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Game of Sofas: Furniture Sales in Menomonie, WI

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Abstract

In December of 2016, Slumberland opened its doors in Menomonie, WI thereby increasing the level of competition in a relatively small market. In this paper, the furniture market of Menomonie, Wisconsin is analyzed. Local firm level data is used to measure the intensity of competition, parity of sales, and market power. Examining pricing techniques employed by the firms, an outlook on future furniture sales and contemporary issues are also discussed. This analysis provides insights about contemporary and future competition in Menomonie furniture market. The findings suggest that the newest entrant in the Menomonie furniture market has become the largest local provider of furniture sales and utilized advantageous price techniques. It is estimated that Slumberland is currently responsible for 60% of local furniture sales and is also able to maintain the largest mark-up on their products. These results indicate that Slumberland has obtained a dominant position with respect to market share and market power. However, online furniture sales continue to increase, which could impact physical retail stores due to their operating costs.

Keywords: Furniture sales, local competition, HHI, price anchoring

1. Introduction

Furniture is a key aspect of everyday life that builds and influences the spaces around us. Often it is used for decoration or to fill space, but most importantly it is to be physically interacted with. Most consumers will navigate the furniture market at least once, if not multiple times, in their lives. Furniture is often a major expenditure for consumers and as a result, furniture stores have a significant impact on consumers' budget and access to specific products. This paper analyzes the furniture market of Menomonie Wisconsin, as well as examines the outlook of the furniture industry and contemporary issues facing the industry.

As of 2018, the U.S. furniture store industry is comprised of 29,457 firms. The Midwest (states in the "Plains" and "Great Lakes" area in Figure 1) accounts for 15% of the of the national market. Wisconsin and Minnesota combined only make up

2.6% of the national market, containing close to 383 firms each (Palmer, 2017). The firms located in Menomonie make up about 0.01% of the National market and about 0.78% of the market in Wisconsin. Figure 1 provides: 1) the location of three firms that make up the Menomonie furniture market and 2) each state's share of national furniture sales. This analysis focuses on local stores that exclusively sell furniture, which excludes department stores like Walmart and Mills Fleet Farm. For this market analysis, department stores do not compete directly with furniture stores due to their quality and variety. Focusing on stores that locally sell and deliver assembled furniture, quality is indicative. Also, when comparing the quantity of furniture displayed in-store, variety is essential in comparing competing and non-competing firms.
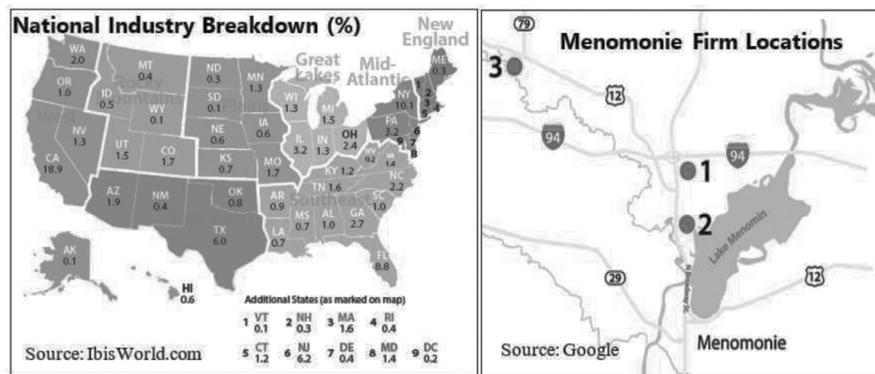

Figure 1. Furniture sales as proportion of National sales and Furniture firm locations in Menomonie, WI. Firm locations shown: 1 - Slumberland Furniture, 2 - Furnish123, and 3 - Rassbach's Furniture.
Source: Palmer (2017) Ibisworld.com and Google.

2. Local Firms and Products

To better understand the local furniture market, this section begins by examining each firm currently operating in Menomonie. Sales, clientele, product offerings, prices and discount offerings were collected directly from the company at individual branch locations in person. This data will be used to directly compare the competition in the market and calculate market power.

Rassbach's was the first to enter the Menomonie market in 1969. This store is family owned and located about five miles northwest of downtown Menomonie. This location is the second largest of the three firms that will be analyzed, housing 30,000 sq. ft. of space, and offers brands that include: Best Home Furnishings, Best Craft Furniture Inc., Wolfcraft Furniture, Lane Furniture, Flexsteel, Franklin Corporation, Marshfield Furniture, Spring Air, and Restonic. Based off manufacturers wholesale pricing and distribution in the furniture market, their estimated markup is to be

between 30% and 40%. Collecting floor discounts and tracking sale prices, the average discount calculated on sale items came out to be about 18.50%. Rassbach's also provides additional services including delivery and financing. Their delivery service starts at a base price of $40.00 and increases with distance. Their financing consists of a 90 day no interest loan.

Furnish123 opened in 2010, located on North Broadway Street in Menomonie, as one of three privately owned stores. This store has the smallest physical presence of the three stores examined, at only 13,000 sq. ft. Ashley Furniture is the main brand found at this location, other brands include: Signature Design by Ashley, Sierra Sleep, Serta, Mild America Bedding, Millennium, Howard Miller, Catnapper, International Furniture Direct LLC, Jofran Inc., Klaussner Home Furnishings, Marshfield Furniture, Jackson Furniture, and Benchcraft. The markup is estimated to be between 30% and 50%, with a calculated average discount of 23.91%. Furnish123 focuses on a specific clientele (college students and new residents), and also provides delivery services and a financing plan. Their delivery fees start at $49.00 and they offer a 12 month, no interest financing option.

In December of 2016, Slumberland opened its doors in Menomonie. Slumberland is different from the other stores due to its corporate ownership. Headquartered in Minneapolis, the company is comprised of over 125 locations in 12 states across the Midwest. Out of those 125 stores, Menomonie's ranks in the top five in size, having close to 35,234 sq. ft. The company is the largest seller of La-Z-Boy furniture in the nation. Other brands include: Broyhill, Reverie, Kodiak Furniture, Legends Furniture, Hughes Furniture, Modus Furniture, Dimensions, Overman International, Futura Leather, Franklin Corporation, Powell Home Fashions, Bauhaus Furniture, Sealy Mattresses, Beautyrest and BeautySleep Mattresses, Tempur-Pedic Mattresses, and Stearns & Foster Mattresses. The estimated markup is to be between 30% and 60%. The average calculated discount is 54.04%, suggesting that their markup may be to already discounted price, rather than the listed suggested retail price. Another word for this type of sales, is *price anchoring*[1] . Price anchoring makes it difficult to estimate actual markups and discounts, so for calculation purposes, all markup calculations will be to Slumberland's discounted price rather than to their suggested retail price. Slumberland also provides a delivery service and financing option. Shipping is $59.00, and if requested, there is $100.00 service fee to install the furniture. Slumberland also offers a 36 month, no interest financing option.

In general, the furniture industry is fairly mature and the products offered can be segmented in to four categories, dining room furniture, bedroom furniture, living room furniture, and other (Palmer 2017, p. 13). Figure 2 provides a break-down of furniture sales by product type. Dining room furniture makes up 13.8% of industry,

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1	Setting suggested retail price above consumers estimated price point, so when discounted, the product value increases, giving consumers "a deal".

and consists of dinner tables, chairs, sideboard cabinets, serving carts, bar stools and wine storage units.
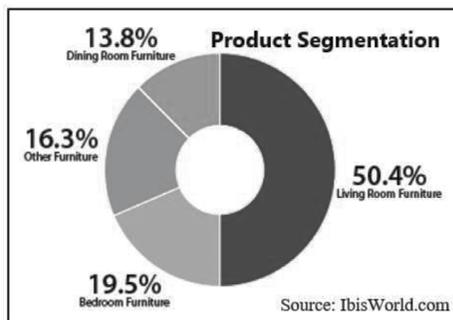

Figure 2. National furniture sales by product type.
Source: Palmer (2017) from Ibisworld.com

Bedroom furniture accounts for 19.5% of the market and includes beds, headboards, dressers, chests, armoires, bed benches, bookcases, chairs, vanities and nightstands. Mattresses, box springs, cots and waters make up the majority of revenue for this segment. Living room furniture, which is the largest segment at 50.4%, includes coffee tables, sofa tables, end tables, sofas, loveseats, chairs, bookshelves, ottomans, display cabinets, consoles, and TV stands. This segment also includes dual-purpose furniture, such as sleep sofas, daybeds and futons. The "Other" segment is comprised of office furniture, infant furniture, outdoor furniture, and decorative goods making up 16.3% of the industry (Palmer, 2017, p. 14).

3. Competition and Concentration Measurement

This section examines the level of competition concentrated between the furniture stores in Menomonie. Concentration is low due to the limited number of firms. Based off the characterization of each firm, and the assumption that each firm is selling comparable furniture, estimated sales is used as a proxy for output[2]. Estimated sales for each firm were collected in store, in person. The data collected shows Slumberland has the largest share of sales in the market at 60%, followed by

Firm (N)	Estimated Sales	% of Market	Cumulative %
1. Slumberland	3,000,000	60%	100%
2. Furnish123	1,100,000	22%	40%
3. Rassbach's	900,000	18%	18%
Total:	5,000,000	100%	

Table 1. Market share of sales for firm in Menomonie, WI.

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2   The level of vertical integration (which is discussed later) may affect the appropriateness of this proxy.

Furnish123 at 22% and Rassbach's 18%, respectively. Table 1 provides firms' estimated furniture sales and calculates their market share by dividing their individual sales by overall sales in Menomonie.

This provides evidence Slumberland is the dominant firm. However, industry parity can be measured by utilizing the Lorenz Curve and Gini Coefficient to examine market equality between firms. The Lorenz Curve requires first ranking firms from smallest to largest in terms of each share of sales, then plotting cumulative output as a share of cumulative population, starting with the smallest firm and adding the next largest. This approach has the benefit of showing the equality or inequality of market sales. Figure 3 provides the estimated Lorenz curve for furniture sales in 2018, which shows relative parity for furniture sales in Menomonie.
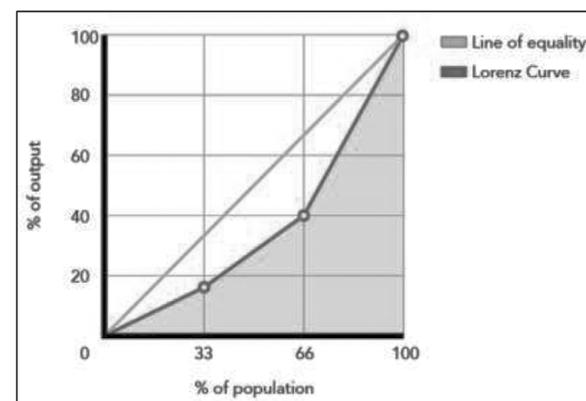

Figure 3. Lorenz curve for furniture sales in Menomonie, WI (2018 est.)

One additional benefit of finding the Lorenz curve is the ease of calculating the Gini Coefficient, which provides a numerical measure of the Lorenz curve. As mentioned by Gastwirth (1972, p. 306), the Gini Coefficient is the "single best measure of inequality." The Gini Coefficient calculates the area under the Lorenz curve, where each firm having the same amount of sales would yield the line of equality, illustrating complete parity and yielding a value of 5,000. If a single firm controlled all sales, then all other firms would have 0% of sales and the GINI coefficient yields a value of 0 (or close to it). An alternative method for calculating the Gini Coefficient from sales or output information is given by the following equation:

$$Gini = \frac{1}{N}\left(\sum_{i=1}^{N}\frac{q_i}{2Q} + \sum_{i=1}^{N-1}(N-i)q_i\right)$$

Q represents overall industry sales or output, and N represents the number of firms in the industry. Using the results from the Lorenz curve, the Gini coefficient yields a value of 3600. Relative to the extreme values of 0 and 5,000, the Gini Coefficient indicates that furniture sales in the Menomonie exhibits more parity.

Another competition measure commonly used in the industrial organization literature is the Herfindahl-Hirschman index (HHI). Relative to the Gini Coefficient, the HHI is more effective in measuring the size of firms, relative to the size of the industry, and is commonly used in anti-trust cases and competition law. The HHI scores an industry based on relative competition, thus identifying whether a market tends to operate more like a monopoly or a competitive market. The HHI provides a measured between $0 \leq HHI \leq 1$, with 0 representing pure competition and 1 representing a monopoly. As discussed by Michelini and Pickford (1985, p. 301), the Herfindahl-Hirschman index is computed as follows:

$$HHI = \sum_{i=1}^{N} \left(\frac{q_i}{Q} \right)^2$$

The HHI calculation for the Menomonie furniture market yields a value of .4408, and relative to the extreme values of 0 and 1 the HHI indicates that competition in the Menomonie furniture market is fairly imperfect. One reason that the HHI may differ from the Gini coefficient is that it accounts for market share as well as firm size.

As for competition, it is important to take into consideration average discount rates and the quality of furniture each firm provides. As prices and qualities range for all types and brands of furniture, product differentiation is important. Simon Todd (2014) describes the furniture market by comparing it to the automotive industry with its vertical product differentiation. With the qualities described in this article, none of the stores described in this analysis carry top-tier furniture. Available brands start showing up down the line, being described as "mid-range brands." Slumberland and Rassbach's have the highest number of these brands and products, putting them in more direct competition for higher-end furniture. Brands that are sold in this level are Broyhill, Catnapper, Flexsteel, and La-Z-Boy. These brands are dependable and popular in the mainstream consumer market (Todd, 2014). Although Furnish123 offers other brands, having Ashley Furniture as the main supplier of this firm puts them in the lower end for ranking in quality furniture. As described by Todd (2014), Ashley Furniture's furniture is very affordable, but not as long lasting or of great value. Furnish123 offers furniture that puts them in a niche market relative to other firms in Menomonie, with lower prices and advertising around town, they can easily target college students and newer residents.

4. Market Power

In this section, each firm's ability to influence prices is examined. Firms' abilities to influence prices better represents a firm's ability to impact a market and gauge their market power. Firms that can charge a premium for products, not only increase profit, but generally attract competition. Therefore, a firm's ability to maintain a higher premium on their products can signal market power. Having sales on specific items to undercut competition is a key way that firms compete and attract consumers away from rival's higher priced products. Therefore, the size of these discounts can also indicate a firm's market power, depending on the initial price. For example, Slumberland's average discount is 54.04%, providing a potential sign about its market power. However, even with these discounts, the prices are comparable to those of Rassbach's, making it reasonable to conclude that the markups on Slumberland's products are to the already discounted price, rather than the listed suggested retail price, recalling the earlier assumption that Slumberland uses a price anchoring strategy.

Product markup measures the premium over the costs of production and is a useful indicator of market power, as discussed by Lerner (1934). Each firm's estimated markup was obtained from wholesale manufacturers. From their information, Rassbach's estimated average markup of 40%, while Slumberland and Furnish123 have an estimated average markup of 50%. The Lerner Index (LI) measures a firm's ability to price over marginal cost and gives a sense of the firm's market power. The following formula is used to calculate the Lerner Index:

$$LI = \frac{(Price - Marginal\ Cost)}{Price}$$

The LI yields values between $0 \leq LI \leq 1$, and as values of the LI go to 1, it signifies an increase in a firm's market power. Using the average markup to calculate firms' marginal cost (MC), the Lerner Index can be easily calculated for different products. The average of the three product indexes is used to obtain a representative LI value for each of the firms. To account for product differentiation, markup calculations are considered from three separate products: sofas, recliners, and dining room sets. The marginal cost is calculated by subtracting the firm's markup from the suggested retail price.

$$LI = \frac{List\ Price - (Suggested\ Retail\ Price - Markup)}{List\ Price}$$

This estimate should be a robust measure of market power since it accounts for markup costs, product discounts, suggested retail prices, and actual list prices. While this form deviates from the form first discussed by Lerner (1934, p. 161), it mirrors those discussed by Liebowitz (1982, p. 233)[3]. For the calculations provided in table 2, price is derived from the actual listed price, while the marginal cost is derived from the suggested retail price and markup, except for Slumberland, whose markup is based on their already (discounted) list price, and not to their suggested retail price.

My calculations of the Lerner Index indicate that Slumberland matches their

Firm	Sofas	Recliners	Dining Room Sets	Average
Slumberland	.50	.50	.50	.50
Furnish123	.363	.370	.360	.364
Rassbach's	.271	.259	.40	.31

Table 2. Lerner index breakdown by product type.
Prices for Sofas – Slumberland (Kensington Collection) – Furnish123 (Breville) – Rassbach's (Flexsteel).
Prices for Recliners – Slumberland (La-Z-Boy Pinnacle Collection) – Furnish123 (Capehorn) – Rassbach's (Flexsteel)
Prices for Dining Room Sets – Slumberland (Enzo Collection) – Furnish123 (Larchmont) – Rassbach's (Unknown)

average markup at 0.50. This suggests that Slumberland has the largest amount of market power out of the three competing firms. Furnish123 has the second largest market power at a LI of 0.364, and Rassbach's with the least market power with a LI of 0.31.

The Lerner Index has additional uses. With market power quantified for each of the three firms, the responsiveness of their respective consumers can also be measured. As shown by Saving (1970, p. 140), the price elasticity of demand (eD) can be easily derived from each firm's LI value as follows:

The responsiveness of consumers to price changes is an important factor

$$e_{P,D} = \left| \frac{-1}{LI} \right|$$

in any market. Consumers with a greater desire for specific products allows firms to charge higher prices, unless sufficient competition is present to undercut any premiums. Price elasticity of demand measures consumer price sensitivity; values

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3　　Mark-up usually refers to the additional amount added over cost, which is somewhat ambiguous. Lerner utilizes marginal cost in this analysis which often unknown to businesses. Leibowitz' use of average variable or average total cost is most appropriate for our uses.

less than one imply rigidness on behalf of consumers. This means an increase in price yields little change in the number of units sold. On the other hand, values above one imply more sensitivity on behalf of consumers. The higher price of demand elasticity, the more consumers respond to changes in price. Firms with lower price elasticity relative to other firms can effectively increase their prices without affecting the number of units they sell (Johnson, 1967).

Firm	Lerner Index	Price Elasticity of Demand ($e_{P,D}$)
Slumberland	0.5	2
Furnish123	0.364	2.747
Rassbach's	0.31	3.226

Table 3. Demand elasticity by firm

Firms with more inelastic demand can, consequently, more effectively raise prices to increase their profits. Therefore, price elasticity of demand is a useful tool to measure market power because it shows what firms can increase their prices with the least effect on the number of units they sell[4]. Table 3 provides the price elasticity of demand for each firm and the calculations show that out of the three firms, Rassbach's demand is the most elastic, indicating that their consumers are the most sensitive to price changes, while Slumberland's price elasticity of demand has the smallest value, indicating that their consumers are the least sensitive to price changes. This also reinforces our earlier findings that Slumberland has the most market power.

5. Industry Outlook and Volatility

Volatility in the furniture stores industry is rather low. The industry is sensitive to economic changes and housing market trends. As discussed by Mutikani and Ricci (2018), "More confident U.S. consumers point to stronger spending as the year begins." Unsurprisingly, the furniture market generally follows changes in the consumer opinion, housing markets, and U.S. economy, as well as disposable income, which play in important role in consumer spending. In order to gauge how furniture sales have changed in recent years, consumer sentiment, local unemployment, and local homeownership rates are examined to incorporate factors outside furniture market.

Consumer sentiment represents consumer perspective about the current

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4　　Additional caveats exist when using the Lerner Index and price elasticity of demand to measure market power as discussed by Pepal et al. (2014), such as the role of scale, scope, and overhead costs. This analysis is between firms in similar markets which reduces some (but not all) of these concerns.

and future economic climate and plays an important role in consumer spending. National data along with local data will help gauge the forecast of this market. Figure 4 provides national consumer sentiment since 2000. As of April 2018, consumer confidence was at 128.7 (The Conference Board, 2018), indicating strong level of confidence which has continued to grow since the second half of 2015. Generally, a stronger consumer confidence leads to a stronger U.S. economy, and therefore a stronger furniture market.
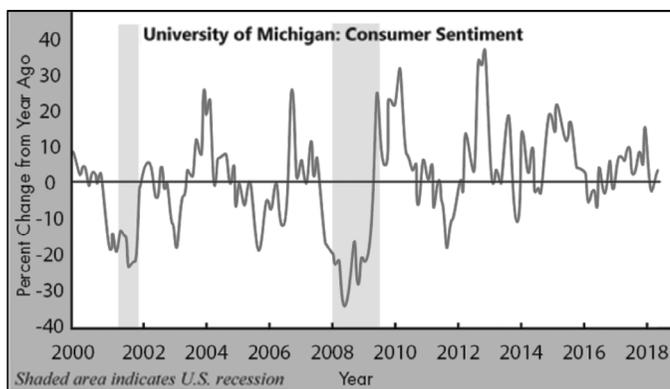

Figure 4. Consumer Sentiment
Source: University of Michigan

The industry's forecast is looking positive. As shown in Figure 4, consumer sentiment is increasing, showing consumers' confidence in the U.S. economy. Although this consumer sentiment takes in to consideration national data, it focuses on how citizens feel about the economy. A strong national consumer sentiment may signfy that consumer confidence in the local economy is also high. With the positive outlook on the economy, per capita disposable income is likely to increase (Palmer, 2017, p. 5). These national economic indicators can be useful up to a point, but local economic conditions are more informative for our purpose.

Unemployment is one of many economic indicators used to determine the health of an economy, and while unemployment doesn't perfectly represent income or consumer confidence, lower unemployment indicates a strong local economy. As shown in figure 5, Menomonie has recently had relatively low unemployment, with a spike during the financial crisis. Since 2010, unemployment in Menomonie has continued to decrease.

Looking at the unemployment as an economic indicator, it's not surprising that Furnish123 arrived in Menomonie in 2010. Generally, higher education enrollment increases during economic downturns. Given Furnish123's target demographic, college students, their consumer base increased following the financial
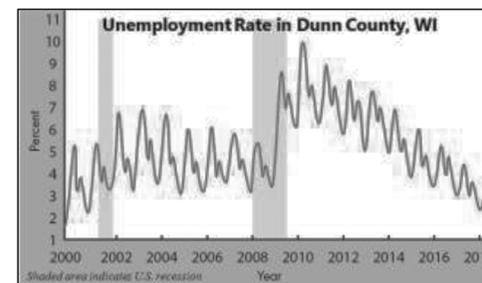

Figure 5. Recent unemployment rate in Dunn County, WI
Source: U.S. Bureau of Labor Statistics

crisis. In the fall of 2010, UW-Stout enrollment increased to a then record of 9,339 students. A year later, in the fall 2011, it broke that record high, with a student enrollment of 9,357 (UW-Stout, 2011). The continual decrease of unemployment and the eventual arrival of additional competition (Slumberland) may be due to the health of the local economy.
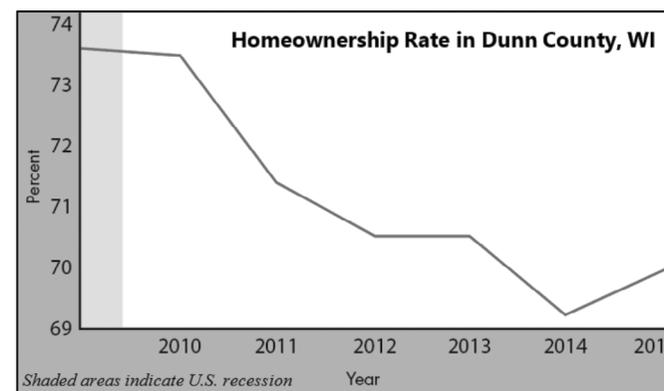

Figure 6. Home Ownership rate in Dunn County, WI

Home ownership is also an important economic indicator in the furniture market. Figure 6 shows the homeownership rate in Dunn County,[5] WI, and although homeownership is low right now, the percent of legal ownership is much higher. "The United States actually has more homeownership, in economic terms, than it did when the homeownership rate, a measure of mere legal ownership, was higher. Accordingly, the economy should also be less vulnerable to another real estate shock" (Lane, 2016). Examining local ownership rates provides additional insights about the local real estate market which will affect both current and future furniture sales. With this strengthening the U.S. economy, the graph is also showing a growth in homeownership since 2014. This growing homeownership should have positive

5   The homeownership rate in Dunn County, WI is only available after 2009.

effects on furniture sales in years to come.

Other external drivers are the price of raw materials and demand from big box stores. The price of materials can affect the final price of a product and the price of sawmill lumber is projected to rise, which would increase the production costs of furniture. Recent tariff increases on wood, metal and textiles will also affect production costs. This means sellers will not be able to sell the same quantity at the same price. Big box stores have the ability to sell large amounts of furniture at greater discounts, highlighting the importance of scale in furniture manufacturing and distribution. According to the Furniture Stores in the US Industry Report, the supercenters and warehouse clubs industry is expecting to grow, possibly threatening the furniture stores industry. The relative closeness of Menomonie to Minneapolis and Eau Claire may affect this market as larger physical locations attract local consumers. Due to the proximity of stores in this area, consumers will have the opportunity to look elsewhere for furniture.

6. Contemporary Issues

Other issues surrounding the furniture stores industry involve technology, innovation, and the changing demographics of consumers. A main point of interest is online retail. According to Engel (2017), a Senior Retail Editor for *Furniture Today*, 13% of all furniture sales in 2014 were done online, double of what it was in 2012. This means that the need for a brick-and-mortar stores is declining. One large advantage of online retailers is their ability to save money by not having a physical inventory or lease (Palmer, 2017, p. 23). Not having these expenses makes it possible to sell furniture at cheaper prices. Also, with the rise of online stores, free shipping may be an option. This puts same priced products in direct competition with one another, having the buyer choose between delivery costs.

Another contemporary issue is the advancement of technology within furniture. As innovation continues, the need to plug in furniture will increase. Incorporating electricity to everyday items and creating smart-products may change the way houses are built. Adding to the number of outlets that are typically in one's living room may be something society starts to see in the future. With smart-products or "smart-furniture" we may see in the future, furniture may have to be programmed or may have to learn behavior patterns of the people using it. This advancement of technology is something that is happening in other sectors and one that is starting to make its way in to the furniture industry.

Consumer demographics also have a significant impact on the sale of furniture. As shown in Figure 7, 30% of consumers are 34 or younger (Palmer, 2017, p. 16). As this demographic starts to become homeowners, there will be a rise in share of these age groups. According to a report done by Stephanie Nickell (2014), 36% of those 35 and younger are choosing to remodel to increase resale value. "In

the next few years, 41% of homeowners have remodel plans, compared with 11% reporting they will purchase a new home, according to the latest survey from Palo Alto, Ca.-based Houzz" (Nickell, 2014). The growing sizes of homes means new furniture to fill these spaces. As Generation X and Millennials move into the market, trends are changing. "Generation X is buying from the regional chains, moving from independents which the Baby Boomers prefer" (George, 2017). In addition, buying online and from magazines is becoming more common with the younger generations.

Figure 7. Furniture market consumer makeup by age
Source: Palmer (2017) from Ibisworld.com

7. Conclusion

At first look, the furniture market in Menomonie looks fairly competitive, with concentration looking fairly equal. Breaking down the competition, Slumberland and Rassbach's are more in direct competition with one another, selling similar quality products, at more similar prices. Taking a closer look at these firms' market power, it is found that even though Slumberland and Rassbach's have similar products and prices, Slumberland is very effective in utilizing pricing techniques to increase their markups. The integration of price anchoring into Slumberland's marketing techniques further illustrates its market power.

Furnish123 has found a niche in this market, with a target market more focused on college students and residents that are newer to the area. Their ability to sell lower quality products at a cheaper price keeps them separate from the larger competition. Using this strategy, Furnish123 is able to focus all of its sales and marketing on their consumers. Their market power comes from their ability to have an increased markup for the quality of products they sell.

Location and advertising are also interesting to note when looking at all of the data. Slumberland and Furnish123 are located right off of Broadway Street, the main street running through the city of Menomonie, while Rassbach's is about five miles out of town. Being a local store, Furnish123 uses billboards coming in to Menomonie

to advertise its business. This can catch the eyes of college students moving in to their dorms, apartments, or houses, as well as residents that are new to town. Slumberland, as the only corporately owned firm in this market, has corporate advertising and the recognition of being a familiar name to people in the Midwest region. Rassbach's is the familiar, quality furniture store of Menomonie, marketing to local residents for almost 50 years. Their focus on talking to their customers, getting to know exactly what they want, and having a relationship with them is how Rassbach's differentiates themselves.

As markets are always changing and adapting to those changes, understanding how firms operate can help other firms as well as consumers make educated and calculated decisions. As firms are always trying to differentiate themselves from competing firms, noticing where there are opportunities in the market, and what other firms are doing successfully, can increase competition. In these markets, firms that successfully differentiate themselves increase profits.

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Impacts and Factors of Women in STEM Education at UW-Stout

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Abstract

The purpose of this research was to gain an understanding of the factors that contribute to women choosing science, technology, engineering, or math (STEM) career paths. This research gathered information from other findings on the gender gap, the decline of interest of women pursuing STEM fields, and on ways to engage young women in STEM-related courses. Interviews from three female students seeking a STEM degree at the University of Wisconsin – Stout collected suggestions on how to increase young women joining STEM-related courses throughout their educational ladder, how those women persisted within their degree, and the hurdles they faced to get a STEM degree. Strategies suggested when conducting the interviews included implementing STEM curriculum such as simple coding programs in pre-kindergarten, providing mentorships with another female student or woman from a STEM profession and evaluating the STEM courses to adapt to the needs of everyone, not just males. Showcasing the story of women in a male-dominated occupation will present a better understanding of developing said occupation as an equal ground for all. The role of a female teacher holding a STEM education degree may have a significant impact on young female students' future.

Keywords: Women in STEM, technology education, women educator

Introduction

Classrooms of science, technology, engineering, or mathematics are prone to have more seats filled with male students' bodies rather than females. This research will help fill classrooms with female students. Spreading awareness of the gender gap, identifying a decline of interest in women pursuing a degree in a STEM field, and