CONTENTS

Lydia Breksa, EUROPEAN STUDIES
European-Asian Relations in the 1500s as Seen on the Title Page of Ortelius’ Theatrum Orbis Terrarum

Corey Cherrington, EUROPEAN STUDIES
Women and Religiosity in the English Civil War: Did English Women Have a Revolution of Their Own?

Annica Cooper and Brooke Carroll, NUTRITIONAL SCIENCE/PRE-DIETETICS
Decreasing Nutrient Deficiencies in Malawi through Nixtamalization: A Sensory Analysis

Sierra Davis Thomander, POLITICAL SCIENCE
Ugandan Women’s Perceptions of Significant Women’s Issues and Women’s Representatives’ Effectiveness
CONTENTS

European-Asian Relations in the 1500s as Seen on the Title Page of Ortelius’ *Theatrum Orbis Terrarum*
Lydia Breksa, European studies ........................................................................................................... 3

Women and Religiosity in the English Civil War: Did English Women Have a Revolution of Their Own?
Corey Cherrington, European studies .............................................................................................. 11

Decreasing Nutrient Deficiencies in Malawi through Nixtamalization: A Sensory Analysis
Annica Cooper and Brooke Carroll, nutritional science/pre-dietetics ............................................... 19

Ugandan Women’s Perceptions of Significant Women’s Issues and Women’s Representatives’ Effectiveness
Sierra Davis Thomander, political science......................................................................................... 31
The Age of Exploration in sixteenth-century Northern Europe was an exciting time, both intellectually and commercially. The Christian humanist worldview was shattered by Columbus’ discovery in 1492, and it reluctantly came to include the Americas in the established three-continent worldview of the Early Middle Ages. Despite increased contact with the outside world, a flow of new products from the Americas, and old luxuries from the East, some of the ideas formed during the Middle Ages remained to shape Christian humanism. The title page of the atlas *Theatrum Orbis Terrarum* (1570) by Abraham Ortelius shows this collision of old and new worldviews in the depiction of allegorical figures of Europe, Africa, Asia, America, and an unknown southern continent of Magellanica. Made by and for an audience rich in biblical and classical knowledge, this title page is full of meaning and symbolism that can be used to understand how Christian humanists viewed the world. This paper will focus on how they viewed Europe’s relationship with Asia, which they viewed as an exotic place over which they had Christian stewardship.

Although many scholars have looked at the *Theatrum Orbis Terrarum* outside of its context and as part of a larger argument, few, if any, have looked at it in regard to Europe’s relationship with other countries. The largest book about this atlas is *Imagined Corners Exploring the World’s First Atlas* by Paul Binding. This book is great for the popular reader, but with ambiguous quotes and a lack of citations, it leaves the scholar searching. Neumann, in her article “Imagining European Community on the Title Page of Ortelius’ *Theatrum Orbis Terrarum* (1570),” does an excellent job analyzing how the title map suggests a European identity. However, this paper will dig deeper by looking at the title page in three ways: in the context of its time period, and what attributes of the European-Asian relationship are present in the title page as viewed during the Middle Ages and in his day.

On the *Theatrum Orbis Terrarum* title page, there are five allegorical figures representing five continents: Europe, Asia, Africa, America, and the unknown southern continent of Magellanica (Figure 1). Europe sits upon a throne, holding in her right hand a scepter and in her left hand a cross, the base of which touches the globe somewhat covered by her knee. Grapes and vines interweave back and forth in the canopy above her. The arms of her throne extend nearly to the edge of the roof she sits on and have vine décor twirling in a spiral at the circular ends. Below her are Asia and Africa, as caryatids of the Erechtheion at the Acropolis in Athens, standing in front of two columns on opposite sides of the stone structure holding Europe and...
Figure 1. Ortelius, title page, 1570
her throne up (Figure 2). Africa is on the right, distinguished by features considered black by this era and barely clothed. Lying on the ground naked and holding a severed head in one hand and a spear in the other, America looks down. To her left, the top of the unknown southern continent of Magellanica is depicted on a stone cube with flames engraved on its front side. Asia stands on the left side. She wears exotic clothing, which is slightly more revealing than Europe’s European-styled dress, and holds spices in her left hand. Her features are predominantly European. The metope below Europe depicts skulls of oxen and circular cushion-like designs. To a sixteenth-century Renaissance traveler or Christian humanist, this depiction was full of meaning and symbolism.

Figure 2. Various artists, caryatid of the Erechtheion at the Acropik in Athens, 421 and 406 B.C.E.

_Theatrum Orbis Terrarum_ was made by and for Christian humanists. Despite political and religious conflict, Antwerp was the scholarly and economic center of Europe by the mid-1500s; its innovation and success due to the relatively welcoming arms the city held out to diverse ideas and scholars. By the 1500s, Ortelius was considered the man of map-making. Historian Geert Vanpaemel referred to copies of Ortelius’ atlas as “commercial products” meant for the “practical” use of travelers and merchants. Rich merchants had the means and money to buy classical readings popular among Christian humanists. Ortelius’ audience would recognize the symbols employed in the title page.
This atlas, the first of its time, is a compilation of maps by others that Ortelius brought to the same scale in this order: The title page, a dedication to Philip II of Spain, a poem by Adolphus Brugensis, an introduction, a list of contributors, a list of places covered in the maps, and the maps. It is believed that Ortelius himself designed the title page, but there remains debate as to the engraver’s identity. Although the poem does refer to Ortelius’ title page, I would argue, along with others, that Brugensis’ poem should not be used as a source to better understand the title page for three reasons: The poem changed three times in different translations, it was most likely a gift to Ortelius without his knowledge, and there are contradictions between the poem’s ideology and that of Ortelius himself. Due to these distinctions, the title page may be properly examined by itself in the context of its time.

Ortelius’ *Theatrum Orbis Terrarum* was widely acclaimed. His atlas filled a need in an ever-exploring Europe. The reception of his map was huge; it was published in seven European languages, and between 1570 and 1612, there were enough editions for each year. It was the most successful book of the 1500s. Not only was the atlas successful, but it was also considered extremely accurate. Thanks to this atlas, Antwerp, where it was published, became the center for cartography. The opening page of this highly acclaimed and successful atlas was published by Christopher Platin, whose publishing company was a well-known center for many Christian humanists. Consequently, whether or not this title page did indeed reflect how the Christian humanists of the 1500s viewed the relationship between Europe and Asia when first published, it came to be considered as such. Yet due to the careful eye and selectiveness of Platin, whose audience was the intellectuals of his time, I would argue that this title page can be used to get a snapshot of how the Christian humanists viewed Europe’s relationship with Asia. This view, however, has ties to the Middle Ages.

The intellectuals of the Middle Ages were largely scholastic monks, and their view of the world as divinely organized by God had an impact on how those in the 1500s considered the world. The world maps’ structure and images of the Middle Ages testify of the divinity of God. One such structure was the T-O map, in which the world was divided into three sections as believed to have been populated by Noah’s three sons after the forty-day flood—Sem, Japheth, and Cham in Asia, Europe, and Africa respectively. These places were divided by bodies of water: The Don River, the Mediterranean Sea, and the Nile River, often represented by straight lines. Ortelius kept these divisions on the title page but used stone instead of water. He employed a common trope to convey another message. During the Middle Ages, the East (or Asia) was often placed on top. The Garden of Eden was believed to have been in Asia. By placing Asia, the home of the Garden of Eden, on top, the viewer is reminded of the fall of man. Ortelius, however, places Europe on top. Through the moralizing of geography during the Middle Ages, the Christian humanist often related geography with the progression of Christianity and, therefore, the location’s place within the hierarchy of places. America represents the Fall; Africa, the time before the Flood; Asia, the time under the Mosaic
law; and Europe, Christendom. Whereas, placing Asia on the top once represented the origin of man, Ortelius highlights the hierarchy of continents based on the history of Christianity by placing Europe, the origin of Christianity, on top.

It is through Christian symbols that Europe is hierarchically placed above the other continents. Europe is wearing a crown that resembles the crowns of the Holy Roman Emperor and the Pope. Both crowns represent the authority of God and roles that act on God’s behalf; the Holy Roman Emperor was believed to be the king ordained by God, and the Pope was the individual with authority handed down from Peter and, consequently, Christ. Europe is also staring out at the viewer, sitting in the middle, flanked by two globes, while holding her right hand closer to her body and her left hand farther away. This imagery would bring to mind Northern Renaissance images of Christ as a Man of Sorrows. In such depictions, Christ is often flanked by two smaller figures and brings His right hand closer to His body to show the slash in His side and moves His left hand farther away from His body showing His pierced hand, either holding or not holding the cross. This connection with the Man of Sorrows and the grapes reflects the sacrament and Europe’s dependence on the sacrifice of Christ. Within the context of the map, Europe’s supremacy is linked with Christianity.

However, the title page shows that Europe’s paramount position over Asia is one of Christian stewardship. The grape vines on top and the fishing-like net at the bottom symbolize both Christ’s call to be fishers of men and John 15:1–4 which states

I am the true vine, and my Father is the husbandman. Every branch in me that beareth not fruit he taketh away: and every branch that beareth fruit, he purgeth it, that it may bring forth more fruit. Now ye are clean through the word which I have spoken unto you. Abide in me, and I in you. As the branch cannot bear fruit of itself, except it abide in the vine; no more can ye, except ye abide in me.

Above Europe, the vine is fruitful; Europe is with Christ as it fulfills its stewardship role. This is further emphasized by the role Asia plays as a caryatid. Her presence helps support Europe above; Asia is necessary for Europe to fulfill its role as Christian steward.

This role is also represented by the structure of the engraving. The grapevine’s leaves become stone as they decorate the outreaching arms of the throne. These arms end in a circle above Asia and Africa on both sides. Asia and Africa are part of the vineyard but do not yet bear fruit, because they have not fully converted to Christianity. The lustrous leaves carved on the stone are about to come to life as the fruit these continents will bear under Europe’s Christian stewardship. A rudder inside the blue globe is aligned with the cross Europe holds in her right hand. This and the comparison of the church as a ship show that Europe has dominion, as represented by her ability to steer or control the world through her role as steward. It is the presence of Christianity that makes Europe superior to the other continents.

As depicted in the title page, Asia is viewed as exotic—both different and luxurious. This view of Asia originates in medieval thought. Travelers to the East during the Early Middle Ages began to focus on what they thought was strange when they visited and detailed it in their pilgrimage books for those in Europe. Asia is por-
trayed very differently than Europe. She has European features and white skin—in contrast to Africa and America—because Marco Polo in the 1300s described the Chinese as fair-skinned. Ortelius was up-to-date. Asia’s clothing and accessories are very unique. She wears a colorful, see-through, silky dress held in place by gold ornaments. Twenty years later, in Cesare Vecello’s publication of Degli habiti antichi et moderni di diverse parti del mondo, such unique clothing for Asia is not depicted. The luxuriousness and uniqueness of her dress, as well as her spices, highlight Asia as exotic.

Ortelius’ title page of Theatrum Orbis Terrarum is full of rich symbolism and meaning, connecting the past with its time, a time full of exploration and change. The discovery of the Americas was a “shock” to many in Europe as was the Protestant Reformation starting in 1517 with Luther’s “95 Theses.”18 Following their inability to reconcile the divisions within the Christian faith at the Council of Trent, the Catholic Church began to focus on helping fellow Catholics in predominantly Protestant areas. This soon spread to the Jesuits focusing on missionary work in the East, even reaching Japan by the 1550s. The Christian humanists during the Age of Exploration in northern Europe viewed their world through a lens established in the past with information of their time. Perhaps this title page—published and made by devout Catholics in a rocky time—goes beyond the portrayal of the European-Asian relationship as one of stewardship to also emphasize the importance of staying true to the Catholic faith, for it was this faith that made Europe great.

NOTES


4. Paul Binding, Imagined Corners Exploring the World’s First Atlas (London: Headline Book Publishing), p. 207. More things were added over the years in different editions: after 1579, a portrait of Ortelius by Galle between Brugensis’ poem and Ortelius’ introduction; and after 1573, a letter from Gerard Mercator recommending Ortelius’ work and likely longevity between said introduction and the list of contributors.


11. The 1025 Cotton Map, a very influential world map held at Canterbury Abbey, for example, has three events depicted on the map, two of which are events from the Bible, that show God’s power changed the world: Noah’s ark on Mount Ararat and the flight of Egypt. The latter caused the Red Sea to part, a temporary physical change of the earth that also led to the current division among the people of the earth as seen in the twelve tribes of Israel, a change brought about by God.


16. Two great examples of this are Christ as Man of Sorrows, c. 1450 by Petrus Christus and *Man of Sorrows*, c. 1480–85 by Geertgen tot Sint Jans.

17. Mary B. Campbell, *The Witness and the Other World: Exotic European Travel Writing, 400–1600*, p. 43. This focus can be seen as early as the late 600s. Campbell notes that “Arculf’s eye [the Bishop pilgrimage in *De locis sanctis*] seems to have been for places, places made strange by miracles, by their connection with sacred history, or merely by their difference from Gaul.” Two other great examples include *Wonders of the East* (a.d. 1000) and *Ctesias’s Indika* (late 400s).


REFERENCES


Loose, Sarah. Lecture in HIST 300 class, Provo, BYU, fall semester 2016.


Women and Religiosity in the English Civil War: Did English Women Have a Revolution of Their Own?

by Corey Cherrington, European studies

Introduction

When historians think of the English Civil Wars, they typically view people such as Oliver Cromwell, King Charles I, or other prominent male figures as the most important actors and as the most significant movers of events. Queen Henrietta Maria is one of few female actors observed and studied as a major player in the events, as she helped the king in his stance against reforms undertaken by Parliament, but other women mentioned in mainstream historical works are overlooked. ¹ Recent scholarship on gender and the politics of the English Civil Wars (ECWs) has offered a more holistic approach to how various groups of women in society may have participated in revolutionary movements of the wars.² That is, although the traditional approach for study of the revolutionary facets of the ECWs is to concentrate most heavily on the accomplishments of men, scholars are finding it is abundantly useful to pay closer attention to the women involved in the proceedings of the civil wars because they actually had somewhat of a women’s revolution on the back of two wars.

Furthermore, based on said recent advancements in scholarship, the following hypothesis was formulated: Throughout the English Civil Wars of the 1600s, women moved revolutionary occurrences forward due to their acceptance or rejection of religious reform, depending on their position as royalists or as the opposition. The hunt for information on the activism of women during the English Civil Wars and how their sway might have stemmed from religious stances on church reform issues has led to many findings about the extent to which women of the time engaged in revolutionary activities that were not necessarily connected to mainstream desires to revolutionize the English government. Additionally, further research has indicated that the original hypothesis had many pitfalls of prior research, in that it focused on the ECWs as an occurrence with men at its center. Because of this, initial threads of research were distracted from the notion that women may have had their own revolution on the peripheries of the ECWs. Because this is the case, this essay will distance its argument from traditional discussions of the ECWs as a revolution, asserting instead that there was a women’s revolution within the turmoil that produced lasting—if minor—change for females in the UK. This smaller revolution was caused by the female reaction to a changing religious atmosphere, as proven by the female fight for spiritual equality, involvement of women in pamphlet wars concerning religion, and the legitimization of religious protest through the preaching of faith.
The Changing Religious Climate

In order to engage in a nuanced discussion of the evidence of a female revolution on the peripheries of the English Civil Wars, it is necessary to give some background about why and how English women did so much to advance their spiritual rights in a relatively short amount of time. Before the onset of the English Civil Wars, there simply was not an optimal opportunity for English women to uproot the patriarchal configurations of religion and society. However, the circumstances surrounding the English Civil Wars granted numerous unique chances for women to seek and find a collective voice for religious empowerment.

In the beginning, along with war, extensive violence, and regicide, the English Civil Wars managed to shake the foundation of the state church, creating many opportunities for the average English woman to more freely convert to and practice a new religious sect. Several of these new sects taught women that they were accountable first to God and Christ before any man on earth. Additionally, according to the book, *The English Civil War: 1640–1649*, “In these independent churches, women were at last allowed to debate, to vote, to prophesy when moved by the Spirit, and even to preach.” The same book mentions that the new religious institutions implemented during the wars allowed women to be leaders in their congregations and to be prominent decision makers in their respective churches; this was an extraordinary historical mark of progress for the spiritual equality of females. Religious alterations like these had grand implications for English women’s rights as time went on, allowing women to obtain more freedoms as they formed religiously legitimate arguments as to why they were entitled to contest old societal norms for females in religious structures.

Also, during the course of the ECWs, English society turned away from the spiritual subordination of females and in its stead began fostering a religious climate where men and women could rejoice together as spiritually equal sons and daughters of God. Although this did not permit women to attain a more profound level of societal and cultural freedoms equitable to that of men, revolutionary women of the era in question finally had the capacity to make the leaps and bounds that laid the pavement for modern women’s rights. Many sources agree that the ECWs provided ample opportunity for women to be politically engaged to vie for their religious rights; it is possible this opportunity coincided with the absence of men in villages and towns, as the women held the fort for the men who were at war. This new era for women enabled the formerly silenced female demographic to find their public voice. With this background, it is now prudent to delve into the outcomes of revolutionary activity among women during the ECWs

Spiritual Equality

With the widespread absence of men in civil society, due to the severity of the wars, women began to realize they had a much greater role in religion than previously thought. The section to follow will analyze this newfound realization of spiritual equality in context of the ECWs in order to argue that there was a unique collective of revolutionary religious women in the civil wars.
Here, it is necessary to first clarify that English women in the ECW period were not entirely like feminists of modern times who seek complete equality (whether social, political, cultural, etc.) with men; rather, English Civil War women sought equality in religious and family matters, which they viewed as the most pertinent aspects of society. During the ECWs, “the equality demanded [by English women] was spiritual, not political. Higgins stressed that we need to remember the ‘excessively patriarchal air’ that these women breathed. It was impossible for them to propose, as Weigall does, ‘political equality between the sexes.’” Indeed, the political and social climates of the 1600s were such that the patriarchal order stymied any huge development on women’s rights. As such, women had to pick their battles carefully, vying first for “liberty of conscience and religion, not of freedom from male control or civil authority.” Such an attitude was evident in soft petitions of 1642, in which women attempted to be heard in Parliament but would refrain from making petitions that strayed too far from cultural norms. For example, the soft petitions called for more gender parity in spiritual matters, but women avoided approaches to absolute gender equality because they generally believed it was strange for women to petition, and because most women did not oppose the idea that their husbands had authority over them.

After the situation surrounding the English Civil Wars worsened, women began to drop their societal holdbacks and take further initiative with petitions in 1649, “rejecting the idea that they were represented by their husbands” and “claiming an equal share with men in the right ordering of the Church.” From the 1649 petitions, it is evident females took a huge step forward in how they responded to policy-making bodies of government. Just like any other classic sort of revolutionaries, these women experienced a feverish point. This revolutionary behavior made ECW women the “forerunners of the movement for female emancipation,” being “worthy precursors of the later Suffragettes,” because their “petitions of 1649 introduced a new assertiveness.” The “new assertiveness” women adopted at the time permitted them to have the more integrated role “in the right ordering of the Church” that they had petitioned for.

As noted in an earlier section, this novel ability to dissent from cultural norms was gained from an increasingly dissentious religious ambiance in the public sphere. With the rise of new independent churches, women began to recognize that they played an important spiritual role on earth as creators of life, and motherhood was esteemed as a gift that continuously built upon a changing, improving church of God. Moreover, with “the logic of spirituality and voluntary association,” on their side, women found footing to argue that they had God-given rights to spiritual freedom; thus, they started demanding “spiritual equality.” As females continued to desire and progress toward spiritual equality, they gained bravery to speak up and demand religious liberties, an action unlike any that English women had known before the ECWs.

**Pamphlets**

As women strove for spiritual equity, they found a revolutionary means for transforming English women’s societal posts in the writing of pamphlets. This mode of
communication assisted many women in presenting a claim to the public that would have otherwise gone unnoticed. The claims women typically released to the public centered on religious ideals. For instance, the pamphleteer Katherine Chidley is an especially famous female in the pamphlet history of the ECWs because of her bold voice in her pamphlet rebutting “Mr. Edwards” for his attacks on independent religions. Upon publishing her pamphlet, Chidley was practically ignored by Edwards, as he proceeded to write a new pamphlet addressing only other men’s issues with his initial work. Another male pamphleteer noted Edwards’ negligence of an argument against his own points and essentially said, “You’ve been beaten by a girl!” to Edwards in a later booklet. If nothing else, this scenario demonstrates the fact that women “achieved increasing influence . . . in writing” due to the “upsurge of religious sects which followed the collapse of the state Church.” Indeed, when figures like Chidley—though their work was still not valued as much as that of men—entered the visibility of the public eye, it decentered some attention from a male-only approach on religion and family life and increased emphasis on the marginalized feminine point of view.

According to Domesticity and Dissent in the Seventeenth Century, a book about English women living in the times of the ECWS, women pamphleteers, like Chidley and others, “began the process of building a ‘feminist theory of the state’ which, in order to ‘recognize’ a woman’s ‘right’ to preach and prophesy, rested on a necessary separation of a private sphere of . . . self-determination from a public government sphere of patriarchal domination.” In other words, these women laid the groundwork for their female successors to continue considering their combined power to pierce the “sphere of patriarchal domination” in order to fight for rights that they desired or viewed as essential. An effect like this is a revolutionary one because it brought in a new age in which women asserted that, because females are inherently spiritually free, they should be fully able to shape how the state interacts with religion and family. This ability of women in the English Civil Wars to assert themselves a bit more may seem like minuscule progress in the eyes of a modern woman, but as Gillespie implies in her text, the sort of female power exercised during the ECWs paved the way for future decisions about the church and state in England and the woman’s place in religious matters.

Legitimization of the Female Argument through Faith

While women chased after spiritual liberation through well-crafted pamphlets, they fostered a sense of legitimacy in their assertions on paper and in preaching by way of biblical and faith-based evidence. The nature of legitimacy in the public eye of women’s changing religious outlooks is integral to this discussion because tangible support from religious texts was integral in the women’s ECWs revolution having a lasting effect. In fact, use of religious evidence for credibility was common at the time and fairly effective in giving a message of faith a firm backbone. The book Domesticity and Dissent in the Seventeenth Century sheds some light on women’s use of religious sources for credibility, stating: “Women had had to justify them-
selves as political agents in the public sphere, just as Chidley had had to justify her own presence as a woman in print. They did so by claiming that they had been legitimated by God.**22** Often, the sources of legitimation used by women in their pursuit of religious equality came from the scriptures; an example of this is Chidley’s use of scripture in her pamphlets. At the time, scriptures were acceptable to the general public as fountains for strengthening credibility of arguments. Indeed, many male pamphleteers also made use of bible passages because religious texts were considered factual and relevant for everyone. Moreover, through the citation of scripture, female preachers validated their assertions, permitting them to appeal to a wide readership familiar with scripture and, therefore, making their arguments more likely to sway the public with both pathos and ethos of an appeal to spirituality. Thus, generally speaking, legitimation based on a solid core of spiritual value was vital in generating the lasting effects of the revolution of feminine progress during the ECWs.

**Conclusion**

In the English Civil Wars, English women found a rare window through which they could start a revolution that would provide a firm foundation for future women’s movements.**23** It might be argued that the lack of governmental reform present in this women’s revolution makes it unfeasible as truly revolutionary. It is true that this revolution of thought did not immediately result in a changed political system or government; however, it did change a gender group of England. The altered structure of thought and unique sense of spiritually based courage among ECW women influenced future generations in a way that truly was revolutionary.

Classifying the transformations of women’s spiritual public discourse as a revolution can be useful for historians today, because it adds value to an imperative part of history that blazed a trail for women’s movements in years to come. Classifying something formerly peripheral to the history of the ECWs as “revolutionary” can greatly affect how we see women’s topics today. Indeed, this is so because closer analysis of the women in the ECWs can enrich future scholarship’s understanding of modern feminism’s roots and can strengthen our ties to history to understand the revolutionary spirit of women throughout past generations.

**NOTES**

8. Ibid.
10. Ellen McArthur and David Weigall in Alice Hunt’s “Civil War Women.”
12. Ibid., p. 39.
13. Ibid., p. 34–35.
19. Nevitt, *Women and the Pamphlet Culture*, p. 28
21. Ibid., p. 66.
22. Ibid., p. 87.
23. Ellen McArthur and David Weigall in Alice Hunt’s “Civil War Women.”

REFERENCES


Introduction

Known as the “Warm Heart of Africa,” Malawi is located in the southeast region of the sub-Sahara. Its citizens champion their small country, sandwiched between Mozambique, Tanzania, and Zambia, as the friendliest place in the world. Home to multiple ethnic groups, a variety of languages and customs are seen around the country. Malawi houses about seventeen million people but has a relatively quiet role in the world’s economy. Around 90 percent of the population is employed in agriculture. Malawi ranks as the seventh-lowest country in the world for GDP per capita, which is estimated at $1,100. It also has the seventh highest birth rate in the world, with 80 percent of its population living in rural areas. This leaves many citizens living below the poverty line. With poverty comes many complications, including poor health and nutrition. Malawi is ranked 174 of 187 countries for life expectancy at birth under the United Nations Development Programme. Proper nutrition is a basic physiological need that is often unmet in developing countries. Most villagers in Malawi are only able to eat what they grow. Crop output for farmers is also central to economic growth and improvement but relies on variable factors such as climate conditions. Years of famine or drought can severely impact the nation’s nutritional status, paving the way for lifelong complications of malnutrition.

One of the primary indicators of malnutrition in Malawi is stunting in children under five years old, which is now hovering around 50 percent. After infectious diseases such as HIV, tuberculosis, and malaria, the greatest cause of premature mortality is complications from maternal, neonatal, or nutritional causes. Protein-energy malnutrition is nationally the tenth leading cause of death. The majority of Malawian citizens rely primarily on subsistence agriculture for food, income, and employment. Major crops that rural Malawians grow and consume for their daily calories include maize, legumes, and dark, leafy greens. The staple of almost every meal is a product made from maize called nsima. White maize is harvested, cracked, dried, and ground into flour. It is then boiled into an nsima patty. This nsima provides the majority of daily calories for most Malawians. Diets that rely on a small number of foods rarely provide adequate nutrition for families with growing children, especially if that diet relies heavily on carbohydrate sources, such as maize. Due to this restrictive diet, many Malawians are at risk for several nutritional deficiencies.

Calcium is essential for bone metabolism and growth, especially in children. It is involved in many signaling pathways within the body, including neural transmission and muscle contraction. Vitamin D, which also plays a significant role in calcium absorp-
Calcium and vitamin D are both needed to maintain bone strength. Deficiency of either may result in either rickets or osteomalacia, which are both a softening and bending of the bones. Calcium deficiency over time results in porous, brittle bones that break easily, called osteoporosis. A study of Nigerian children with rickets tested treatments of different combinations of calcium and vitamin D supplementation. They found that rickets was only eradicated when calcium supplementation was included in the treatment. Without dietary calcium, vitamin D is not able to fully function in the body.

Another nutrient of concern in a maize-dependent population is the vitamin niacin, essential for energy metabolism in the body. While maize contains niacin, it is not available to the body in its default form. Phytates—a compound that prevents absorption—binds it. This leaves populations that rely primarily on maize, without many other food sources, susceptible to a niacin deficiency called pellagra, which can quickly become life-threatening. One example of this effect was an outbreak of pellagra among a group of Mozambican refugees in Malawi that had their groundnut ration discontinued. These refugees ate a primarily maize-based diet that relied on groundnuts for niacin. The outbreak was only remedied through reintroducing niacin into their diets. Both calcium and niacin, two nutrients of concern, become bioavailable through a process called nixtamalization.

When the Western world first discovered maize in the Americas, the native people had treated it with the nixtamalization process. Nixtamalization refers to the soaking of corn granules in an alkaline solution before processing, which frees up previously bound micronutrients, including niacin, and enriches the grain with calcium. It also provides other minerals, including iron, zinc, and potassium, when steeped in wood ash as the alkaline source. Nixtamal, or corn that has gone through this process, has become the main calcium source in most Mesoamerican communities. Currently, the most common alkaline source of calcium used in nixtamalization is calcium hydroxide, from slaked lime. In Malawi, the most prevalent source of calcium hydroxide available is in wood ash, of which calcium is a predominant mineral (Figure 1).

Maize nixtamalization has been practiced throughout the Americas since before the common era. The original recorded process is now called classic nixtamalization and refers to using wood ash as an alkaline source. The more common process used today is traditional nixtamalization, which uses slaked lime as the source. The two methods are contrasted in Pappa et al., and, while slaked lime does produce a higher concentration of calcium in the grain than ash, ash contains higher amounts of zinc, iron, and potassium, in addition to calcium. All of those minerals are crucial micronutrients that may be deficient in a population with low animal bi-product intake and only seasonal fruit intake. Most of the literature uses traditional nixtamalization, but the two processes are identical in terms of calcium percolation and uptake mechanism.

Studies have shown that calcium concentrations increase dramatically during nixtamalization, showing an increase of 0 to 2.24 percent of the pericarp content. Phytates, the components of maize that make niacin unavailable for absorption, decrease by 35 percent under nixtamalization conditions. The consequent calcium-phosphorus
ratio is also reduced to be closer to physiological needs. The pericarp and germ of the corn are often removed during this process, but they may be included to preserve some fiber and a higher calcium concentration. Nixtamalization may disrupt maize starch gelatinization, being heavily influenced by steeping time, so it may change the texture of the nsima product. There is a loss of water-soluble B vitamins during cooking of nixtamalization, but this can be remedied by blending traditional flour with nixtamal flour.

The nixtamalization process has been covered extensively in scientific review. The process commonly entails a 1:4 ratio of whole kernel maize to water, with an addition of calcium hydroxide or ash to produce an alkaline solution. The ash or lime source is brought to a boil with the water before the corn is added, at or around boiling temperature, or 92 to 100 degrees Celsius. The mixture is held at a boil for thirty to ninety minutes. To allow for maximum calcium percolation of the corn, the mixture is steeped in solution for eight to twenty-four hours; twelve hours has been shown to provide maximum integrity of the corn. At this point, the corn is ready to be rinsed twice with cold water and dried thoroughly before being milled into flour, ready for consumption.

Nixtamalization is not commonly practiced in Malawian cooking, but a study in Ghana showed preliminary acceptance of nixtamal corn products among that African community. Researchers tested a nixtamal maize product, along with variables of fermentation and bean flour fortification, and found acceptance for varied nixtamal products. While there has been no previous research done on nixtamalization of corn products in Malawi, this research develops a preliminary analysis of Malawian attitudes toward nixtamal products and paves the way for future research in this area.
Materials and Methods

This study began at a nongovernmental organization located in a rural area just north of Lilongwe, the capital city of Malawi. The School of Agriculture for Family Independence (SAFI) is an organization that teaches selected farming families nutrition, agricultural techniques, and other life skills that will help them improve their standard of living and lead to greater self-reliance.22 It is sponsored by the NuSkin International Force for Good Foundation and Children’s Brighter Future. SAFI houses a two-year program, where a year is spent learning techniques on campus, and a year is spent at home implementing the techniques under supervision from SAFI instructors. These farming families come from all over the country. While thirty of these families were at SAFI, interns from Brigham Young University (BYU) performed an analysis of their diets through twenty-four-hour recalls and food frequency questionnaires. The dietary recalls identified several nutrients of concern within the population of those surveyed.

The Institutional Review Board at Brigham Young University granted approval for the use of human subjects in this trial. Subjects were informed of risks. They volunteered to participate and signed consent forms relating to the study. Funding for the project was provided by the NuSkin foundation and Brigham Young University’s Office of Research and Creative Activities. The subject population was drawn from local members of the Dowa community and farmers studying at SAFI who originate from different regions of Malawi. Inclusion criteria consisted of being over eighteen years of age and being born and raised in Malawi. Exclusion criteria pertained to those who have any allergies or adverse reactions to maize. Fifteen subjects participated in the first trial of nsima, and forty-two participated in the porridge trial. Included in the questionnaire were questions related to gender, education level (indicative in Malawi of socioeconomic status and income level), and other variables. While previous studies on this population have not been documented, a similar study conducted in Ghana with nixtamal foods used a thirty-member panel for their sensory analysis.23 We chose to adopt a similar sample size for our preliminary testing.

We presented the opportunity to participate in this study to the students at SAFI and reached out individually to villagers in the surrounding area. Translators were provided to work one-on-one with the participants to ensure that those without high reading comprehension understood the document fully throughout the process. Consent forms, questionnaires, and scripts were provided for participants in Chichewa and English. The questionnaire measured the acceptability of appearance, texture, flavor, and aroma, as well as overall acceptability among the various nsima samples. The same procedure was repeated with the porridge trial. The purpose was to determine if the Malawian population would be open to the incorporation of nixtamal products into their cuisine, as sensory qualities differ between traditional nsima and nixtamal nsima. This will help identify the most acceptable nixtamal product to promote among Malawians to improve their nutritional status.
Various temperatures and times have been tested to achieve the maximum uptake of calcium during the nixtamalization process. This study adopted the method given by Pappa et al., where the corn is added in a 1:4 ratio with water and with 0.8 percent of its weight of ash, creating a solution with a pH of 10.9.\textsuperscript{24} Cooking the corn at higher temperatures speeds up the process of pericarp degradation, so the mixture is boiled at 94 degrees Celsius for sixty minutes, before being steeped for twelve to fourteen hours. After being dried and milled into flour, the nixtamal is boiled into nsima, the traditional Malawian maize patty. Flour samples were analyzed at BYU’s Environmental Analysis Lab for mineral content (Figure 2.). The food was boiled and cooked, according to local tradition, in a cooking area the day of each round of testing. Each sample was placed in a quadrant of a plate and labeled with a three-digit code before being presented to the subjects. A small amount of relish, made with a mixture of boiled green leaves, tomatoes, and onions was served alongside the nsima, as well as a saltine cracker to cleanse the palate. Participants were instructed to wash their hands thoroughly before eating, as nsima is traditionally eaten with their hands.

Samples of the nixtamal product, a 1:1 ratio of nixtamal and traditionally processed maize flour, and a control of traditional nsima were presented to each participant in this study for an analysis of flavor, texture, aroma, and appearance. The second round of testing focused on a porridge alternative to nsima. It was loosely based on a product produced by NuSkin known as VitaMeal. Overall acceptability had been reported as very positive, especially among the children. Several families attending SAFI have adopted porridge as a breakfast food for all members of their family. We chose to mimic this product in our second test by making a porridge version of nixtamal nsima, which is the same recipe with higher water content. The aforementioned process of creating three different flour blends was replicated with nixtamal porridge. This allows for the contrast of two different products, textures, and tastes to see which is preferred among Malawians.

The subjects were seated in separate adjoining classrooms, so they were not able to communicate or influence each other’s opinions, and they were far enough apart that they could not overhear the participants if they were conversing out loud with a translator. The first group of subjects tested the nixtamal, mixed (traditional/nixtamal), and traditional nsima. The second group tested the porridge preparations. After they finished, they were asked to not talk about the samples with anyone, as to not influence their opinions. They were given a questionnaire to fill out, and the translator/facilitator assisted those who were not able to read or write to give their opinions. All translators/facilitators were trained on proper serving methods, as well as how to work with the participants and follow all established guidelines without bias. The questionnaire was administered in order to assign a numerical value to the participants’ opinions on the nsima products. The panelists had an opportunity to write down their opinions, if they had any specific comments, on any of the samples. Each sample was placed on a plate with two other samples, each labeled with a three-digit code. A small amount of relish, made out of boiled green leaves, tomatoes, and onions, was provided to accompany the nsima, but not the porridge.
Results

Samples of nixtamal corn and untreated corn were analyzed at Brigham Young University’s Environmental Analysis lab for mineral content. The analysis included several important minerals such as calcium, iron, and phosphorus. Following patterns observed in the literature, calcium increased by 385 percent in the nixtamal corn.

**Figure 1.** Analysis of micronutrient content of nixtamal and traditional maize (control).

<table>
<thead>
<tr>
<th>Sample</th>
<th>Lab #</th>
<th>% N</th>
<th>ppm B</th>
<th>ppm Ca</th>
<th>ppm Cu</th>
<th>ppm Fe</th>
<th>% K</th>
<th>ppm Mg</th>
<th>ppm Mn</th>
<th>ppm Na</th>
<th>% P</th>
<th>ppm S</th>
<th>ppm Zn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nixtamal</td>
<td>D6 146</td>
<td>1.19</td>
<td>3.88</td>
<td>143</td>
<td>1.73</td>
<td>20.2</td>
<td>0.469</td>
<td>8.61</td>
<td>3.61</td>
<td>260</td>
<td>0.175</td>
<td>1030</td>
<td>13.5</td>
</tr>
<tr>
<td>Control</td>
<td>D6 149</td>
<td>1.19</td>
<td>2.14</td>
<td>38.4</td>
<td>1.74</td>
<td>18.3</td>
<td>0.320</td>
<td>10.40</td>
<td>4.07</td>
<td>9.81</td>
<td>0.225</td>
<td>879</td>
<td>16.0</td>
</tr>
</tbody>
</table>

The nutritional surveys conducted by Brigham Young University interns at SAFI confirmed that a specific nutrient of concern that was absent in a typical Malawian diet is calcium. The current potential sources of calcium in a traditional diet are few and mostly consist of cooked greens and small fish. Even when large amounts of these foods were consumed, none of the assessed families reached more than 50.4 percent of their daily calcium needs, with an average of only 18.3 percent (Figure 2B). Surveyed SAFI students also had a lower intake of niacin than their daily requirement (Figure 2C). An important distinction is that many families met their caloric needs, but did not meet all of their micronutrient needs (Figure 2A).

Dietary analysis from thirty SAFI families in 2015, based on software developed by Dr. Paul Johnston. Each family’s requirements were averages adjusted for age of children, sex, and the number of family members.

**Figure 2A.** Percentage of energy needs met.
The first round of sensory analysis testing was devoted to the three samples of nsima. Participants filled out a questionnaire, detailing their age, gender, education level, and preferences for the three samples. They then ranked each sample in the categories of appearance, aroma, texture, flavor, and overall acceptability from one to ten. The averages for overall acceptability of nixtamalized nsima were very low in the first round of testing. The control group had an average rating of 8.72, the mixed (nixtamalized/control) had an average rating of 6.78, and the fully nixtamalized nsima had an average rating of 3.39. After the first round of the nsima
sensory analysis tests, it became clear that results were unfavorable among the native participants. Nsima is traditionally made from a refined flour with very little texture or taste. The nixtamal nsima product had a considerable taste and texture difference that was not preferred by Malawians. Their perception of the nixtamalized nsima was deeply rooted in tradition and familiarity.

The second half of the test focused on the nixtamal porridge testing to see if there were more positive results. Test subjects liked the porridge mixture greater than the traditional porridge and nearly as much as traditional nsima. The average rating for the control porridge was 6.9, the mixed (nixtamalized/control) had an average rating of 7.9, and the fully nixtamalized porridge had almost double the rating of the fully nixtamalized nsima with an average rating of 6.1. The 1:1 mixture nixtamal porridge had the highest likeability, closely followed by the control and the full nixtamal. Unlike the nixtamalized nsima, where there was a large gap between all three categories, the three porridge samples were very closely ranked in overall likeability.

In comparison to the nixtamalized nsima, nixtamalized porridge was much more favored. It also seemed harder for the sample population to distinguish the differences between the three in porridge format, based on the ratings being closer together.

**Figure 3.** Results of the overall acceptability of nsima and of porridge during the sensory analysis panel.

![Maize Nixtamalization Acceptability](image)

**Discussion**

Results from this study show an important pattern: It is unfavorable to change an existing food tradition, but Malawians are open to incorporating new products
into their diet. Nsima has such cultural and traditional significance for Malawians that it wouldn’t be helpful to attempt to change it. Many of these farmers have eaten nsima every day of their lives and have a particular idea of how they would like it to be prepared and how it should taste. This was demonstrated by a significant dislike of nixtamal nsima, particularly in texture and taste. The way that the nixtamal was prepared allowed for the pericarp to remain in the product, which added fiber and calcium but also created a different texture. The fact that the flour mixture product was intermediate between the two groups suggested that the more the product tasted like traditional nsima, the more they liked it. It is clear from this subject group that pursuing nsima as the vehicle for nixtamal maize would not be widely adopted.

The porridge trial was much more favorable with regard to nixtamal. The mixture of nixtamal and traditional maize porridge was most favored, followed by the full nixtamal, and then the control of regular nsima. Since the porridge uses the same recipe, only with a higher water content, this trial shows that the taste, texture, and sensory qualities of nixtamal are not disliked. By combining the nixtamal with traditional flour, important B vitamins that are destroyed in nixtamal are reincorporated into the recipe, providing a more nutritionally balanced dish. This demonstrates that those in the sample population are not opposed to the nixtamal flavor and texture in general, only when it pertains to nsima. This trial parallels data found in the Ghanaian study, in which fermented, fortified, and nixtamal food were found to be preferable among their test population. They had a similar sample size of thirty. Their subjects did not like the change in color or texture that nixtamalization and fortification added to their samples, but overall they enjoyed the taste. While there is not a significant amount of research done in the area of nixtamal acceptance in Africa as a whole, we can see similar patterns between these two groups.

The nutrition staff and interns from Brigham Young University have begun preparations for establishing a curriculum of nixtamalization at SAFI that can be taught to interested students. Several students in different years expressed an interest in learning the nixtamal process. The procedure doesn’t utilize any resources other than discarded ash and traditional homemade clay pots, so it would not require additional costs. However, it does require a significant amount of time to learn the procedure and treat the maize. It would replace the current method of treating maize, which is also very time intensive and includes multiple steps of cracking, drying, and grinding the flour. We do not expect immediate or widespread adaptation to this new method, based on the change and effort it would require. It may be a more useful investment for those preparing food for larger groups, such as for children at primary schools. Nixtamal could also be prepared for food products that may be sold for a profit.

Currently, the early childhood school at SAFI makes large amounts of VitaMeal porridge for the small children attending the school. This is a maize-based blend that incorporates groundnut, soya, and bean flour. It is also fortified with a blend of vitamins and minerals specifically formulated for young malnourished children. It is distributed to SAFI families and primary schools around the Dowa area to supplement young children’s diets and to offset stunting and nutritional deficiencies. It
is often eaten for breakfast among families that have received this supplement. The farmer families with children also receive VitaMeal as a porridge dish for their children. A majority of the farmers that were interviewed in 2015 by the BYU interns recounted eating porridge for breakfast along with their children. Porridge is traditionally seen as a food eaten by the young, sick, or elderly since it is easier to eat and swallow than nsima. However, the dietary recalls at SAFI showed a widespread consumption of porridge for breakfast by all members of the family. It is a food that is generally accepted among all sensory participants and families who have been eating VitaMeal. Once the SAFI students return home, they will no longer have access to VitaMeal. They may be open to a nixtamal alternative to their porridge that will increase the nutritional content of traditional porridge for their children. There is also room for increasing the nutritional content of nixtamal porridge. Malawians often use groundnut flour or soya flour to flavor and fortify their porridge. This would add in fat, protein, and other key nutrients that are missing from maize. This mixture would more closely replicate VitaMeal in its nutritional content. Further studies may test acceptability and implementation in this area.

Conclusion

Results from this study show potential for nixtamalization in maize processing in Malawi. As long as it is introduced as a new food product, not as replacing a traditional staple, favorable possibilities exist. These participants showed that, in this study, nixtamal is preferred in porridge format to regular maize. Consuming nixtamal regularly in the Malawian diet would increase calcium and niacin and reduce the risk of illness from mycotoxins in maize. This reduces the risk of deficiency from osteomalacia, rickets, and pellagra, as well as other diseases. There is room for improving the Malawian diet through foods and ingredients that already exist in their fields and gardens. Nixtamalization has been practiced for centuries in the area where maize originated, South America, by a people who had little more resources than those in Malawi. An important obstacle to implementation will be the time and energy required to learn and maintain a new method of processing maize, so an implementation may be more effective for large-scale food production, such as at primary or early childhood schools.

NOTES

2. Ibid.
3. Ibid.
6. Ibid.


CONTRIBUTIONS
Frost Steele, PhD, associate professor, Brigham Young University: Research Mentor
The School of Agriculture for Family Independence, Dowa, Malawi
Nu Skin: Force for Good Foundation, Provo, Utah
Ugandan Women’s Perceptions of Significant Women’s Issues and Women’s Representatives’ Effectiveness

by Sierra Davis Thomander, political science

Introduction

In 2014, NPR’s *All Things Considered* delivered a shocking statistic: Rwanda, a small African country mostly known for its tragic 1994 genocide, ranked first in the world for female representatives in the legislature at 64 percent. The U.S. had only 18 percent in the House of Representatives and 19 percent in the Senate, ranking eighty-fourth worldwide (Kelemen 2014). Uganda and most other African countries have followed suit; as of 2016, the Ugandan Parliament has a female speaker, 112 special district women’s representatives, and 33.5 percent female parliamentary representation overall (African Elections Database 2011; IPU 2016).

Reserved political positions, such as these district women’s representatives, as well as gender quotas in legislatures, aim to counteract women’s historically low political participation. However, these accommodations also aim to better address issues that affect women specifically, such as maternal mortality, education, or domestic abuse. Women’s representatives in Uganda often hear from experts about the issues facing Ugandan women, namely AIDS, poverty, domestic abuse/violence, and sexual exploitation (Corda 2013). While many organizations and experts survey Ugandan women on specific issues, like health (UDHS 2006) or rape/sexual assault (U.S. Department of State 2015), surveys do not often ask for free responses on women’s issues in general nor do they measure how significant these issues are to the respondents. Additionally, though many researchers study the actual effectiveness of women’s representatives, very few study the perceived effectiveness of these women’s representatives. This paper will evaluate which issues women report as most significant, how well these women believe these issues have been addressed in Uganda, and how effective at solving these issues the women find their women’s representatives. Additionally, this paper will evaluate which factors most influence the perceived effectiveness of women’s representatives in Uganda.

Brief Literature Review

Research about Ugandan women’s issues mainly focuses on the statistically apparent issues, particularly those of health and safety. At a 2013 UN Women UKNC London event, Dr. Phoebe Abe outlined the “key issues” facing Ugandan women: poverty, female genital mutilation, prostitution, forced marriage, and sexual abuse, with a small discussion of gender discrepancies in literacy rates (Corda 2013). Abe focuses mainly on health and safety issues with some attention devoted to socio-
economic issues, such as poverty and education. The spread of current literature follows a similar trajectory.

Health issues are the most commonly researched issues for Ugandan women. Study of women’s reproductive health issues is replete (Cover et al., 2013; Knudsen 2003). Topics such as HIV infection and obstetric fistula are popular specific issues (Akiki 2002; Hankins 2000; Hill 2008). Like Abe, Meredith Turshen (2000) focuses on physical safety as it relates to health. Though much research measures women’s attitudes toward health issues (Grady et al., 2008; Cover et al., 2013), the scope of “issue” does not extend beyond women’s health.

Socioeconomics and politics also have specific topics of interest despite their larger scope. Education is a popular subject, but most studies focus on its relation to health issues like the sexual intercourse of adolescent females (Vavrus and Larsen 2003; Bohmer and Kirumira 2000). Most studies of Ugandan women focus on the parliament itself, especially the effectiveness of such affirmative action measures as the district women’s representatives in parliament. While Florence Wakoko and Linda Lobao (1996) emphasize the importance of women in Uganda’s political development, most studies find at best many problems with these affirmative action based institutions. Dan Ottemoeller (1999) finds that such institutions and appeals to feminist/feminine causes are largely symbolic and rarely substantive (84). Other studies either at least partly corroborate Ottemoeller’s view (Boyd 1989) or focus on the barriers female parliamentarians face that hinder their legislative effectiveness (Tamale 2000; Goetz 2002). Though not a recent study, Deb Johnson, Hope Kabuchu, and Santa Vusiya Kayonga (2003) found that both men and women viewed female representatives as ineffective, an attitude that I focus on in my research, with an additional emphasis on why men and women hold such views.

Qualitative work, such as free-response or interview methods, is far less common than quantitative methods in studying Ugandan women’s issues. One qualitative study is Lesley Doyal and Jane Anderson’s study of an HIV-positive African woman “surviving in London” (2006). Also, Amy L. Hill (2008) employs some qualitative methods in her study of obstetric fistulas in Ugandan women; Irene B. Kraegel does the same with rape trauma victims (2007). Like most literature surveying Ugandan women, the focus is on a specific health issue rather than women’s issues in general, thus the need for the following research.

Research Method

I conducted my survey research beginning 7 July 2015 and ending 16 July 2015 in the Mukono District of Kampala, Uganda. Due to the nature of my research questions, I only surveyed adult women. I randomly selected participants for approach and offering the survey materials via a coin flip. Though many women in Uganda speak English well, a student at Ugandan Christian University aided me and assisted the participants in Luganda, the common language. Since I cannot understand this indigenous language, understanding of the survey questions may have differed between participants. Another drawback of the Luganda translation was
time commitment; a single survey took longer than expected. As a result, I only gathered responses from thirty-three Ugandan women. Though this sample is large enough to fulfill the statistical need for representation of Ugandan women at large, a larger sample would have possibly yielded more precise results. Another possible drawback was the ambiguity of the phrase “women’s representative.” Though I asked the translator to specify these were district women’s representatives rather than constituent representatives who happen to be female, this distinction may have been lost in translation.

I asked survey participants a variety of questions regarding their attitudes about women’s representatives. The first question asked the women “how effective [they found] women’s representatives,” providing them a sliding scale numbered zero to one hundred, with one hundred being “very effective.” Underneath that sliding scale was another sliding scale marked with the same numbers for “regular representatives” (i.e., constituent representatives). Question nine also addressed women’s representatives. I presented women with a similar sliding scale as question one but with the prompt “How much do you trust women’s representatives to properly represent you?” and one hundred indicating “entirely.” Questions ten through thirteen also asked participants about their attitudes of women’s representatives. Questions ten through twelve asked the women to choose between women’s representatives and foreign aid to the government (Question ten), NGOs (Question eleven), and community efforts (Question twelve) in response to the prompt “Which do you find more effective in addressing women’s issues?” The final question (thirteen) asked women to answer yes or no as to whether they personally knew a woman’s representative in parliament.

I also asked survey participants a series of issue-based questions, both free response and numerically valued. Question four asked women which “issues [they] think is [sic] most important to women in Uganda?” Women would generally deliver a short monologue in response. I had the translator ask the women to condense their answer to the most basic keywords without losing key points of the specific issue. For example, if a woman answered, “I think women not being able to support their daughters through their schooling is the most significant,” she would condense this phrase into the keywords “education and poverty.” This allowed for visual representation to highlight the frequency of keywords used and to make the coding of this question into categories more plausible. Questions five through seven also asked about most significant issues facing women. Question five asked women to rate on a sliding scale of zero to one hundred how well that issue had been addressed, with one hundred being completely addressed. One issue with this method was that women, wanting to signal their frustration with the lack of attention to the issue, would often give very low numbers, such as one or two. Therefore, this question acts somewhat as a proxy for reactivity and frustration. Additionally, a few women overheard other answers to the survey. I often noticed similarities in answers between these women. Question six asked women if any of the issues listed were “most important issues in [their lives].” If women answered no, they skipped question seven. If women answered yes, they answered question seven,
which asked them to answer the prompt “How much does this issue affect your life?” by using a sliding scale from zero to one hundred, with one hundred being extremely. I also asked demographic questions to gauge how representative this small sample was of Ugandan women. Collecting this demographic data also served to control for factors like education. For example, education can affect which issues a woman finds significant or to what degree they affect her life. Question two asked women to indicate their highest completed level of education given the following options: primary, secondary, two-year degree, four-year degree, master’s degree, and doctorate and above. Those who had only some schooling or no schooling were asked to mark “primary.” Question three asked how many children the woman cared for “as a mother,” with the following options: one, two, three, four, five, six, seven, eight, or zero. Women caring for more than eight children marked eight. I intended this variable to measure the salience of motherhood and child welfare in relation to which issues women found most important. The phrase “as a mother” allowed relatives who had children in their care to count these children (e.g., a grandmother raising a child whose parents had died from AIDS).

Data and Findings

I will first analyze the variables and provide visual representations. I will then discuss the demographic factors measured and analyze the relationships between variables.

Women’s Representation

On average, women’s representatives were more favorable than regular (constituency) representatives. Women, on average, rated female representatives as a 44.67 in effectiveness and rated regular representatives as 37.76. However, both these measures are just below the “neither effective nor ineffective” mark, leaning toward the “somewhat ineffective” mark, indicating only a slight difference between the two and an overall slight dissatisfaction with both (see Figure 1). For question nine, women rated their trust of women’s representatives at 46.97 out of 100. This is just below the “somewhat” mark on the sliding scale, indicating a reasonable level of distrust in district women’s

Figure 1.
representatives’ ability to properly represent their female constituencies (see Figure 2). For question ten, women overwhelming found women’s representatives more effective at addressing women’s issues than foreign aid (75.75 percent versus 24.25 percent, see Figure 3). This is unsurprising; Uganda receives 465.9 million USD in foreign aid per year from the U.S. alone (OECD 2016), and Ugandans, having high levels of corruption perception, are generally mistrustful of the government (Transparency International 2015). Women consistently rated nongovernmental organizations (NGOs) as more effective than women’s representatives (90.9 percent versus 9.1 percent, see Figure 4). A similar pattern emerged when comparing community efforts to women’s representatives in effectiveness; 87.9 percent said community efforts were more effective while only 12.1 percent said women’s representatives were more effective than community efforts (see Figure 5). Question thirteen had 60.6 percent respond that they did personally know a women’s representative; 39.4 percent did not (see Figure 6). Overall, Ugandan women seem more trustful of and put more faith in women’s representatives as compared to the rest of the government, but Ugandan women still see nongovernmental forces as more effective than descriptive representation.
Figure 4.

Q11 - Which do you find more effective in addressing women’s issues?

![Bar graph showing responses to Q11.]

Figure 5.

Q12 - Which do you find more effective in addressing women’s issues?

![Bar graph showing responses to Q12.]

Figure 6.

Q13 - Do you personally know a women’s representative in parliament?

![Bar graph showing responses to Q13.]

36
Issues

Echoing the bulk of literature, health was a very significant issue to many Ugandan women. Related words such as “hygiene,” “hospital,” “care,” “nutrition,” and “maternal” also appear in minor quantities. Education is the largest significant issue mentioned. Words related to employment and business, such as “opportunity” and “enterprises,” appear alongside “poverty,” indicating economic and employment concerns. Politics is another large category with “governmental,” “free,” “speech,” “tax,” and “freedom” appearing throughout. A few social/family words such as “family,” “domestic,” “child/children,” and “fathers” also appear. Education, health, politics, and economic concerns (e.g., employment) are the main rising categories of significant women’s issues (see Figure 7).

Figure 7.

Women rated how well the issue has been addressed at 42.58 on average (see Figure 8). As previously discussed, this number could be depressed; many women gave very low ratings to indicate their displeasure and frustration with how well the issue had been addressed. The number 42.58 is slightly below the fifty-point mark, which was labeled “somewhat.” Twenty-seven out of the thirty-three women (81.8 percent) indicated the issue they gave in the free response was an issue in their own lives (see Figure 9). These twenty-seven women, on average, said the issue affected their life at 70.37 (see Figure 10), almost exactly where the sliding scale said “mostly effects.” This indicates that the free responses women gave were not only perceived as societal problems but were also personal in nature.
Figure 8.

Q5 - How well has this issue been addressed?

Figure 9.

Q6 - Is this most important issue an issue in your life?

Figure 10.

Q7 - How much does this issue affect your life?
Demographics

Of the surveyed women, 42.4 percent had completed some or all of primary school as their highest level of education, 33.3 percent had completed secondary school as their highest level of education, 12.1 percent had completed a two-year degree as their highest level of education, 6.1 percent had completed a four-year degree, and 6.1 percent had completed a master’s degree. None had completed a doctorate or above (see Figure 11). As of 2013, the primary school completion rate in Uganda was 55.6 percent for both genders (World Bank 2013). Assuming that girls complete school at a lower rate (as is common in Sub-Saharan Africa) and that some of the women who marked “primary” had not actually completed primary school, this sample seems representative of Uganda at large in terms of education. However, data is unavailable for higher-level degrees, so the demographic composition of this sample could differ from Uganda at large.

Of these women, 45.5 percent reported being a mother to no children, 6.1 percent of women were a mother to one child, 15.1 percent were a mother to two children, 6.1 percent were a mother to three children, 15.1 percent had four children, 3 percent had five children, and 9.1 percent had six children (see Figure 12). With one of the world’s youngest populations (21.6 percent are between fifteen and twenty-four), such a large amount of women without children is not unlikely (CIA 2015). Additionally, many women may not have marked a higher number because a child was now an adult or was not their biological child. On average, 5.89 children are born per woman in Uganda (CIA 2015). Excluding those who marked zero, the women surveyed had on average 2.44 children per woman. This is very low, indicating this sample is potentially unrepresentative. However, as previously noted, older women without children at home and women who care for children who are not biological may have lower numerical answers. Additionally, the women surveyed tended to be in commercial areas and often had jobs, a factor that can keep women from having more children. Urban settings could also limit the number of children a woman has. Since the Mukono district is somewhat urban, and Uganda has a large rural population, this surveyed group may simply be more representative of urban Uganda than rural Uganda.

Regression Analysis

While the above descriptive statistics adequately show which issues Ugandan women find most significant, as well as the perceived effectiveness of women’s representatives in Uganda, they do not explain which factors affect the perceived effectiveness of women’s representatives. Therefore, I conducted a regression analysis to determine important factors that affect these two metrics. I controlled for motherhood (number of children) and education, two factors that could potentially skew both metrics.

Trust in women’s representatives, perceived regular representatives’ effectiveness, knowing the women’s representative personally, having enrolled in or completed primary school as the highest level of education, and a belief that women’s representatives are more effective at addressing issues than foreign aid given to governments are all statistically significant factors in determining perceived effectiveness of women’s representatives. Beliefs that NGOs or community efforts were more effective at addressing
women’s issues than women’s representatives were not statistically significant factors, nor was the perceived effectiveness of how well the most significant issue had been addressed within Uganda (see Table 1 p-values). Fit (Adj. R² of 0.702) is particularly good for this model; knowing the listed factors (see Table 1 and attached notes) explains about seventy percent of the variation in perceived effectiveness of women’s representatives. However, the quality of fit could be inflated because of the number of variables (e.g., education alone consisted of five distinct dichotomous variables) or because of an autocorrelation of very similar variables (e.g., trust in women’s representatives and perceived effectiveness).
Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-stat</th>
<th>p-level</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Regular Representative’s Effectiveness</em></td>
<td>0.389</td>
<td>3.68</td>
<td>0.001</td>
</tr>
<tr>
<td><em>How Effect. Issue Addressed</em></td>
<td>0.024</td>
<td>0.1892</td>
<td>0.852</td>
</tr>
<tr>
<td><em>Foreign Aid Better</em></td>
<td>-30.776</td>
<td>-3.77</td>
<td>0.001</td>
</tr>
<tr>
<td><em>NGOs Better</em></td>
<td>-14.410</td>
<td>-1.694</td>
<td>0.106</td>
</tr>
<tr>
<td><em>Community Efforts Better</em></td>
<td>13.622</td>
<td>1.632</td>
<td>0.118</td>
</tr>
<tr>
<td><em>Know Representative Personally</em></td>
<td>12.152</td>
<td>2.152</td>
<td>0.044</td>
</tr>
<tr>
<td><em>Trust Women’s Representatives to Represent</em></td>
<td>0.394</td>
<td>2.745</td>
<td>0.013</td>
</tr>
<tr>
<td><em>Primary School Education</em></td>
<td>-22.901</td>
<td>-2.139</td>
<td>0.045</td>
</tr>
</tbody>
</table>

R²: 0.814 Adjusted R²: 0.702

F-stat. = 7.277
N = 33
p-value = 0.000

Notes: The dependent variable is the perceived effectiveness of women’s representatives in Uganda. *Foreign Aid Better, NGOs Better, Community Efforts Better,* and *Know Rep. Personally* are all dichotomous (binary) variables where 1 = Better/Know and 0 = Not Better, Women’s Rep. Better/Do Not Know. *Primary School Education* is also dichotomous (1=Primary Highest Level Completed/Enrolled). Four other education variables were controlled for (*Secondary, two-year, four-year, and master’s*) as was the number of children (0–8), but none were statistically significant variables and were therefore not reported. All other variables are on a sliding scale from zero to one hundred with one hundred being the greatest (e.g., 100 = “trust completely” for variable *Trust Women’s Rep. to Represent*). *P*-values above 0.05 are considered statistically insignificant.
Of the statistically significant variables, the most substantive is the belief that women’s representatives are more effective at addressing women’s issues than foreign aid given to the Ugandan government. Believing that women’s representatives are inferior to foreign aid to the government in addressing women’s issues led, on average, to a thirty point decrease in perceived effectiveness of women’s legislatures. This is an interesting finding; women who think foreign aid is inferior to women’s representatives are more likely to rank women representatives’ effectiveness as low. This finding suggests that those who distrust the government do not believe descriptive representation will correct the ills of the country’s corrupt and ineffective government. These respondents most likely view aid and conditions set by developed nations’ governments and institutions as more effective due to transparency. The lack of statistical and weaker substantive significance for the NGO question is surprising considering that the differences in average responses was similar to the foreign aid question (see Figure 4).

Another significant variable was having a primary school education as the highest level of education. Women with only a primary school education were more likely to rate their women’s representatives as having low effectiveness (see Table 1). This could possibly signal that a misunderstanding of governmental functions or that having less experience with academic institutions engenders mistrust in female representatives.

Though perceived effectiveness of regular (constituency) representatives was statistically significant, its substantive value was very weak. Trust in women’s representatives’ ability to represent women well was similarly very weak, though both had a positive effect on perceived effectiveness of women’s representatives. Perhaps the direction of this relationship indicates that trust in elected officials produces a higher perceived effectiveness of institutions such as district women’s representatives. Knowing a women’s representative personally also had a statistically significant and substantive increase in perceived effectiveness (knowing a women’s representative increased perceived effectiveness by about twelve points), further supporting the theory that trust leads to higher perceived effectiveness.

An alternative explanation is that when discussing significant issues, Ugandan women are less likely to perceive women’s representatives as effective at addressing those issues. An experimental design would best test this hypothesis. Of interest is the possible significance of the comparison of foreign aid, NGOs, and community efforts when significant issue questions are left out of the survey. These comparisons, coupled with frustration about most significant issues, could increase negativity and, therefore, depress numerical values of perceived effectiveness. Including these questions could act like a snowstorm on the day the car breaks down; a person within an unfortunate circumstance, when framed within the context of something also negative, perceives the circumstances as particularly terrible.

Conclusion and Further Research
Ugandan women are most concerned about education, economic opportunities, health, and political issues. Social issues, such as family relations, are also important to Ugandan women. I have found that trust in the country’s government/elected
officials has a positive effect on perceived effectiveness of women’s representatives. Conversely, distrust in the country’s government/elected officials has a negative effect on the perceived effectiveness of women’s representatives. This suggests a polarizing effect: Women who already distrust the government/elected officials are more likely to distrust someone associated with the government, whereas those who trust the government/officials are more likely to trust someone associated with the government.

An alternative explanation is that when discussing significant issues, Ugandan women are less likely to perceive women’s representatives as effective at addressing those issues. An experimental design that randomly assigns participants to talk about significant women’s issues could test this negativity effect. Glimpses of this theory are apparent from my research observations, namely women who would show frustration with an issue and then give the effectiveness a significantly low rating, such as a two out of one hundred.

Future research on this issue should attempt to gather a larger, more representative sample as well as differentiate between regular (constituency) representatives who happen to be women and district women’s representatives. Future research could also include an experimental method that tests the negativity effect of surveying about issues and women representative’s effectiveness simultaneously. Further research into why women perceive certain categories of issues as more significant could also have interesting implications for experimentation that tests this possible negativity effect.

REFERENCES


