Serving Sustainable Coffee in Small-town America



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Discounting water, coffee is the most globally consumed beverage and can only be grown in a small region between the tropics and above a certain elevation. The limited growing region creates an interesting supply-and-demand issue where a set of tropical countries are exporting this product to virtually the entire world. While support for "local" foods has grown world-wide, coffee in the United States is often not included and many Americans are not familiar with how their coffee is produced and support for local, sustainable coffee processing is limited. This project focused on assessing the knowledge of coffee production and sourcing practices among businesses in northwestern Pennsylvania. Northwestern Pennsylvania was chosen for proximity to the author's area but also because it emulates similar small-town atmospheres across the country. The area has mostly small-scale cafés and roasters that were targeted to evaluate the significance of coffee at each establishment, as well as opinions about sustainable coffee and standard sourcing practices. Rural northwestern Pennsylvania has a strong working class that is believed to prefer dark and strong coffees and that is what local cafés serve them. The roasters in the area found that once consumers tried better tasting and different coffees they enjoyed a wider breadth of coffee types. Results from the study were incorporated into a "local" attitude of business owners and used to create a business plan that takes their concerns about locally roasted coffee into account to benefit both the vendors and local, sustainable roasters. This will not only support the local coffee market of consumers, in this area, but also the tropical coffee farmers who are dedicated to sustainable coffee production.

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INTRODUCTION

Chapter One: The World of Coffee: Production, Policy, Climate Change and other Threats to Coffee Agriculture

Coffee is the most important tropically exported and consumed crop in the world gathering over $100 billion a year in revenue from all business surrounding coffee beans. Exports exceed 100 million bags globally of the 50-70 kilogram jute bags coffee is transported in a year; by boat, plane, truck and train (Thurston, 2013). In the United States alone, over 50% of adults drink coffee everyday with 108 million coffee drinkers nationally, consuming on average 3.1 cups of coffee per day (SCAA, 1999). Worldwide there are nearly 24 million kilograms of coffee consumed every day (Nowakowski, 2015). Coffee can only grown in a specialized climate between the tropics of Cancer and Capricorn and 500 meters above sea level, where temperatures range between above freezing and below 30° C. Even more specifically it's only designated "specialty grade" at elevations above 1,000 meters in these regions (Thurston et al., 2013; Sinnott, 2010; Nowakowski, 2015).

Currently, there are two major types of coffee production. Brazil and Vietnam currently produce nearly 60% of the world coffee supply on often deforested, full-sun plantation style farms that have a dichotomy of "pickers" and owners. Pickers come during the coffee bean picking season and are the major driving force behind industrialized mass produced coffee (Nowakowski, 2015); (Sinnott, 2010). The other type of farm is characterized by small Central American farms, usually family owned and partially shaded (Figure 1). These farms have a similar dichotomy of reliance on itinerant pickers coming through during picking season – but that can spread out the picking to wait for height of bean ripeness (Sinnott, 2010).



Figure 1. Shade grown coffee plants in Colombia (Bajak, 2013).

Coffee production is a process that takes weeks to months to years from harvest to roast. Once viable coffee plants or trees produce fruit (coffee cherries) it takes nearly a year for the fruit to develop and ripen. In figure 2 we have coffee cherries at the peak of their ripeness. Once sorted for quality the cherries are split, with a bean forming each side (Figure 2). There are three major types of coffee processing after this point – all different ways to develop the flavor of the coffee, based on regional influences, water, and access to equipment (Sinnott, 2010).



Figure 2. Coffee cherries are red and juicy when ripe. The second bean is cut in half to show how coffee beans grow as two parts of a whole (Gotts, 2015).

The most common method to the Americas is wet or washed processing and involves washing the pulp, mucilage and cherry sugars off of the beans first – this is common here because access to water isn't an issue. The next processing type is natural or dry processing

which keeps the coffee cherry pulp and sugars so that their flavors can infuse into the beans during the drying process – this is characteristic of African and Indonesian coffees due to low water access (Café Imports, 2016). The third major processing technique is a honey process or pulped natural process where the beans, pulps and mucilage are left to ferment and dry together while being turned less frequently than the other methods to insure sugar caramelization but are often lightly washed at the end of the process to clean off the excess portions of the cherry (Café Imports, 2016; Coffee Research, 2016). After the processing, drying and washing of the coffee it is packed into 70 kilogram jute sacks, sewn shut and transported by barge to major ports in coffee consuming countries.

There are many threats to the production of coffee – insects, diseases, environmental disasters, etc. Many issues will create synergistic negative effects for coffee farmers – such as climate change increasing the geographic range of certain insects. Climate scientists have predicted a continued rise in the concentration of CO_2 in the atmosphere, raised temperatures and differing precipitation patterns (Bernstein et al., 2007). These impacts will alter coffee producing locations, production and processing methods, and ecological controls, such as coffee borer beetles (*Hypothenemus hampei*), surrounding coffee. Raising temperatures will change the native ranges of coffee, moving to higher elevations due to higher day-time and night-time temperatures – thus decreasing total arable land (Filipe dos Santos et al., 2015). Changing precipitation will alter productive land; and although there is variability among scientists – changes are eminent (Filipe dos Santos et al., 2015).

Shade grown coffee farms produce higher quality coffee but it comes at a cost (Thurston et al., 2013). These farms produce less coffee than full-sun plantation style operations and their processes take longer (Satin, 2011). Shade grown coffee is done on smaller scales due to altered forest landscapes and therefore there is less overall product resulting in a smaller margin of profit (Claar and Haight, 2015).

Most countries, whether it be importing or exporting have a vested interest in coffee – in 1962 the International Coffee Association made a contract with the goal of increasing production, consumption and profit to benefit farmers. The agreement helped to control the selling price for farmers to coffee-consuming countries which made it harder to bully coffee producers into lower prices. The Colombian government, however, started by monocropping their *Cattura arabica* varietal that grew rapidly in full sun, which meant eliminating the shade on

farms and increasing overall farm area which lead to sanctioned forest clear cuts (Figure 3). Over time, deforestation bankrupts the soil of nutrients making chemical fertilizers and pesticides necessary. This type of farm was subsidized by many to push the model of full sun and a monocrop culture which vastly increased exports and profit (Thurston et al., 2013).



Figure 3. Illustrates rows of sun-grown coffee plants, with remnants of the forest on the outskirts (Mateo, 2016).

Chapter Two: Coffee Certification and Need for Direct Trade

Middlemen, or importers, that bring coffee from the producing to consuming countries are often profiting obscenely as well. A U.S. importer can buy high quality green coffee beans for around $0.75/kilogram depending on the beans origin (Thurston, 2013). The importer pays for shipping, customs entry, warehousing and storage but gets to sell to a roaster for whatever they deem to be the right price (Thurston, 2013). Often without technical financial training farms and cooperatives in producing countries can be swayed or confused on pricing or conversion of prices. However, in consuming countries, sometimes many thousands of kilometers away, importers charge as much as they can of roasters and are often skilled business-people. This results in less profit for smaller farmers and more profit for larger style coffee plantations who have the resources to fight for a fairer price. This can result in worse conditions for everyone in the coffee producing countries but a cheaper cup in the coffee consuming ones (Liberman, 2008).

Fair Trade was one of the first groups to champion the effort of providing certification to producers so that artisans have a chance of making a fair profit for their products. Fair Trade's goals are to provide a label for foods and products from countries that have no ability to provide certification for themselves (Claar and Haight, 2015). Fair Trade really took off with the

production of coffee because it is primarily produced in under-privileged countries that have had trouble getting a fair price for their products – often at the expense of farmers, producers and pickers (Bacon, 2005). Fair trade doesn't come without its issues however, as it is expensive to get certified and there is a yearly fee along with re-certification fees (Claar and Haight, 2015). Fair Trade had always excluded larger plantation style farms from being able to get certified until 2012 when they implemented a clause that allowed many new larger groups to get certified pushing many small family owned and co-operative farm groups in the coffee consuming countries to stop using the "Fair Trade" label (Cole and Brown, 2014; Claar and Haight, 2015; Bacon, 2005).



Figure 4. Fair Trade, Rain Forest Alliance, and Organic Coffee logos and seals of certification (Fair Trade USA, 2016; Rain Forest Alliance, 2016; USDA, 2016).

Fair trade has received criticism for this decision driving many importers, roasters and customers that buy high quality coffee to start using other certifications, such as the Rainforest Alliance Certification (RAC), to buy their coffee (Figure 4). The Sustainable Agriculture Network or Standard (SAN) jointly owns, with the RAC, and sets the restrictions for farms trying to get the certification (Rainforest Alliance, 2015). One of the big differences from other certifications is that SAN restrictions state that pests are first managed with biological and mechanical means and pesticides are only used as a last resort; this is known as an integrated pest management (IPM) system (Thurston et al., 2013). SAN also follows the EPA/EU restrictions on pesticides and no chemicals listed on the "Dirty Dozen" list are allowed on the farms (Pesticide Action Network North America, 2009). This is not just to protect the environment but to protect the health of the farmers, workers and pickers (Thurston et al., 2013); (Rainforest Alliance, 2015). Until 2010 the RAC charged *farmers* by the amount of land they

farmed ($7.50/hectare) but changed the fee so that the certification now charges coffee *importers* by the amount they buy (1 cent/kilogram – green beans) to lessen the blow on the farmer (Thurston et al., 2013).

Currently, many small farms are working to create cooperative groups for many of the same producers in one area; i.e. Costa Rica's Central Valley, so that the collective can negotiate a price and mix all the beans together (a type of regional blend). This has pushed many smaller coffee shops, cafés and roasters to buy directly from farms and co-op's usually still using a middleman, but one who goes to specific farms and countries and makes the relations with farmers and groups to assure sales (Holland et al., 2015). This "Direct Trade" purchasing puts negotiating the price in the hands of the purchasing company, usually an individual roaster, and the farmers which reduces the input of outside sources making it easier to trace where your coffee is from, increased transparency of conditions for farmers and getting to see what kind of environmental concerns the farm may have and getting higher quality beans resulting in better taste. Many new coffee venues are switching to this method of production due to its benefits to the producer (Elder, 2014); (Thurston et al., 2013). Table 1 depicts the differences in each certification.

Table 1. Comparison of Coffee Certifications

Type/Criteria	**Worker Rights**	**Farmer Rights**	**Farmer Income**	**Environmental Protection**	**Sustainability**	**Taste**
Organic				✓	✓	
Fair Trade	✓	✓	✓		✓	
Rainforest Alliance	yes, but not the focus	✓	✓	✓		
Direct Trade			✓			✓

Table 1. Certifications as defined from mission statements of each group.

Direct trade does not necessarily mean that it is environmentally friendly, employee/worker friendly or successful, however, because there is currently no certification on many direct trade relationships which lessens the financial blow on farmers and buyers. Because there is no certification though no one gets reported to and no one's farm has to be certified or "checked out". This is working well now because farmers have been grouping together into co-op's that have been lobbying well for enough money to pay their workers and themselves. On the flipside the roasters or companies buying directly from the farms are circumventing the traditional process for buying coffee "off the rack" and are making the commitment to a farmer that they trust to make environmental and quality conscious decisions they agree with (Thurston et al., 2013). This costs them extra money and a large time investment but it comes with additional quality guarantee giving the roasting company an edge (Thurston et al., 2013). These are the two most important parts of the coffee chain for taste; the growers and the roasters and we're seeing that if you eliminate the in-between you can get some truly exceptional coffee that people really are willing to pay the extra amount for (Figure 5).

That being said, the direct trade system does not solve all the issues. There is an inherent risk with buying certified products of any kind in that there could be some deception on farm conditions, environmental concerns, worker rights, income and other practices but for the most part – certified products are produced in safer more sustainable ways (Thurston et al., 2013). Oftentimes with direct trade the end goal is to find the best tasting beans meaning that they may overlook certain standards in favor of taste that some of these other more specific certifications would not. There's no perfect method. In each category of certification, and lack of, there are groups that are doing a phenomenal job keeping up on the standards and protection and there are places that are not. There is no current best practice so it is difficult to tell which methods can be trusted making transparency in the relationship between coffee consuming and producing countries extremely important.

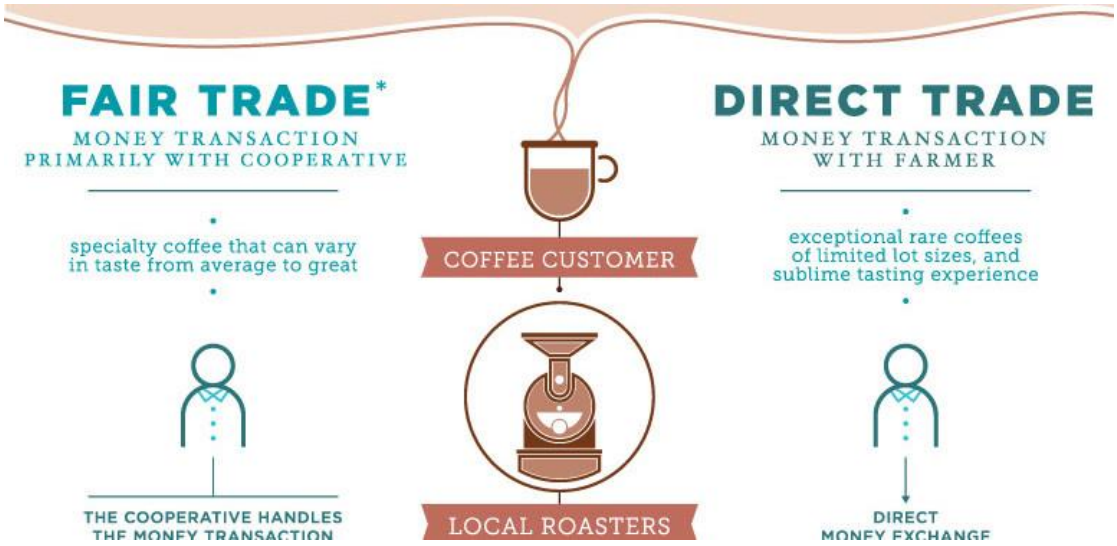

Figure 5. Differences in Fair Trade and Direct Trade (Eldridge, 2014).

This type of coffee innovation putting quality above quantity goes hand in hand with many of the new ways of making a cup (Zagat, 2015). Coffee has gone through three important times or "waves" in coffee development (Lane, 2012). The first was when coffee first came to non-coffee producing countries in Europe in the early 1600s and was in relatively small demand but at a high quality. The second wave was during the "bottomless" cup era when quantity became much more important that quality – also a general trend in the United States at this time (early 1920s). And the third wave, as popularized by Starbucks, was quality coffee and a European ambiance within the actual coffee-shop. This empowered people to not just drink more coffee but it made coffee-shops places to hangout that promoted more respect for coffee. This third wave ushered in a time for craft coffee – a term not unknown to the United States previously used for the movement of other ultra-high quality products, such as craft beer (Elder et al., 2014); (Holland et al., 2015; Satin, 2010; Thurston et al., 2013).

The third wave not only promoted quality coffee but also new ways to brew it (Lane, 2012). For a long time the United States has been known for drip coffee much to the distaste of the rest of the world. But in the last few years coffee shops have seen a lot higher consumption of European style espresso drinks; also popularized and more recently Americanized by Starbucks (Morris, 2013; Elder et al., 2014). The new style is in defiance of the traditional diner keeping a bottomless cup of all-you-can-drink (Mok and Yiru, 2009).

New craft coffee-shops pride themselves on sourcing coffee from individual farms providing back stories for the farmer and the bean and staying on the cutting edge of coffee consumption always finding modern ways to brew a cup and perfecting the old-school ways of the past (Bacon, 2005; Holland et al., 2015). This third wave of coffee accompanied by professional coffee-shops made their goal to buy, roast and brew phenomenal coffee but to do that they needed long-term, professional baristas who loved coffee as much as any other job (Stumptown, 2015; Milktooth – Bon Appetit, 2015). Professional baristas are common in other countries but in the U.S. they're only hired as long-term professionals in craft coffee shops (Lane, 2012). In places like Seattle, San Francisco or Portland craft coffee is supported by consumers who care not only about the quality of their cup but also the farmer that produced it (Bacon, 2005; Figure 6). This culture promotes and pays professional baristas and farmers a living wage and gives them benefits so that they can focus on making exceptional coffee (Lyons, 2005; Harp, 2015).



Figure 6. Blue Bottle Coffee in San Francisco (Blue Bottle San Francisco, 2016).

Chapter Three: Local, Sustainable, Coffee and the Roasters of NW Pennsylvania

Craft coffee-shops promote various aspects of coffee from producer to consumer, from bean to cup – but this type of culture is not received as well in smaller communities that are used to the bottomless cup. These smaller "home place" type diners often buy mass produced coffee from large plantations and offer the "bottomless cup" which comes at a huge cost to the farmers and pickers working in poor conditions getting the product to the consumers (Lyons, 2005). This creates a common dynamic of powerful and wealthy countries oppressing less powerful coffee producing countries to create a cheaper product for those back home (Lane, 2012; Bacon, 2005). To promote a sustainable cup all farmers and workers in the industry need a living wage

(Osterwalder and Pigneur, 2010). Creating a sustainable business plan for a more environmentally responsible café will help facilitate change at the ground level in coffee shops.

The study region, for this project, is centered in Meadville, Pennsylvania – a town of about 13,000 in the northwestern part of the state. There are a handful of places that sell coffee but none that solely focus on coffee within town boundaries. Most café-style businesses in our area have the opinion that darker roasts are better and an opinion of "the stronger, the better" is a common attitude. Allegheny College, north of downtown, has an on-campus coffee shop which emphasizes coffee-based drinks for students and faculty. It sources its coffee from a local roaster in Edinboro, PA (30 kilometers away).

There is no all-encompassing term for local food or what even truly designates as local. The 2008 "Farm Act" states that anything produced within the state or within 650 kilometers is *technically* considered to be produced locally (Martinez, 2010), therefore coffee in the USA is impossible to sell locally – except in Hawaii. In NW Pennsylvania, the closest coffee is nearly 2,400 kilometers away in the Caribbean Islands, or southern Mexico. The Utah State Extension says that to make coffee more sustainable there needs to be limited fossil fuel usage and a minimization of the distance between production and consumption (Brain, 2012). Increasing local roasting creates a more sustainable cup. And just as most goods have an easier time getting to cities, diversity of coffee in rural Pennsylvania struggles to impress. It can be difficult to become a successful roaster in a rural area – there is little interest in craft coffee, there are fewer customers than in larger cities, and more risk when buying and selling. But, there are many roasters in northwestern Pennsylvania and they work hard to service the local area – Buffalo, Cleveland, to Pittsburgh – and are passionate about serving quality coffee that is sustainably produced. A preview of local roasters in our area includes; Happy Mug Coffee Company (Edinboro, PA), McCullagh Coffee Roasters (Buffalo, NY), Millcreek Coffee Company (Erie, PA) and Bossa Nova Café Roasters (Franklin, PA).

Chapter Four: Main Objectives

Coffee is an important global commodity and with anthropogenic issues such as climate change, posing uncertain, but key, threats to coffee yields. Getting farmers to consider best management practices for the soil and their plants while providing a sustained salary will make for improved farm conditions. To help farmers and consumers as a whole produce a better cup, support needs to be given to those farmers that have sustainable farming practices. The best way to do this and a great way to bolster local business is to support a local roaster. Local roasters are smaller generally, have a good relationship with their suppliers and coffee importers who can relay info about farming practices for the beans they're buying.

The emergence of the third wave of coffee has driven a plethora of interest and literature about making more sustainable and better tasting coffee. There has been ample work on farms increasing input and on the policy and attitudes behind coffee (Satin, 2011). And there is interest into where craft coffee is prominent and why it's so popular right now (Freeman et al., 2011). But there has been little research to determine small-town opinions towards coffee. This is meaningful because there is an incredible amount of coffee and people in small-town USA that drink coffee.

The purpose of this study was 1) to determine local opinion on coffee in northwestern Pennsylvania and 2) to create a business plan to encourage local businesses to be more involved with where their coffee comes from by interviewing both local roasters and café owners within 150 kilometers of Meadville. This will get local coffee-selling businesses to support local roasters and therefore support more sustainable farmers up the supply chain.

METHODS

This project had three major facets to it: the information gathering phase through interviews, assembling of information collected and the coding of responses, and then writing a business plan for interested companies. Businesses were targeted based on the following parameters:

- Locally owned (ownership is within 150 kilometers of Meadville)
- Within northwestern Pennsylvania or local (also within a distance of 150 kilometers)
- Currently, sell or have sold coffee (emphasis was placed on businesses that currently sell and specialize in coffee sales)

During the interviewing phase, focus was on recruiting as many businesses as possible that sold or specialize in coffee in the local area to participate in the project. The purpose of these interviews was to get a sense of what the business owners thought about coffee production and sourcing, in addition to their perception of the opinions of their customers. A range of businesses were targeted including; restaurants, cafés and coffee roasters, in an effort to have a diverse sample. Businesses were contacted either in person or over the phone about participating in the study, general information about the purpose of the study and what the study entails was shared. The businesses were informed that the information gathered was used in a final business "best practices" proposal and research report that they have access to. Verbal consent was obtained prior to each interview which outlined the interviewees rights and their right to refute questions they are not comfortable with, as well as a debriefing after each interview to see if the interviewee wanted access to the final product, IRB protocol approval #2017-27 (Appendix B).

Using the provided questions (Appendix A) interviews were conducted with the business representatives that agreed to participate in this study. These interviews were gathered using a semi-structured interview process in which a general guideline of questions were used, but where follow-up questions were asked for clarification or continuation. The interviews were recorded by taking written and typed notes after each question. Data was collected in a confidential manner, and business names or any potentially identifying information was not used in the final report.

After the interviewing process, each of the 12 in-depth interviews were split into two categories; majority of sales from a coffee roasting operation (roasters) or from a coffee consuming one (cafés). There was some overlap within these distinctions; as some of the cafes

also roast small amounts of coffee for personal and occasional café use and there are some roasters that sell some coffee in café-style places. However, the focus of the interview was on where the primary income for the business came from and most can be separated into one category or another.

After interviews, there was a phase of sorting through all of the responses collected to make generalizations about the data and to find similarities that could be used to explain why there are consistencies and interpretation. Recurring responses that emerged from the interviews were qualitatively coded and 2-tail ANOVA and 2-way T-test statistical analysis was conducted on responses from the Likert scale questions. A similar format was followed for each interview so that a final narrative of responses could be "coded" or so that recurring phrases could be identified. These target phrases, when broad enough, are generalized for a greater total analysis of the opinion on coffee in northwestern Pennsylvania. This analysis is to see what information can be generalized for the area and then considered for the final business proposal.

The final phase of the research was to write a concentrated business "best practices" proposal with recommendations to enhance the sustainability of coffee sourcing that are applicable to all businesses based on the interview responses. The final research report includes this business plan and an examination of sustainable coffee production and sourcing. This was provided to any of the interested businesses to educate them on coffee; and hopefully increase sales and satisfaction of their coffee.

RESULTS

There were 6 businesses that were primarily café style, and 4 businesses that were primarily roasters. There were 2 businesses that fell into a new category in which they roasted all of their own beans to sell at their café storefronts – not discerning whether they were more successful from one or the other.

Chapter Five: Amounts Sold for Roasters and Cafés

All cafes and roasters served coffee in their establishment with varying degrees of importance (Appendix C). A few businesses only sold coffee as a side to meals, at some coffee was the focus, some roasters didn't have a storefront and gave samples away and for some roasters they had a dedicated storefront but didn't generate much income from it. The average cost for a café to charge for a small 12 oz. coffee was $1.93 with a range of $0.90 to $2.75. The average cost for a café to buy a pound of their beans was $6.62 with a range of $4.77 to $7.75. The average cost for a roaster to sell a pound of their roasted beans at was $9.85 with a range of $7.75 to $12.00. Not all interviewees responded similarly to how much they sold on an annual basis making it difficult to determine an average or standard metric, but the amounts sold for cafés ranged from 180 lbs/year and 5,000 lbs/year and roasters sold in the range of 70,000 lbs/year to 135,000 lbs/year. Every roaster rated coffee as a 5 on a scale of 5, for total contribution to profit, compared to the café average of 3.5 with regards to overall profit of the business (Figure 7).

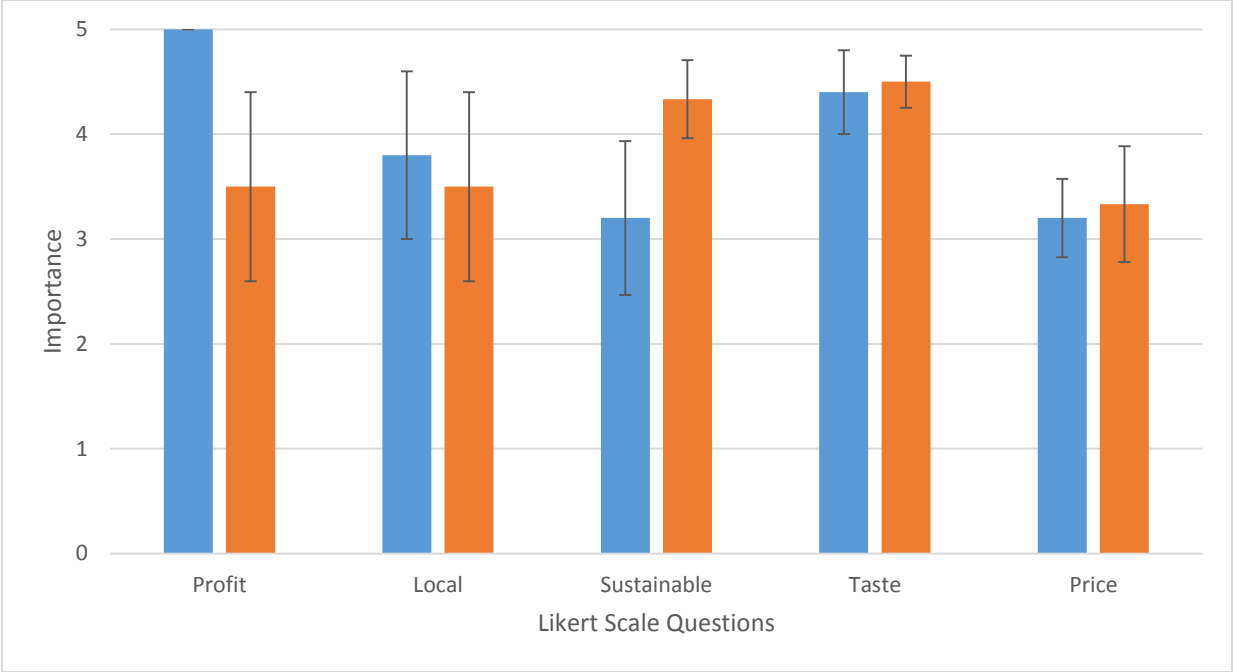

Figure 7. This graph depicts the differences between roaster (blue) and café (orange) style establishments with answers depending on their level of importance (ranked on a Likert scale 1-5) to the business (Questions are located in Appendix A, in order from left to right #1-5).

There was no statistically significant differences (each p-value < 0.05) between roaster and café style establishments in the Likert scale questions. However, profit from coffee was sizably more important to roasters' businesses and therefore less important to the cafés.

Chapter Six: Country of Origin, the Importance of Taste and the Basis of Local Coffee Opinion

Each café and roaster had its own preferences towards countries of origin, roast levels, certifications and what they thought their customers were looking for in their coffee. All businesses wanted to strike a balance between providing sustainable coffee, producing the best product, and something they were proud to drink themselves. They wanted to do this while catering closely to what they believed their customers wanted in their cup. Most of the cafés and roasters disagreed on what they personally drank for leisure, which came up in many interviews but wasn't an interview question, but as a trend most roasters were drinking lighter roasted coffees (i.e. Central American or East African). Most of the café owners were drinking a medium to darker cup (i.e. South American or Central African). This is important because this aligned with what most of the cafés and roasters thought their customers wanted to drink as well. One of

our interviewees said of his customers that, “in this area many people just want a dark cup of coffee that they can dump cream and sugar into … they’re not looking for the coffee’s taste.”

There was low interest in our local area with certifications from the suppliers, with both roasters and cafés citing that they often didn’t trust all of the certification processes, but they believed that their customers valued certifications from Fair Trade, Rain Forest Alliance and Organic grown coffee.

Taste and price were important points to all businesses – when polled, cafés more often rated taste of equal or lesser importance to price when compared to roasters who always rated taste more importantly or of equal importance to price (Appendix C). The two roaster-café operations both mentioned that price was less important than taste because they were vertically integrated (sold only the coffee they roasted) and could afford to price coffee at less than those who bought coffee from a second party.

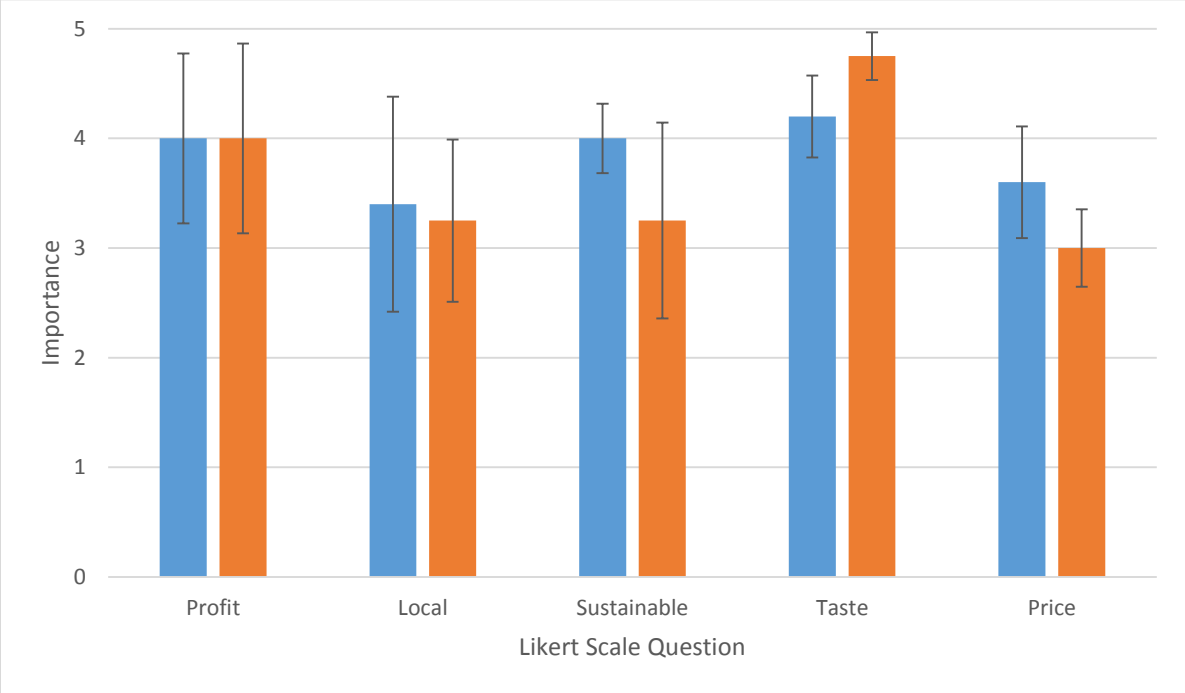

Figure 8. This graph depicts the differences between urban (blue) and rural (orange) establishments with answers depending on their level of importance (ranked on a Likert scale 1-5) to the business (Questions are located in Appendix A, in order from left to right #1-5).

There were no statistically significant differences (each p-value < 0.05) between urban or rural style establishments in the Likert scale questions. However, sustainability and price were more important to urban businesses and therefore less important to rural businesses.

Chapter Seven: The "Buy Local" Movement

The "buy local" movement was mentioned in a survey question but some roasters and cafés brought up the idea before it was even mentioned – with responses both supporting and against the movement. Everyone had heard of the idea and had a basic understanding of the meaning and some had their own definitions of "local." It was a polarizing question in which most of the cafés responded with the opposite opinion of roasters. There was a criticism of the "buy local" movement when it came to coffee in that some roasters felt many people didn't buy "smart" and that you can't support the movement to a point. All roasters explained that they still catered to the local atmosphere and loved that locals supported and respected their craft, but they want customers to buy their coffee because they think it's the best product – not simply because it's local.

DISCUSSION

Chapter Eight: Cash is King, Cheap Coffee Sells for Big Profits

Each business in the coffee world accomplishes a different part of the process to make a profit. Cafés get roasted beans from their roaster and brew for their customers. Roasters get the beans from the farmer via importers. Roasters need to take the farmers' product and make sure the bean is roasted to its full potential for the consumer; either cafés or directly with other customers. But both are a negotiating process that requires a relationship between supplier and consumer. This relationship and the loyalty of buying from a coffee importer or roaster is very important in our region and was well discussed in the interviews.

Most roasters worked with multiple suppliers for unroasted beans because it allows for a wide selection of product, however, many worked with primarily one company. This reinforces the loyalty of helping each other from the beginning to fuel a successful working relationship. One of our interviewees stated that, "many importers didn't even call me back believing that I would fail in the beginning, but Royal did, and it's the reason I still work with them 7 years later."

Roasters also brought up many of the inputs into these local businesses. A roaster's sales can be deemed local as long as they are selling locally, their unroasted beans do not need to be grown locally (which would be impossible in the continental United States). This creates a dichotomy between the coffee producing countries relying on the consuming ones (and the producing ones to some extent) to support the literal fruits of their labor and buy their coffee. The roasting machines aren't made locally and most of the bags and processing equipment for the coffee are not produced locally (if they were the roasters would probably work with them, due to cost, but no one makes roasters in northwestern Pennsylvania). This means that a lot of the inputs to the final roasted coffee product aren't local because they really can't be in this area. However, some of these roasters were frustrated with other businesses in the area who boast that the "buy local" movement was very important to them, even though didn't buy local inputs such as dairy or meat (which could be purchased locally). Businesses should be buying local when and where they can and local suppliers of far-away goods sometimes are the most sustainable option. Most of the cafés on the other hand were very supportive of the "buy local" movement citing that it was important for them and for their business for people to keep the money in the

local economy. Many of them did comment on the fact that they got some components locally and others clearly stated that they did not – usually due to cost.

The relationship with the coffee suppliers is characterized by the unroasted or green coffee supplier to the roaster and with the roaster to the café; the relationships are a bit different but essentially function the same way. For both the roaster (as a wholesaler to a café) and the green coffee supplier (to the roasters) they have a product that the other needs and they negotiate with those who will sell their product. These relationships are strong and require a higher degree of loyalty. All of the cafés only go through a single roaster but many of the roasters go through a number of wholesale unroasted coffee suppliers.

Most roasters noted that they couldn't make a living solely selling coffee, therefore many sold general coffee shop supplies to their clients as well. This pushed many cafés to only work with 1 supplier and get all they needed from this supplier. One of the cafés professed that a local roaster, "[sic] is doing it right, they're a company in this area that are more than just roaster, they're a face that has come to be known as synonymous with quality" and others in the area agreed that this roaster was more than that – that creating a successful business based on sound professional principals while creating a quality product with the environment in mind was inspiring.

It's also clear that all businesses, cafés and roasters think that they're creating a phenomenal, well received product – no one wants to think they're buying or producing something of poor quality. This is important to understanding first-hand interviews from owners – knowing there is a certain amount of pride involved in their work means that you have to look at what they say and what they do; because opinions don't always align. Nearly all businesses said sustainability, locality and taste were very important to them but when presented with options they made the choice to put profit ahead of the other categories, and those that didn't noted that it cost them to showcase those qualities.

One café even stated that they sometimes made more money on coffee than food in a day due to the up-pricing and commonality of a "bottom-less cup" in our area. With bottom-less cups it's hard to determine how much money is actually being spent on each cup due to varying refill rates, drinking amounts and even cream/sugar pricing. However, it's well below the $2.35 or $1.85 some of these businesses are charging – at $7/lb, a bit above average for most cafés, their cost is around $0.15 a cup. This breaks down to customers drinking 2-3 cups and even including

the cost for cream and sugar there is still a large profit meaning coffee is a big money maker which incentivizes businesses to cut the cost per pound and make a good profit on selling coffee. Cutting costs doesn't always mean cutting quality but many times a lower cost relates to lower quality coffee.

Coffee prices fluctuate based on the season, crop return, quality rating and many other factors. The cafés that got their coffee from largescale suppliers and the larger roasters that were interviewed had their clients on a "cost controlled" blend for coffee where if the price of a certain type of coffee was too high they'd blend a cheaper bean in to balance the price – and not necessarily the taste. This further pushed that money and price were more important indicators than sustainability and locality. Also, the fact that largescale suppliers subcontract their roasting to larger roasting companies takes away from the "buy local" movement that most of the cafés are campaigning for.

Chapter Nine: The Importance of Coffee Farm Certifications and Roaster-Café Relationships

The idea of certifying products, such as coffee, comes from a virtuous place – wanting to make sure the environment isn't harmed in the making of an appreciated commodity and making sure that people are treated fairly for creating a valued product is important. Certifications are important to consumers because people trust accreditation and it makes them feel good about what they're buying. It essentially "make us feel better" about buying coffee that is grown and tended to in a faraway place by people we don't know. Applying a certification to the coffee makes it seem like it is being protected and valued by a group more qualified than ourselves. As a consumer we don't have to worry if something is certified because an organization has already done the worrying and investing in their sustainability for us.

Some certifications (i.e. Fair Trade) have turned coffee into a "commodity crop" – where you can sell FT coffee for more and the price is guaranteed. That means there's less incentive to create an excellent product and create sustainable methods of growing while there is benefit to save money and keep costs low while selling at higher prices – more profit. Fair Trade also allows large corporation farms now to be certified and they have more resources and money to get certified as opposed to smaller operations that could be run just as sustainably, if not more, but don't have the funds to spend on the certification. It is difficult for consumers to buy

certifications because not all consumers have the money or access to do so. Many cafés do it based on thoughts relating to what their clientele wants.

Many roasters are challenging this right now because they see that the Fair Trade (FT) or Rain Forest Alliance (RFA) certification doesn't mean what it used to do. To combat this roasters are going with direct trades or direct farmed coffees that they can trace to a single farmer or small group of farmers and pinpoint how that coffee is being produced. Again and again during my interviews roasters talked about how important traceability and transparency were – every single roaster said they still worked with a specific supplier, even if they were more money, because they were incredibly transparent which formed the basis of an invaluable business relationship.

This transparency is important because the café is just a middleman. Cafés just get the beans and then brew them – they don't have anything to do with the beans production, farm conditions, farm payment or the importing process. This makes it hard for them to gauge how to buy a sustainable product. But from the interviews and results we see that they want to buy a defensible product that is benefiting farmers and the environment. Roasters on the other hand take the bean from the importer, negotiate a price, and make sure the bean is roasted to its full potential for the consumer – making them a middleman too, but one with more control.

This control gives the roaster, and the café, a special privilege to "vote" with their dollars and support only importers that are transparent with their purchases. If more businesses did this it would in turn support farmers that were creating a better product, and hopefully one that was more sustainably produced. This transparency is strong in the roaster-importer relationship but could be stronger in the café-roaster relationship which would drive more money to farmers practicing the right methods.

Chapter Ten: The National Scope of Coffee & Rural vs. Urban Differences

Coffee has many environmental and social threats, and currently, prices are dropping due to changing atmospheric concerns and an abundance of product. This is going to affect production levels in the near future and changes to support the environment are going to need to be in place. Even with properly grown coffee techniques, farming is an intensive process that takes nutrients out of the soil. Farming with sustainable systems is going to be paramount in continuing our abundance of the crop.

These types of systematic changes need to be implemented in coffee-producing countries to formulate more maintainable ways to farm. Coffee as a monocrop isn't going to be profitable at a certain point due to its reliance on periodically planting coffee on new lands. As well as stripping the land of its nutrients it systematically creates boom and bust cycles in local communities that might not be able to recover. Supporting lower output shade-grown coffee farms that allow for many other species of plants, animals and insects to reside within their farms will create longer lasting production methods, provide a more stable income to farmers, as well as benefiting the land in many ways; including a lower reliance on synthetic fertilizers and pesticides.

This project however looked at a single, very small fraction, of one coffee-consuming country; a small town. The project wanted to find a way to help create a sustainable product with the purchasing power located in coffee consuming countries. The scope of this project and these interviews were based in the café-roaster relationship in one small town, in NW Pennsylvania. These ideas can be generalized to a bigger portion of the country and the world though, by looking at how smaller communities can implement practices to push the sustainability of coffee farms.

Cities and urban café culture was faster to the punch and are already implementing pro-farmer, pro-environment and pro-worker ideals that make them and those involved more successful. Vertical integration within coffee culture is where a café roasts all of its own coffee and makes many of the goods it sells to reduce costs associated with paying another roaster. Cafés interviewed in this project stated that this benefited them in a few ways; 1) roasting their own coffee allows them to charge less in the café and still make a similar profit and 2) it allows them to charge similar amounts as non-vertically integrated cafés and use the extra profit to pay for quality unroasted coffee. These vertically integrated cafés can trace their coffee all the way back to the farmer and make sure they have shared ideals and pay that farmer better because of it. This promotes the farmer to be sustainable while still creating the best possible product because they're properly compensated. This direct relationship also allows for the roaster to monitor what techniques the farmer uses to make sure they stay aligned with their values and vice versa.

This transparency is very important and was mentioned by all of our roasters as essential to creating a sustainable and stellar product. The roasters detailed that this type of direct

relationship also got the consumers very excited and filled that void of "knowing where your coffee comes from" – and consumers were willing to pay for it. Urban coffee establishments didn't have trouble convincing people to try new coffees or different methods of brewing – people came to these cafés to be offered that *service.*

Rural coffee roasters on the other hand depicted a common scene with their patrons; they would come in unsure of what they wanted because *people don't like drinking bad coffee* but it was all they knew. It sounds very simple but the reason that people are "dumping cream and sugar" into their coffees is because they don't know any better and they know that the coffee is bad on its own. Once they're shown that someone really cares about this coffee and its preparation and then drink a quality cup – the roasters said that they had "changed people's lives forever", and that was a big reason they were in the specialty coffee business.

These are the types of changes that need to be implemented in small town cafés and diners; that there is good coffee, that people love it and that the culture of the bottom-less cup isn't necessarily to enjoy your coffee. Transparency between cafés and roasters and cafés and customers is an ideal way to start this coffee educating process. Transferring knowledge openly about the coffee that is being sold and educating employees and those involved with the coffees service will promote consuming better coffee, promoting better relationships to drive environmental change and better farm wages.

There are some potential problems with this due to the wide range of where coffee is grown and consumed. Not all locations that can grow coffee can produce excellent quality coffee. A location could be between the tropics of Cancer and Capricorn, the coffee growing belt, but might not have the proper elevation and weather conditions, which would result in lower quality coffee beans. There is still room for these places to be growing coffee, however, and they can be improving their techniques and working towards more sustainable methods as well. There is also the potential for a lack of support with a coffee conscious movement with both cafés and customers that are set in their ways and don't see a need to change.

A vertical integration system would be very difficult in a small town because it's not feasible to have 5-10 cafés in the same small place. But small towns usually have the luxury of lower costs of living and with roasters in the area, lower pricing on their coffee. This is where integration of small town roasters and cafés is extremely important – connecting these businesses will create relationships that bolster conscious coffee while maintaining competitive pricing for

struggling small businesses. Urban coffee culture is making great strides to increase its sustainability and the importance of taste but if small-town rural coffee culture is included in this current nation and world-wide coffee movement it will directly benefit the farmers producing coffee and make the environment a priority.

Business Plan Points

- The cafés indicated that NW PA is working class and likes "strong, dark coffee" and that many add cream and sugar
    - Cafés make large profits on coffee
- The roasters showed that when those same working class consumers had an open mind and came into their stores they would try many types of coffee
- Being exposed to different and new coffees got consumers interested in their coffee and often changed their minds about what they liked
    - Such as roasters offering a "flight" of the same coffee processed in different ways
    - Long-time cream and sugar drinkers switched to black coffee because they found a new taste they liked!
- NW Pennsylvania doesn't dislike craft and high-quality coffee – people just haven't had the opportunity to try new types of coffee
- Wholesale coffee is more expensive in urban locations than in rural ones but there aren't huge price discrepancies in rural areas from local roasters
- Connecting local cafés with local roasters, in small towns like Meadville, PA area, will get new types of coffee to consumers which they'll likely enjoy – at low cost to the cafés
- Strengthening the café-roaster relationship will provide business opportunities to both, provide job security for roasters and help secure local communities

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Appendix A - Semi-structured Interview Questions

1. Do you currently or have you ever served coffee in your establishment?
    a. *If not, why not?*
2. How much do you charge for a small 12 oz. coffee?
3. What do you pay for an average 1 LB of coffee?
4. How much coffee do you sell on an annual basis?
5. What origins (country of origin), roast levels (light to dark) and/or certifications (RFA, fair trade, organic, etc.) do you and your customers look for in coffee?
6. Have you ever tried any locally roasted coffees and what did you think of them?
    a. *By "locally roasted" I mean any coffee roaster in the general region, anything from the Cleveland-Buffalo-Pittsburgh area.*
    b. *If not, why not?*
7. Have you heard of the "buy local" movement?
    a. *If yes - what have you heard about it and what does it mean to you?*
    b. *If no - explain that its goal is for local communities to support each other and buy each other's local goods*
8. Where do you get your coffee from and what kind of relationship do you have with your supplier?
    a. *Why did you select that supplier and how did you get in contact with them originally?*
    b. *How long have you worked with that supplier and do you know if the supplier offers a local option?*
9. Have you ever considered buying locally roasted coffee (again the Cleveland-Buffalo-Pittsburgh area)?
    a. *Why or why not?*

Circle the response that most closely applies to you – One (1) being *not at all true*, 3 being *neutral* and 5 being *very true* – mark N/A if a question doesn't apply

Coffee contributes a substantial amount to my overall profit.

1 2 3 4 5

I consider the coffee I sell to be local.

1 2 3 4 5

*It is important that I source my food and drink products from sustainable sources***.**

1 2 3 4 5

Circle the response that most closely applies to you – One (1) being *not at all important*, 3 being *neutral* and 5 being *very important* – mark N/A if a question doesn't apply

How important is taste when purchasing coffee?

1 2 3 4 5

How important is price when purchasing coffee?

1 2 3 4 5

Appendix B - Pre and Post Interview Script

Introduction and Consent – Pre Interview

This research is being conducted as a part of my senior research project at Allegheny College. The project is focused on the assessment of local knowledge of coffee production, processing, and sourcing, particularly as it relates to the environmental or social implications of these processes. Participating in this study is completely voluntary and there are no substantial risks associated with your participation. The interview is expected to take about 15-20 minutes and information collected will be kept confidential, with no identifying information being included in any of the final research reports. Even if you decide to participate now, you may change your mind and stop the interview at any time. You may choose not to answer any of the questions for any reason. If you have questions about this research study, you can contact myself, Emmett Barr, or my advisor, Benjamin Haywood, Allegheny College, Department of Environmental Science, Carr Hall 210, Meadville PA 16335, (814) 332-5347, bhaywood@allegheny.edu. Do you have any questions about the study? Are you comfortable proceeding with an interview?

Debriefing – Post Interview

Thank you for taking time to participate in my study on local coffee consumption and sourcing habits. My final paper will include a summary of my findings in addition to recommendations for local business to consider alternative methods of coffee sourcing. If you are interested in my final report, I would be happy to send you a copy of my paper at the end of the school year. If so, please make sure I have an up-to-date contact address for you.

Appendix C

All Data	Coffee as Contribution to Total Profit (#1)	How Local is Your Coffee (#2)	How Sustainable is the Coffee You Sell (#3)	How Much Does Taste Affect Purchase (#4)	How Much Does Price Affect Purchase (#5)
Mean	4	3.33	3.67	4.44	3.33
SD	1.63	1.76	1.33	0.68	0.94
Range	1-5	1-5	1-5	3-5	2-5
Mode	5	5	5, 4	5	4, 3

Appendix C. Averages, standard deviations, range and most common responses for all businesses interviewed.