DOUBLE GREEN LINES
Environmental Awareness and Action Group
Frugeo Geography Research Initiative

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RESULTS OF A COFFEE SURVEY TAKEN IN SHREWSBURY TOWN CENTRE

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Abstract

Recycling, waste control, global warming, climate change, sustainability; just to mention a few of the intensively growing number of "words" that people are bombarded with by the media daily. These phrases are, however, mostly on a loop of trend, they and their seriousness are not properly explained, which, in many cases, just spiral them down to meaninglessness and no further action is taken. It is now plastic that rules the headlines on many platforms, but surely, this is just the tip of the iceberg of all the environmental problems that the planet is facing. The author of this paper is interested in understanding the key factors that act between the society and the environment; therefore, it is commodities–that people consume daily without possibly thinking much of their origin and the effects (and side effects) that they directly or indirectly make on many environmental spheres–which are in the focus. It is coffee which is chosen to take the leading role and can navigate the reader towards having a better understanding of sustainability and the issues around them, through a very known example. The idea to demonstrate this, was to carry out a survey in one of England's prestigious towns, in the town centre area of Shrewsbury, to identify the number of premises that sell coffee drinks. The results shown in this paper represent only a rural town and urgently forms the question for sustainability matters as coffee is something that cannot be grown in the British Isles, however, it is highly popular, showing a continuous increase in demand that puts a strain on the producing countries. The author has tried to link the findings to other environmental factors and this is what is presented in the paper.

Key words

Coffee drinks, coffee shops, primary survey, sustainability, environmental issues, coffee production, coffee demand, luxury commodities, Shrewsbury, England

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1. Introduction

The foundation of this paper lies within the author's interest and previous research on coffee sustainability[1] (BOKOR, L. – ALPEK, L. 2015) which gave a theoretical background to the origin of coffee and explained many of the impacts that modern coffee culture had on the physical, social, and economic environmental spheres. That paper was an initiation to do more research regarding commodities that can make people aware of how and at what level daily consumables directly affect certain areas of the environment and can have further indirect effects on the entire global ecological system.

This current research focuses on the social aspect of the coffee drinking culture and it aims to begin with some discussions on real life traditions, habits and practices while making references to environmental and sustainability-related issues.

The idea and, therefore, the aim of this research was to clarify the exact number of hospitality premises that sell hot drinks, especially coffee drink, tea and hot chocolate at one certain locus. For this research, the English settlement *Shrewsbury (Shropshire)* was chosen to demonstrate how high the demand of these products is at one certain, relatively large-sized town (according to Census 2011, the total population was 71,715 persons – OFFICE FOR NATIONAL STATISTICS, 2011). Within two years, a control survey was also carried out to see the changes in the number of these premises whether that increased or decreased. The findings of this survey and their overall connections to environment and sustainability are going to be presented in the following chapters.

2. The survey area

Through the process of a conventional survey, the focus was set on *Shrewsbury*, but only on its popular tourist destination: the town centre area. This area, as it is shown in *Figure 1*, can geographically be clearly delineated by the so-called 'Severn loop', whereas the north and the north eastern section had to be decided arbitrarily, but there were obvious reference points which made this decision an obvious and rational one. According to this, the northeast of the loop of the research area is marked by the railway line and the railway bridge, the north is by the *A528 junction* on *Chester* and *Cross streets*. The northern edge of the *Gateway Education & Arts Centre* drew the boundary of the exact survey area. The perimeter of the area, therefore, was 3.56 kilometres (2.21 miles). Every shop in this loop measuring of, according to *Google Earth*, 0.69 km^2 (0.27 square miles), including the railway station, was accessed and surveyed *(Figure 1)*.

The reason to carry out this survey in *Shrewsbury town centre* was a rational choice as the author of this article is a local, town centre resident and for him, the changes and increase of hospitality premises and the foreseen growth in the consumption of 'luxury' commodities were obvious and this had to be supported by survey results.

Town centres are normally abundant in catering and other hospitality premises with *Shrewsbury* being no exception; although, the number of these shops may be surprisingly high for someone who walks across the town centre. Since the centrum area is compact and it is a very popular destination among shoppers and tourists, the survey's aim was to

[1] Available at https://www.academia.edu/31869020/Coffee_A_Popular_Commodity_and_its_Impact_on_the_Physical_Social_and_Economic_Environments

highlight a relatively small area which is, therefore, the reason beside choosing one that also has obvious physical boundaries.

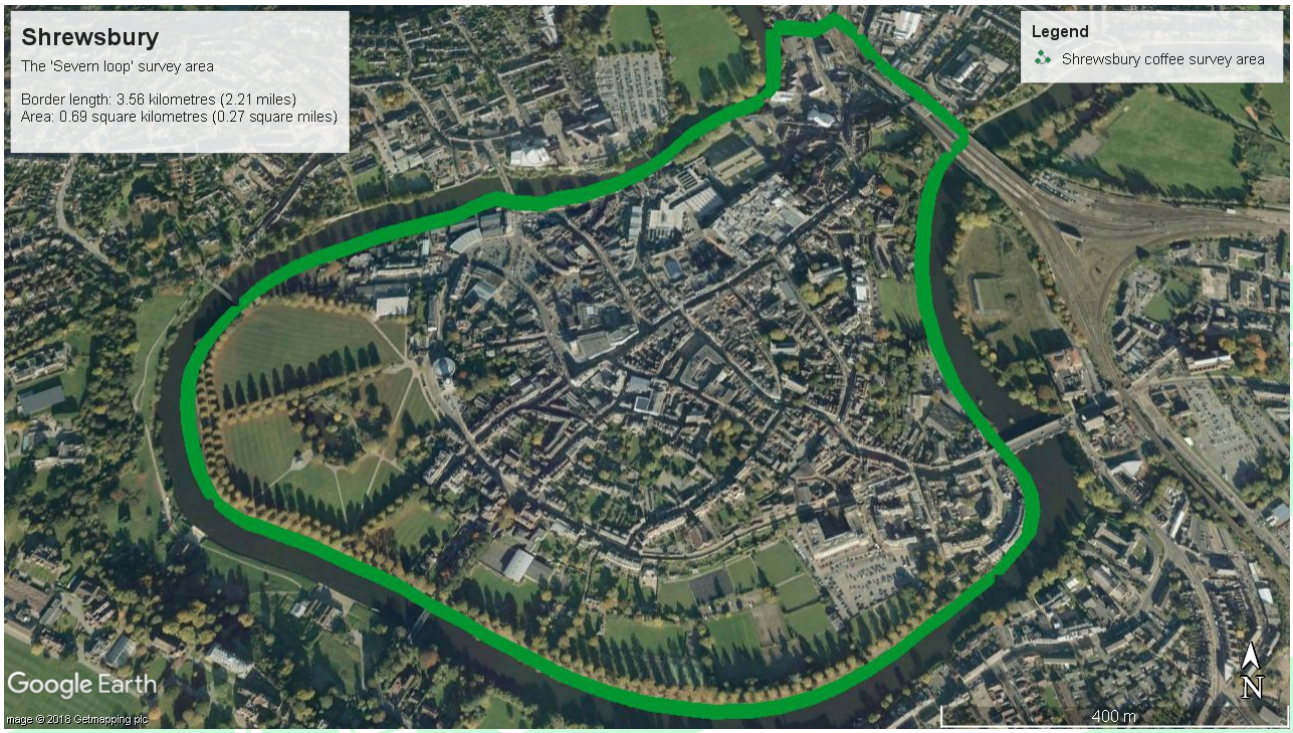

Figure 1: The 'Severn-loop' survey area
Designed by BOKOR, L. in GOOGLE EARTH PRO (2018)

3. Methods

As part of this current research, a simple survey has been carried out to identify all places in *Shrewsbury town centre* where one can buy a coffee drink. The research criteria defined "a coffee drink" as any hot drinks that was derived from coffee beans, therefore, its main ingredient is coffee bean regardless of what made up fancy name it comes under. In this paper, coffee is a synonym of coffee bean, and coffee drink stands for the hot drink produced from coffee beans.

This research project was the author's own idea and, therefore, fully crafted and sponsored by himself through his own venture, *Frugeo Geography Research Initiative*[2], who provided all the equipment including a tablet for the fieldwork and a computer to process further the findings. The survey forms were designed in *Google Sheets* and the file was accessible offline via *Google Drive*. As the fieldwork was carried out, every shop entered and surveyed was instantly marked on Google maps online. During the process of the research summary and the manuscript, all the data collected was transferred from Google to *Microsoft Office* and *Excel* respectively. The tables and charts were designed in *Microsoft Excel* and the actual figures were eventually made in *CorelDRAW 2018*. *Google Earth Pro* was used to measure the exact size of the research area and, also, to create a map with locations of the surveyed shops.

[2] https://www.frugeo.co.uk/

To connect the survey results to other data, *Shropshire Council's Intelligence and Research team* was contacted who helpfully and efficiently helped this research by making their previous shop survey results available for reference.

As for the research's authenticity, previously published, specific books, scientific papers, and official statistical websites were used to support some of the author's suspicions and to bring in data to support the findings and to avoid the article become speculative and subjective.

4. The Survey

The survey focused on a primary investigation which initiated the involvement of a thorough fieldwork. Through this, every street (including car parks, private drives, passages, shopping centres, etc.) located in *Shrewsbury town centre* was walked, every shop was entered and explored. The reason for this thorough analysis was to find all the places where one can purchase a coffee drink regardless this was an actual café or tea house, a restaurant, a supermarket, or a hot drink vending machine at a newsagent.

Initially the survey was scheduled for November 2016 and hoped to be carried out in one day, but due to the surprisingly high number of places that had to be visited, surveyed, recorded and marked, the first field work went on with breaks until the second half of January 2017, when a spontaneous control field walk was carried out which identified some changes. Since the scheduled work was for unforeseen reasons overlapped with other work obligations, the initially proposed summary was suspended from publishing. This, however, resulted in a control survey which was decided to be realised in August 2018. A second control survey was after all welcomed as, since the first survey back in 2016, a considerable number of new places have appeared that needed investigating.

The survey of a shop was carried out and a record was made regarding the services it provided:

- If it was clearly obvious that the shop did not sell any hot drinks, then it was not recorded on the survey sheet. These shops were mostly outdoor stores, sports shops, homeware/hardware stores, electronic shops, record shops, shoe and clothes shops, charity shops, hair stylist and barbers, garages, cobblers, newsagents, property agents, and banks. These retail premises were, however, also checked, because a small self-service/vending machine or other hot drink services could have been installed (for example *Clairmont news* and *Meat Shack* grocery shop have small self-service coffee vending machines, *Stan Cycles* bicycle store has a small café area).
- Many local pubs do not offer hot drinks, but to be sure about this, these places were visited and surveyed. All of these were recorded on the list whether the answer was yes or no, because it is not immediately obvious when one stands outside of the building (for example no hot drinks are served in *Admiral Benbow* or in *The Bulls Head*).
- The most obvious coffee drink sellers, such as cafés, tea houses, bakeries, confectioneries and restaurants were all surveyed and recorded. In these cases, there was no exception, they all sold hot drinks.
- There were shops identified that sold raw coffee and tea. These were classed as 'supply' stores and are included in the final list. Groceries (for example *Pomona*) and

supermarkets (for example *Tesco*, *Home Bargains*, *Cool Trader*) were, however, excluded from the list, because, even though they sell packaged coffee, tea and chocolate, they are not specialist stores that are worth mentioning; unless, a supermarket has a vending machine or an actual self-services café, then these shops were also listed (for example *Waitrose*, *Marks & Spencer*).

- There are also shops that operate, therefore sell hot drinks on an irregular basis. Two types belong to here: so-called activity centres (for example *The Hive*, *St Julian's Centre*) and the *Sabrina boat*. These types were listed as coffee drink sellers.
- Events venues (such as for parties, weddings for example *The Morris Hall*) were not surveyed and listed.

The survey concentrated on one main question only: "do you sell any of these hot drinks: coffee, tea, hot chocolate?" If the answer was 'no', no further interaction was conducted. If the answer was 'yes', the following questions were also asked:

a. Do you do free refill?
b. Do you offer take-away?
c. Do you let customers use their own cups/mugs either for take-away or sit-in?

A survey of a certain shop averagely took about 30 seconds, depending on the helpfulness and engagement of the participant. In most cases, shops were very assistive, welcoming and helpful, and very interested about the research itself. There were also places where the interaction was very limited, and employees looked at the surveyor with great suspicion. There was only one place *(Pizza Express)* where the survey could not be carried out as the employee completely ignored the surveyor. In this case, the information was taken off their website, but questions a, b and c answers have not been recorded (marked N/R [not recorded] in *Table 1*).

Even though the survey was carried out as carefully and thoroughly as possible, missing or wrong data may still occur in the database. All the information shown in *Table 1* was provided, in most cases, by employees, in a few cases by shop owners, who tried to give their best possible answers. It must be considered that different employees could have responded with different answers.

The surveyed places listed in *Table 1* are not in alphabetic order. The shops are listed in the exact order as they are in the streets, right next to each other; one, long 'thread-line' beginning from the *Quarry Park*, ending in *Butcher Row*. *Figure 2* shows the exact location of the shops excerpt from *Table 1*. These are shops according to the survey 2018.

Table 1: Survey results of 2016 and 2018 from Shrewsbury town centre
Shops surveyed and data collected in November/December 2016 and August 2018 by BOKOR, L.

Shops that sell hot drinks with exact GPS locations (hot drink types: drinks that are made from coffee, tea and hot chocolate)	First surveyed in 2016		Control survey in 2018		Type of shop (according to the shop's main profile)	Coffee drink	Tea	Hot chocolate	Free refill?	Take-away?	Own coffee cup?	Comments
The Quarry Café (Central Bath) 52.708464, -2.760813	1	√	√	1	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Coffee Evolution 52.708476, -2.762683	*X1*	*Ø*	√	*2*	*Actual café/teahouse*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*It was not surveyed in 2016*
Riverbank Bar & Kitchen 52.709516, -2.759398	2	√	√	3	Restaurant	Yes	Yes	Yes	No	No	No	
The Armoury 52.709589, -2.758957	3	√	√	4	Restaurant	Yes	Yes	Yes	No	No	No	

Sabrina boat (Victoria Quay) 52.709825, -2.758262	4	√	√	5	Boat	Yes*	Yes*	Yes*	N/A	N/A	N/A	Information from website
The Waterfront 52.709653, -2.758532	5	√	√	6	Pub	Yes	Yes	Yes	No	Yes	No	
Bonds (part of Waterfront) 52.709369, -2.758114	A1	√	√	A1	Night club	No	No	No	No	No	No	Part of Waterfront which is normally open
Panacea Indian dining 52.709328, -2.758394	6	√	√*	7	Restaurant	Yes	Yes	No	No	No	No	Under refurbishment when visited
Montgomery's tower (Wetherspoon) 52.709250, -2.758751	7	√	√	8	Restaurant	Yes	Yes	Yes	Yes*	Yes	No	Free refill from 8am to 2pm every day
Albert's Shed (2018) 52.708361, -2.757458	-	-	√	9	Pub/Night club	Yes	Yes	Yes	No	No	No	
The Source, vodka bar (2016)	A2	√	-	-	Night club	No	No	No	N/A	N/A	N/A	
KFC 52.708240, -2.757344	8	√	√	10	Fast food restaurant	Yes	Yes	Yes	No	Yes	No	
Hong Kong City Express 52.707895, -2.756978	A3	√	√	A2	Fast food restaurant	No	No	No	N/A	N/A	N/A	
Planet Doughnut 52.707811, -2.757499	*X2*	*Ø*	√	*11*	*Confectionary*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	
The Loopy Shrew 52.707814, -2.757019	9	√	√	12	Restaurant	Yes	Yes	Yes	No	Yes	No	Darwin's townhouse
Morgans, The Exchange hotel 52.707419, -2.756665	10	√	√	13	Hotel with bar/restaurant	Yes	Yes	Yes	No	Yes	Yes	
The Market Hall: AleOli 52.707609, -2.756235	11	√	√	14	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	Ground floor
The Market Hall: House of Yum 52.707659, -2.756061	*X3*	*Ø*	√	*15*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Ground floor*
The Market Hall: Moli 52.707731, -2.755864	B1	√	√	B1	Actual café/teahouse	No	Yes	No	Yes	Yes	Yes	Ground floor, actual tea house, only Chinese tea
The Market Hall: The Birds Nest 52.707737, -2.756332	12	√	√	16	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	Ground floor
The Market Hall: Market buffet 52.707786, -2.756457	13	√	√	17	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	Upper floor
Osteria da Paolo 52.708956, -2.756543	14	√	√	18	Restaurant	Yes	Yes	Yes	No	No	No	
The Boiler Room 52.708837, -2.756522	15	√	√	19	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
La Dolce Vita 52.708783, -2.756601	16	√	√	20	Restaurant	Yes	Yes	Yes	No	Yes	No	
Cafe Saffron 52.708973, -2.757116	17	√	√	21	Restaurant	Yes	Yes	No	N/A	N/A	N/A	
Fever & Boutique (2018) The Beach (2016) 52.709131, -2.757229	A4	√	√	A3	Night club	No	No	No	N/A	N/A	N/A	
4 Amigos (2018) 52.709196, -2.757382	-	-	√	22	Fast food restaurant	Yes	Yes	Yes	No	Yes	No	
Flaming Great / AbraKebabra (2016)	A5	√	-	-		No	No	No	N/A	N/A	N/A	
Blind Tiger 52.709295, -2.757424	A6	√	√	A4	Pub	No	No	No	N/A	N/A	N/A	
The Shrewsbury Hotel (W.spoons) 52.709491, -2.757099	18	√	√	23	Restaurant	Yes	Yes	Yes	Yes*	Yes	Yes	Free refill from 7am to 2pm every day
The star kebab & pizza house 52.709550, -2.756591	A7	√	√	A5	Fast food restaurant	No	No	No	N/A	N/A	N/A	
The Curry House 52.709452, -2.756674	19	√	√	24	Restaurant	Yes	Yes	No	No	No	No	
King's head 52.709428, -2.756417	20	√	√	25	Restaurant	Yes	Yes	No	No	No	N/A	New ownership in 2018
Aroi Thai 52.709395, -2.756298	21	√	√	26	Restaurant	Yes	Yes	Yes	No	No	No	
The Village Coffee House 52.709221, -2.756617	22	√	√	27	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	"Nobody ever asked before about own cups"
Avatar (Nepalese restaurant) 52.709115, -2.756240	23	√	√	28	Restaurant	Yes	No	No	No	No	N/A	
Pizza Express 52.709113, -2.755918	24	√	√	29	Fast food restaurant	Yes	Yes	Yes	N/R*	N/R*	N/R*	Employee ignored surveyor
Sprinters coffee bar 52.709028, -2.756065	25	√	√	30	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	
Old Smokey BBQ 52.708986, -2.755765	*X4*	*Ø*	√	*31*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*	
The Ploughboy 52.708681, -2.755792	26	√	√	32	Actual café/teahouse	Yes	Yes	Yes	Yes	Yes	No	
Taste of Shrewsbury 52.708446, -2.755398	27	√	√	33	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Christopher's deli (2016) 52.708259, -2.755268	*28*	√	*Ø*	*X1*	*Actual café/teahouse*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Gone by 2018 survey*
Bistro Jacques 52.708123, -2.755050	29	√	√	34	Restaurant	Yes	Yes	Yes	No	No	Yes	
The Town Fryer 52.708054, -2.755503	30	√	√	35	Fast food restaurant	Yes	Yes	Yes	No	Yes	N/A	
Wimpy 52.708025, -2.755759	*X5*	*Ø*	√	*36*	*Fast food restaurant*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	
Claremont News 52.708006, -2.755844	31	√	√	37	Newsagent	Yes	Yes	Yes	No	Yes	N/A	Small coffee (self-service/vending) machine
The Ware House 52.707955, -2.756234	*X6*	*Ø*	√	*38*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	
Subway (#1) 52.707797, -2.756394	32	√	√	39	Fast food restaurant	Yes	Yes	Yes	No	Yes	No	
Palmer's of Shrewsbury 52.707958, -2.756515	33	√	√	40	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	
Little Dessert Shop 52.707536, -2.756103	*X7*	*Ø*	√	*41*	*Confectionery*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*No*	
The Frogurt Pot (2018) 52.707498. -2.755824	-	-	√	A6	Confectionery	No	No	No	N/A	N/A	N/A	
Arthur's (2016)	34	√	-	-	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Domino's 52.707585, -2.755974	A8	√	√	A7	Fast food restaurant	No	No	No	N/A	N/A	N/A	
Ashley's 52.707521, -2.755567	35	√	√	42	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	

Darwin's sandwich evolution 52.707591, -2.755457	36	√	√	43	Fast food restaurant	Yes	Yes	Yes	No	No	Yes	
The Drayton 52.707655, -2.755269	37	√	√	44	Restaurant	Yes	Yes	Yes	No	Yes	Yes	
The Hole in the Wall 52.707800, -2.754988	38	√	√	45	Restaurant	Yes	Yes	Yes	Yes*	Yes	Yes	Free refill from 9am to 12noon with breakfast
Chez Sophie 52.708064, -2.754815	39	√	√	46	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
The York Roast 52.708126, -2.754674	40	√	√	47	Fast food restaurant	Yes	Yes	Yes	No	Yes	Yes	
Café Nero 52.708188, -2.754547	41	√	√	48	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Brambles 52.708387, -2.754734	42	√	√	49	Fast food restaurant	Yes	Yes	Yes	No	Yes	Yes	Take-away sandwich bar
Country style 52.708544, -2.754913	43	√	√	50	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Java coffee house *52.708994, -2.755276* *The Walrus Restaurant was just being fitted to open in September 2018*	*O*	*Ø*	*Ø*	*O*	*Actual café/teahouse*	*Yes*	*Yes*	*Yes*	*N/A*	*N/A*	*N/A*	*Opened in 2017, gone by 2018 survey*
The Salopian Bar 52.709663, -2.756563	44	√	√	51	Pub	Yes	Yes	No	No	No	No	
Riverside SC: Meat Shack *52.710088, -2.753828*	*X8*	*Ø*	√	*52*	*Grocery shop*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*A small coffee self-service/vending machine*
Riverside SC: The Hub / Links Café 52.709899, -2.754158	45	√	√	53	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Riverside SC: Re:cre@tion café 52.709926, -2.754452	46	√	√	54	Actual café/teahouse	Yes	Yes	Yes	Yes	Yes	Yes	Moved opposite
Pride Hill SC: Café Milano 52.708924, -2.754540	47	√	√	55	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	Lower level
Pride Hill SC: Café Georgia 52.708853, -2.754383	48	√	√	56	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	Lower level
Pret a Manger *52.708276, -2.754288*	*X9*	*Ø*	√	*57*	*Actual café/teahouse*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	
Greggs 52.708305, -2.753908	49	√	√	58	Bakery	Yes	Yes	Yes	No	Yes	Yes	
Whittard 52.708361, -2.753856	G1	√	Ø	Ø	Coffee/tea supply shop	Yes	Yes	Yes	N/A	N/A	N/A	
McDonald's *52.708514, -2.753622*	*50*	√	*Ø*	*X2*	*Fast food restaurant*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Closed-down in 2017*
Waitrose 52.708778, -2.752443	51	√	√	59	Supermarket	Yes	Yes	No	No*	Yes	Yes	From August 2018 no disposable cups used
Darwin SC: Costa (#1) 52.709413, -2.752717	52	√	√	60	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	Top level
Darwin SC: Marks & Spencer 52.709327, -2.752186	53	√	√	61	Supermarket	Yes	Yes	Yes	No	Yes	No	Top level
Darwin SC: Massarellas 52.709217, -2.753009	54	√	√	62	Actual café/teahouse	Yes	Yes	Yes	No*	Yes	Yes	Middle level. Refill for 99p
Darwin SC: Frankies 52.709694, -2.752863	55	√	√	63	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	Middle level
Darwin SC: K2, The Salon 52.709800, -2.752870	56	√	√	64	Actual café/teahouse + hair salon	Yes	Yes	Yes	No	Yes	No	Café and hair salon Middle level
Darwin SC: Flavour 52.709846, -2.752434	57	√	√	65	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	Ground level
Travel Times & News (Bus station) 52.710626, -2.752523	58	√	√	66	Newsagent	Yes	Yes	Yes	No	Yes	No	Self-service/vending machine
Premier Inn / Thyme 52.710819, -2.753274	59	√	√	67	Hotel with bar/restaurant	Yes	Yes	Yes	No	No	No	
River Thai 52.710879, -2.753987	60	√	√	68	Restaurant	Yes	Yes	Yes	No	No	No	
Lily's Riverside Tea Garden 52.711409, -2.752737	61	√	√	69	Actual café/teahouse	Yes	Yes	Yes	No	No	No	Not open in the winter
Churchill's Café 52.711103, -2.752012	62	√	√	70	Actual café/teahouse	Yes	Yes	Yes	Yes*	Yes	Yes	Free refill all day on coffee
The Alb 52.711318, -2.752077	63	√	√	71	Restaurant	Yes	Yes	Yes	No	No	No	They did take-away in the past
Sweet *52.711934, -2.750795*	*X10*	*Ø*	√	*72*	*Confectionary*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Opened in 2017*
The Gateway Coffee Shop 52.712791, -2.751633	64	√	√	73	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	
Platform *52.712141, -2.750330*	*X11*	*Ø*	√	*A8*	*Night club*	*No*	*No*	*No*	*N/A*	*N/A*	*N/A*	
Albion vaults 52.712077, -2.750408	A9	√	√	A9	Pub	No	No	No	N/A	N/A	N/A	
Station Hotel *52.711720, -2.750466*	*X12*	*Ø*	√	*74*	*Pub*	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*	
Starbucks (#1) (2018) Pumpkin (2016) 52.711721, -2.749169	65	√	√	75	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	Located at the railway station
Station News 52.711503, -2.750178	66	√	√	76	Newsagent	Yes	Yes	Yes	No	Yes	Yes*	Own cup only if same size as take-away cup
Al Piccolino Pizzas 52.711444, -2.750782	A10	√	√	A10	Fast food restaurant	No	No	No	N/A	N/A	N/A	
The Shrewsbury Coffee House 52.711244, -2.750750	67	√	√	77	Actual café/teahouse	Yes	Yes	Yes	Yes*	Yes	Yes	Free refill on tea
The Bull's Head 52.711276, -2.750505	A11	√	√	A11	Pub	No	No	No	N/A	N/A	N/A	
The Castle Vaults (2018) The Vaults (2016) 52.711097, -2.750560	A12	√	√	A12	Pub	No	No	No	N/A	N/A	N/A	
Gala Bingo 52.711201, -2.750767	68	√	√	78	Entertainment	Yes	Yes	Yes	No	Yes	No	
Brooklyn Craft 52.711018, -2.750732	A13	√	√	A13	Fast food restaurant	No	No	No	N/A	N/A	N/A	
Castle Thai Restaurant 52.710755, -2.750575	69	√	√	79	Restaurant	Yes	Yes	No	No	No	No	
Castle Banquet 52.710686, -2.750565	70	√	√	80	Fast food restaurant	Yes	Yes	Yes	No	Yes	Yes	

Library 52.710551, -2.750866	A14	√	√	A14	Library	No	No	No	N/A	N/A	N/A	
St Nicholas 52.710052, -2.750512	71	√	√	81	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
The Little Gourmet 52.710057, -2.750742	72	√	√	82	Restaurant	Yes	Yes	Yes	No	Yes	Yes	A small self-service/vending machine
Dough & Oil *52.709904, -2.751063*	*X13*	*Ø*	√	*83*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Opened in 2017*
Button & Bear 52.709768, -2.750940	73	√	√	84	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Lyons' Den 52.709379, -2.751253	74	√	√	85	Restaurant	Yes	Yes	Yes	No	No	No	
Burger King 52.709559, -2.751617	75	√	√	86	Fast food restaurant	Yes	Yes	Yes	No	Yes	Yes	
Garmar Tea Rooms 52.709278, -2.751745	76	√	√	87	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Bella Napoli 52.709159, -2.751948	77	√	√	88	Restaurant	Yes	Yes	Yes	No	Yes	No	
Subway (#2) 52.708753, -2.752029	78	√	√	89	Fast food restaurant	Yes	Yes	Yes	No	Yes	Yes	
The Yorkshire House 52.708820, -2.751782	A15	√	√	A15	Pub	No	No	No	N/A	N/A	N/A	
Parade SC: River View Café (2018) Parade SC: Snug (2016) 52.708335, -2.750439	79	√	√	90	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
St Mary the Virgin church café 52.708653, -2.751656	80	√	√	91	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Aroma 52.708331, -2.751333	G2	√	√	G1	Coffee/tea supply shop	Yes	Yes	Yes	N/A	N/A	N/A	Supplements, no hot drinks
Drapers hall 52.708194, -2.751620	81	√	√	92	Restaurant	Yes	Yes	Yes	No	No	No	
Darwin's Kitchen (2018) Porter House (2016) 52.707904, -2.751606	82	√	√	93	Restaurant	Yes	Yes	Yes	No	Yes	Yes	Part of Darwin's townhouse
Cromwell's 52.707582, -2.751332	83	√	√	94	Restaurant	Yes	Yes	Yes	No	No	No	
Wyle Cop no.77 52.706628, -2.751414	84	√	√	95	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
The Hayward / The Lion 52.706387, -2.751502	85	√	√	96	Hotel with bar/restaurant	Yes	Yes	Yes	No	No	No	
Café on the Cop 52.706382, -2.750571	86	√	√	97	Actual café/teahouse	Yes	Yes	Yes	Yes*	Yes	Yes	1x refill on hot drinks
The Nag's head 52.706352, -2.750356	87	√	√	98	Pub	Yes	Yes	Yes	No	No	No	
Pizza Cellar 52.706157, -2.750056	88	√	√	99	Fast food restaurant	Yes	Yes	Yes	N/A	Yes	N/A	Small self-service/vending machine only
Ramna Balti 52.706209, -2.749697	89	√	√	100	Restaurant	Yes	Yes	No	No	No	No	
Lion + Pheasant 52.706152, -2.748996	90	√	√	101	Restaurant	Yes	Yes	Yes	No	No	No	
Stan's Cycles 52.705950, -2.749183	91	√	√	102	Bicycle shop	Yes	Yes	Yes	No	No	No	
House of Grain (2018) The Cornhouse (2016) 52.706063, -2.749775	92	√	√	103	Restaurant	Yes	Yes	Yes	No	Yes	Yes	Changed name and ownership
The Hop & Friar 52.705794, -2.749730	A16	√	√	A16	Pub	No	No	No	N/A	N/A	N/A	
Darwin's townhouse 52.705517, -2.749766	A17	√	√	A17	Hotel with restaurants in town	No	No	No	No	N/A	N/A	Loopy Shrews and Darwin's Kitchen in town
The Masala 52.705406, -2.749712	93	√	√	104	Restaurant	Yes	Yes	No	No	No	No	
Abbots Mead Hotel 52.705426, -2.749326	94	√	√	105	Hotel with bar/restaurant	Yes	Yes	No	Yes	No	No	Guest-only-bar
Stop Café 52.705090, -2.749454	95	√	√	106	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Cathedral Church café *52.705979, -2.750874*	*X14*	*Ø*	√	*107*	*Actual café/teahouse*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	
The Hive 52.706038, -2.753248	96	√	√	108	Activity centre	Yes	Yes	Yes	No	No	No	Small bar when events on
Casa Naranjo 52.706067, -2.751672	97	√	√	109	Restaurant	Yes	Yes	Yes	No	No	No	
Henry Tudor House 52.706132, -2.751430	98	√	√	110	Restaurant	Yes	Yes	Yes	No	No	No	
The Goodlife 52.706348, -2.751279	99	√	√	111	Restaurant	Yes	Yes	Yes	No	Yes	Yes	
Trudy Scrumptious *52.706676, -2.751526*	*100*	√	*Ø*	*X3*	*Confectionary*	*Yes*	*Yes*	*Yes*	*N/A*	*N/A*	*N/A*	*Repossessed on 24 November 2016*
Sheraz 52.706719, -2.751573	101	√	√	112	Restaurant	Yes	Yes	No	No	No	No	
Eat at Eight (2018) O'joy (2016) 52.706764, -2.751776	102	√	√	113	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
St Julian's centre 52.707143, -2.752166	103	√	√	114	Activity centre	Yes	Yes	No	No	No	No	Open irregularly
The Wheatsheaf 52.706854, -2.752449	104	√	√	115	Pub	Yes	Yes	Yes	No	Yes	No	
Peaberry 52.706865, -2.752309	105	√	√	116	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	
La Corallina *52.706791, -2.752350*	*106*	√	*Ø*	*X4*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Closed-down in 2017*
The Old Post Office 52.706658, -2.752290	107	√	√	117	Restaurant	Yes	Yes	Yes	No	No	No	
CSONS 52.706665, -2.752644	108	√	√	118	Restaurant	Yes	Yes	Yes	No	Yes	Yes	Cake take-away too
Greens/Plantkind *52.706581, -2.752595*	*X15*	*Ø*	√	*119*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	
Umai Japanese 52.706717, -2.753048	109	√	√	120	Restaurant	Yes	Yes	No	Yes*	Yes	Yes	Free refill on tea

The Golden Cross 52.706774, -2.753154	110	√	√	121	Restaurant	Yes	Yes	Yes	No	No	No	
Sarnies 52.707194, -2.753027	A18	√	√	A18	Fast food restaurant	No	No	No	N/A	N/A	N/A	
Zizzi 52.707276, -2.753152	111	√	√	122	Restaurant	Yes	Yes	Yes	No	No	No	
House of Frasers / Wild mint 52.707253, -2.753520	112	√	√	123	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Starbucks (#2) 52.707730, -2.753803	113	√	√	124	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes*	Own cup allowed if take-away
Pattiserie Valerie 52.707622, -2.753991	114	√	√	125	Confectionary	Yes	Yes	Yes	No	Yes	No	
Côte 52.707416, -2.754211	*X16*	*Ø*	√	*126*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*	
Old Market Hall 52.707434, -2.754447	115	√	√	127	Actual café/teahouse + cinema	Yes	Yes	Yes	Yes*	Yes	Yes	Free refill on tea
The Gallery Tearooms 52.706914, -2.753733	116	√	√	128	Actual café/teahouse	Yes	Yes	Yes	Yes*	Yes	Yes	Free refill on coffee only
Ginger & Co. 52.707093, -2.754181	117	√	√	129	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	
The Wightman 52.707117, -2.754266	118	√	√	130	Activity centre	Yes	Yes	Yes	No	Yes	No	
Carluccio's 52.707151, -2.754374	119	√	√	131	Restaurant	Yes	Yes	Yes	No	Yes	Yes	
Museum café 52.707248, -2.754759	120	√	√	132	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Loch Fyne 52.707327, -2.755260	121	√	√	133	Restaurant	Yes	Yes	Yes	No	No	No	
Off the Square café 52.707390, -2.755447	122	√	√	134	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
Admiral Benbow 52.706876, -2.755713	A19	√	√	A19	Pub	No	No	No	N/A	N/A	N/A	
The Coach & Horses 52.706742, -2.756075	123	√	√	135	Restaurant	Yes	Yes	No	No	No	No	
Ask Italian 52.707895, -2.753821	124	√	√	136	Restaurant	Yes	Yes	Yes	No	Yes	No	
Costa (#2) 52.707643, -2.753480	125	√	√	137	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes*	Own cup allowed if take-away
Isaac's Keep Medieval 52.707829, -2.752900	*126*	√	*Ø*	*X5*	*Actual café/teahouse*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Used to do free refill, gone by 2018 survey*
Three Fishes 52.707555, -2.752692	127	√	√	138	Pub	Yes	Yes	Yes	No	No	N/A	
Itadaki zen 52.707715, -2.752819	*X17*	*Ø*	√	*139*	*Restaurant*	*Yes*	*Yes*	*No*	*No*	*No*	*No*	
Harvey's of Fish Street 52.707938, -2.752981	*X18*	*Ø*	√	*140*	*Restaurant*	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*	
Bear Steps 52.707834, -2.752742	128	√	√	141	Actual café/teahouse	Yes	Yes	Yes	No	Yes	Yes	
La Lanterna 52.707467, -2.751901	129	√	√	142	Restaurant	Yes	Yes	Yes	No	No	Yes	
The Loggerheads 52.707971, -2.751882	130	√	√	143	Pub	Yes	Yes	Yes	No	No	N/A	
Chambers Shrewsbury (Prince Rupert Hotel) 52.707966, -2.751989	131	√	√	144	Restaurant	Yes	Yes	No	No	No	N/A	
Camellias (Prince Rupert Hotel) 52.707965, -2.752368	132	√	√	145	Confectionery	Yes	Yes	Yes	No	No	No	
Prince Rupert Hotel / Royalist Restaurant 52.708064, -2.752675	133	√	√	146	Hotel with bar/restaurant	Yes	Yes	Yes	No	Yes	Yes	
Philpotts 52.708091, -2.752790	134	√	√	147	Fast food restaurant	Yes	Yes	Yes	No	No	No	Small self-service/vending machine
The Bull Inn 52.708150, -2.752774	135	√	√	148	Pub	Yes	Yes	Yes	No	No	Yes	
Number Four, Butcher Row 52.708253, -2.752918	136	√	√	149	Actual café/teahouse	Yes	Yes	Yes	No	Yes	No	
The Libertine 52.708167, -2.752929	137	√	√	150	Actual café/teahouse + cocktails	Yes	Yes	Yes	No	Yes	Yes	
House of the Rising Sun 52.708368, -2.753181	138	√	√	151	Restaurant	Yes	Yes	Yes	No	Yes	Yes	
Royal Siam Thai restaurant 52.708490, -2.753168	139	√	√	152	Restaurant	Yes	Yes	Yes	No	No	No	

TOTAL	**2016**	**2018**	Legend: √ *shop* confirmed in operation; *Ø shop* closed-down
Regular, black numbered lines	139	152	Regular, black numbered lines: shops that sell coffee drinks and other hot drinks
"B" or "Blue" lines	1	1	"B" or "Blue" lines: shops that do not sell coffee drinks but sell other hot drinks, for example teas
"A" or "Orange" lines	19	19	"A" or "Orange" lines: shops that do not sell hot drinks at all
"G" or "Green" lines	2	1	"G" or "Green" lines: shops that specialise in raw coffee/tea and classed as 'supplier', excludes groceries (for example Pomona) and supermarkets such as Tesco unless they sell actual hot drinks such as Waitrose
"X" lines with red text	18	5	"X" lines: shops are not in operation as of either November 2016 or August 2018 (empty premises or different type of shops in operation)
"O" lines with orange text	1	1	"O" lines: only one shop belongs here which was not open in November 2016 yet, and it just closed-down before the August 2018 survey

Figure 2: Coffee survey results 2018
Designed by BOKOR, L. in GOOGLE EARTH PRO (2018)
A KML file with more details is available to download from www.frugeo.co.uk/doublegreenlines.html

5. Findings

5.1. Hot drinks: coffee, tea and hot chocolate

Many organisations (for example *International Coffee Organization*), books (for example WINTGENS, J. N. *ed.* 2004) and research papers can confirm (for example MEHRABI, Z. – LASHERMES, P. 2017; AL-ABDULKADER, A. M. *et al.* 2018) that there is a huge worldwide demand for coffee products, especially in countries where coffee beans are not grown and there is no actual production. The demand is exceptionally high in *Western Europe and North America*, but emerging markets in *Asia* will have further impact on the demand (WORLDMAPPER, 2018b). According to the latest report of the *International Coffee Organization* (ICO, 2018), it is also known that this demand/consumption is increasing whilst, due to mostly changes in climatic conditions and the decreasing availability of fertile lands, the production may set to decline (HAGGAR, J. – SCHEPP, K. 2012). Recent ICO statistics show decrease compared to previous years (ICO, 2018).

A strong social and cultural cohesion have been built on coffee in the *United Kingdom* (and elsewhere in other *'Western' countries* – JOLLIFFE, L. *ed.* 2010) whereas this country cannot produce coffee beans, the increasing demand must meet international supply. Those countries are (the producers), however, mostly developing, low GDP-levelled countries (according to WORLDATLAS [2018] and WORLDMAPPER [2018b] *Brazil*, *Vietnam*, *Colombia*, *Indonesia* and *Ethiopia* represent the first five). Through the *'Fairtrade programme'*, labour and social conditions have improved over the last decades which may also have some positive effects on the environment (JAFFEE, D. 2014), especially when it comes to organic farming

among the poorest growers who cannot afford fertilisers and pesticides (PAULI, G. 1998). *Fairtrade*, however, was not a key element of this research, mainly due to these reasons:

1. Since large scale coffee bean production has significant impact on the environment and there is an increasing demand, *Fairtrade* has very little to do with the improvement of the physical environment, although its known social advantages are invaluable.
2. *Fairtrade* will not reduce the impact that coffee production and transportation have on the environment. The coffee beans will still need to travel, sometimes thousands of miles from their production sites to the consumers. The transportation of the raw products also requires special conditions which may increase the use of energy resources.
3. *Fairtrade* will not reduce the amount of water or electricity that are needed for the coffee beans and coffee drink productions.
4. Is there a *Fairtrade* take-away option? Most of the packaging materials, that is cups, are currently made from non-recyclable materials.
5. Many companies use the *Fairtrade* image only to impress their customers (JAFFEE, D. 2014).

Returning to the survey results, since most shops that sell coffee drinks also sell tea and hot chocolate. Beside coffee drinks, these two are also part of the same category: their main ingredients, that is tea and cocoa bean, are not produced in the *United Kingdom*, their natural growing areas and the climatic conditions they require, just like coffee beans', are in the tropical regions. Since the demand for tea (ITC, 2018) and hot chocolate (cocoa products according to ICCO, 2018) is also high and increasing, their environmental impacts are just as significant as the coffee's; although, in this article the focus is set on coffee.

According to the *Shropshire Council's Shops Survey 2012*, 13.4% (88 shops) of all shop units in the town centre area[3] was a "restaurant, café and take-away" type which category in 1979 accounted for only 6.5% (31 shops) (SHROPSHIRE COUNCIL, 2012).

According to *Table 1* and the survey findings, in *Shrewsbury town centre*, in 2016 overall *139*, in 2018 altogether *152* retail premises were identified that sold coffee drinks. Apart from a few examples, these shops offered tea and hot chocolate, too. This means, compared to the 2016 results, in August 2018 there is a net of 13 new shops that sell coffee drinks in *Shrewsbury town centre* compared to less than two years before. 18 out 152 shops were not listed as being in operation in 2016 which means these are brand new ventures in 2018, occupying shop spaces that were not used previously for catering. The 2018 survey has found five shops that were in operation and selling coffee drinks in 2016, but now these shops are closed, their shop spaces are abandoned or used for different services.

When surveyed, each shop was put into a type that defined its main function. In this sense, an "Actual café/teahouse" was a place where the shop's main profile was to sell coffee specialities. The difference made between a restaurant and the pub was purely based on the fact whether they offered cooked meal or not. In this regard, according to *Table 1,* the overall 152 retail premises that sell coffee hot drinks, the 1 shop that sell only tea drinks and the 1 functioning supply store have been classed according to their types.

Figure 3 shows that out of these 154 shops, the majority belong to the category of Actual café/teahouse (53), restaurants (54), and fast food restaurants (14) (This is overall

[3] Shropshire Council's Shop Survey 2012 defined a slightly larger town centre area ('Snowman-shape') which involved parts of Castlefields, too.

121 shops; *Shropshire Council's Shops Survey* in 2012 counted 88 shops of the same types. The difference is 33). These three accounts for 83% of all shop types surveyed and presented in *Table 1*.

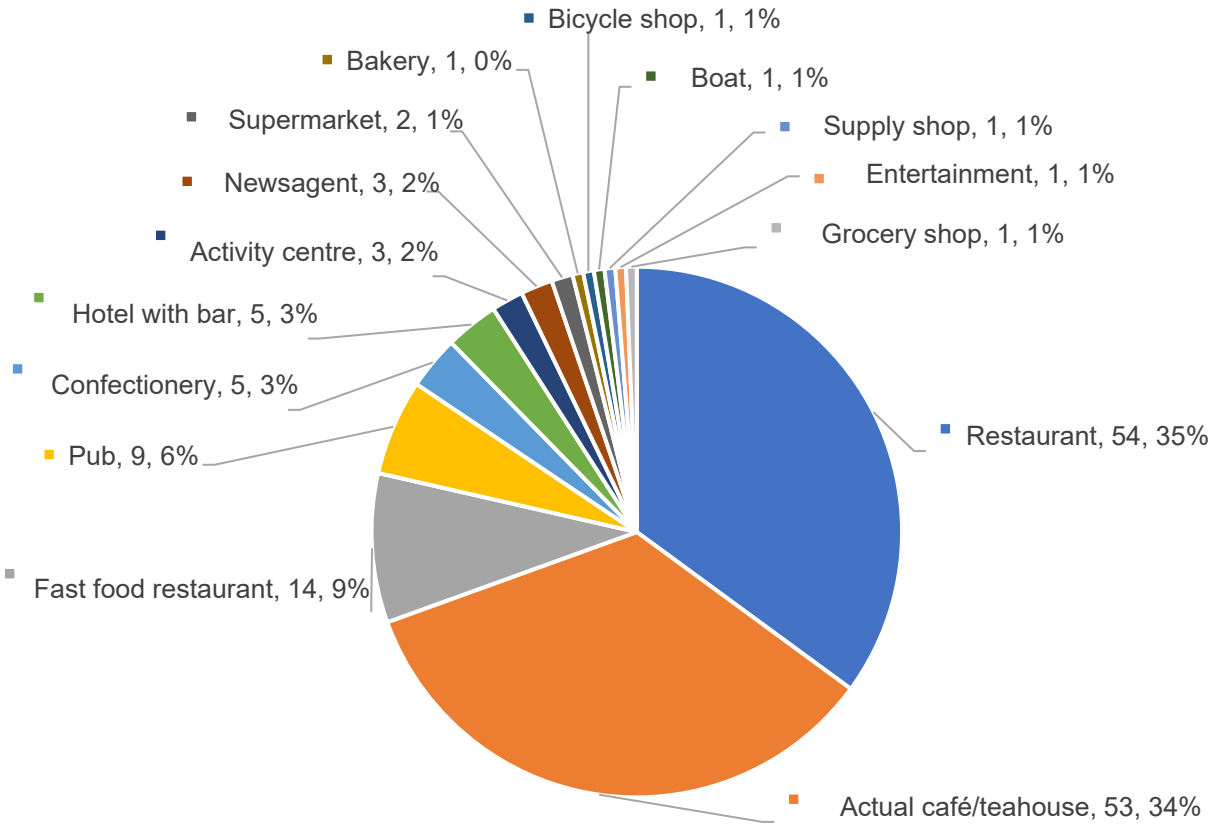

Figure 3: Types of 154 shops that sell coffee products in Shrewsbury town centre in 2018
Based on data excerpt from Table 1; designed by Bokor, L. *(2018)*

One shop's case is worth mentioning which is also not counted in the total of *Table 1*. A hospitality premises called Java café was opened early 2017, so just after the first survey, but during data collection, the shop fitting and preparatory works were recorded as a new café opening soon. When the control survey was carried out in August 2018, the shop was already closed-down and *The Walrus*, which is now open (October), was just being fitted.

Price of a coffee drink was not surveyed but eventually was recorded at a few locations, because price plays some role in coffee culture as it strongly influences the number of customers. In 2016, the experience was that local, mostly privately-owned cafés sold hot drinks cheaper (£2.20–£2.50) than the global chains such as *Costa*, *Nero*, and *Starbucks* (£3.00–£3.50). Those that did not require presence of staff members, such as vending machines, were the cheapest to offer coffee drinks (£0.75–£1.50). The overall price difference among shops were insignificant.

In 2018, prices do not show much fluctuations among shops anymore and, in fact, the international chains mentioned above seem to sell hot drinks cheaper than a few years prior. Surveying vending machines, there has been some increase in price, but in some cases, a significant drop could also be recorded (for example *Travel times & news* at the *Bus station* sells hot drinks from 50p). Also, the price for all types of popular hot drinks at cafés and

restaurant is quite levelled, so a cup of tea or hot chocolate is not more expensive or cheaper than the other. Specialities (such as *Caffé latte*, *Irish café*), however, may have significantly higher prices. Weirdly, shops were also identified where take-away was cheaper than a sit-in option.

5.2. Free refill

There are catering premises that refill the customer's cup free of charge or for a small extra fee. These are normally offered daily, but limited to breakfast times, therefore it is normally offered in between 7 and 14 o'clock. This is certainly an encouraging method to keep the customer satisfied and regular, but it is also a source that increases demand which leads to growing production needs which requires more growing area, water, electricity, transportation, and so on.

A free refill might be a sustainable solution when the focus is set on individual finances (what is affordable), but, on the other hand, it is a luxury habit that has significant direct (more water to consume) and indirect impacts (more CO_2 emitted into the atmosphere through production and transportation) on the physical environment.

5.3. Take-away and packaging options

Shops that sell hot drinks normally offer take-away. According to *Table 1*, in 2018, there were 101 shops in *Shrewsbury town centre* that had the take-away option.

Figure 4: An average take-away coffee cup
Photo by BOKOR, L. (2018)

Take-away is normally provided in a 'paper' cup shown in *Figure 4*. This cup is then closed with a plastic cap which might also come with a plastic or wooden spoon or may even come with a plastic straw. Some shops let customers use their own take-away cups/mugs, but this normally depends on what the customer orders.

What is wrong with the paper cup? *Figure 5* shows the 'Coffee cup spiral' which is a highly simplified but informative illustration of what the cup requires to be produced (BOKOR, L. – ALPEK, B. L. 2015)

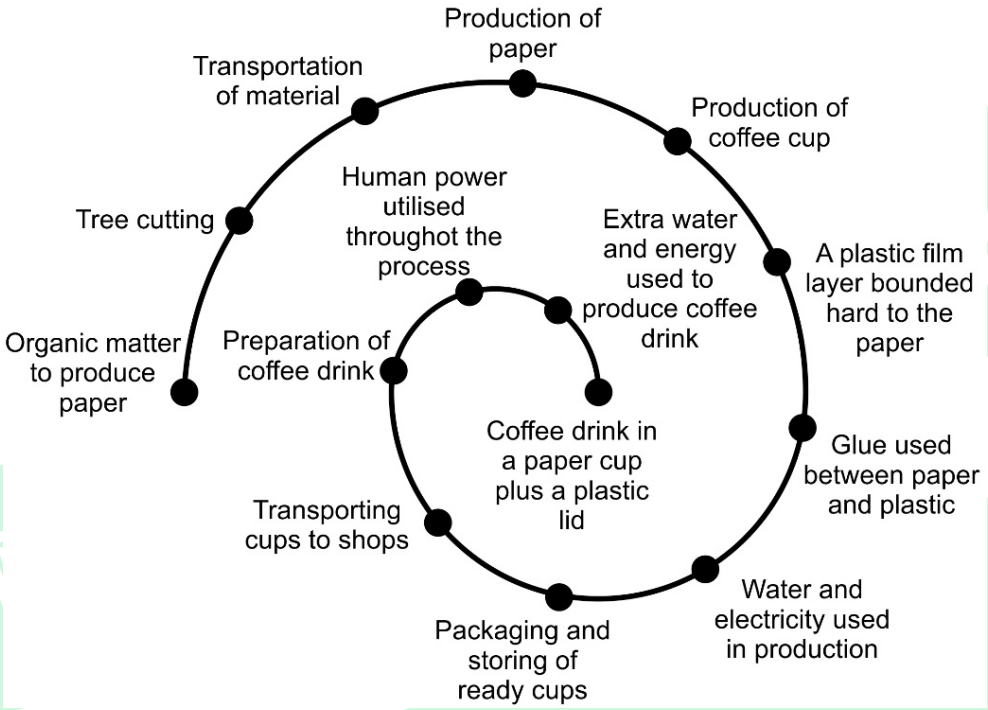

Figure 5: Spiral of effects – a simplified and schematic idea of how one thing generates another – an example on the coffee cup

Figure idea and design by BOKOR, L., Source: BOKOR, L. – ALPEK, B. L. (2015)

- Recycling: most importantly, the cup that shops provide their customers with their hot drinks in are not recyclable. After one use only, they normally end up in a communal bin which then go to landfill; in a better case, they are placed in the compost, although these cups are not compostable either due the fine plastic layer that covers the cup.
- Coffee remains: once the coffee drink is made, the coffee pulp remains which has some internationally known best practices to be recycled (PAULI, G. 2010). But in most cases, these end up in the bin which goes into landfill.
- Water: Water is used throughout the entire process of coffee bean and then coffee drink production; it is also used to produce disposable cups.
- Electricity/energy: its role is invaluable throughout the process. The higher the demand is, the more electricity/energy is required.
- Take-away culture: Cafés, like other public house premises, were created with the aim of social meeting places, therefore they have important roles in the life of a community. Take-away, however, represents a culture that never have time for social interactions whilst this lifestyle has large effects on the physical environment then sitting in. Apart

from a handful of shops surveyed, all of them have their own cups and tables where one can sit down and peacefully consume their hot drinks.

In 2016, when asked, global chains seemed more flexible with serving hot drinks to their customers in their own cups. This seems to be in a shift as of 2018, more local shops appear to be happy to let their customers' use their own containers (in *Table 1*, however, the answers represent the 2016 state as it gives a better perspective on how the idea of using brought containers was accepted). A very significant and truly noteworthy case, however, comes from Waitrose who completely abolished the use of disposable cups by August 2018. The only example that was surveyed *(Figure 6)*.

Figure 6: The 'Waitrose experience'
Photo by BOKOR, L. (2018)

6. Coffee's environmental impact

6.1. The route of a coffee drink

Coffee demand has a large-scale impact on different environmental spheres. The most important is, of course, the effects on the physical environment. According to our previous research paper BOKOR, L. – ALPEK, B. L. (2015), the following major aspects play key roles:

- deforestation,
- use of fertilisers,
- degradation of soil,
- waste accumulation,

- pollution of land and waters,
- effect on climate.

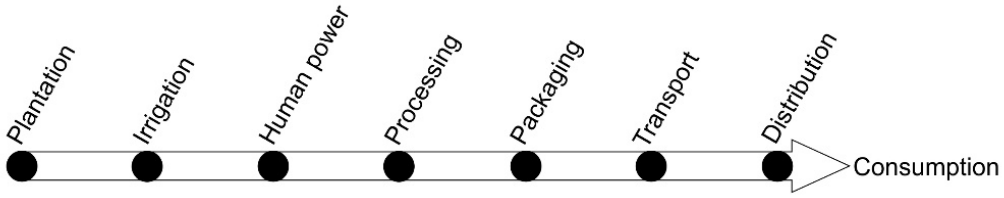

Figure 7: The route of a coffee bean
Designed by BOKOR, L., Source: BOKOR, L. – ALPEK, B. L. (2015)

6.2. Carbon dioxide

The impacts on climate can also be related to the emission of Carbon dioxide (CO_2). The more CO_2 is concentrating in the atmosphere, the higher impact it has on the global environment as it is a greenhouse gas which plays a vital role in regulating *Earth*'s surface temperature. Regarding coffee (or tea), according to BERNERS-LEE, M. (2010), the following breakdown applies (CO_2e means Carbon dioxide equivalent):

- 21 g CO_2e black tea or coffee, boiling only what needs to be prepared the drink,
- 53 g CO_2e above with milk, boiling only what needs,
- 71 g CO_2e average, with milk, boiling double the water that needs,
- 235 g CO_2e a large cappuccino,
- 340 g CO_2e a large latte.

These numbers will only be more emphasised, if compared to other things at similar level: for example,

- 80 g CO_2e a banana (each),
- 150 g CO_2e a mile by bus as a typical London bus passenger,
- 160 g CO_2e a mile by train on London Underground,
- 160 g CO_2e an average 500 ml bottle of water,
- 500 g CO_2e a pint of locally bottled beer from the shop or a pint of foreign beer in a pub,
- 723 g CO_2e a pint of milk,
- 1800 g CO_2e a box of eggs (BERNERS-LEE, M. 2010).

6.3. The water footprint

There is no coffee beans production without the involvement of a large-scale water, and there is no coffee drink (thus coffee consumption) without the need of involving more water which results in global freshwater resource concentration on one produce and its many stages from sowing seeds to drinking a cup.

The water footprint concept was introduced by REES, W. (1992) and WACKERNAGEL, M. – REES, W. (1996). The ecological footprint denotes the area needed to sustain a population, the water footprint represents the water volume (cubic metres per year) required. Just as a curiosity: PEARCE, F. (2006) made a calculation on water footprint required to grow coffee berries:

- 1 kg of coffee requires 20,000 litres (or 20 tonnes) of water.

- 140 litres of water are needed to grow one coffee plant.
- 140 litres of water equal 1,120 cups of water = 1 cup of coffee drink.
- The processing of coffee requires extra water.
- To make a drink out of the coffee needs a cupful more water. (Spiral effects.)

It is a concern where these 140 litres of water come from to grow the coffee seeds as Pearce's calculations are certainly arguable. However, its origin is not an important factor, but the amount of water used is irrespective as this water is to produce the coffee beans only. The extra water and energy required by coffee drink preparation has not even been mentioned yet. (These 140 litres of water also appear in other research papers, such as in CHAPAGAIN, A. K. – HOEKSTRA, A. Y. [2007] and where they also mention an extra 34 litres which amount represents the consumption.) And let us highlight it here once again: most coffee producers are developing countries and many of the growing areas are affected by serious water scarcity (UN WATER REPORTS, 2012).

7. Conclusion

Like many other areas, the coffee industry has become an individual sector that 'designs' specialities. This is a much bigger step away from the original idea and purpose of coffee drink itself. Coffee drinking from many aspects has become an existential thing, in lots of cases a bit of a 'snob' culture. *Figure 8* is only an example that shows four types of coffee drinks (out of many dozens) that can currently be purchased in a coffee shop. And a closer look certainly reveals how many other ingredients can one count that has major environmental impacts. For example: milk, sugar, cocoa, and of course, even more water.

Figure 8: Four out of many coffee drink types from the simple to Espresso, the more water and milk requiring Cappuccino and Americano, to the highly complex Caramel Macchiato
Source of types and images: CAFEPOINT (2015)

As mentioned among the findings, the number of places in *Shrewsbury town centre* where one can purchase a coffee drink, within less than two years, has increased from 139 to 152. The *Shropshire Council's Shops Survey* in 2012 recorded 88 shops that fell into the category of "restaurant, café and take-away" type. In 2018, this accounts for 121 shops.

The increase can only be explained, on the one hand, with the coffee drink increasing popularity and, therefore, demand, and, on the other hand, it is a sign how town centres in the early decades of the 21st century has increased the meaning of the tertiary economic sector (services) and the focus has shifted towards serving more tourism while looking after capitalism's main expertise: even more consuming.

It must be realised that the growing usage of plastic and, therefore, the (otherwise avoidable) global plastic waste issue is just one specific thing among many environmental concerns. Currently, plastic is the one that is the most highlighted and not without reasons. It is one of those specific things that the consumers can take actions and effectively reduce. But one must also see the connection among other things. It is not only the shrink-wrapped cucumber that causes a huge problem. The waste issue is also highly fuelled with the usage of insane amount of non-degradable or non-reusable cups that one of the world's most loved consumable, coffee culture puts on the environment. And this is not currently taken into action as in many cases, the disposable, non-recyclable take-away containers are believed to be recyclable when they are not.

It is very important to make consumers realise that there are certain things in their lives that are not needed, they are not a must for living. The usage of disposable plastic and non-recyclable/non-reusable take-away packaging material with conscious thinking can be reduced and, in fact, can completely elaborated from public use. When it comes to hot drinks, the café's original function where one sits in and drinks a cup of hot drink peacefully, in a washable, reusable cup should be appreciated.

Further research

The idea of this research was only to quantify the number of hospitability premises in a relatively large, touristic town in rural *England*. This research, however, is a typical example that could have been done by involving different factors and aspects or just delineating a wider research area. Still, the presented results are interesting and mind-provoking, and the research can be repeated in a few years to see the changes and trends. Similar researches could also be done at different locations, but results would show something very similar to this one.

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