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Selection process

The August 2017 issue of the *International Journal of Interdisciplinary Research (IJIR)* has been the result of a rigorous process in two stages:

- Stage 1: all papers that were submitted to the 2017 IABD conference went through blind reviews, and high quality papers were recommended for presentation at the conference.

- Stage 2: approximately ten percent of the articles which were presented at the conference and one invited manuscripts (originally reviewed by the Chief Editor) were selected for possible publication in *IJIR*, and the respective authors were contacted and asked to resubmit their papers for a second round of reviews. These manuscripts went through a rigorous blind-review process by the editorial board members. In the end, three articles were recommended for publication in the August issue of *IJIR*.

IJIR is listed in *Cabell's* Directory of peer-reviewed publications. The Editorial Board members are committed to maintaining high standards of quality in all manuscripts published in *International Journal of Interdisciplinary Research*.

Ahmad Tootoonchi, Chief Editor

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ABSTRACT

McDonald's is a global leader in the fast food industry with over 36,000 restaurants located in more than 100 countries. Throughout the U.S. McDonald's is famous for consistency. A consumer can go into any McDonald's in the U.S. and the French Fries are not only prepared the same, but they will also taste the same. Most other menu items in U.S. have the same uniformity. As McDonald's expands to other countries this consistency feature starts to waver. McDonald's locations outside of the U.S. have altered their menus to reflect regional tastes. These menu variations are a result of: religious tenets, food trends (organic, gluten free, vegetarian), and localization (sourcing of indigenous ingredients). The assimilation of McDonald's worldwide has presented significant conversation concerning overall perception, food adaptation, food preference, cultural dominance, and business practices. This paper attempts to shed light on some of these matters by looking at McDonald's menu offerings both in the U.S. and abroad.

INTRODUCTION

Depending on the parameters (revenue vs service) the food service industry is arguably the biggest industry in the world. "The food service industry is defined as the sale of food and beverages that have been prepared out-of-home for immediate consumption" ("Global Food Service," 2016, para. 1). This industry is divided into regions based on geography: APAC (Asian Pacific, including East Asia, South Asia, Southeastern Asia and Oceania); Europe; North America; and the Rest of the World ("Global Food Service," 2016). It is very difficult to quantify the actual size of the food industry because of the large number of establishments and the fact that a huge amount of food is sold informally. However, experts agree that the industry is growing at an astonishing rate (Murray, 2007). Since food is a commodity, an ingredient, and a meal, its value can be measured at any stage (Murray, 2007), thus making measurement even more difficult. The largest food service market is Cafes and Restaurants, with more than 50% of overall industry value. Within the Café and Restaurant segment the U.S. accounts for 25% of the global market followed by Asia-Pacific (Pearson, n.d).

McDonald's is one of the largest fast food restaurant chains in the world. Size alone tells us that they are a very successful multinational corporation. Their expansion into other countries provides a framework for understanding how to balance American culture and values with those of other localities. This current analysis aims to provide an overview of McDonald's worldwide menu offerings and explore the differences between American flavors/items and the factors that influence the various menu options / tastes of other countries / regions.

RESTAURANTS

The purpose of restaurants are many. Friedman (2015) writes that beyond the function of fulfilling the basic necessity to provide sustenance, restaurants have historically fulfilled a human need for connection. With 82% of the world's population living in cities, and the size of apartments shrinking, there is little or no room for kitchenettes and dining areas. Restaurants have become "the shared kitchens and dining rooms of densely populated areas" (Friedman, 2015, para. 11). Going out to eat goes way beyond sustenance; we seek "connection, edification, and validation" (Friedman, 2015, para. 14).

The size of the restaurant industry is difficult to measure. The real number of how many restaurants exist worldwide is in constant flux with restaurants opening and closing every single day. Nonetheless, studies conducted to measure and estimate the size of the restaurant industry have listed it in the billions of dollars. Research and Markets, the Global Industry Guide, estimates that the restaurant industry had $2.4 trillion dollars in sales worldwide, a 6.4% industry increase since 2010. The guide also indicates that over 65 million employees worked in restaurants worldwide in 2014 and projects restaurant sales to increase to $3.8 trillion dollars by 2019 (Fast Casual, 2015).

The restaurant industry is set to increase at an annual compound growth of 7.2% rate to a value of $3.4 trillion dollars by the end of 2016. The Asia-Pacific region leads the market segment at 50%, thus holding 43% of the world foodservice industry (King, 2013). The Quick Service Restaurants (QSR) segment, is set to surpass $141 billion dollars in revenue by 2019 (Introduction of Healthy Food, 2016). QSR, in the Americas, lead the market share geography wise - valued at $108 billion dollars. The Asia-Pacific region is the second largest QSR market at $98 billion dollars, followed by the European QSR market valued at $35 billion ("Global QSR," 2016).

Fast Food

When we think of restaurants, it is impossible not to think or consider fast food venues or quick-service-restaurants (QSR). QSR are defined as limited menu establishments that incorporate production line techniques to produce food that is served packaged for immediate consumption, on or off the restaurant premises (Franchise Direct, 2010). Globally, fast food generates $570 billion dollars a year (Sena, 2017) and it is expected to increase to $617 billion dollars by 2019 (Transparency Market Research, 2016). There are over 200,000 fast food venues in the U.S. alone and they account for 52.4% of the U.S. restaurant industry's overall value (Sena, 2017). Over 50 million Americans eat in a fast food venue every single day.

Fast food restaurants are not limited to burgers and fries - the quintessential American meal in the 1950s (Schlosser, 2000\). Fast food establishments that include more ethnic foods are dotting the landscape. Cuisines such as Mexican and Chinese are becoming more regionalized as additional fast food eateries emerge (Sena, 2017).

Industry Trends

A recent emerging concept within the food industry; combines Fast Food /QSR and Casual Dining (Calentano, 2017). These diners are referred to as Fast Casual Restaurants. Traditionally, the concept of fast food; included cheap meals, with average quality food, limited menus and no table service. Currently, the primary fare at fast food restaurants is comprised of hand-held sandwiches, burritos, wraps, and a limited selection of salads. The ambiance is practical including plastic seating and table tops, fluorescent lighting, and the chain's branded graphics (Calentano, 2017). Casual dining establishments have meals in the medium price range, menus with a myriad of choices, and may serve alcoholic beverages. These establishments go beyond the hand-held menu options, and include items such as poultry, beef, fish, and an extensive line-up of salads. Their ambiance is far above QSR standards (Calentano, 2017).

Fast casual restaurants borrow from both the fast food restaurant and the casual restaurant categories. Sandwiches become Paninis which are made with artisan breads. Salads are hand-tossed instead of pre-packaged. Fast casuals do not include table service. The quality of food (McQueeny, 2015), and the ambiance is more upscale than a fast food restaurant (Calentano, 2017). Prices range from low medium to medium. Interior designs at fast casual restaurants are one of the main characteristics that distinguish them from their counterparts (Danahy, 2016). The fast casual market has increased 550 percent since 1999 (Danahy, 2016).

Nielsen and the National Restaurant Association report that about one-third of fast food consumers will pay more for better ingredients, and 76% of adults will return to a restaurant that offers healthier options (Danahy, 2016). Part of the reason for this change is that fast casual restaurants provide better service, fresher food than fast food restaurants, and are more affordable than casual dining restaurants. Fast casual restaurants have seen a steady increase in consumers since the 2008 recession while fast food restaurants have seen a decline in traffic (Moskowitz, 2014b).

The additional appeals of fast casual restaurants are transparency of ingredients, a desire to be more socially responsible, and a commitment to source local food - that are often organic, grass-fed, and antibiotic-and hormone-free (Danahy, 2016). The shift in consumer food choices from fast food to natural foods (including organic and responsibly grown foods) is more common as consumers are becoming conscious of the ill-effects of food additives (Transparency Market Research, 2016). This fuels a movement to compel fast food establishments to switch to natural ingredients, hormone-free meats, and organic produce (Transparency Market Research, 2016). Organizations such as Pizza Hut, McDonalds, and Taco Bell have been making changes to incorporate some of these trends. Pizza Hut has gradually made healthier changes to its menu by reducing sodium and removing Tran fats, artificial colors, flavors, and monosodium glutamate from its products. Taco Bell has developed an entire line-up of vegetarian options, and is the first fast food chain to be certified by the American Vegetarian Association. McDonald's has reduced sodium content, switched to healthier ingredients in some products, and added clementines and yogurt to their Happy Meals. McDonald's has also announced plans to provide hormone-free milk, purchase chickens raised without antibiotics, and use cage-free eggs (Danahy, 2016).

Culture

Culture plays a momentous role in the types of food and the way they are consumed. Ferraro (2008) defined culture as "everything that people have, think, and do as members of their society" (p. 45). In addition, Zhang and Zhou (2012) pointed out that "Culture is made up of (1) material objects; (2) ideas, values, attitudes and beliefs; and (3) specified, or expected behavior" (p. 4). The adaptation to local culture is especially prevalent in the food service industry. As international restaurants try to expand cultural adaptation is paramount. Cultural adaptation is the evolutionary process by which an individual (in this case a corporation) modifies his or her personal habits and customs to fit into a particular culture. This can be gradual as people from different backgrounds participate by sharing their perspectives and practices (Ady, 1995). The goal in this case is to foster more cultural / cross-cultural adaptation. Generally speaking, cross-cultural adaptation is the process of "adjusting the native ways of thinking and behaviors to be consistent with the local culture" (Zhang & Zhou, 2012, p. 5).

A lot of factors go into the adaptation of food from one culture to another. Food from specific cultures should not be seen as monolithic. French, Mexican, Chinese, and Italian cuisines each comprise dozens of distinct regional foods (Barber, 2010). American fare is currently making the shift toward its own distinct cuisine.

Generic terms for types of food not only include separate variations but can also take into account the manner in which they are consumed. Many cultures and religions use food as part of their celebrations. For several cultures mealtime is also family time. Other cultures use food as status symbols. Still others believe "Cooking and eating are both past time and pleasure" (Choi, 2014, para. 14). The adaptation of food across cultures has also been based on survival - a way for a recent immigrant to make a living. The challenge of restaurant expansion is incorporating cultural aspects from one country / region to another. One of the corporations that does this the best is McDonald's. A further analysis of McDonald's follows.

MCDONALD'S

Size

McDonald's reported 36,899 restaurants worldwide in 2016, a figure that had increased from 36,525 in 2015, and 33,510 in 2011. United States (U.S.) locations made up 14,155 (about 38%) of these restaurants, meaning that the majority of McDonald's restaurants are outside of the U.S. The U.S. has the most McDonald's restaurants of any country in the world. Not far behind is Japan and China, with 2,911 and 2,391 locations ("McDonald's 2016 Restaurants," 2016).

Asia and Europe have experienced similar patterns of company growth between 2010 and 2016. Latin American and Middle Eastern McDonald's restaurants have increased slightly, whereas restaurants considered to be in the Asia/Pacific region saw a steep upward spike between 2015 and 2016 (see Figure 1).

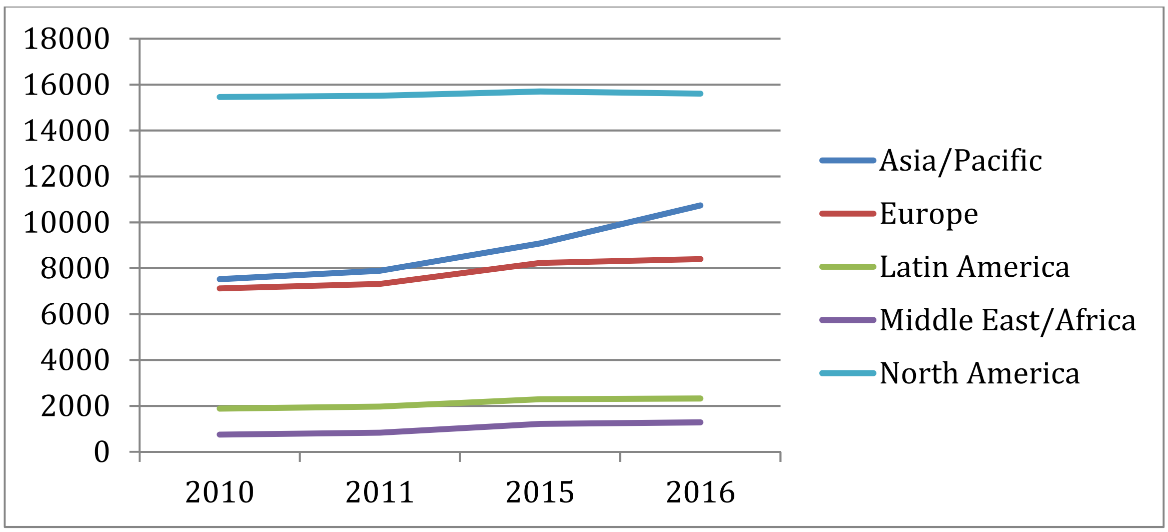

FIGURE 1. NUMBER OF MCDONALD'S RESTAURANTS IN GLOBAL LOCATIONS BY REGION

In the United States, McDonald's has experienced a plateau of growth, with slight increases from 2010 and 2015, and a small decline between 2015 and 2016. Concurrently, growth in other countries has been increasing steadily, from 18,710 in 2010 to 22,744 in 2016 ("McDonald's 2015 Restaurants," 2015; "McDonald's 2016 Restaurants," 2016).

Perceptions

McDonald's has always struggled with public perception due to the type of food served. Public scrutiny has also been leveled towards the jobs they provide. By the 1980s, the term "McJob" was coined to represent a dead-end, low-paying job. Although the term represents any job of this sort, it is based on McDonald's occupations (McGrath, n.d., para. 3)". McDonald's attempted to change the negative connotation of the term McJob by publicizing McProspects - executives that rose through the ranks to become McDonald's franchise owners (McGrath, n.d.). McDonald's also launched a campaign to hire 50,000 workers in one single day in an effort to expand its workforce by 7%, and teach applicants that a McJob is a career path with endless growth and possibilities (Schoen, 2011).

Internationally, the perceptions of McDonald's employees is mixed. McDonald's workers in Denmark make $21 dollars an hour. They also get "overtime pay, guaranteed hours, two days off per week," and paid sick leave. Part of the reason Demark McDonald's employees make on average more than double their U.S. counterparts is because in Denmark employees are unionized (Rantzau, 2014, para. 2).

Mike Waite, a McDonald's employee in Edinburgh, Scotland, writes: "people tend to perceive McDonald's workers as lazy or goalless, having no information about them aside from where they work" (Addady, 2016, para. 3). He expressed that, like him, workers at McDonald's work 50 hours a week, not because they are unmotivated, but because McDonald's offers them plenty of scheduling flexibility so they can attend college. Waite added that besides internal management opportunities, there are people working at McDonald's with aspirations to become lawyers, architects, and pilots (Addady, 2016).

In England, McDonald's employees are not as motivated. Differences in attitude stem from the fact that managers in McDonald's believe that employees work harder when they are pressured and supervised closely. Students make up 70% of the employees in the U.K. The perception is that working at McDonald's is favorable in that allowances are made for school attendance, and a free meal is provided at work. The belief that academic qualifications are not needed for employees to go into management at McDonald's tends to lead to a lower worker perception of the company. Consequently, these employees do not seem to view McDonald's as their future employer (Nawaz, 2011).

In more recent trends McDonald's is repurposing employees to a new role – a kind of "hospitality service person." Based on the use of new technology (ordering kiosks) McDonald's is projecting that they will need fewer people taking orders and more people working in front of the counters - delivering food curbside or to tables. These new roles require additional education for an altered skill set. "The social interactions are different" (La Roche, 2017, para. 6). This and other changes (updated uniforms) has the potential to raise the overall perception of McDonald's employees both internally and externally.

MENU ANALYSIS

McDonald's corporation groups restaurant locations by region. The regions listed are the Middle East & Africa, Latin America, Asia Pacific, Europe, and North America. However, their business plan uses a "system wide restaurants" grouping that includes categories of United States, International Lead Markets (including Canada, several European countries, and several Asia Pacific/Oceania countries), High Growth Markets (a mixture of European and Asian countries), and Foundational Markets (including much of Asia, Europe, Latin America and the Middle East). McDonald's corporate websites provide information for 92 separate countries within these areas.

Method

During a two-week period in October 2016, all 92 McDonald's individual country websites were examined. Websites that were not available in English were translated using the Google translate feature within the Google Chrome browser. In the case of any unclear translations, the words in question were entered into the Google website translator for clarification. Facebook was used as a secondary source for the McDonald's that were located in countries that did not have an official website. A third source analyzed was McDonald's regional and/or state franchise websites. These searches were conducted by combining the search term McDonald's with the name of various states. Five regional/statewide McDonald's restaurant groups, Southern California, Central Florida, Maine/New England, and two different areas in the Wisconsin/upper Midwestern states were added into this analysis.

Generic Findings

Emphasis on nationalization & localization

Several of the McDonald's country websites emphasize the use of local products and ingredients. Canada's website brings attention to the use of Canadian beef, eggs, milk, and Canadian raised chickens. McDonald's in France asserts that 50% of the beef used in their restaurants originated in France (from "French born" cattle), with the remainder of the beef coming in from the Netherlands, Ireland, and Italy. Ireland's McDonald's site touted 100% Irish beef. In Norway the McFeast burger features 100% pure Norwegian beef. South Korean McDonald's locations import their beef from Australia and New Zealand.

Australia, makes the claim that they use 100% local Angus beef "Aussie." The term "Aussie" is listed in many of its product names. Examples include, Aussie Coon Cheese, Aussie Brekkie Roll, and several flavors of Aussie Brekkie Wraps. Nearby, New Zealand emphasizes specifically that all beef comes from the Kings County and Canterbury regions of New Zealand. Both Australia and New Zealand refer to their stores by the local nickname "Macca's."

Austria is another country that adds national pride element into their menu items and descriptions. Several items are labeled as being "100% from Austria." Featured are an "Austrian Donut" and a breakfast platter named after the capital city Vienna.

Region Localization

North America

U.S. McDonald's have traditional menu items that are available in every location (burgers & fries). There are many McDonald's locations that promote the national, "standardized" menu and do not feature any specialized items. There are also some locations that offer additional menu items, either seasonally or consistently.

McDonald's restaurants in New England offers the Lobster Roll sandwich. In Southern California, there are two varieties of breakfast bowls: egg white and turkey sausage, and scrambled egg and chorizo. California McDonald's customize toppings for burgers, fried chicken, and grilled chicken sandwiches. included are maple bacon Dijon, Pico guacamole, and buffalo bacon. McDonald's locations in Guam and Hawaii feature SPAM and pineapple. Hawaii also features a McTeri Delux burger (McTeri sauce is made from sugar, soy sauce, wine, apple powder, and honey). In the south, some McDonald's restaurants offer biscuits and gravy, as well as grits. Many locations also offer a breakfast bagel sandwich. Going north - Canadian McDonald's offer a traditional poutine, fries covered with gravy.

Latin America

Mexico (geographically in North America, but included as part of the Latin American region on the McDonald's corporate website) and many of the Latin American McDonald's locations (Guatemala, Nicaragua, and Honduras) offer refried or black beans, yuccas as an alternate to fries, corn and tuna for salads, and cheese and guava flavored pies and shakes. In Guatemala, fried plantains are offered as part of the breakfast platter. Fried yuccas seem to be the promoted choice for Happy Meals in Venezuela, as potato fries are not even pictured. Additionally, a few Latin American locations (Argentina, Brazil, Chile, and Uruguay) offer cherry tomatoes as a side option.

Asia Pacific

Asian countries have some similar menu options within their region. Traditional, bone-in fried chicken (similar to Kentucky Fried Chicken) is featured at restaurants in the Philippines, Indonesia, Malaysia, Taiwan, China, and Thailand. Corn is on the menu in Singapore, Hong Kong, China, Taiwan (as a soup), and Thailand (in pie). The Philippines, Indonesia (the Bubur Ayam Special), Malaysia, and Thailand all serve rice and porridge with chicken or beef as a main breakfast dish. Pineapple is another item served as a side dish in the region (Korea, Taiwan, and Thailand). South Korea, Japan, and Taiwan include shrimp in their menu offerings, both fried or as burgers. McDonald's serves a version of an Italian dish - McSpaghetti - not in Italy, but in the Philippines. There is also a twisty pasta dish in Hong Kong for adults and children within the Happy Meals.

Middle East /Africa

The Middle East/Africa region, as identified on the McDonald's International website, is the smallest region other than North America in terms of number of countries included, at 14. Only a few overlaps between different countries were seen on the menus, not including the ones based on religious requirements.

Several McDonald's in Africa and the Middle East tend to offer McArabia chicken sandwiches, and a Halloumi Muffin (Bahrain, Oman, Qatar, and United Arab Emirates). Halloumi cheese is used frequently in this area. Egypt has a MacFalafel, and Israel has a MacKebab. Vegetarian options (McVeggies burgers) make frequent appearances in the African and Middle Eastern McDonald's locations (Cyprus, South Africa, Bahrain, Kuwait, Lebanon, and Qatar). For many of these countries vegetarian burgers can be ordered in the Happy Meals. Corn is included on the menu in South Africa as a corn cup and in Israel as fried corn sticks - used on salads or in a tortilla wrap. For the most part (with a few exceptions), corn is not used in other regional McDonald's locations, except as a salad topping. Additionally, Israel serves three different varieties of fried potatoes, as well as chicken nuggets and chicken strips.

Europe

McDonald's restaurants in Europe tend to offer more fresh fruit and vegetable choices, as sides or in Happy Meals. Several countries including Estonia, Hungary, Ireland, Italy, and Switzerland, offer carrots as a side, and feature them prominently on website menus. Nectarines are included in Happy Meals in Switzerland and sold as a side in France. The Netherlands, United Kingdom, and Sweden have fresh fruit of various types as well.

Beyond having more fresh fruit availability overall, many countries in Europe offer fruit flavored toppings. Countries in Eastern Europe (for example, Romania, Belarus, Bulgaria, Serbia, and Ukraine) tend to offer cherry flavoring, either as pie or sundae topping. Sweden offers pineapple and lingonberry flavors. Raspberry is a flavor sold in Sweden and Austria. McDonald's in Portugal include a strawberry pancake topping. Strawberry is also featured in several dessert items in Germany.

McDonald's restaurants in the European region are much more likely to serve vegetarian entrees. Sweden has two options for the vegetarian burger - one made of vegetables and one made of kidney beans mixed with vegetables. Finland offers a fried veggie burger with cheese. The United Kingdom and Italy also list veggie burgers on the menu. The Netherlands and Suriname (which is a Dutch colony) have a version of the veggie burger called the Groenteburger.

In addition, European McDonald’s locations tend to have fried shrimp. Several locations have sausage or breaded beef sandwiches (Germany, Belgium, and the Netherlands). European countries are inclined to offer a large variety of cheese products. These include fried cheese bites, fried Gouda stars (Austria), fried cheesy bacon stars (Czech Republic), fried Camembert cheese bites (Germany and Ukraine), fried cheese bites with onion (Hungary), Parmigiana Reggiano cheese in a single serving pack (Italy), McFtira Goats Cheese sandwich (Malta), and a Camembert McTost sandwich (Ukraine).

Rest of the World

In Australia, the “Down Under” Big Mac is offered. Essentially the Big Mac is turned over before eating it. New Zealand adds the word Kiwi to the Big Breakfast item. New Zealand also has a Georgie Pie, which is served for breakfast and lunch – depending on the ingredients.

Religious Preferences

McDonald’s offerings have been adjusted in certain regions based on religious dietary restrictions. These altered versions of menu items are centered on Jewish (requiring Kosher foods), Muslim (requiring Halal foods), and Hindu (prohibiting beef) religious beliefs. The high numbers of people who practice these religions necessitate product variation.

Jewish

A large percentage of the population in Israel is Jewish. Many of the local populous follow kosher laws. Kosher rules allow chicken, beef, turkey, and some kinds of fish. Pork is prohibited. Kosher guidelines do not allow consumption or preparation of dairy and egg products alongside meats.

Menu offerings at McDonald’s in Israel are consistent with kosher guidelines. There is no mention of any pork products (sausage, bacon, or ham). Dairy products are extremely scarce with the exception of cheese on a breakfast sandwich with tomato and egg. The tomato, egg, and cheese breakfast sandwich is the only breakfast menu item in McDonald’s Israel. Salad dressings and sauces for meat sandwiches contain egg products, but not milk products.

Muslim

In countries with a high percentage of Muslim consumers (UAE), Halal standards are followed. These standards are explicitly written (including the presentations of Halal certifications) on each country’s McDonald’s page. In part the statement reads “All food consumed at McDonald’s comply with Halal standards” (“McDonald’s Website – Halal,” n.d., para. 10). Halal standards include no pork products (bacon, sausage, ham). Additionally, Halal meats must be prepared and certified under specific guidelines. Instead of the traditional pork sausage a chicken sausage is substituted as a part of the breakfast offerings.

Hindu

Because of a high percentage of Hindu consumers in India, McDonald’s for the most part follows the Hinduism food diet guidelines. Hindu consumers avoid beef and many are lacto-vegetarian (eating no meat or eggs, but consuming milk products), although their religion does not require it (McCaffree, 2002). McDonald’s India offers a McVeggie burger, with eggless mayonnaise, a Masala Grilled Veggie burger, and McAloo Tikki (patty made of potato and peas). India is the country in which McDonalds has the most meatless menu choices. Breaking with the traditional Hinduism diet, they also serve eggs as part of their breakfast sandwiches.

Portion Size

In the U.S. since McDonald’s first opened in 1955, portion sizes have increased. Originally only one size of French Fries could be ordered, which was about .2 ounces smaller than today’s small. Currently the large fries are 5.9 ounces. The change in burger sizes increased from a regular hamburger of 3.7 ounces to the quarter pounder deluxe weighing 9.2 ounces. Following this tendency, in early 2017 McDonald’s U.S. debuted two new sizes of their Classic Big Mac. The larger version, a Grand Mac is made with two quarter pound patties. It should be noted that the size of the regular hamburger has decreased from 3.7 ounces in 1955 to 3.5 ounces currently (Houston, 2015).

Drinks are another menu item that have increased in size. The original small in the U.S. was 7 fluid ounces, now it is 12 fluid ounces. Drink sizes are one of the easier items to measure across the various McDonald’s regions, as serving cups are universal. The “cup sizes in the U.S. McDonald’s are larger than elsewhere except for Singapore and Canada” (Peppers, 2014, para. 2). In Japan, the large cup is smaller than the U.S. medium cup. In Australia, the small is about the same size, but the medium is significantly shorter. Australia and Hong Kong are about the same. In England, all sizes seem to be smaller as the medium is about the same size as the U.S. small (Moskowitz, 2014a).

McDonald’s & Food Trends

Organic foods are a huge trend in the United States (Funk & Kennedy, 2016). In the past organic products were offered in the McDonald’s European region—specifically Germany (Galaraza, 2015). At this point the specific term “organic” is not used by McDonald’s. However, McDonald’s does emphasize localization and fresh choices, mostly in Europe.

Localization means sourcing ingredients from the region where a food service business is established; it is seen as a responsibility, a social obligation (Asher, 2016). Localization can be considered the level before organic. Ingredients are nurtured, and the farming community within the district is cultivated. Since farmer’s markets, have “the greatest line of communication with our community of ranchers and growers” (Asher, 2016, para. 7) efforts to prioritize the use of these ingredients locally benefit all of those involved: the restaurant, the farmers, and the community.

Within McDonald’s non-U.S. menu, the selection of localized ingredients points to the prominence of options for fresh fruits and vegetables (apple slices, carrots, pineapple, melon, corn, or salads). These menu choices seem to be based on the individual resources and tastes of the area.

McDonald’s USA does not emphasize ingredient origin. They indicate there is diversity in their ingredient origination that parallels the assortment of menu items offered. Instead of focusing on providing foods that meet specific requirements McDonald’s USA answers questions such as how the food is prepared and stored, and what additional ingredients the items contain. It takes additional searches to find where the ingredients are sourced. In some cases, the source is Australia, New Zealand, Alaska, Chile, Mexico, or Canada (Beef & Fish).

The U.S. McDonald’s offers no vegetarian, vegan, or gluten free options. Furthermore, they do not promote low carbohydrate choices. In contrast, McDonald’s in several countries in Europe offer all these selections. As an alternative, U.S. McDonald’s offers customers the chance to customize their menu choices.

McDonald’s specialty claims concerning menu items meeting precise criteria vary depending on the location. In the U.S., McDonald’s states that: it does not certify or claim any of its menu items as Halal, Kosher, or meeting any other religious requirements. This statement is in direct opposition to the religious declarations used on the McDonald’s Middle East / Africa region materials.

McDonald’s continues to incorporate current trends with their coffee products. On May 5, 2009 they began offering McCafé products across the United States. The McCafé - McDonald’s version of the coffeehouse - is now available in a majority of locations worldwide. Included in McCafé menu items are coffees, frappes, and fruit smoothies. Using sustainability to source coffee products has become a priority for McDonald’s. In 2015, 37% of their global coffee bean purchases were verified sustainable (“There’s More in,” n.d., para. 2). To further the movement, McDonald’s has decided to rebrand the McCafé name, changing it to the McBarista. Some of the additional products available in the McBarista will include espresso, seasonal coffee flavors, and sweets like “muffin toppers” and coffee cake. This McCafé update should be completed by 2018 (Frost, 2016).

The U.S. McDonald's began offering an all-day breakfast option in October 2015. There were regional differences during this first pilot (see Figure 2). Biscuit sandwiches were available all day in a few states (Louisiana, Mississippi, Georgia, North Carolina, South Carolina, Tennessee, most of Arkansas, and a small part of Virginia). McMuffins were available all day in all other states. The sausage burrito, fruit and yogurt parfait, hotcakes and sausage, and hash browns were also available nationwide.

As of September 2016, the full all-day breakfast menu is available across a majority of U.S. McDonald's locations (Filloon, 2016). The expansion of this full all-day breakfast menu bled across the U.S. border into Canada. At this point the rest of the McDonald's worldwide has not followed this movement.

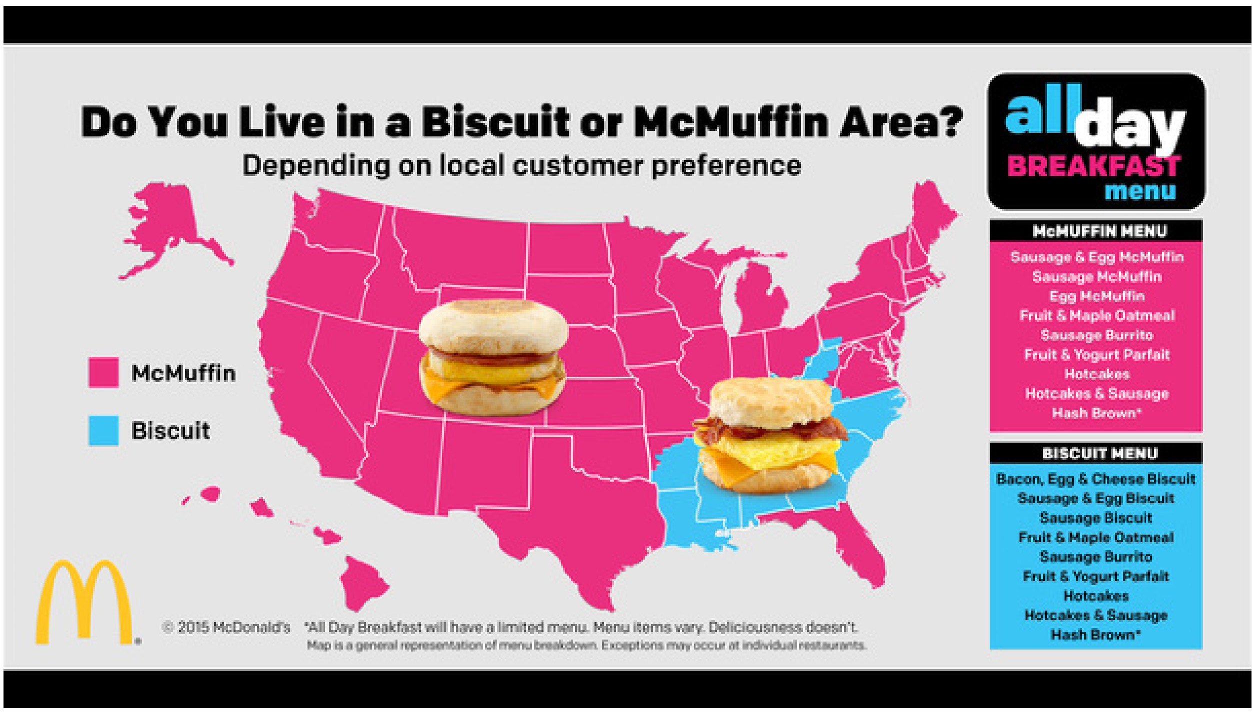

FIGURE 2

CONCLUSION

Discussion

There has been much discussion in previous research concerning dominant cultures and the exportation of products and/or services and the impact / effect on smaller cultures **(**Rice-Oxley, 2004; Rhae, 2014**)**. At first glance, the spreading of one of the U.S.'s biggest restaurant chains throughout the world seems to signify another instance of American culture dominating other cultures. McDonald's overall theme and corporate philosophy suggests that at least in some part, the American culture is consuming other cultures (in the case of fast food). While a lot of the products are different, the overall American values that McDonald’s has instilled worldwide are why it has been accepted more than other international businesses. “The only American values McDonald’s suggests are convenience and thrift two things that just about every global citizen holds dear” (Pringle, 2013, para. 5).

McDonald’s has long been a food ambassador for the United States, from its expansion in Canada and Costa Rica in the mid-sixties, to more than 30,000 locations in over 118 countries (James, 2009). *Times Magazine* considers McDonald’s as a “true vanguard of peaceful globalization” (James, 2009). Thomas Friedman in the *Golden Arches Theory of Conflict Prevention* – suggests that countries with a McDonald’s do not go to war with each other. This suggestion was disproven when Russia went to war with the country of Georgia (James, 2009). Nonetheless, it is important to mention that McDonald’s is ubiquitous. There is one in almost every country. There are only a handful of countries that do not have a McDonald’s - North Korea, Bolivia, Ghana, Macedonia, Bermuda, Zimbabwe, and Iceland (“Countries without McDonald’s,” 2013).

McDonald’s has been around since 1955 and continues to exist and expand its outreach. McDonald’s is undeniably a part of the global food and corporate landscape. Its entry into Russia and China in the 1990s made global news. Not only does McDonald’s enter new markets, but they also tend to succeed where other businesses / fast food restaurants have not. The balance of the standard American menu items (cheeseburger and fries) with options for local flavors and adaptations appeals to a wide variety of consumers. While McDonald’s original expansion plans started with standardization, as its business model developed, the strategy turned toward localization based on culture, religion, food preference, and while not discussed - ultimately sales. These things are glaringly evident by looking at the various regional McDonald’s websites.

McDonald’s is a great example of how to merge a business from one country with other countries traditions, values, and tastes. McDonald’s success with local tastes and, in some cases requirements, shows their adaptability. This has aided the fast food giant in establishing itself as an accepted and beloved establishment in many parts of the world. It is difficult to predict what trends and preferences will dominate in the future, but keeping in mind how to adapt will be the key for global businesses in the coming years. Other organizations would do well to use McDonald’s as a blueprint, especially when considering its success in cultural and lifestyle adaptation - whether it be across borders or over time.

A weakness in this McDonalds’s menu analysis is the lack of corporate websites. Additionally, consistency within the websites, and the absence of official country websites were also issues. This absence of corporate material resulted on a reliance of secondary information sources, such as Facebook. There is also the matter of the fluidity of menu items depending on a myriad of things, including sales, seasons, and availability of ingredients. While a lot of this specific menu information has the potential to change, the overall implications are relevant.

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TWITTER SHOWS INFLUENCE OF BUZZ ON MOVIES

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ABSTRACT

Previous research has found that word of mouth is perhaps the best predictor of a movie's success. This is evident by the absence of a formula to guarantee a predictable return on investment and the lack of other reliable predictors such as genre, cast and budget. As a result, recommendations from moviegoers, whether positive or negative, can have a significant impact on a movie's performance. Several studies have focused on how social media can be used to predict movie box office revenue. However, this has primarily been based on activity levels or the amount of buzz generated by these films. As a result, this study examines sentiment analysis on Twitter to determine the impact of word of mouth on a movie's success. It also evaluates the effect of tweet rate after a movie's release and its relationship to sentiment analysis.

INTRODUCTION

Researchers are continually finding ways to use social media as a predictive model for one purpose or another. For instance, Twitter has been used to predict changes in the Dow Jones Industrial Average and forecast movie box office revenue. In fact, one study found that the rate at which movie tweets are generated can be a more accurate predictor of a movie's performance than the Hollywood Stock Exchange, largely considered the gold standard. This study also found that the predictive power of tweet rates could be enhanced by using sentiment analysis in the regression model (Asur & Huberman, 2010). In addition to Twitter, researchers have even used Wikipedia activity to forecast the first weekend box office revenue of movies (Mestyán, Yasseri, & Kestész, 2013).

Another study used sentiment analysis to predict movie success by comparing the ratio of positive to negative tweets about a film to its profit ratio. While the researchers found that the positive tweet to negative tweet ratio curve had the same tendency as the profit ratio, they noted certain limitations to this study. For example, they indicated that the sentiment analysis software they used had rather low accuracy (Jain, 2013). This is not unusual as other previous studies have found mixed results regarding the impact of word of mouth through social media on sales outcomes (Oh, 2013).

The first part of this study builds on this previous work and conducts a more thorough sentiment analysis of posts about movies on Twitter to determine their correlation to weekly changes in box office revenue. This was not done to assess the impact of word of mouth on social media per se but as a means of determining the extent to which this relationship exists. This is an important distinction for several reasons. First, only 7% of word of mouth occurs online (Berger, 2013). This is because most people share information with family and friends in face-to-face contexts. In fact, it is estimated that people have more than 16 conversations a day about products and services (Geller, 2013).

Another reason we did not attempt to analyze the impact of word of mouth on social media is because different channels have different levels of influence. For instance, one study analyzed the unique characteristics of microblogging word or mouth (MWOM) and the so-called "Twitter effect." Widely discussed by industry observers, this effect was thought to be the cause of the failure of the movie *Brüno* and the success of the movie *Inglourious Basterds* (Corliss, 2009; Singh 2009).

However, researchers were able to quantify the Twitter effect on movies during their opening weekends. In particular, they investigated whether MWOM on Twitter could influence early product adoption and whether differences could be found for positive and negative MWOM (Hennig-Thurau, Wiertz, & Feldhaus, 2014).

The researchers found that negative Twitter reviews shared on a movie's opening day decreased revenues on Saturday and Sunday, but that positive Twitter reviews did not have the inverse effect. This negativity bias was thought to be the result of the diagnosticity of information and prospect theory. That is, because consumers have only been exposed to producers' appeals at this point in the decision-making process, the negative messages have a more diagnostic value. Also, based on Kahneman and Teversky's prospect theory, consumers are more concerned about experiencing loss from a bad decision than they are concerned about benefitting from a good one (Hennig-Thurau, Wiertz, & Feldhaus, 2014).

This study illustrates how MWOM is distinct from both traditional word of mouth (TWOM) and electronic word of mouth (EWOM). For example, EWOM is generally less influential than MWOM because of the degree of trust that microbloggers have in their network. In contrast, EWOM is generally shared among users who have little to no relationship. Therefore, it is difficult for consumers to determine the quality and credibility of the recommendation.

In addition, research has also found that the platforms to which EWOM is posted can also affect consumer judgments. For example, some recommendations could be attributed to the circumstances under which a recommendation is made as opposed to the stimuli itself if they appear on personal blogs versus independent blogs. That is, recommendations on personal blogs are more likely to be construed as being biased (Lee & Youn, 2009).

Nevertheless, word of mouth is widely regarded as the most effective form of marketing. According to McKinsey & Company, "word of mouth generates more than twice the sales of paid advertising in categories as diverse as skincare and mobile phones" (McKinsey, 2010). In light of the effectiveness of word of mouth, our first hypothesis was that a strong correlation would be found between Twitter sentiment and movie revenue over a broader period of time.

The second part of this study evaluated the relationship between the tweet rate after a movie's release and its box office performance. For instance, we know from previous research that tweet rate is a reliable predictor of opening weekend box office revenue. We also know that tweet rate can be a reliable predictor of successive weekends as well (Asur & Huberman, 2010). What is not known, is the qualitative difference between sentiment analysis and tweet rate. Therefore, we conducted a more thorough evaluation of tweet rate using the same methodology as our sentiment analysis so that we could compare these results and better understand this relationship. Our second hypothesis was that a strong correlation would also be found between tweet rate of box office performance.

METHODOLOGY

The first part of this study was conducted using a two-stage sampling method. We first collected and archived tweets discussing movies over the first four weeks after their release using the data mining platform Tweet Archivist. Specifically, we utilized a hashtag-based sampling approach and only considered tweets comprising at least one hashtag used by studios to promote their films. This enabled us to define a pool of tweets related to these movies. Our universe was comprised of 17 movies that were released in the fall of 2016. The only criteria for the selection of these movies were that they were scheduled for wide release and were not holiday-themed to eliminate the possibility of considering data skewed by unique audiences. This resulted in the collection of 800,739 tweets.

Secondly, we narrowed down the initial sample by randomly selecting tweets from week to week. The data was then coded manually by three coders including the principal investigator and two co-investigators. This design was utilized to ensure accuracy in the analysis of the data and to foster a better understanding of sentiments' effects on movie outcomes. Moreover, Cronbach's alpha was used to ensure intercoder reliability. For this assessment, 10% of the sample was tested which resulted in a reliability measure of .93.

To conduct our analysis, a random sample of 400 hashtags were analyzed each week after the release of each movie for as many weeks up to four weeks that the data would allow. For several low performing movies, we were only able to gather a week of data and, in other cases, we were not able to gather any data at all. In the end, out of the 17 movies for which we collected tweets, we were only able to analyze 11 that had at least a week of data that met our sample size criteria.

For these 11 movies, we coded 12,000 tweets manually, which is the equivalent of 30 weeks of data. To create a more representative sample of individuals sharing their sentiments, as opposed to simply retweeting content from others, we eliminated retweets from the data sets before our random selection. That is, our review of retweets consistently revealed that an overwhelming number of them were multiple retweets that contained only original content without any further editorializing. Moreover, in cases where there were not multiple retweets, it was difficult to discern which content was original and which wasn't. Therefore, we opted to eliminate this potential error by removing retweets from our universe. Then, once the random sample was created, we coded the tweets for their positive or negative reviews of the movie. Specifically, we used both keywords and emojis to discern sentiment and code the data using pre-established criteria.

Once the tweets were coded, we then compared the average weekly sentiments with the average weekly percentage change in revenue for each movie. Weekly sentiments were defined as those expressed on Twitter from the initial Friday of a movie's opening to the following Thursday, and then Friday to Thursday in subsequent weeks. Revenue figures were obtained via the website The Numbers, which is owned and operated by Nash Information Services, LLC, a leading film analytics company. Twitter data was analyzed for as many weeks as the samples would allow up to four weeks. Weekly revenue was defined as the percentage change from weekend to weekend to allow us to compare this data to another study which used this methodology.

We then compared hashtag sentiments, Audience Score, and CinemaScore ratings with average weekly revenue. The Audience Score is a viewer rating sponsored by Rotten Tomatoes based on the percentage of positive and negative ratings by audiences. The CinemaScore is based on surveys of movie audiences on opening night to gauge a movie's appeal by rating it on a scale of A to F. We then assigned a numerical value to the CinemaScore ratings for analysis purposes.

The second part of this study also consisted of a two-stage sampling method. We again collected and archived movie tweets over the first four weeks using the same hashtag-based sampling approach. Our universe was comprised of 8 movies that were released in the spring of 2017. Though we used the same criteria for the selection of these movies, the difference in the number of movies in each universe was due to the number of weeks with sufficient data. That is, the volume of tweets was much more prevalent than the sentiments of tweets in each of these data sets. Our second universe was comprised of 471,492 tweets.

We then created random samples of tweets from week to week to analyze. Similar to our sentiment analysis, this data was also coded manually. Two coders were used in this process, including the principal investigator and a co-investigator, and Cronbach's alpha was used to ensure intercoder reliability. Ten percent of the sample was used in this assessment, resulting in a reliability measure of .95.

A random sample of 400 hashtags was created for each week for as many weeks up to four weeks that data was available. Some low performing movies fell short of this threshold and would only allow a few weeks of data. However, all 8 movies had at least two weeks of data that met our sample size criteria.

We manually coded 11,600 tweets, or 29 weeks of data, for these 8 movies. Unlike our sentiment analysis, we included promotional tweets and retweets. We only coded this data to discern whether the tweets were related to specific movies.

After coding the tweets, we determined the aggregate number of relevant tweets per week for each movie and compared this number with the movie's weekly gross revenue. This is an important distinction relative to our sentiment analysis. Our sentiment analysis only compared the average weekly sentiments with the average weekly percentage change in revenue for each movie over their initial four weeks. We used these aggregate numbers in the sentiment analysis since overall sentiments about a movie are not likely to change from week to week.

DISCUSSION

Our research found a significant relationship between positive word of mouth on Twitter and changes in average weekly revenue. Specifically, the more highly a movie was rated on Twitter the more revenue the film was expected to garner from week to week. These findings are significant because of the random sample design and the scientific approach to evaluating this data. In addition, these findings provide an alternative measure to other movie ratings, some of which have been shown to be skewed and unreliable.

For instance, one study of Fandango's ratings found them to be greatly inflated, which appeared suspicious because Fandango is also in the business of selling tickets to consumers (Hickey, 2015). In addition, ratings can also be skewed by other factors such as the number of male and female reviewers, and by the binary heuristic that some ratings use. A binary heuristic aggregates ratings as either positive or negative and, therefore, does not include levels of intensity. To illustrate, a rating on Rotten Tomatoes can result in a positive or negative review exceeding a film's average score and vice versa (Hickey, 2016).

Nevertheless, we compared our findings with the ratings of Rotten Tomatoes and CinemaScore due to the popularity of these reviews. For instance, a correlation analysis between tweet sentiments and revenue found an r value of .75, which indicates a strong relationship since a correlation coefficient of .5 is considered high, .3 is considered medium, and .1 is considered low. And, even though the sample size of 11 movies is small, this analysis found a p value of less than .01 which means that there is a 99 percent chance of it being accurate.

By comparison, correlation analyses for Audience Score and CinemaScore with revenue found r values of .44 and .36, respectively. However, both the Audience Score and CinemaScore had p values of greater than .05. Therefore, these correlations were not found to be significant as .05 is considered the threshold for determining statistical significance. The relationship between hashtags and revenue is immediately apparent when visually represented. For example, Exhibit 1 below shows the relationship between the average movie rating based on hashtag sentiments and average percentage change in weekly revenue.

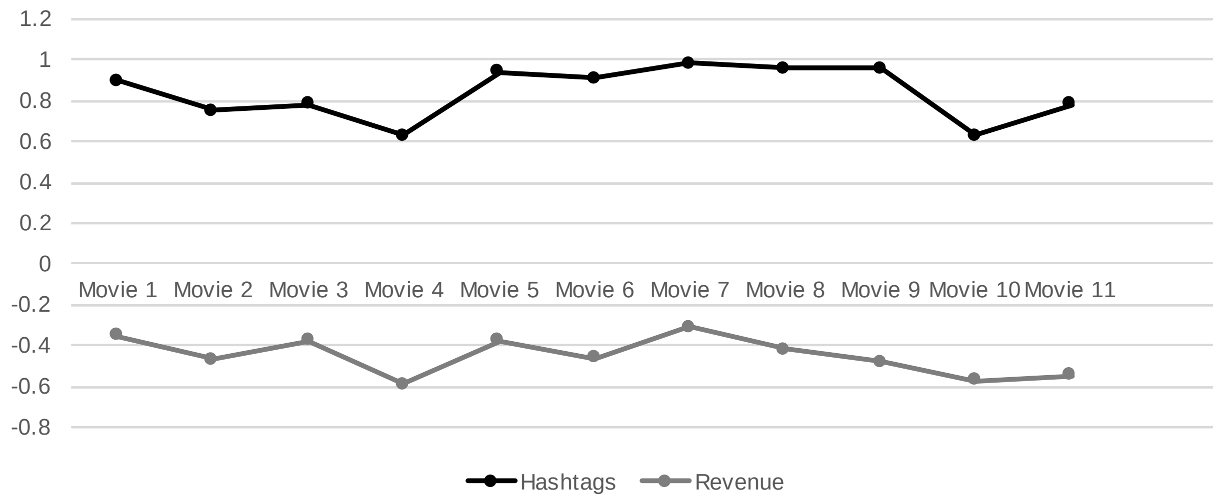

EXHIBIT 1: HASHTAGS V. REVENUE

Moreover, this study was developed to further confirm the findings of another study on the relationship between word of mouth and movie revenue. Since word of mouth is thought to be a primary determinant of movie success, this earlier study used revenue as a proxy for word of mouth to see if significant differences could be found between high-performing films versus low-performing films (Eagan, 2016).

Conducted in the fall of 2015, this study analyzed the role of word of mouth on both successful and unsuccessful movies over the previous 20 years. Specifically, the study characterized high performers as Oscar-nominated movies and low performers as Razzie-nominated movies which resulted in a sample size of over 200 movies. Then these movies' average percentage change in revenue over their initial four weekends was averaged over a 20-year period. This analysis revealed very consistent findings among these movies (Eagan, 2016).

As Exhibit 2 demonstrates, the average percentage change for high performers was -24 percent, -26 percent, -25 percent, and -21 percent over the first four weeks. This was in sharp contrast to the average percentage change for low performers, which was -54 percent, -56 percent, -53 percent, and -54 percent. Over this period, the average percentage change between Oscar nominees and Razzie nominees was -30 percent.

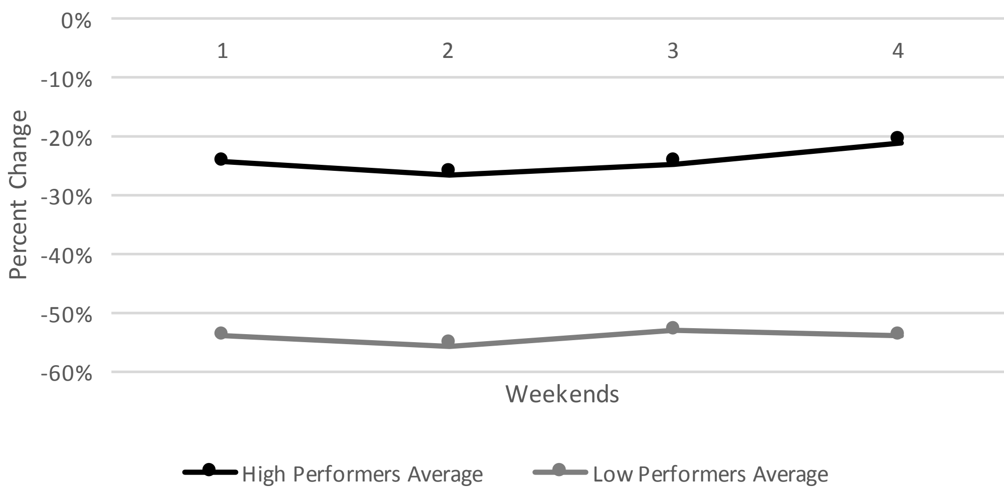

EXHIBIT 2: HIGH V. LOW PERFORMERS

Also evident in Exhibit 2 are the clear patterns and trends that emerged in this data. Thus, this study concluded that weekly average percentage change in revenue seemed to be a good proxy for estimating the influence of word of mouth. Taken together with the results of the Twitter sentiment study, this presents compelling evidence of the role that word of mouth plays on a movie's success.

To prevent our sample from being skewed, we statistically eliminated outliers in our analysis. That is, once averages were obtained for Twitter sentiments and weekly percentage changes for each movie, we used a statistical method to remove these numbers from our data sets. However, there was only one outlier among the data.

The outlier was the movie *Bleed For This*. Written and directed by Ben Younger, this movie is based on a true story about the life of former world boxing champion Vinny Pazienza. Martin Scorcese also served as the film's executive producer.

According to our review of Twitter sentiment, audiences loved this film. In fact, it earned a positive rating of 98% over its first three weeks, which is the only period our sample would allow. However, at the same time, its revenue plunged by an average of -69% per week. As Exhibit 2 above illustrates, even some of the worst movies only lose an average of -54% per week in their initial weeks after release.

The reasons for this occurrence are open to speculation. For instance, it could be that the movie might have a limited audience and, while popular among that audience, it does not have broad-based appeal. Regardless of the reasons, this is an important caveat for these findings. That is, even though a strong relationship can be established between word of mouth and revenue, there are exceptions to this rule.

In addition, there was another outlier that was removed for different statistical reasons. We removed the movie *Miss Sloane* from our data set because we were unable to accurately code its tweets. That is, this movie's plot involved a Washington, DC lobbyist who takes on the gun lobby for stricter gun control measures. Consequently, the political nature of this film resulted in numerous tweets from second amendment advocates who criticized the content of the movie and the liberal bias of Hollywood. In the midst of these tweets, it was not clear which of these individuals had actually seen the movie.

Here again is another exception to the rule regarding the strong relationship between word of mouth and revenue. However, it does seem reasonable to suggest that movies which tackle controversial political issues are likely to alienate certain audiences. In fact, this could be a significant factor in the movie's poor box office performance. Although, without the data, it is hard to say for sure.

It is worth noting that there is a market for politically-oriented films. This is evident in the appeal of movies like *Fahrenheit 9/11*, the top grossing documentary of all time, and the Oscar-winning *An Inconvenient Truth* (Goldstein, 2017). However, these films are billed and marketed as such.

Though the impact of word of mouth on movies based on these findings seemed clear, the question regarding the impact of buzz in general also needed to be addressed. Buzz, in this sense, we simply defined as volume or the amount of chatter about a movie. For example, since previous studies had found that tweet rate was an accurate predictor of movie success both before and after a film's release, we wanted to assess its influence relative to word of mouth using the same methodology.

To that end, we also found a significant relationship between tweet rate and weekly gross revenue. That is, the more buzz a movie experienced on Twitter the more revenue it generated from week to week. In particular, our correlation analysis between tweet rate and revenue resulted in an r value of .69. Like the word of mouth correlation, the tweet rate correlation is considered a strong relationship. This relationship was also found to be significant with a p value of less than .01 and, therefore, an accuracy of 99 percent.

We again used a statistical method to remove outliers from our sample to prevent our results from being skewed. This was done by comparing the ratios of gross revenue to tweet rate for each week and resulted in the elimination of 3 of the 29 weeks. For example, *Fifty Shades Darker* continued to generate an inordinate number of tweets even into its fourth week despite its declining revenues. The reason for this is uncertain, but it could have been due to the popularity of the books and movies among a dedicated fan base or simply due to the sensational nature of the film.

The other weeks that were eliminated from the sample were the third week for *The Space Between Us* and the second week for *A Cure For Wellness*. In both cases this was the final week for which data was available. The disparities in these cases was not due to a large volume of tweets as was the case with *Fifty Shades Darker*. Rather, these disparities were due to a rapid decline in revenue in these movies' latter weeks. Exhibit 3 below shows the strong positive relationship between tweet rate and revenue for the 26 weeks we evaluated.

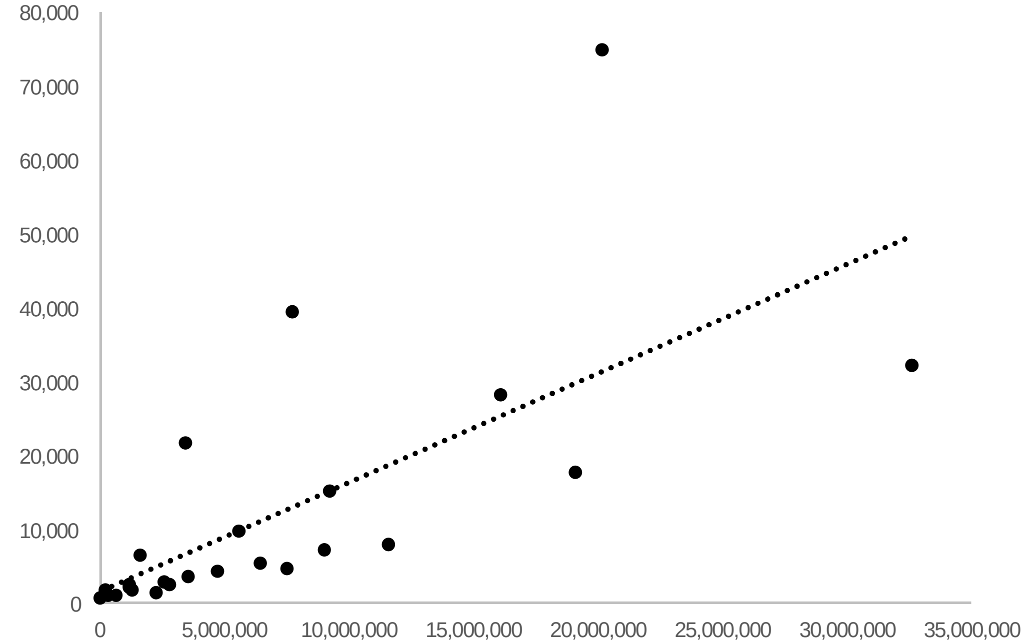

EXHIBIT 3: TWEET RATE V. REVENUE

Taken together, these studies seem to indicate how buzz can influence movies in two ways. First, these results offer more evidence of the influence of positive and negative word of mouth on movies. Second, we have further confirmation that the amount of buzz about a movie can affect its performance even after its release. This could be due to the level of awareness that this social media activity continues to generate. Or, it could be reflective of the amount of buzz about a movie in general.

Another interesting finding from this research was that those movies that had more positive buzz also had more buzz in general. That is, it seems that the more audiences enjoy a movie, the more likely they are to talk about it. On the other hand, it seems that those who do not have a favorable experience are less likely to share their sentiments.

This appears reasonable in light of the ability of tweet rate to predict a movie's performance. However, this is an issue that warrants further research.

CONCLUSION

This study confirmed our hypotheses that there are strong relationships between both Twitter sentiment and movie revenue, and tweet rate and movie revenue. While word of mouth has always thought to be a primary contributor to the success of movies, social media now provides us with a means of both confirming this relationship and the extent to which this relationship exists.

In addition, while prior research has confirmed that the level of social media activity can predict a movie's performance, it seems that buzz can continue to contribute to movie outcomes. This is apparent in not only the degree to which movies are reviewed positively by audiences but also in the number of tweets that are shared.

Practically speaking these findings allow us to better understand how word of mouth influences movies. For instance, the movie *John Carter*, a science fiction movie released in 2012 by Walt Disney Studios, has become shorthand for a box office disaster (Mendelson, 2015). In fact, Rich Ross, the company's chairman, resigned a month after Disney reported that they would lose $200 million on the film (Nakashima, 2012).

The film only earned $30 million on its domestic opening weekend, which is likely attributable to some marketing challenges, but word of mouth did not help it thereafter, as the movie lost an average of -59% in revenue per week over its first four weekends (The Numbers, 2017). This was especially problematic for the movie since it cost $307 million to produce (Sylt, 2014).

Conversely, *Paranormal Activity*, the most profitable movie ever made, had a production budget of only $15,000 yet earned $194 million at the box office (Avila, 2010; Frankel, 2009; The Numbers, 2017). Following its release in 2009, the movie experienced exceptional revenue growth over its first four weeks (The Numbers, 2017).

More recently, Twitter announced that *Wonder Woman* had become the most tweeted about movie of 2017 (Wagmeister, 2017). This is no surprise since its revenue only dropped 45% in its second weekend. This may not seem significant on its face value but *Batman v. Superman: Dawn of Justice* lost 69 percent in revenue between its first and second weekends. As further context, at the time of this writing it had the best second weekend of any superhero movie (Abad-Santos, 2017).

When *Batman v. Superman* opened, it garnered $166 million at the box office during its first weekend. However, the movie continued to shed screens in its first few weeks just as *Deadpool* was adding them (Pressberg, 2016). Compared to the highly-anticipated *Batman v. Superman* movie, *Deadpool* might not have even been made but for the attention that was generated by fans from leaked footage online (Setoodeh, 2017).

In light of our research, it is clear that these outcomes are largely the result of word of mouth. Specifically, we know that a movies' percentage change in revenue from week to week can be a good proxy for word of mouth given the patterns of high and low performers. Moreover, we know that this word of mouth consists of both positive and negative sentiments, as well as the amount of buzz that a movie generates.

Now, when people talk about movie buzz, we have a better understanding of its constituent parts and its impact. We also have a better appreciation for the predictive value of Twitter in this process.

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A COMPARATIVE ANALYSIS OF ETHIOPIAN AND GHANAIAN WOMEN ENTREPRENEURS

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ABSTRACT

The paper examines constraints faced by women-owned businesses in Ethiopia and Ghana. Both countries are have recently posted impressive economic growth rates. However, there is still an untapped potential that could be made by women but which are not being realized because of institutional and social obstacles. The paper addresses some pertinent questions related to access to credit with a view to identifying some constraints women may face because of their gender. The paper uses descriptive statistics and probit analysis to investigate whether businesses owned by men and women differ in their access to finance. The results suggest that in both countries, only a small percentage of businesses have loans and this access does not vary by gender. One counterintuitive result is that many businesses claim to have no need for a loan, while many others claim that access to finance is a big problem faced by their business.

INTRODUCTION

Ensuring that economic growth does not exclude some sectors of the economy is an important policy objective of most governments. In particular, governments want to ensure that women are fully included in reaping the benefits, and being part of the process of growth because they constitute an important source of innovation and job creation (Niethammer, 2013). In the developing countries, several studies show that "gender equality is smart economics," (Somoza, 2015). Women's "economic participation promotes agricultural productivity, enterprise development and enhances business management and returns on investment (OECD, 2010). The multiplier effect cannot be overemphasized; women tend to reinvest a large portion of their income in their families and communities." These are very good reasons to ensure that all sectors, particularly women, are fully included in economic growth. Unfortunately, women face obstacles, many of which are not of their own making, but imposed by societal norms and institutions. Women face obstacles when trying to establish new businesses or expand existing ones. Among the biggest hurdles are discriminatory laws, regulations and business conditions, as well as women's lack of access to property rights, finance, training, technology, markets, mentors, and networks. Bamfo and Asiedu-Appiah (2012) in a study of female entrepreneurs observe that even though conditions for women entrepreneurs are improving, they still face problems of accessing credit from financial institutions, among others.

Ghana and Ethiopia are two of Africa's fastest growing economies. Between 2011 and 2015, Ghana and Ethiopia both grew at 7% and 8.1% respectively. Geoff Cook (2015) points out that "Africa's entrepreneurs and SMEs will catalyze economic growth in 2015." This paper examines some of the obstacles women entrepreneurs face in accessing credit by comparing the two African countries. Our specific objectives in this paper are to determine:

1. Whether women entrepreneurs are more or less likely to apply for credit compared to men,
2. Whether women are more or less likely to apply for credit compared to men, what factors explain the disparity,
3. Whether women entrepreneurs use less leverage than men, and
4. Whether women entrepreneurs are risk-averse.

These four objectives are not of mere academic consequences; knowing whether women entrepreneurs apply for credit or not and, if they do not why they do not, could help initiate policies that could help them seek credit to expand their businesses. A related question of interest is whether women entrepreneurs who apply for and obtain credit use less of the credit than men entrepreneurs. This second question leads into the third objective. If women indeed use less of the credit granted than men, what are some of the possible explanations? Could it be that women are more risk averse than men? The answers to these questions could provide insights on how policy makers can work to include women in the rapid economic growth which countries such as Ethiopia and Ghana are currently experiencing.

The paper is organized as follows. Section II provides a brief literature review. Section III gives a brief description of the data, sources and some stylized facts about female owned businesses. Section IV describes the methodology and reports the results of the estimations. Section V provides summary and conclusions.

REVIEW OF THE LITERATURE

According to several experts including Niethammer (2013), women entrepreneurs "represent a vast untapped source of innovation, job creation and economic growth in the developing world" (p. 31). A World Bank report (2014) on women entrepreneurs suggests that women make significant contributions to economic growth and poverty reduction. According to the same World Bank report, businesses owned by women contribute about $3 trillion to the U.S. economy and are directly responsible for creating 23 million jobs. The ascendancy of women entrepreneurs is not limited to the developed world. In the developing countries, there are a number of small and medium-sized businesses owned or co-owned by women. It is estimated that in Africa, close to 63% of women not in agriculture, are self-employed compared to a worldwide figure of 30% (World Bank, n.d.). The importance of women as entrepreneurs in the economy cannot be overemphasized. At the same time, however, several studies suggest that women face significant obstacles to realizing their full potential contribution to the economy. Treichel and Scott (2006) find that women-owned businesses are significantly less likely to apply for bank loans. They conjecture that this might be due to the belief on the part of women that they might face discrimination. The same authors also find that women-owned businesses received smaller loan amounts compared to what men-owned businesses received. Niethammer (2013) finds that women-owned businesses are concentrated in sectors of the economy where firms are typically smaller. Whether this is because the minimum efficient scale of operation is smaller or that there are constraints preventing women-owned businesses from growing bigger is not clear, but she also suggests that women entrepreneurs face unmet financing needs of between \$290 and \$360 billion. In essence, women have difficulties accessing credit.

The vast potential which women entrepreneurs can bring to economic growth and development is only just being recognized. Coleman (2004) discusses the important contribution to economic development women in the Arab world could make if they did not face discrimination on many fronts. Woldie and Adersua (2004) in a survey article on female entrepreneurs in Nigeria, find that one of the challenges women entrepreneurs face is that they are not taken seriously by their male counterparts as well as the society as a whole. Tambunan (2009), for example, finds that many women enterprises operate on informal basis and have no identities. Tambunan also finds that the women entrepreneurs have low access to credit and marketing networks, lack of access to land and property and have a reduced risk-taking capacity. This reduced risk capacity could predispose them to not seeking credit even if they had access it. On the other hand, Coleman (2000) suggests that in reality, women-owned businesses do not face discrimination but because their businesses tend to be smaller and younger than businesses owned by men, and banks prefer to lend to bigger and older businesses, women-owned businesses tend to have difficulty accessing bank loans. That same study does, however, find that women receive loans under less favorable conditions than men-owned businesses, specifically, that women-owned businesses borrow smaller amounts and pay higher interest rates. A G-20 (2011) report confirms the results found by Coleman that “women entrepreneurs have lower access to financing than male entrepreneurs” and that when they do get financing, the terms tend to be less favorable than men.

By almost any measure of economic performance, women in developing countries lag behind their male counterparts. This is especially the case in Africa where both social norms and institutions conspire to keep women behind by making it difficult for them to access economic resources. In many countries, the most important asset one can hold is land. Although some African countries have made efforts at land reforms according the Food and Agricultural Organization (FAO), it is still the case that in many of the African countries including Ghana and Ethiopia, access to land by women is restricted. The FAO report (n.d.b) concludes that in Ghana “the system that regulates land ownership varies widely across regions, but ascribed men the exclusive property right to land excluding women” (p. 1). In Ethiopia, “because of traditional patriarchal practices or beliefs centered on male domination, women’s access to land is not officially recognized” (FAO, n.d.a, p. 1).

The unequal access to economic resources and institutional discrimination manifest themselves in a concentration of poverty among women and thus their confinement to mostly petty economic activities. For example, the female to male wage ratio in Ghana is .59 and the corresponding ratio for Ethiopia is .69. Female to male earned income ratio is .66 in Ghana and only .51 in Ethiopia. Fewer women work in the professional and technical areas of industries than women (.52 in Ghana and .48 in Ethiopia); the result of fewer women being enrolled in tertiary education (.61 in Ghana and .32 in Ethiopia).

It has often been stated that in Africa, credit is a big obstacle to businesses especially for businesses owned by women. Even if it were possible to use land as collateral to access credit, women would be at a disadvantage given their lack of access to land property rights in general. Coleman (2000), however, argues that the credit constraint faced by women entrepreneurs is the result of their businesses being small relative to businesses owned by men. Sabarwal and Terrell (2008) come to the same conclusion in their study of 26 countries in Eastern Europe and Central Asia, finding that that there is a significant gap in the scale of operations between women and men measured by sales revenue. An interesting finding from the study is that both men and women operate in a region of the production function with increasing returns to scale, however, they also conclude that women's return to scale is larger than men's. They also find that the total factor productivity (TFP) for women was worse than men in industries that are capital intensive but the same in labor intensive industries. In their further analysis of the data, they conclude that women are less likely than men to get financing from banks, pay higher interest rates when they do than men. The also find that women who need loans are less likely to get them than men who need them and that firms that have access to capital are larger in scale hence women are capital constrained.

This thesis appears to be supported by an earlier study done by Bigsten et al. (2003) who conclude from their study of credit needs of manufacturing enterprises in six African countries, that the smaller the firm, the less likely it is to obtain a bank loan. Since according to Coleman (2000) women owned businesses tend to be smaller, *ipso facto* they will face credit constraints, but this begs the question; which is: why are they small in the first place?

DATA AND STYLIZED FACTS

The data for this study comes from the World Bank Enterprise Surveys. The World Bank interviews a representative sample of business owners and managers on a variety of issues related to business operations. One advantage of this data source is that the questions are similar across countries which allow comparison across countries. The data for Ethiopia are from the 2011 survey, while the data for Ghana are from the 2007 survey.

What kind of business are women in the two countries mostly engaged in?

For Ghana, three sectors: retail, garment and food account for 75% of women owned businesses in the sample. In the case of Ethiopia, women owned businesses are less concentrated by industry. Retail, recorded media and food sectors account for 41% of women owned businesses

In Ghana, businesses owned by men were a bit less concentrated, with 59% of businesses in the retail, other manufacturing and garments sector. In the case of Ethiopia, the retail, food and wholesale sectors comprised 41% of businesses.

Size of enterprises by value and volume

In the case of Ghana, firm size did not very significantly by gender of ownership. The median sale of firms was 250 million cedis for both men and women owned firm. The number of employees was similar with a median of 8 employees for women and 7 employees for men. In the case of Ethiopia, women owned firms had median sales that were about 20% larger than firms owned by men. The median number of employees was similar for both groups (Table 1**)**.

TABLE 1: SIZE OF ENTERPRISES

	Ghana		Ethiopia	
	Median Sales (millions of cedis)	Median number of Workers	Median Sales (thousands of birr)	Median number of Workers
Women	250	8	1201	19.5
Men	250	7	1000	20

Educational background of proprietors/manager

Within each country, education levels for managers/proprietors were similar across gender for most educational categories (Table 2). Women were a little more concentrated in the lower educational levels. The biggest difference was for Ethiopia, were 57% of managers of women owned firms had a college education as opposed to 48% for firms owned by men. In addition, in Ethiopia, individuals with a college degree were much more likely to be business owners.

TABLE 2: EDUCATION OF MANAGERS (Percent)

	Ghana			Ethiopia	
Education of Manager	Women	Men	Education of Manager	Women	Men
No Education	6.29	0.96	No Education	2.08	0.55
Primary School	9.6	4.78	Primary School	1.04	2.74
Some Secondary School	11.26	11.15	Secondary School	12.5	16.42
Secondary School	25.83	28.66	Vocational Training	9.38	10.58
Vocational Training	23.18	21.34	Some University	17.71	20.99
Some University	9.6	9.24	Completed University	57.29	48.18
Completed University	10.26	18.79			
MBA, Local	1.99	1.91			
MBA, Foreign	1.32	1.59			
Other Postgraduate, Local	0.66	1.29			
Other Postgraduate, Foreign	0	0.32			

Other Characteristics

Exports did not account for a significant percentage of sales for either country. In Ethiopia, exports accounted for 5.6% of sales for women owned firms as opposed to 3.6% for firms owned by men. In Ghana, exports accounted for less than 2% of sales for both men and women. In terms of employment growth, firms owned by men hired 9 more workers in the past three years, while women owned firms hired approximately 5 more workers. In Ethiopia, women owned firms hired almost twice as many workers (50.32) than firms owned by men (24.29).

Constraints faced by businesses

When businesses were asked why they did not apply for a loan, the most common response among all businesses was that there was no need for a loan. Somewhat paradoxically, when asked what are the most important constraints facing the business, the most common response from Ethiopian businesses was access to finance. For Ghanaian businesses, access to finance was the second most common constraint, after access to electricity. This raises the question of what types of businesses have loans and what are the characteristics of businesses that take out loans and those that say they have no need for loans.

For women owned businesses in Ethiopia, businesses that have loans are fairly evenly spread among the various industry sectors. The most concentrated sectors are retail and recorded media which each hold 14% of firms with loans. However, in each of these industries there are many more firms that do not have loans. In addition, the level of education seems to affect whether women owned businesses apply for loans (Table 3). Firms that have loans have significantly more employees (Table 4). All women owned firms with loans were led by a manager with greater than a secondary education. When looking at the characteristics of firms that say they have no need for loans, firms that do not need loans are a bit smaller in terms of the number of employees. In the case of the retail sector, ten firms responded they had no need for loans, while ten others gave other reasons for not applying for loans.

TABLE 3: WOMEN – LOAN OR NO LOAN BY EDUCATION

	Ethiopia		Ghana	
Education	No Loan	Loan	No Loan	Loan
Secondary or less	20%	0%	22.64	59.44
Post-Secondary	80%	100%	77.36	40.56
College Graduate	53.30%	71.40%	49.06	6.83

TABLE 4: SIZE OF WOMEN OWNED BUSINESSES BY LOAN STATUS

	Ethiopia		Ghana	
	No Loan	Loan	No Loan	Loan
Mean employees	393.38	42.25	50.11	14.269
Median	50	15	15	7

For women owned businesses in Ghana, those with loans were more concentrated, with 60% in the food and retail sectors, although there were many more firms in these industries without loans. Firms with loans had an average of three times more employees than those businesses without loans. In addition, businesses run by managers with less education were less likely to have loans. When looking at the businesses who claimed they had no need for loans, in Ghana they were a bit bigger, with an average of 19 employees compared to 17 employees for businesses that did not say they had no need for a loan. Businesses that had no need for a loan were concentrated in the food, garments and retail sectors. However, like the case in Ethiopia, there were many more firms in these sectors who did not say they had no need for a loan.

To investigate these questions we will use data for Ghana and Ethiopia from the World Bank Enterprise Surveys. The World Bank performs a stratified random sample of businesses across a large number of countries. One advantage of these surveys is that the questions asked in the surveys are often similar which allows for comparisons across countries. We chose Ghana and Ethiopia because they both have had strong economic performance relative of other countries in Sub-Saharan Africa. We also limited our sample to two countries because we wanted to focus on the institutional characteristics of a limited set of countries, rather than aggregating across a number of countries.

The data for Ethiopia comes from the 2011 survey. A business was defined as female owned if at least 50% of the owners were female. In Table 5, we see that only about 15% of responding enterprises had female owners in Ethiopia. However, these businesses with female owners were a bit more likely to have borrowed money than male owned business. In Ghana, on the other hand, the percentage of businesses owned by women is about the same as men and they are just as likely to have a loan as men. In Table 6, we compare business investment in firms that have a loan versus those that have not borrowed money. Businesses that borrow money tend to make significantly larger investments in both equipment and land.

TABLE 5: BUSINESS BY GENDER & WHETHER THEY HAVE A LOAN OR NO LOAN

	Ethiopia			Ghana		
	Female	Male	Total	Female	Male	Total
Loan	21	78	99	53	53	106
No Loan	75	470	545	249	261	510
Total	96	548	644	302	314	616
Percentage	15	85		49	51	

TABLE 6: AVERAGE AMOUNT SPENT LAST FISCAL YEAR ('000S OF BIRR FOR ETHIOPIA) AND (MILLIONS OF CEDIS FOR GHANA).

	Ethiopia			Ghana		
	Equipment	Land	Total	Equipment	Land	Total
Loan	6,422	1,973	8,395	2,702	423	3,125
No Loan	2,241	579	2,820	24	17	41

The survey asked participants who did not apply for a loan, why they did not apply (Table 7). The biggest reason was because it was felt that there was no need for a loan. Female owned businesses were more likely to give this response than male owned businesses. Interestingly, female owned businesses were less likely to be concerned about being turned down for a loan and with the size and maturity of the loan. Finally, when asked what the biggest obstacles that firms faced were, both women and men were largely in agreement (Table 8). The biggest obstacle was access to finance. This was interesting given the large number of respondents who said they did not apply for a loan because they did not need a loan. Other obstacles faced by businesses include access to land and access to electricity. Female owned business were more concerned with tax administration, while male owned businesses were concerned about tax rates. Finally, Table 9 investigates whether firms who receive loans are concentrated by industry sector. For the case of Ethiopia, firms with loans are not highly concentrated in industry sectors. For Ghana, firms were more concentrated, with 60% of firms receiving loans being in the food and retail sectors.

TABLE 7: REASONS FOR NOT APPLYING FOR A LOAN. (PERCENT)

	Ethiopia		Ghana	
	Female	Male	Female	Male
No need	58	45	19	16
Complex application	9	5	17	14
Interest rates too high	6	5	18	16
Collateral too high	13	2	15	15
Size and maturity of loan	1	5	2	3
Did not think it would be approved	6	9	6	6
Other reasons	7	29	24	30
Total	100	100	100	100

TABLE 8: BIGGEST OBSTACLE FACED BY FIRM (PERCENT)

	Ethiopia			Ghana	
	Female	Male		Female	Male
Access to finance	19.79	29.93	Electricity	45.36	45.54
Access to land	16.67	18.25	Access to finance	33.44	32.17
Electricity	16.67	18.07	Tax rates	5.30	8.92
Tax Administration	10.42	8.39	Access to land	4.64	4.78
Other Obstacles	36.45	25.36	Other Obstacles	11.26	8.59
Total	100.00	100.00	Total	100.00	100.00

TABLE 9: INDUSTRY SECTORS THAT HAVE NO NEED FOR A LOAN

	Ethiopia			Ghana	
	No Need	Other Reasons		No Need	Other Reasons
Retail	10	10	Food	16	33
Recorded Media	5	1	Garments	15	53
Transportation	4	0	Retail	15	48
Base Metals	3	0	Other Services	3	9
Food	1	5	Hotel and Restaurants	3	18
Employees (mean)	39.58	50.69	Employees (mean)	19.47	16.767

The data for Ghana comes from the 2007 survey. A business was defined as a female owned business if the respondent answered yes to the question: "Are any of the principle owners female?" From Table 5, we see that approximately half the businesses in the sample were female owned. However, like the case in Ethiopia, only a small fraction of businesses had a loan. This fraction did not vary based on the gender of the owner.

Having access to a loan clearly influences the investment decisions of firms. Firms that had a loan made significantly larger investments in both equipment and capital. However, female owned businesses tended to have less debt outstanding. Reasons for not applying for loans were similar between women and men. Like the case in Ethiopia, the biggest reason was the lack of need for a loan. However, Ghanaian businesses were more likely to be concerned about interest rates and the complexity of the loan application process. When asked about the biggest obstacles faced by the firm, the concerns were similar to Ethiopia, although in a different order. First on the list was access to electricity, then access to finance, then tax rates and finally access to land.

METHODOLOGY AND RESULTS OF ESTIMATIONS

To address the question of whether gender influences the financing decisions of firms, a probit model is used. The probit model, like the logit is used for binary responses where a dependent variable takes on one of two (dichotomous) values, e.g. 0, 1 for say "yes" or "no". The probit model uses the cumulative density function (cdf) of the standard normal distribution as the transformation function *F*, calculating the probability responses as follows:

$$P(y_i = 1|x_i) = \Phi(x_i'\beta) = \int_{-\infty}^{x'_i\beta} \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}t^2}\, dt$$

The logit model uses the logistic function as the transformation *F* and calculates the response probabilities as follows:

$$P(y_i = 1|x_i) = \frac{e^{x'_i\beta}}{1 + e^{x'_i\beta}} = \frac{1}{1 + e^{-x'_i\beta}}$$

The two models are almost identical and hence the decision to use one or the other is often the choice of the user. It must be mentioned though that the parameters are not directly comparable because they are scaled differently. Multiplying the parameters of the probit model by 1.6 however, makes them approximately the same as the logit model estimates (Schmidheiny, 2015). The signs of significance are identical and the models lead to the same conclusions. The logit however, has "fatter" tails in the graph of its distribution than the probit (Jones, 2009). The probabilities of both models are symmetrical about 0.5. There is no significant difference between the two except that the probit model has normal errors while the logit model displays logistic errors.

In model estimation, the dependent variable is equal to one if the firm has a loan and zero if not. The independent variables include the legal status of the firm, the size classification, number of employees, the sector of the firm, whether the firm has an overdraft account, the age of the firm, its location and whether or not it is a female owned firm.

The probit equation for Ethiopia is shown in Table 10**.** If a firm is a sole proprietorship, it is less likely to have a loan. The number of employees has a positive impact and was marginally significant. Firms in the service sector were more likely to have a loan. Firms that had an overdraft account were more likely to have a loan. A counterintuitive finding is that firms located in Addis Ababa were less likely to have a loan. The effect of female ownership was not statistically significant.

The results for Ghana are also shown in Table 10. In this sample, firms that were private limited companies were more likely to have loans. Firms that have more employees are also more likely to have a loan. Firms in the retail sector were more likely to have loans. Similar to the case in Ethiopia, firms that had an overdraft account were also more likely to have loans. The female variable was not statistically significant.

TABLE 10: PROBIT MODEL OF WHETHER FIRMS HAVE A LOAN

Dependent variable: haveloan						
Standard errors based	**Ethiopia**		**Sig**	**Ghana**		**Sig**
	Coefficient	*z*		*Coefficient*	*z*	
Constant	-1.844	-3.490	***	-2.563	-2.556	**
Sole Proprietorship	-0.502	-3.079	***	0.087	0.363	
Limited Partnership	0.134	0.633				
PrivateLtdCo				0.598	2.418	**
Small	-0.008	-0.024		0.197	0.315	
Medium	0.034	0.149		0.392	0.869	
Ln Employment	0.180	1.944	*	0.306	1.706	*
Retail	0.238	1.242		0.405	2.083	**
Service	0.407	2.425	**	0.174	0.721	
Overdraft	0.977	6.562	***	1.521	8.259	***
Age of Firm	0.002	0.362		-0.004	-0.534	
Capital City	-0.304	-1.926	*	-0.163	-1.002	
Female	0.268	1.452		0.142	0.895	
McFadden R-squared	0.206			0.291		
Log-likelihood	-211.150			-168.140		
Schwarz criterion	499.510			410.681		
*** significant at the 1% level						
** significant at the 5% level						
* significant at the 10% level						

In Table 11 we show a probit analysis of whether a firm applied for credit in the past year. For Ghana, the only statistically significant variable was whether the firm had an overdraft account. In the case of Ethiopia, firms in the service sector were more likely to apply for a loan. Sole proprietorships were less likely to apply for a loan and firms with an overdraft account were more likely to apply.

TABLE 11: DEPENDENT VARIABLE: APPLY LOAN

	Ethiopia			**Ghana**		
	Coefficient	*z*	*Sig*	*Coefficient*	*z*	*Sig*
Constant	-1.068	-2.320	**	-0.672	-0.744	
Sole Proprietorship	-0.271	-1.955	*	0.027	0.129	
Limited Partnership	-0.044	-0.228				
Private Limited Co				0.246	1.091	
Small	0.075	0.269		-0.556	-0.971	
Medium	-0.128	-0.619		-0.080	-0.194	
Ln Employment	0.092	1.135		0.074	0.454	
Retail	0.062	0.405		0.271	1.605	
Service	0.272	1.990	**	0.139	0.661	
Overdraft	0.557	4.211	***	1.153	6.537	***
Age of Firm	0.000	0.86		-0.009	-1.361	
Capital City	-0.103	-0.79		-0.180	-1.281	
Female	-0.037	-0.23		0.040	0.294	
*** significant at the 1% level						
** significant at the 5% level						
* significant at the 10% level						
McFadden R-squared	0.06054			0.160		
Log-likelihood	-323.91			-227.870		
Schwarz criterion	725.255			530.144		

The stylized facts show conflicting results in that when firms are asked why they didn’t apply for a loan, the most frequent response was that there was no need for a loan. However, when asked what was the biggest problem faced by the firm, access to finance was also a frequent response. Probit equations were estimated using these responses as the dependent variable to attempt to understand what types of firms don’t have a need for loans and what types of firms see access to finance as a significant problem.

The probit equations for the dependent variable, *no need for a loan*, are presented in Table 12. For Ethiopia, sole proprietorships and limited partnerships were significantly less likely to respond that they had no need for a loan. Firms in Addis Ababa and female owned firms were more likely to say they had no need for a loan. For the case of Ghana, the only significant variable was the age of the firm. Older firms were more likely to say they had no need for a loan.

TABLE 12: DEPENDENT VARIABLE: NO NEED FOR A LOAN

	Ethiopia			**Ghana**		
	Coefficient	*z*	*Sig*	*Coefficient*	*z*	*Sig*
Constant	-0.3084	-0.6081		-0.5310	-0.5557	
Sole Proprietorship	-0.5924	-3.7380	***	-0.0780	-0.3618	
Limited Partnership	-0.5188	-2.3030	**			
Private Limited Co				0.0445	0.1900	
Small	-0.1032	-0.3361		-0.2083	-0.3369	
Medium	0.0265	0.1171		0.1811	0.3957	
Ln Employment	0.1070	1.1310		-0.2185	-1.2700	
Retail	-0.1627	-1.0180		0.1452	0.8592	
Service	0.1062	0.7066		0.1555	0.7769	
Overdraft	-0.1067	-0.6645		0.1153	0.6098	
Age of Firm	-0.0001	-0.3084		0.0165	2.4980	**
Capital City	0.5183	3.6990		-0.0059	-0.0426	
Female	0.3402	1.9750	**	0.0513	0.3754	
*** significant at the 1% level						
** significant at the 5% level						
* significant at the 10% level						
McFadden R-squared	0.070			0.022		
Log-likelihood	-302.790			-230.633		
Schwarz criterion	679.439			535.673		

The probit equations for access to finance as a problem are shown in Table 13. For Ethiopia, sole proprietorships and limited partnerships were more likely to say access to finance was a problem. Female owned firms were less likely to say that access to finance was a problem. For Ghana, private limited companies and firms with more employees were less likely to say access to finance was a problem. Older firms were more likely to say access to finance was a problem.

TABLE 13: DEPENDENT VARIABLE: ACCESS TO FINANCE A PROBLEM

	Ethiopia			**Ghana**		
	Coefficient	*z*	*Sig*	*Coefficient*	*z*	*Sig*
Constant	-0.974	-2.119	**	1.823	2.060	**
Sole Proprietorship	0.395	2.740	***	-0.211	-1.080	
Limited Partnership	0.523	2.624	***			
Private Limited Co				-0.529	-2.375	**
Small	0.357	1.274		-1.003	-1.762	*
Medium	0.105	0.499		-0.626	-1.479	
Ln Employment	-0.019	-0.233		-0.559	-3.356	***
Retail	0.190	1.352		-0.059	-0.382	
Service	-0.133	-0.977		0.077	0.424	
Overdraft	-0.085	-0.627		-0.131	-0.689	
Age of Firm	0.000	-0.445		0.015	2.443	**
Capital City	-0.005	-0.042		-0.120	-0.944	
Female	-0.339	-2.077		0.111	0.890	
*** significant at the 1% level						
** significant at the 5% level						
* significant at the 10% level						
McFadden R-squared	0.048					
Log-likelihood	-363.187					
Schwarz criterion	803.818					

SUMMARY AND CONCLUSIONS

The results of this paper show some differences and some surprising similarities between women owned firms in Ghana and Ethiopia. Ghana had more women owned firms; 50% of firms have women ownership. Ethiopia had much fewer women owned firms, but they were much bigger, with the median number of employees over twice as high in Ethiopia as in Ghana.

For most variables, results were similar between men and women owned businesses in both countries. For example, only a small fraction of businesses had loans. The economic effect of having loans was strong and clear. Firms with loans had more employees and made larger investments than firms without loans. The difference between those with loans and those without was not of small magnitude either. For example, firms with loans in Ethiopia made investments in equipment that were three times larger than those without loans. In Ghana, firms with loans made investments that were on average over a hundred times larger. Both countries appear to be starved for capital. However, many in both countries also claim they have no need for loans.

There is a paradoxical result that many say they have no need of a loan and yet a significant fraction of business owners also say access to finance is a problem. It would be useful to perform additional surveys to more fully understand why some say there is a need for more capital and at the same time we find that they say they have no need for loans. In addition, given that so few businesses have loans, it is difficult to determine if women owned businesses are being treated differently in the marketplace. The information available from the Enterprise Surveys do not suggest significant differences between businesses owned by women and men. More detailed information would be useful to determine if and how women are being treated differently in the marketplace.

These results suggest that some future research is needed. First, it would be useful to more directly measure the attitude towards risk of women entrepreneurs. For example, did women entrepreneurs say they had no need for a loan because they were risk averse, or because they thought there were institutional barriers to obtaining a loan? In addition, it would be useful to have more detail on the existing financial relationships of entrepreneurs. This would help us to understand whether firms lack access to credit because of limited financial relationships, or for some other reason.

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