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In-Store v. Online: Examination of Assortments between Storefronts

William King

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by

William Hudson King

Advisor: Professor Robert Stassen

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Sam M. Walton College of Business

University of Arkansas

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Abstract: The purpose of this paper is to present the findings of research conducted to determine if an online storefront has the potential to reduce the amount of dependency on larger suppliers in the supply chain. This research was conducted by measuring the number of SKU's and unique brands present at the locations of three categories of shopping goods across two home center retailers. The results of this research indicate that an online store shows the capacity to increase the variety of brands that a retailer can display and therefore reduce their dependency on suppliers who provide a greater number of SKU's by creating an online storefront and populating it with a wider variety of brands within a product category than are available conventionally.

1. Introduction

Maintaining a variety of products from different brands and suppliers has positive effects for both the customers of a retailer as well as the retailer themselves during interactions with suppliers (Katsuyoshi et al 2016). "Dependence of a buying firm on its supplier… is a function of the motivational investment in goals by the buying firm that is mediated by its supplier and the availability of those goals to other suppliers", according to Nguyen et al (2017) discussing the thoughts of Emerson (1962). A greater level of dependence reduces the bargaining power that a retailer will have, and a lower level of dependence increases the amount of power the retailer has in the relationship. With the prevalence of online retail, the availability of product comparison and outside-the-store purchasing raises questions about the level of influence an online storefront may have on the dependence in a relationship. This study investigates these questions and attempts to understand the impact that an expanded online catalog of brands may have on a relationship, specifically regarding attempting to control the power available to dominant suppliers. One of the primary limitations of a physical storefront is useful retailing space; only so many products can be displayed at a given time, and so products that are more relevant to consumers or present greater revenue are prioritized (Katsuyoshi et al 2016). Large brands that can produce high revenues have the advantage when determining which products will be displayed in a retailer's physical storefront, because space is limited (Rheme et al 2016).

Reducing dependence also reduces the amount of visibility required in a supply chain to effectively manage risks (Nguyen et al, 2017), and increasing visibility into a supply chain may become less viable due to costs when interacting with an increasing number of suppliers. However, there is relatively little research being done involving the impact that an online marketplace can have on the suppliers of shopping goods in terms of buyer-seller dependence. This study is intended to address this topic by looking into the variety of SKU's available online and in-store, comparing the number of brands present at each location, looking at the online best-selling products compared to the ones present in-store, and attempting to discern possible strategies present in the buyer-supplier relationship from the perspective of each retailer.

In an online storefront, the space limitation is greatly reduced, if not eliminated. While it's not typically feasible to effectively display all products in a category on the front page of an online storefront, it is possible to make them available for customers to discover and purchase. This enables a retailer to increase the number of suppliers that they are associating with and the variety of products in a category that they can provide, and to do so without directly interfering with in-store sales or relationships with their primary suppliers.

An online storefront has become a staple for retailers, and now customers often expect to see one with even greater product variety and selection than one would expect to witness at the store (Shoppers, 2017). This trend highlights the growing need for companies to attend to two different expectations with their product selections and category management, but also indicates the opportunity for a merchant to reduce their dependence on certain favored suppliers by creating a broader selection online. This may seem at odds with other schools of thought, as an effective category management strategy that relies upon a category 'captain' has been shown to exist as an effective mechanism for creating and capturing value (Gooner et al. 2011), but this may actually support such an idea given that it may be in the interest of a category captain to include a wider selection of small brands that are incapable of competing directly and instead exist to supplement a catalogue. The main objective of this paper is to examine three different shopping good categories in two home center stores, Home Depot and Lowe's, to determine if the online storefront and the physical storefront product variety and category management is being leveraged to reduce dependence on dominant suppliers.

2. Research

To accomplish this goal, two stores in Fayetteville, Arkansas were visited in February 2018 to gather data on their current inventory and available SKU's of three product categories: riding lawnmowers, built-in dishwashers, and outdoor grills. Images were collected of the products, including their pricing and item descriptions. By cross-referencing this information with the information and product availability of the online storefront, it's possible to determine if a product that is a best-seller online at the time of data collection is present in the physical store.

Retailer	***Grills***	***Riding Lawn Mowers***	***Built-in Dishwashers***
Lowe's Storefront	32	8	27
Lowe's Online	72	74	320
Online / Store Ratio	2.25	9.25	11.85
Home Depot Storefront	22	13	17
Home Depot Online	263	121	106
Online / Store Ratio	11.95	9.31	6.24

Figure 1: Comparison of Online to Physical retailing storefronts. Online storefronts have between two and twelve times as many SKU's in these categories. Home Depot's Grills category has the greatest difference, at 11.95 items online per item at the physical storefront.

Figure 1 provides a clear differentiation between the quantity of product SKU's present in the online storefronts by comparison to the physical storefronts. It displays that while the product quantities for physical storefronts are less than forty in all categories, while all product categories online have over seventy SKU's, with a high of three-hundred-twenty for the Lowe's online store.

This information is important because it highlights the ability for a company to leverage an online platform, where space is effectively endless. By presenting a greater number of product options, it's more likely that a customer will find what they're looking for and decide to make a purchase. Additionally, it appears that each retailer is specializing in a category. Lowe's has a high ratio of built-in dishwashers, indicating that they find this category to be important to their revenue stream. In 2016, appliances made up 11% of Lowe's sales revenue. According to Lowe's 2017 annual report to shareholders, online sales made up 5% of their total sales.

According to Home Depot's 2017 annual financial report, online sales made up 5.9% of their total sales. However, neither report provides category-specific information about online sales.

Home Depot

Their online storefront does not feature products that are not in the best-selling list in a new or distinctive way. The natural presentation of each category is by best-selling and does not offer or show a "Featured" sorting selection. It does highlight special deals, but they are featured at the bottom of the page for the category and are not presented in a way that seems intended to attract attention. This seems to indicate that there is a lack of intent towards managing the relationship with suppliers using this technique.

Fig. 2 – Home Depot Brands by Category

Online	
TOTAL	67
Dishwashers	21
Grills	36
Lawnmowers	10
Storefront	
TOTAL	18
Dishwashers	7
Grills	6
Lawnmowers	5

Figure 2: This shows the number of brands present at Home Depot across the three categories at each location. Six times as many brands are present in the grills category online, compared to the other two categories having only two or three times as many.

Figure 2 highlights the number of brands present at each of the storefronts for Home Depot. Home Depot's online store has the greatest total number of brands across the three categories, more than three times the number of brands present in their store. The comparison shown in Figure 2 implies that Home Depot may be less dependent overall on certain large suppliers, which could lead them to have a greater amount of bargaining power. On the other hand, this could also be due to a single category containing many brands that have relatively lower importance or influence.

In Figure 2, Home Depot's online selection of Grill brands seems to be greatly inflating their number of unique brands. Interestingly, eight of these brands represented only one product each, while another six brands had only two products each. None of these brands were represented in the top 20 products sold in this category in the online store, indicating that while they may be present to provide greater variety and selection, they do not represent a significant quantity of sales or revenue. This greater number of brands could be intended to help by giving the retailer additional leverage and opportunities in negotiation with their larger suppliers, though maintaining a good relationship would obviously be important.

Fig. 3 – Home Depot Grill SKU's by Price Range

Price Range	*Quantity*	*Percent*

$1 - $200	33	13%
$200 - $300	38	14%
$300 - $500	80	30%
$500 - $1000	54	21%
$1000 - $2000	37	14%
$2000+	21	8%

Figure 3: On the x-axis are price ranges that represent the entirety of the grill category. On the y-axis, the quantity of each category is displayed. The distribution somewhat resembles a bell-shaped curve centered on the $300-$500 category.

The grill category in Home Depot's online store seems to be primarily fixed in the $300 - $500 range, and the best-selling product on that platform falls squarely within that range at $349. Interestingly, three of the top ten best-sellers in the category fall within that range, while the ratio of grills in that category compared to the total seems to be exactly equal to that total. 30% of the grills within the top ten best-sellers are in that category, and 30% of the overall number of grills fall within that price range. This seems to indicate that there could be category management that is causing this – by increasing the number of grills that fall within this price range, the odds of a best-selling product being within this higher-value category may increase.

The top 8 selling products seem to adhere closely to the ratios presented in Figure 3 compared to the total – one product fits into the $1-$200 range, one into the $200-$300 range, three into the $300-$500 range, three into the $500-$1000 range, and one into the $1000-$2000 range. It seems likely that the sales of higher-cost items in the $2000+ range have been subsumed by the items present in the $500-1000 range, likely because they are more likely to be outside the desired customer budget. Nevertheless, they are an important part of the category because they represent the level of quality that a retailer would need to be able to provide to the market to maintain their reputation as a respected seller.

Fig. 4 – Home Depot Grill Brand SKU’s by Location

Brand	*Online SKU's*	*Physical SKU’s*	*Ratio*
Weber	66	6	0.09
Nexgrill	27	7	0.26
Dyna-Glo	24	6	0.25
KitchenAid	16	1	0.06
Royal Gourmet	16	0	0
Napoleon	19	0	0
Huntington	7	0	0
Cadac	6	0	0
Capital	6	0	0
Monument Grill	6	0	0
Camp Chef	5	0	0
Smoke Hollow	5	0	0
Vision Grill	5	0	0
Blackstone	4	0	0
Char-Griller	4	1	0.25
Evo	4	0	0
Fervor	4	0	0
Kenmore	4	0	0
Aussie	3	0	0
Fuego	3	0	0
Magma	3	0	0
Brands with 2 or fewer SKU's	20	1	0.05

Figure 4: This table shows the number of SKU’s that each brand has present in the Home Depot online storefront in the Grill category. Weber has the largest amount, with 66 SKU’s. Brands with fewer than 5 SKU’s make up 64 of the total SKU’s, rivaling Weber’s dominance.

Figure 7 supports the idea that the smaller brands in Home Depot’s online store may be present as a balance against the dominance of a single supplier. While Weber clearly has the lion’s share of the market (making up 4 of the 8 best-selling products in the online storefront), removal of their products from the catalogue would not completely ruin Home Depot’s ability to maintain their supply. Home Depot’s insistence on maintaining a larger variety and selection of grills, especially by including smaller suppliers, is likely to give them an edge in the outdoor grilling market. Because of their increased selection, they’ll have an easier time maintaining relationships with their suppliers and avoiding unfavorable negotiations because they are not entirely reliant on any one supplier. Even if they were to lose both Weber and Nexgrill – their two largest suppliers – either through accident or by damaged relations, they would still have other options for suppliers. However, when looking at these numbers in the context of their physical storefront, this assessment does not hold. Their level of representation in the physical store is high enough that removal of these suppliers would cripple their current selection and force them to contact other suppliers from a position of weakness, indicating that while they may be attempting to reduce their supplier dependence via an online store, they lack the ability to support such a move in practice.

Fig. 5 – Home Depot Dishwasher Brand SKU’s Online

Brand	*Number of SKU's*
GE	90
Whirlpool	41
KitchenAid	31
Frigidaire	27
LG Electronics	16
Samsung	16
Maytag	7
Amana	5
Hotpoint	5
Summit Appliance	4
Brands with 2 or fewer SKU's	15

Figure 5: This table shows the number of product SKU’s associated with each supplying brand for built-in dishwashers at the Home Depot online store. General Electric has the greatest number, at 90, while brands with 2 or fewer SKU’s make up only 15 SKU’s.

Figure 5 demonstrates that Home Depot’s strategy of including many smaller brands to supplement their bargaining power is consistent, though to varying degrees of effectiveness and enforcement. Compare this to Figure 7, where the largest brand makes up about 1/4th of the total number of SKU’s – in this category, the largest brand makes up about 1/3rd (35%) of the total. When looking at the top 9 best-selling products, four of them are supplied by GE. However, a disproportionate number of products in the best-selling list are supplied by Whirlpool, who also can lay claim to three of the top nine best-selling products despite having half the level of SKU representation that GE does. The remaining two are supplied by KitchenAid and Maytag – the former having a sufficient number of product SKU’s to be unsurprising, but the latter only possessing 7 (3%) products on display, makes for a strong contrast.

Fig. 6 – Home Depot Dishwasher Brand SKU's by Location

BRAND	ONLINE SKU'S	PHYSICAL SKU'S	RATIO
GE	90	5	0.055
WHIRLPOOL	41	3	0.073
KITCHENAID	31	2	0.064
FRIGIDAIRE	27	0	0
LG ELECTRONICS	16	1	0.062
SAMSUNG	16	3	0.187
MAYTAG	7	1	0.142
AMANA	5	1	0.2
HOTPOINT	5	0	0
SUMMIT APPLIANCE	4	0	0
BRANDS WITH 2 OR FEWER SKU'S	15	0	0

Figure 6: This chart shows a comparison between the total amount of SKU's of a brand available on the Home Depot online storefront, and the quantity available in the physical retailing location. A higher ratio means that the brand has a greater percentage of its SKU's available in the store. Amana, despite having only one SKU available in the store, only has 5 SKU's online, giving them the highest ratio of representation.

Figure 6 shows evidence of category management and brand decision-making in the Dishwasher category of the Home Depot online storefront. Amana, a brand that has very few SKU's, appears to be present in-store despite other larger brands being left unrepresented. General Electric, which has the greatest number of SKU's, is not represented at the same degree in-store as it is online. However, when compared to be best-selling list, Amana appears 10th in the list, while Maytag, another that has high representation, appears 2nd. Samsung does not appear until 17th on the online best-selling list, appearing to be the truly disproportionately represented product on this list.

Fig. 7 – Home Depot Riding Lawn Mower SKU's by Location

Brand	*Online SKU's*	*In-Store SKU's*	*Ratio*
John Deere	32	4	0.125
Cub Cadet	25	4	0.16
Poulan Pro	10	2	0.2
Yard Machines	1	0	0
Toro	23	2	0.087
Swisher	15	0	0
Ariens	14	1	0.071
Beast	6	0	0

Figure 7: This table displays the number of items present in each brand for the Riding Lawn Mowers category. The ratio describes the number of items present in the store compared to the number of items present online. A higher ratio means a greater percentage of items from

the online store are present in the physical store. Poulan Pro has the highest level of representation, and 0.2 items in store per item online.

Figure 7 shows the number of items present in the Riding Lawn Mowers category. In this category, it would be possible for Home Depot to leverage the variety of their suppliers to gain additional bargaining power during negotiations. Poulan Pro has the largest ratio of representation in this category. Given that Beast and Yard Machines have far fewer SKU's than the other brands, it's likely that they are serving niche markets and are included as additional variety pieces rather than genuine competitors to the larger brands.

Lowe's

Lowe's online storefront does feature specific brands and products and has a "Featured" list available that differs from their "Best-Selling" list. When this data was collected, their "Featured" list highlighted products that were not present at the top of their best-selling list and were from brands with lower SKU representation. This seems to support the idea that they are leveraging their online storefront to highlight these brands and may be using this technique to drive sales in their direction. If they are, then it is possible that this is deliberate and intended to reduce their dependence on larger suppliers.

Fig. 8 – Lowe's Brands present by Category

Online	
TOTAL	31
Dishwashers	12
Grills	13
Lawnmowers	6
Storefront	
TOTAL	17
Dishwashers	8
Grills	6
Lawnmowers	3

Figure 8: This shows the number of brands present at Lowe's across the three categories at each location. Lowe's has about twice as many brands available online, despite having many more SKU's present in each category.

This chart highlights the fact that Lowe's does not have a wide base of brands making up their list of suppliers. They have approximately twice as many brands present in these categories online, even though there is effectively unlimited space for product presentation in this channel. Combined with the fact that they are willing to feature certain products and brands on their online storefront, this supports the idea that Lowe's may be deliberately choosing to employ a technique where they use their online storefront to maintain leverage over certain suppliers.

Fig. 9 – Lowe’s Grill Brand SKU’s Present by Location

Brand	*Online SKU's*	*Physical SKU's*	*Ratio*
Weber	84	9	0.11
Broil King	49	0	0
Char-Broil	33	12	0.36
Masterbuilt	15	0	0
PGS	12	0	0
Ultra Play	7	0	0
Char-Griller	6	6	1
Sunstone	5	0	0
Brands with 4 or fewer SKU's	39	5	0.13

Figure 9: This table shows the number of SKU’s that each brand has present in the Lowe’s online storefront in the Grill category. Weber has the largest amount, with 84 SKU’s. Brands with fewer than 4 SKU’s make up 39 of the total SKU’s, making up a decent part of the market and being more well-represented than Weber.

Figure 9 shows that Lowe’s online storefront possesses a greater number of SKU’s than their physical storefront, as one might expect. The interesting thing to note is that certain brands seem to be favored strongly in their representation. Broil King, despite having 49 SKU’s in the online store, is completely absent from the physical location. Char-broil, despite having fewer SKU’s in the online store, has a greater representation ratio than Weber. The most distinctive thing about this category to note is that Char-Griller has perfect representation at the physical storefront: every single SKU that is present online is available for purchase in-store. This seems to indicate strong favoritism towards this brand and may represent a way of keeping Weber in a less advantageous position since they are the prime supplier by SKU count online, or to showcase a brand that offers more distinctive and unique products.

Fig. 10 – Lowe’s Built-in Dishwasher Brand SKU’s by Location

Brand	*Online SKU's*	*Physical SKU's*	*Ratio*
Bosch	67	3	0.04
Whirlpool	45	4	0.09
Frigidaire	21	5	0.24
GE	85	5	0.06
KitchenAid	29	3	0.10
Samsung	14	5	0.36
Maytag	7	0	0
LG	18	1	0.06
Electrolux	2	1	0.50
Hotpoint	5	0	0
AGA	18	0	0
Haier	1	0	0

Figure 10: This table shows a comparison between the total amount of SKU’s of a brand available on the Lowe’s online storefront and the quantity available in the physical retailing location in the Built-in Dishwasher category. A higher ratio means that the brand has a

greater percentage of its SKU's available in the store. Samsung has a high ratio despite having a relatively low number of SKU's.

Figure 10 shows the Dishwasher category has a relatively even representation in the storefront despite having a higher level of differentiation in the online store. This seems deliberately leveraged to offer customers a wide variety if they are unsatisfied with the offerings in-store, providing advantage to brands that can offer a high number of SKU's online but maintaining equal footing in the storefront. This does indicate that the loss of a single large supplier would be less damaging to the retailer than in other categories and could provide them with an edge in terms of dependency.

Fig. 11 – Lowe's Riding Lawn Mower Brand SKU's by Location

Brand	***Online SKU's***	***Physical SKU's***	***Ratio***
Husqvarna	21	3	0.142857
John Deere	17	4	0.235294
Troy-Bilt	17	1	0.058824
Ariens	10	0	0
Hustler	7	0	0
Swisher	6	0	0

Figure 11: This chart shows the number of SKU's present for each brand within the Lowe's online store and physical storefront for the riding lawn mowers category. The three brands with the greatest number of SKU's are represented in the physical storefront, but the three smaller brands are not represented.

Lowe's has taken a balanced approach to their supply base. Despite the smaller number of suppliers that they're getting their products from in the riding lawn mower category, there is relative balance between the three larger and three smaller suppliers. This shows evidence of category management, because by relying on three major brands, Lowe's will be able to effectively play each off the other two during tense negotiations. Additionally, the three smaller brands provide a much-needed buffer between Husqvarna, John Deere, and Troy-Bilt. However, the physical storefront seems to indicate some favoritism towards John Deere, as they have a much higher ratio of representation and the greatest number of SKU's present, despite being tied for second in total numbers.

3. Conclusions

Home Depot and Lowe's both show evidence to support the hypothesis that they are leveraging their online storefronts to retain advantage in their relationships with their suppliers, though the effectiveness of these attempts bears further exploration in future studies. Given that each retailer's online store only accounts for a small portion (~5%) of their revenue, it is less likely that the online sales are sufficiently impactful to dramatically shift the effective power of a supplier in the category. However, it is also possible that in certain categories that provide services that are highly subjective and subject to the tastes and preferences of the customer, such as the Grill category, having a wider variety of suppliers may help to keep larger suppliers from obtaining an advantage. Home Depot's online storefront does not seem equipped or specialized towards displaying featured brands and products that differ from the best-selling list, and they tend to have a single supplier in each category that offers the majority of the SKU's.

This study is not without limitations. Data collection online was performed one month after data collection in-store and may have slightly influenced the number of products present. Additionally, the specifics of online sales per category remains unaccounted for in this study. If a category makes up a greater percentage of online revenue than is proportional to the in-store revenue, then having a greater variety of brands online would more effectively increase the retailer's power and reduce their dependence. If it makes up a lesser percentage, then the effects of supplier variety would be mitigated. Finally, the information is limited to one physical store for each retailer and those stores may not be entirely representative of all physical storefronts for these retailers in these categories. Local competition may skew the assortments present at these stores, though this is unconfirmed as this varies by product category in the consumer packaged goods assortment listings, which none of these three categories are present within (Hwang et al 2010, Stassen et al 1999).

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