Census MDIS," 2010; Korea Chain Store Association, the Yearbook of Retailers (2009~2015); Companies' Annual Reports (2006~2015).

VI. Impact of Increased PB Production on the Growth of Manufacturing Firms

Will the expansion of PB products then help manufacturers' growth? To test this, I surveyed 1,000 manufacturers that were supplying their products to domestic corporate retail companies. The questionnaire mainly asked about sales, production

costs, delivery prices, final consumer prices, and the market share for both NBs and PBs. It also asked about quality differences between PBs and NBs, the method of PB development, types of unfair trade practices experienced, and other factors.[17]

A. *Impact on the Quantitative Growth (Sales) of Manufacturing Firms*

As in the analysis on the retail side, the key independent variable is the PB sales ratio. A firm's PB sales ratio is defined as the proportion of 'major' PB sales to annual total sales. Because a firm may produce several and different types of PBs, I focused on the major PBs with the highest sales proportions.[18]

The model is estimated using ordinary least squares while controlling for various firm characteristics. Table 4 shows the basic statistics of the main variables used in the regression analysis.

According to the estimates (see model 1 in Table 5), a higher PB sales ratio tends to decrease sales of the top SMEs (PB sales ratio(t) = -2.76).[19] Compared to this negative impact, large enterprises are affected more negatively (PB sales ratio(t) ∗ Large enterprises = -8.10), while the middle and bottom SMEs are affected less negatively (PB sales ratio(t) ∗ SMEs_middle = 2.06, PB sales ratio(t) ∗ SMEs_ bottom = 2.38). The only positively affected group is the small business group (PB sales ratio(t) ∗ Micro_businesses = 2.94). In short, all types of establishments with the

TABLE 4—DESCRIPTIVE STATISTICS OF THE SURVEY DATA

Variables	No. of Obs.	Mean	Std.. Dev.	Min	Max
Sales (100 million won)	926	246.44	517.59	0.64	4,360.00
Business Period (months)	926	16.58	11.20	1.00	64.00
Large Enterprises (0/1)	926	0.06	0.23	0.00	1.00
SMEs_top (0/1)	926	0.25	0.43	0.00	1.00
SMEs_middle (0/1)	926	0.33	0.47	0.00	1.00
SMEs_bottom (0/1)	926	0.24	0.43	0.00	1.00
Micro-Businesses (0/1)	926	0.12	0.33	0.00	1.00
PB Sales Ratio (%)	926	8.37	19.78	0.00	100.00
Having Overseas Factory (0/1)	926	0.11	0.32	0.00	1.00
Ranking of NB_1st (0/1)	926	0.10	0.29	0.00	1.00
Ranking of NB_2nd-3rd (0/1)	926	0.18	0.38	0.00	1.00
Ranking of NB_4th-5th (0/1)	926	0.19	0.39	0.00	1.00

Note: SMEs are categorized into 'SMEs_top' (the upper 30%), 'SMEs_middle' (the middle 40%) and 'SMEs_bottom' (the bottom 30%) according to the employment size.

[17]There were a total of 4,063 companies in the supplier list provided by retailers, but the final sample size was set to 1,000 firms in consideration of time and cost. The survey questionnaire is presented in Appendix of Lee (2017).

[18]Suppose that one company produces NB milk and similar quality of PB milk as its main products and PB cheese as an auxiliary product. In this case, the yield of NB milk can be mostly influenced by PB milk rather than PB cheese. Considering this substitution pattern, PB sales ratio was set to reflect proportion of main PB product.

[19]In Table 5, PB sales ratio represents the effect on top SMEs since it is not controlled as interaction terms and thus become base group.

TABLE 5—EFFECTS OF AN INCREASE IN THE PB SALES RATIO ON THE SALES OF MANUFACTURERS

Dep. Var.: Sales_yr2015 (100 million won)	Model 1	Model 2	Model 3
Business Period (months)	3.57***	3.58***	4.10***
	(0.85)	(0.85)	(0.88)
Large Enterprises (0/1)	1,665.90***	1,668.44***	1,650.59***
	(44.16)	(44.13)	(44.41)
SMEs_middle (0/1)	-214.73***	-213.98***	-211.12***
	(26.29)	(26.21)	(26.59)
SMEs_bottom (0/1)	-257.50***	-255.09***	-240.35***
	(28.30)	(28.26)	(29.91)
Micro-Businesses (0/1)	-300.22***	-297.72***	-282.84***
	(34.01)	(33.92)	(34.41)
PB Sales Ratio (t)	-2.76***		
	(1.01)		
PB Sales Ratio(t) * Large Enterprises	-8.10*		
	(4.31)		
PB Sales Ratio(t) * SMEs_middle	2.06*		
	(1.24)		
PB Sales Ratio(t) * SMEs_bottom	2.38*		
	(1.30)		
PB Sales Ratio(t) * Micro-Businesses	2.94*		
	(1.63)		
PB Sales Ratio(t-1)		-2.65**	-2.88***
		(1.07)	(1.09)
PB Sales Ratio(t-1) * Large Enterprises		-8.39*	-7.91*
		(4.31)	(4.32)
PB Sales Ratio(t-1) * SMEs_middle		2.11	2.59**
		(1.30)	(1.31)
PB Sales Ratio(t-1) * SMEs_bottom		2.29*	2.07
		(1.34)	(1.35)
PB Sales Ratio(t-1) * Micro-Businesses		2.85*	3.55**
		(1.71)	(1.74)
Having Overseas Factory (0/1)			76.53**
			(30.41)
Industry Dummy	N	N	Y
Product Category Dummy	N	N	Y
Region Dummy	N	N	Y
Constant	275.25***	272.62***	89.38
	(26.72)	(26.65)	(289.09)
Observations	926	926	926
R^2	0.74	0.74	0.75

exception of micro-businesses exhibit reduced sales when the PB sales ratio rises. Moreover the size of the decrease in sales was proportional to the size of the company. That is, a higher PB sales ratio negatively affects the quantitative growth of manufacturing firms on average.

Model 2 considers the possibility of endogeneity of the PB sales ratio(t). The dependent variable, annual total sales (sales_yr2015), is located in the denominator when calculating PB sales ratio(t). Thus, when sales_yr2015 changes, both the dependent variable and the independent variable change even if PB sales remains constant. Considering this simultaneity problem, model 2 calculates the PB sales ratio using sales information as of the previous year(t-1). Further, model 3 controls for additional fixed effects with firm, industry, and region dummies. According to

the estimations, both models exhibit results similar to those of model 1 in terms of the direction and size of the coefficients.

This leads to the question of why large companies and small businesses are affected differently. We can expect that as PB sales increase, the annual total sales will also increase. Micro-businesses appear to experience a quantitative growth effect from this path. In actuality, when micro-businesses sign PB delivery agreements with corporate retailers, they can increase their plant utilization rate and production volume.

However, this explanation does not apply to larger corporations, whose overall sales decrease. Thus, for them, we can consider that sales of NBs are reduced due to the competition with PBs and that the characteristics of their NBs are different from those of micro-businesses. Indeed, Figure 5 shows that the larger the firm, the more it relies on the sales of NBs and the more top-selling NBs it has in the market.

Considering this point, I apply the market share ranking of NBs to a regression analysis (See Table 6), finding that a 1%p rise in the PB sales ratio generates higher sales losses (approximately 1.06 billion won) in firms with top-selling NBs than in those with NBs ranked sixth or lower in sales. This implies that the cannibalization effect—PBs crowding out NBs—is stronger in firms with NBs which sell better in the market.

This may be due to the practices of corporate retailers, who often place their PBs right next to best-selling NBs on shelves or replace NBs with PBs. In addition, NB consumers may switch to PBs if influenced by the recognition of PBs as being less expensive but of similar quality to NBs.[20]

Meanwhile, the NBs of micro-businesses usually account for a small share of sales; thus, the effect of cannibalization can be relatively weak. The supply of PBs to corporate retailers helped them to secure more sales channels and higher capacity utilization rates, leading to higher sales.

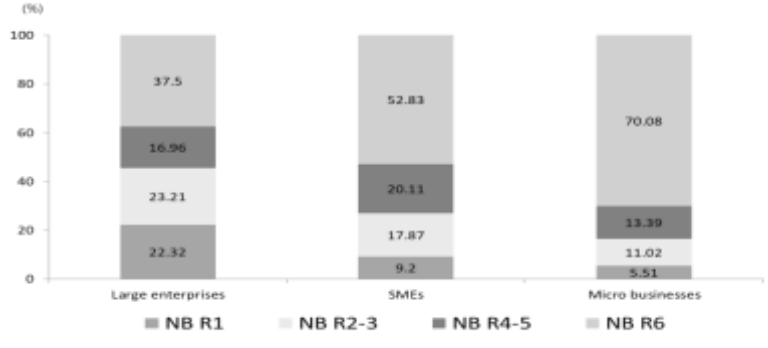

FIGURE 5. MARKET SHARE RANKING OF NBS BY FIRM SIZE

Note: SMEs is the average for SMEs_top, SMEs_middle and SMEs_bottom.

Source: Data from the Survey on Manufacturing Establishments (Korea Development Institute, 2016).

[20]Along with the cannibalization effect, the low prices of PBs may lead to an overall increase in demand. While these two opposing effects coexist, the estimation results show that the former effect may be stronger than the latter.

TABLE 6—EFFECT OF AN INCREASE IN THE PB SALES RATIO ON THE SALES OF MANUFACTURERS

Dep. Var: Sales_yr2015 (100 million won)			
PB Sales Ratio(t-1)	-2.88*** (1.00)	PB sales ratio(t-1) * NB Ranking_1	-10.63** (5.19)
NB Ranking_1	269.00*** (60.49)	PB sales ratio(t-1) * NB Ranking_2-3	-9.14*** (2.63)
NB Ranking_2-3	285.38*** (49.84)	PB sales ratio(t-1) * NB Ranking_4-5	-3.80 (2.35)
NB Ranking_4-5	119.54** (46.81)	Major PB sales(t)	2.43*** (0.35)
Observations	904	R^2	0.24

Note: 1) As in the models in Table 4, several characteristics (business period, industry dummy, product category dummy, region dummy) are controlled. Their coefficients are available upon request. 2) Standard errors are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

B. *Impact on the Qualitative Growth (Operating Profit) of Manufacturing Firms*

As a follow-up question, it can be asked whether quantitative growth for micro-businesses leads to qualitative growth. Specifically, this pertains to whether their higher sales from increased PB sales generate higher profits.

According to the estimation results, there were no significant increases in the operating profits of most SMEs and even of micro-businesses (See Table 7). This implies that the production increase caused by the PB supply does not guarantee actual profit gains.

To investigate the fundamental root of this finding, I measured how the value-added (created by PB sales) was distributed between retailers and manufacturers. Figure 6 describes the manufacturers' production costs, their operating profits, and retailers' margins as a proportion of the final consumer price (= 100%).[21]

In general, PB production is less costly because advertising, marketing and distribution costs borne by manufacturers are lower relative to the amounts they have to pay to supply NBs. This enables higher retail margins and operating profits for PBs, as shown in the case of large enterprises.

On the other hand, SMEs and micro-businesses exhibit decreased operating profits and increased retail margins from PBs, and the increment of the retail margin appears to be larger compared to that of large companies. The fact that the retail margins for smaller firms are larger may not be a critical issue. If retailers expended more effort and funding to develop PBs with smaller companies, the resulting higher retail margins would be reasonable compensation for them.

However, as shown in Table 8, most PBs have been developed from slight modifications from NBs (51.8%) or through package replacements of NBs (51.8%)

[21]Figure 6 is generated using survey data (of operating profit per sale, production cost per sale, supply price and final consumer price) with an assumption pertaining to the retail margin. I set the retail margin of NB to 30%, which is the mean value of margins according to all types of retailers represented in the Wholesale and Retail Trade Survey (MDIS). A different level of retail margin caused no change in the implications.

TABLE 7—IMPACT OF INCREASED PB SALES ON THE OPERATING PROFIT OF MANUFACTURERS

Dep. Var: Sales_yr2015 (100 million won)	Operating Profit		Operating Profit from PBs	
	(1)	(2)	(3)	(4)
PB Sales Ratio(t)	-0.34 (0.32)		0.18* (0.09)	
PB Sales Ratio(t) * Large Enterprises	-3.079** (1.36)		6.77*** (0.42)	
PB Sales Ratio(t) * SMEs_middle	0.23 (0.39)		-0.07 (0.12)	
PB Sales Ratio(t) * SMEs_bottom	0.32 (0.41)		-0.14 (0.13)	
PB Sales Ratio(t) * Micro-Businesses	0.34 (0.52)		-0.08 (0.17)	
PB Sales Ratio(t-1)		-0.33 (0.34)		0.18* (0.10)
PB Sales Ratio(t-1) * Large Enterprises		-2.73** (1.36)		6.39*** (0.43)
PB Sales Ratio(t-1) * SMEs_middle		0.32 (0.41)		-0.06 (0.13)
PB Sales Ratio(t-1) * SMEs_bottom		0.31 (0.43)		-0.14 (0.14)
PB Sales Ratio(t-1) * Micro-Businesses		0.33 (0.54)		-0.08 (0.18)
Observations	893	893	263	263
R^2	0.22	0.22	0.67	0.64

Note: 1) All models in Table 6 are controlled for the business period, industry dummy, product category dummy, region dummy. 2) Standard errors are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

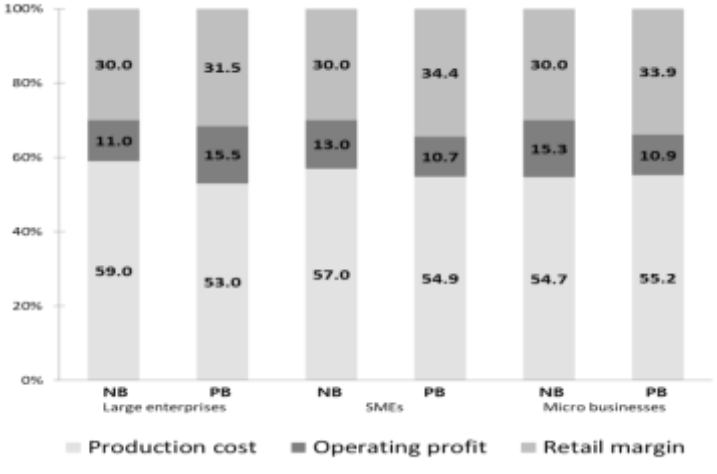

FIGURE 6. NB AND PB: COMPOSITION OF RETAIL MARGINS, OPERATING PROFITS AND PRODUCTION COSTS

Source: Based on data on operating profit per sales, production cost, unit price for supply and list price from the Survey on Manufacturing Establishments (Korea Development Institute, 2016).

TABLE 8—TYPES OF PBS IN COMPARISON WITH NBS

	Response	Percentage
Slight Modification of NB	160	51.8
Package Replacement of NB	81	26.2
Entirely New Product	41	13.3
Others	27	8.7
Total	309	100.0

Note: Based on companies with available data on PB sales.

Source: Data from the Survey on Manufacturing Establishments (Korea Development Institute, 2016).

or through package replacements of NBs (26.2%). Further, 88% of these cases occurred when SMEs and micro-businesses developed PBs. That is, it appears to be less convincing that efforts and costs by retailers are greater for PB development, especially in the case of smaller firms.

Overall, the findings imply that the above profit sharing structure derives from an imbalance in the bargaining position, possibly providing a rational explanation of why micro-businesses exhibited no significant gains in their operating profits, even after their sales volumes increased.

VII. Survey of the Types of PB Development and Unfair Trade Practices

Such aspects of the profit distribution can be linked to the PB development methods. According to Table 9, approximately 31% of manufacturers claim to have converted their NBs to PBs upon the recommendation of retailers (11.7%) or to have supplied products (developed through their own skills and efforts) as PBs (19.7%). These methods of supplying PBs can hinder the self-reliance and competitiveness of manufacturers. Unfortunately, these methods are more frequently adopted by SMEs (32%) and micro-businesses (41%) than by large enterprises (19%).

Even with the development of partnerships with retailers, accounting for the highest proportion, 77% of cases correspond to slight modifications of NB characteristics or a simple change in the packaging form, leading to higher substitutability between PBs and NBs. Overall, these PB development methods can help retailers to gain more profits, but they can also generate a strong cannibalization effect which affects manufacturers.

With respect to unfair trade practices by retailers, 30 (9.7%) out of 309 manufacturing suppliers reported that they had experienced such practices. With multiple answer choices allowed, the most common unfair request was to cut the supply price (20 firms, 34%), followed by the coerced development of PBs (8 firms, 14%), transfers of promotional expenses (7 firms, 12%) and unreasonable returns (7 firms, 12%).

TABLE 9—METHODS OF PB DEVELOPMENT

	Total	Large Enterprise	SME	Micro-businesses
Converting NBs to PBs at the Recommendation of Retailers	36 (11.7)	3 (9.4)	28 (11.2)	5 (18.5)
In-house Development of PBs	61 (19.7)	3 (9.4)	52 (20.8)	6 (22.2)
Development of Partnerships with Retailers	212 (68.6)	26 (81.3)	170 (68.0)	16 (59.3)
Total	309 (100)	32 (100)	250 (100)	27 (100)

Note: Based on companies with available data on PB sales.

Source: Data from the Survey on Manufacturing Establishments (Korea Development Institute, 2016).

VIII. Conclusion and Policy Suggestions

This study finds that the expansion of PBs raises the profits of corporate retailers but insignificantly affects, or in some cases reduces, those of subcontracting manufacturers. This occurs not only because the sales of national brands (NBs) decline due to the launch of similar PBs but also because the imbalance in the bargaining positions of the two parties and potential unfair trade practices have caused retail margins to be set high while manufacturers' operating profits are set low. In this regard, this study suggests the following policy recommendations.

Above all, the PB business should be subject to stricter inspections and monitoring to secure fair market orders. When investigating subcontractor transactions, the Fair Trade Commission should closely examine any violations of the ban on requesting management information of PB manufacturers (Article 11 of the Enforcement Decree of the Act on Fair Transactions in Large Franchise and Retail Business). By remaining involved in the PB development process, retailers may have access to suppliers' management information. Moreover, requests for reduced supply prices, the most frequently chosen item among unfair trade practices, could originate from retailers demanding or gaining access to suppliers' information.

Further, of the surveyed PB manufacturers who reported that they had been coerced into complying with unfair trade practices, 83% admitted to accepting all or some of the requests. Their somewhat tepid stance may be rooted in concerns over profit losses in response to any rejections of retailers' requests. To tackle this, (other than institutional efforts to encourage reporting with improved confidentiality) the Fair Trade Commissions needs to intensify ex-officio investigations and increase the penalty levels for unfair trade practices so as to lower the possibility of the recurrence of such practices.

Meanwhile, SME manufacturers need to step beyond the narrow domestic market into larger PB markets abroad by actively utilizing government support programs. The Private Label Manufacturers Association (PLMA) holds trade shows and exhibitions every year in Amsterdam (May), Chicago (November) and Shanghai (December), where retailers, buyers and PB manufacturers convene to

establish new channels and share product information. However, relatively few Korean manufacturers are aware of these events. Thus, there has been little participation. PB manufacturers must actively utilize government programs such as support for Overseas Distribution Network · Export Marketing (Ministry of SMEs and Startup) and Consumer Goods Specialization · Participation in Overseas Exhibitions (Ministry of Trade, Industry and Energy). At the same time, the government should focus on resolving the difficulties that these firms encounter while taking advantage of such policies and exploring trade partners. If manufacturing firms can successfully advance into new overseas markets and secure sales channels, they will become less dependent on domestic enterprise retailers. In doing so, they will eventually earn a better bargaining position for future negotiations.

Lastly, the research environment needs to be improved so that analyses of the domestic PB industry becomes more active. Prime examples are creating additional subcategories, such as 'PB,' 'NB' and 'Original Equipment Manufacturer (OEM),' under the establishment's sales in Statistics Korea's annual Mining and Manufacturing Survey, or adding separate survey items that can help discern PB sales to the Wholesale and Retail Trade Survey. Further, the Korea Consumer Agency could add convenience stores and SSMs to their current targets—mostly large discount stores—for its survey on PB prices and marks. A shorter survey interval than the current three-year term would also help to improve the practicality and use of research information.[22]

PBs have the potential to serve as a win-win scenario with regard to growth in the retail and manufacturing sectors. However, this can be achieved only when the value-added created during the production and sales processes is distributed via fair negotiations and contracts by market participants. To prevent PBs from being merely another type of subcontract, voluntary efforts by the industry and legal and institutional efforts by the government should be strengthened.

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[22]In the future, PBs will no longer be me-too products, but they are likely to be differentiated from NBs in terms of the product characteristics. What are known as premium PBs will increase. In such a situation, economic analyses of how the characteristics of PBs are affected by the degree of the market power of the manufacturer and the type of distributor, or on how the changes in the characteristics influence consumer utility, will gain more attention. In order to carry out such research, it is necessary to secure micro-data at individual product level.

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