ETHIOPIAN RURAL OPEN MARKETS

a Spatial Economic Portrait

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European Urban Studies (M.Sc.)
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Abstract

Rural open markets in Ethiopia offer a lot of economic potential and could prove to be crucial in the urbanisation and modernization of the Ethiopian hinterland. This thesis aims to investigate the relation between the spatial characteristics of rural open markets and their economic significance. Respectively an aspect that has been underexposed by academic research versus an aspect that has been the subject of a multitude of studies.

By performing a literature review, a hypothetical model was established showing how open markets in Ethiopia are spatially integrated into their context and how this relates to economics. Secondly, the model was verified by a case study that has been conducted on the open markets in the settlements of Kon, Arbit and Geragera in the North Wollo zone. Both the literature review and the results from the case studies indicated that rural open markets in Ethiopia form a central aspect in the lives of a large share of the Ethiopian population and are currently crucial hubs in the agricultural economy. Because of its large catchment area the rural open market is the ideal platform to reach large amounts of rural residents which live in remote areas that are difficult to access. Therefore, it could be the potential hub from which measurements that improve the livelihoods of the rural population of Ethiopia can be taken.

fig. 1 *Landscape of the Tekeze watershed*

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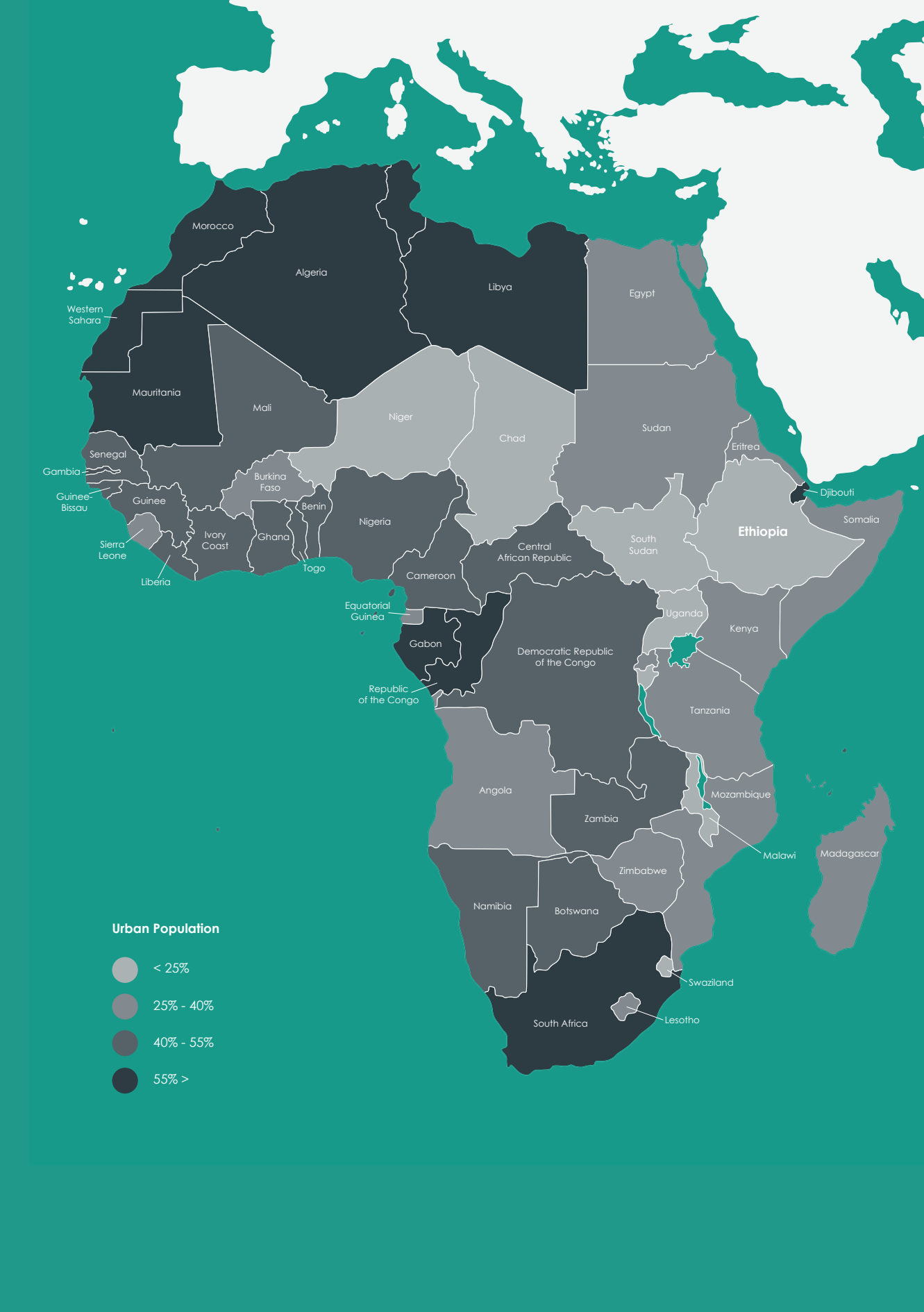
01
Introduction

Throughout history physical markets have played a role of great significance in the urban environment. In ancient Greece the 'Agora', which literally translates to "gathering place" not only served a commercial purpose but also facilitated a discourse that led to the shaping of religious, political and artistic values. As a platform for human interaction the open markets became central players in the urban environment and therefore found their place in the midst of settlements that range in size, from metropolisses to the smallest possible rural villages. The current functioning of these markets knows two extremes and can vary between, for example, the Wall Street Stock market which mainly sells financial services, to the small open markets of the African country side. This thesis will focus on the latter subject.

Although this thesis will focus on the case of Ethiopia, its topic concerns an issue that is relatable for most Sub-Saharan countries; urbanisation. In 2017 the total population of Ethiopia was estimated to encompass 105 million people (UN, 2017) making it the second most populated country in Africa. A report of the World Bank (2015) shows that in 2013 Ethiopia had approximately 77,3% of its labor force employed in agriculture. However, urbanisation is proceeding with a rate of 3,8% per year, this means that the urban population which was estimated to be 15,2 million people in 2012, is projected to grow to 42,3 million by 2037. When one considers that an estimate

fig. 2 *Percentage of urban population in African countries* (Worldometers, 2019)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Guinee
Burkina Faso
Benin
Nigeria
Ethiopia
Somalia
Sierra Leone
Liberia
Ivory Coast
Ghana
Togo
Cameroon
Central African Republic
South Sudan
Equatorial Guinea
Gabon
Republic of the Congo
Democratic Republic of the Congo
Uganda
Kenya
Tanzania
Angola
Zambia
Mozambique
Malawi
Madagascar
Zimbabwe
Namibia
Botswana
Swaziland
South Africa
Lesotho
Urban Population
< 25%
25% - 40%
40% - 55%
55% >

of only 21% of the population is currently living in urban areas (fig. 2) and that Ethiopia is one of the least urbanized countries in Africa (Worldometers, 2019), it becomes clear that the few cities existing in Ethiopia have a large challenge ahead of them in facilitating the prospected population influx.

Because of the social changes mentioned above, governmental institutions are forced to reconsider their approach to urban development and come up with new concepts for gaining control over the strong force of rural to urban migration. By implementing a strategy which supports the development of thousands of rural `New Towns' on a nationwide scale, the Ethiopian government assisted by the EiABC (The Ethiopian Institute of Architecture, Building Construction and City Development) is aiming to partially preserve their agriculture dependent economy and prevent a massive influx of population in their already congested cities. Beside implementing their 'New Town' strategy they uphold a manifest, called 'Unlocking the Powers of Ethiopia's Cities', which describes the national approach to the growth and enhancement of existing cities and how urbanisation can play a crucial role in achieving middle income status by 2025 (The New Climate Economy, 2015).

The importance of the rural Ethiopian open market in this matter cannot be emphasized enough. First, through the urbanisation of Ethiopia the urban demand on agricultural produce is growing rapidly. In this regard, the significance of open markets serving as main linkages between the rural hinterland and the urban environment, grows. Secondly, as this research will show, open markets have proven to be regional centers of commerce and economic development. Therefore, their consideration and facilitation in New Town development is of great importance. However, current research into the functioning of rural open markets in Ethiopia is limited to literature studies and population surveys and unfortunately almost no relation with case studies and their local or

regional significance can be found. For this reason, the goal of this thesis is to take existing research on **spatial economics** and on the spatial integration of open markets in Ethiopia to investigate how economic characteristics are manifested in space and how these affect market settlements and their direct environment. Besides leading to a better understanding of how open markets function this could also initiate a discourse about the potential, development, initiation and implementation of these markets in rural Ethiopia.

In a nutshell, spatial economics studies the arrangement of economic activity in space. To elaborate; the spatial aspect focuses on patterns like proximity, concentration and similarities and either relates these to a single demarcated area or to the relationships and synergies between multiple areas. The economic aspect aims to clarify these patterns by linking them to economic entities like industries, households, institutions and markets.

Before getting into the spatial economics of open markets, it is crucial to better understand the current status of Ethiopia and the processes that shaped its hinterlands. Therefore, this chapter will focus on giving a short historical reflection. Furthermore it will highlight the importance of open markets as catalysts for urban development and it will describe the basic functioning of open markets and the processes that it facilitates.

1.1 *Ethiopia, Roof of Africa*

Historically speaking, Ethiopia is known to be an isolated state. This can be seen as the result of various geographic factors. For instance, because of its landlocked situation and the secluded Ethiopian highlands, which cover the majority of the country to which it owes the nickname 'Roof of Africa'. Furthermore, the Ethiopian major religious group, 43,5% (Population Census Commission, 2008), is part of an orthodox church that developed separately from western christianity for thousands of years. Where all other African states were subdued to Western imperialism, Ethiopia managed to remain independent for most of its existence, thus keeping its primary cultural values intact. This meant however, that by the time the industrial revolution hit Europe, Ethiopia was still very pristine. In the late 19th and early 20th century, a series of Ethiopian emperors, respectively Yohannes IV, Menelik II and Haile Selassie I, all claiming descendance to the biblical king Solomon, set out to modernize the Ethiopian society. During this time Addis Ababa

was founded and appointed as capital of Ethiopia, all-weather roads were constructed, a railway connection with the port in neighbouring country Djibouti was established and last but not least the Ethiopian army was significantly enforced which proved to be of great importance in fighting off invading Italian, English and French forces. By joining the globalising world Ethiopia was introduced to new products, techniques and industries, vice versa, western society gained access to Ethiopian resources. However, Ethiopia kept a protectionist and suspicious attitude towards European advances (Adejumobi, 2007). Nonetheless, in 1936 Italian forces managed to successfully occupy Ethiopia and settled in Addis Ababa. From this point Ethiopians were banished from accessing the area surrounding the former open market, this area was then renamed Piazza. The Italian occupants therefore decided to move the open market to the western part of Addis Ababa (Angélil & Hebel, 2016). This decision shifted the perceived center of Addis Ababa and currently this open market is known as Mercato (fig. 3), one of

fig. 3 *View of Mercato (Girma, 2019)*

the largest open markets in the whole of Africa. It spreads across several city blocks and although it might be perceived as chaotic by outsiders, in fact it is organized and different commodity groups and production chains can be witnessed when visiting the market. The Italians proceeded in modernizing Ethiopia until 1941 when the Italian forces were fought off by allied forces and the exiled emperor Haile Selassie I returned to the throne.

Eventually, the famine of 1973 led to Selassie's downfall and brought an end to over 1500 years of royal rule after which Ethiopia was ruled by the Derg regime, a socialist military junta. They initially strived for the collectivization of agriculture and politicalization of rural Ethiopia (Adejumobi, 2007). Surplus agricultural produce was procured by the state leading to a lack of stimulus and creative incentives for farmers. Furthermore the Derg resettled farmers to small newly planned villages through a process called "villagization" in which they broke with the traditional ways of farming in Ethiopia (Adejumobi, 2007). Not being able to intensify farming whilst having a fastly growing population led to a series of famines in the 1980's. This, combined with the corruptive image of the Derg caused the upcoming of the Ethiopian People's Revolutionary Democratic Front (EPRDF), a coalition of multiple parties each representing a different ethnic region. In 1991 the EPRDF was able to remove the Derg from its position and has governed Ethiopia ever since. The EPRDF political agenda promises to internationalize its markets through an export based economy and privatize state owned companies (Adejumobi, 2007).

1.2 *Open Markets in the 19th and 20th Century*

As mentioned in the previous paragraph with the example of Mercato, open markets can play a significant role in urban development. They formed centers for urban commerce and interaction but also spatially the open markets represented the center of a settlement (Alem, 2016). According to Alem (2016) the

19th and early 20th century trade in Ethiopia were characterized by the use of primitive forms of currency and transactions were made in two different settings. The first setting was the local open market, which could be found in almost every settlement and was mainly responsible for short distance trade. These local markets were the places where farmers could obtain information about the pricing in similar surrounding settlements. The second setting consisted of commercial caravans that were manned by Ethiopian and Arab muslim merchants and traveled in between the bigger regional markets and thus facilitated long distance trade. These regional open markets occurred once a week. According to Pankhurst (1964) different nearby markets would be active during different weekdays to enable the long distance trade caravans to trade for the greater part of the week. The trade of meat was very rare since the people mainly traded in living livestock and carried out slaughter themselves. In the settlements, shops were absent as most of the trade happened on the open market and any local crafts were sold by door to door selling and not by showcasing the products in a specific space. The caravans played a significant role in the domestic trade scene. Pankhurst continues stating that the reason for the caravans being ran by muslims was because in that time their religion allowed them to trade products with Arab countries on the other side of the Red Sea, whereas Ethiopian Christians would be boycotted and even risked being imprisoned and end up as slaves. In the same time period Gondar was the heart of Ethiopian commerce. Being the biggest city in Ethiopia it facilitated two markets, both of which were active on a different weekday (Pankhurst, 1964), something that is usual in a lot of towns in present Ethiopia. In the 20th century, during the modernization period and with it the construction of all weather roads and the railroad connection Djibouti - Addis Ababa, trade caravans became obsolete and were replaced by a more centralized system of distribution (Pankhurst, 1964). During the Italian reign, open markets were sometimes moved to existing towns to centralize economic

activity. A study of 21 settlements in a 20 mile radius of Addis Ababa (Horvath, 1968) showed that the settlements without open markets are significantly smaller than the ones were an open market can be found. Furthermore, the study shows that settlements that are not located along an all-weather road are rare and insignificant. These observations could indicate that open markets might play an important role as accumulators of urban growth although this could be dependant on its infrastructural connections.

Unlike in the 19th century, the 1960's market towns had a variation of retail shops and gastronomy functions. These businesses were mostly operated by Arabs which, as mentioned before, formerly monopolized foreign trade and now settled in the urban centers (Horvath, 1968) The presence of these periodic open markets (periodic means that they are active once, twice or three times a week) brings a large amount of people to a settlement which then again support economic activities. For instance, as Horvath mentions in his study (1968, p 49): "a peasant woman who earns some money in the market by selling eggs may spend the money on some cloth in the retail shops or have her grain ground at the millers, thus foregoing the arduous task of grinding it at home. A man may spend a portion of the earned to pass a few pleasant hours chatting money and drinking with kin and friends in one of the taverns". Finally, as mentioned before, the markets could come across as quite chaotic. However, they were subdivided in different sections each selling different types of goods. Commodity groups that could be found were spices, butter and cheese, cloth, vegetables, fuel wood, local bread, hides and skins, hops, pottery and manufactured goods (Horvath, 1968).

One can conclude that although there are some major differences between open markets from the 19th and early 20th century, in essence they functioned the same. Modernization changed and optimized distribution networks and gave birth to light industries.

Trade caravans were exchanged for trucks, which increased the importance for open markets to be situated along all-weather roads. The reason for the periodic activity of open markets seems to be based on the trade optimization for traders which are thus enabled to visit multiple open markets during one week. Finally, in both time frames people came from far and wide to attend these open markets. This led to an accumulation of economic activity which then again facilitated urbanisation and the establishment of retail shops and small manufacturing units.

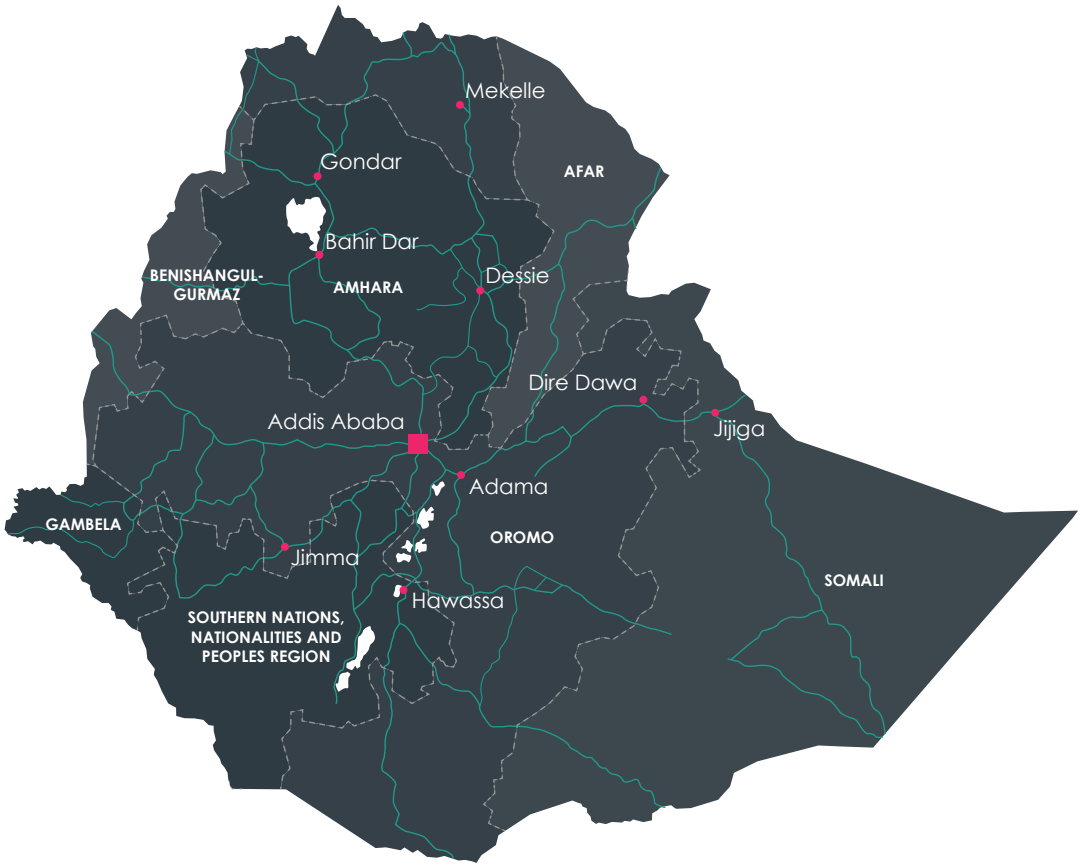


fig. 4 *Regions and ten biggest cities in present day Ethiopia*

1.3 *Open Markets Now and in the Future*

In present Ethiopia (fig. 4) open markets do not seem to differ a lot from those of the 1960's. Market activity occurs between once and three times a week, which depends on the outcome of negotiations between the formal and informal institutions (Alem, 2016). The market squares themselves can either be divided in different commodity sections or in some cases a settlement can contain multiple market squares that sell different types of goods, for instance a settlement could have a market only for the trade of cattle. Both markets can however be active on different days of the week.

A report of the UN (Marocchino, 2009) gives an accurate description of the current status of open markets in Ethiopia. The writer argues how open markets management is mainly controlled by the public sector who define the spatial layout of a market and collect taxes from the retailers that want to stall their goods. The same public sector also provides water and sanitary services, although these are usually poorly managed which leads to hygiene hazards.

Furthermore, the report describes the different stakeholders involved in the open market set-up. However, one can question the integrity of this small list since it seems to generalize and thus disregard a lot of other important actors that need to be mentioned. A more detailed and refined approach will be proposed in the latter part of this research.

Farmers; only visiting open markets for a limited time to sell their own produce and buy others before heading back to their land. They mainly sell to traders instead of selling directly to consumers which would be a more time consuming process.

Wholesalers/brokers; buy up produce from farmers and transport it to the open market. Their presence is limited

because farmers rather transport their own produce to the markets optimizing their profit by cutting out the middleman. However the report doesn't mention that with the rapid improvement of road infrastructure in Ethiopia the significance of wholesalers and brokers might increase, which will be explained in the latter part of this chapter.

Retailers; which form the biggest group in the open market and mainly consists of of the local population. They often specialized themselves in the sale of one specific commodity.

Finally, Marocchino (2009) emphasizes the vulnerability of female traders in the open market (fig. 5). They are excluded from any trade or market committees and are left to petty trade. "Young women with two or three children under an umbrella, in the mud, selling a few kilograms of tomatoes, onions or potatoes, is a very common site in many rural markets" (Marocchino, 2009, p 6.), this means that women traders experience low turnovers which leads to a low food security for this specific group.

As mentioned before, the role of wholesalers and brokers might rapidly change in the nearby future. Whereas in 1994, 29% of Ethiopian population needed 10 hours to travel to the closest city with a population of 50.000 or more, in 2015 this figure is only 5% (Minten, Dereje, Bachewe & Tamru, 2018). This trend is mainly caused by the increase of all weather roads which has a big effect on the accessibility of the hinterland. Minten et al. (2018) argues that Ethiopia is now exchanging the traditional agricultural phase, in which farmers mainly produce for own consumption and supply routes are short, for the transitional phase in which there is a decrease in **smallholder farms** and a big increase in more commercial farmers. This change is reflected in the estimate that 4% of the entire Ethiopian population is currently employed in agricultural trade or transport and that the number of traders

Smallholder farms are small farms that are run by a single household. These households normally live a subsistence lifestyle which is focused on producing for own consumption. In Ethiopia smallholder households posses an average land area of 0,8 Ha and exist out of 5 persons (FAO, 2018).

increased 150% over the last decade whereas the number of wholesalers increased a staggering 250%. Finally, Minten et al. (2018) states that due to modernization seasonal and spatial price margins between nearby markets are declining. The use of mobile phones and the establishment of the Ethiopian Commodity Exchange (ECX) provide traders with a better sense of what pricing is reasonable. Additionally, the increase in good storage spaces, the increase in agricultural production and a growing level of wealth among farmers makes it easier for retailers, traders and farmers to offer a consistent price during the course of a year. Ultimately, one can conclude that whilst researching open markets in Ethiopia you must consider the period of immense economic, social and spatial change that is currently occurring in Ethiopia. These dynamic processes affect all and will change everything. Therefore, it is important that in the continuation of this thesis, maintained results and observations will always be regarded relation to these changes and economic change specifically.

fig. 5 *Female traders in Geragera*

02
Economics of Open Rural Markets

Ethiopia is commonly known as one of the poorest countries in the world. It has an extensive history of severe famines which can be seen as a consequence of recurrent droughts, infertile soil due to intense cultivation, the lack of fertilizer and the decrease of landholding sizes for smallholder farmers because of population increase (Devereux, 2000). On the flipside, with a 10,9% growth rate in 2017 Ethiopia turned out to be the fastest growing economy in the world at that time (World Bank, 2018). The World Bank (2018) however argues that if they want to keep this momentum going that "Ethiopia makes policy adjustments to crowd-in the private sector and strengthen its economic competitiveness". These proposed policy adjustments should direct special care to the agricultural sector.

As is mentioned in the previous chapter, agricultural sector employs most of the Ethiopian labour force and makes up for 43% of the Ethiopian GDP (FAO, 2011). Furthermore, an estimate of 12 million smallholder farming households are responsible for 95% (FAO, 2011) of the total agricultural production of Ethiopia. Currently, these farming households mainly live subsistence lifestyles in which only a small percentage of their produce enters the market. Through the commercialization of these smallholder farmers the Ethiopian government can increase their competitiveness and thus production of its agricultural sector, which then should result in a decrease

fig. 6 *Market day in rural North Wello (Google Earth, 2011)*

of food insecurity. To achieve this goal the Ethiopian government developed a strategy called the Agricultural Development Led Industrialization (ADLI). This strategy aims to increase the linkages between the industrial and agricultural sector by which the government hopes to achieve higher outcomes in both sectors. For instance, supplying smallholder farmers with better education, fertilizers, modern machinery, micro financing and improved marketing can support them in increasing their harvest and thus transcend their current status of subsistence farmers.

When comparing the agricultural sector in Ethiopia to other Sub-Saharan countries one can conclude that it is far from modernized. Only 3,7% of smallholders use motorized equipment and only 2,3% of their land is irrigated (FAO, 2018). In this regard, open markets can be seen as crucial hubs that can facilitate linkages between the agricultural hinterland and the industrializing urban environment. They are potential places for knowledge exchange between farmers, traders, retailers and officials. In 2012, however, the average distance smallholder farmers needed to travel to the nearest road was 44 kilometers (FAO, 2018), let alone the open market. This situation will most likely change because of the rapid construction of roads and the planning of new towns. For instance, an increase in the accessibility of rural areas can have a great influence on the behaviour of rural residents. Research has shown that rural residents are much more likely to sell their own produce and buy crop inputs in the nearest market town if the travel distance is below 8 kilometers (Dercon & Hoddinott, 2005).

Nevertheless, in this case the placement of an open market (fig. 7) is important for creating a flourishing settlement that experiences a healthy competitive environment with a catchment area big enough to facilitate proper economic stability. Furthermore the open market should enhance not only the economic performance of the settlement it is located in but should be able to radiate this

performance to the surrounding rural hinterland. The presence of an open market for instance, has multiple benefits for surrounding rural localities and on the long term can improve their welfare. It delivers them with improved access to agricultural inputs, medical and educational services, off-farm labour and goods for consumption that are not produced locally (Dercon & Hoddinott, 2005).

To gain a better understanding of the significance and potential of open markets in rural Ethiopia, the remaining part of this chapter will further analyse the spatial and economic characteristics and relate them to open markets. Then an abstract hypothetical model will be established that takes the spatial economic characteristics and applies them to rural Ethiopia. The idea is that in the latter part of this research the liability of this model can be investigated by performing a case study.

fig. 7 *Difference in activity in Kon between active an inactive market days*

2.1 *Location*

To be able to perform a solid analysis on open markets, one needs to consider their location and determine what aspects played a role in the growth of the surrounding settlement on this specific spot. Economist Masahisa Fujita (2000) states that the work of Von Thünen's 'Isolated State' from 1826, recognizes four reasons for accumulation of population. Fujita translates them into the following modern urban economic terms;

> ***First Nature,*** like the presence of natural resources, navigable water bodies, ports, fertile soil and other geographical characteristics.
>
> ***Governmental institutions and public services,*** like hospitals, educational facilities and government administrations.
>
> ***Social and cultural amenities,*** like theaters, museums, churches and government officials.
>
> ***Non Tradeable consumer goods,*** like artisanal labour forces.

First nature is possibly the most important locational factor for the initial accumulation of people. The hypothetical model will, like Von Thünen's model be an abstrahized version of the real world. However it should somehow consider soil fertility and infrastructural characteristics since they might reveal insights on the location and success of the open market. Concerning soil fertility for instance, because of soil degradation and erosion federal law prohibits farming on rural lands that have a slope gradient of 60 percent or higher and only allows farming on bench terraces for slopes with a gradient between 30 and 60 percent (Rural land administration and use proclamation, 2005). Therefore, a settlement in an area with a high amount of sloped terrain might experience lower agricultural production rates which could influence market efficiency. When

talking about infrastructural characteristics, first one should separate roads that are accessible by car and pathways that are not. Those accessible by car can be separated into primary roads which are asphalted and gravel roads which are unpaved. The difference between the type of road in combination with its condition impacts the accessibility of a town considering the fact that average travel speeds on an asphalted roads (between 50 to 70 km/h) are a lot higher then on gravel roads (between 25 to 45 km/h) (Shiferawa, Söderbomb, Sibac & Alemud, 2012)

The allocation of reasons 2 and 3 (reason 4 are the open market actors which will be treated in subsection 3.4) is an interesting challenge. How are public services like hospitals, schools and sanitation distributed across space, is there a difference between their location and the settlement size and what is their relation with the open market and the hinterland it serves? Research has shown that there is a positive correlation between, the quality of a specific public service and the demand for this service (Verwimp, 1999). In this case a short quality assessment of the existing public services in different settlements could give a valuable insight in how public services are embedded in space. Furthermore, Verwimp (1999) sums up that the probability of children attending school decreases when the following situations occur; the distance to the school is too big, the child is female, the child is too young its father is a farmer. This makes educational services particularly interesting since a lack of education can slow down the progress of modernization in the hinterland of a settlement. Weir (1999) elaborates on this by summarizing a multitude of empirical papers on the effects of education on farm productivity. For instance, she points out the positive effects of literacy on the amounts of fertilizer used and how it supports a better understanding of market dynamics, climate change which affect the efficiency of a farm. One can conclude that the surplus and quality of agricultural produce that enters the open market can increase over time if better educational services are accessible for the hinterland.

2.2 *Catchment Area*

Defining the catchment area of the open market is a crucial but complicated step. First, the catchment area can tell us a lot about the relation between the size of a settlement, its market and the hinterland it facilitates. However, demographic data on Ethiopia is limited and borders between multiple catchment areas might not be very obvious. Nonetheless, this step is of great importance and therefore should not be disregarded.

The most popular theory concerning catchment areas is undoubtedly Christallers, central place theory. In this theory Christaller tried to define the rules that explained the distribution of towns and villages across space. Basically, Christaller argues that central places sell 'central goods and services'. The time consumers are willing to travel to buy these goods defines the catchment area of the central place. Ideally every town is the center of a catchment area which in his abstract models is represented as a hexagon which ensures that there is no uncovered terrain . Then the theory subdivides goods into different thresholds from 1 till a 100. For instance a primary central place sells all the goods from 1 till 100, a secondary central place sells the goods 1 till 50 and a tertiary central place only sells the goods from 1 till 20. At the end this system will create a repetitive multi layered hexagonal pattern (fig 8). For the hypothetical model however we don't want to define the catchment area for consumers but mainly aim to set it up for the farmers that facilitate the open market. A recent research (Vandercasteelen, Beyene, Minten, Swinnen, 2018) has used the Ethiopian **cash crop** Teff to analyse the effects different cities have on the price of a product. The main actors in this research that determines the catchment area is the cost of transportation, the retail price at the market place and the money spent on inputs for farming like fertilizer and improved seeds, which can be more expensive in remote areas. Although this research focuses on cities and not small settlements, it concludes that the closer one is to a

A Cash Crop is a type of crop that farmers mainly grow for profit beside the crops they grow to be able to live a subsistence lifestyle. In Ethiopia common cash crops are coffee, cotton, qat and various grains, pulses and oil seeds.

'primary town' the higher products are priced. A nearby secondary town can cause a rise in local prices again but its peak is likely to be cheaper than that of a primary town.

To define the catchment area for small rural settlements it is important to understand that there is a hierarchy of markets in Ethiopia which are linked together in a specific order.
There are the markets that facilitate only the local environment, then there are markets that are along all-weather roads and serve a bigger regional level and finally there are markets in bigger cities which facilitate trade on a domestic and potentially international

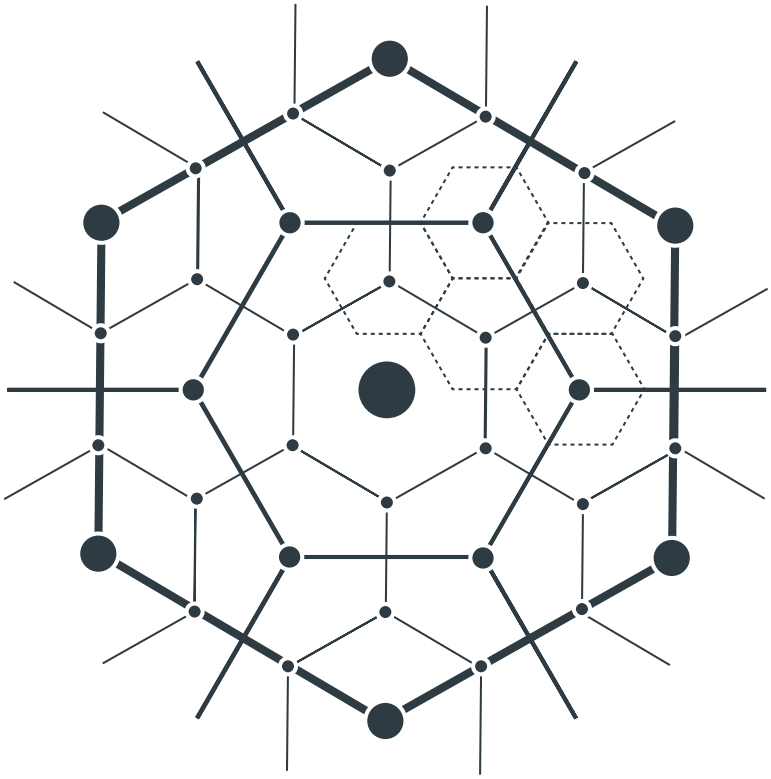


fig. 8 *Diagram of Christallers central place theory*

level. This research will mainly focus on the open markets in small rural settlements which are often located along car accessible roads. The expectation is that these markets are functioning on a regional level. Hypothetically speaking these open markets do not considerably differ from each other in catchment area size because, unlike a national market, their interaction with each other is minimal and they don't serve as main hubs for staple goods. They mainly facilitate the transfer from agricultural produce to traders that operate on a domestic level.

2.3 *Supply Chain*

To gain a better understanding of the actors and which role they play in the rural open market one has to understand their position in the supply chain. As described earlier the significant actors on the rural Ethiopian open market according to Marocchino (2009) are farmers, traders/brokers and retailers. However, to better understand the dynamics of the supply chain in the rural context, a more detailed portrait of the involved actors should be established. This portrait's main focus lies on the actors involved in the trade on small rural open markets. When looking at a variety of research documents, that investigate either supply and/or value chains in Ethiopia, the following actors can be recognized;

Input Suppliers

Input suppliers are those that provide producers with necessary resources. In the case of crop farmers these can be fertilizer, pesticides and seeds. When thinking of livestock, these resources can be veterinarian expertise and/or provender. A specific study on the potato trade (Tadesse, Fayera, 2018) shows us that especially for the requisition of herbicides and pesticides producers tend to visit the open local markets, whereas in the case of fertilizers they mostly obtain it from the nearby district office of agriculture. Input suppliers play a crucial role in establishing a more food secure

Ethiopia. This is because through the distribution of improved input products smallholder farmers can increase their production and thus their income. However, momentarily input products are relatively expensive which causes smallholder farmers to avert from using any (USAID, 2019).

Producers

Producers are either farmers or herders which are responsible for the agricultural production. Producers sell their products to two different actors; assemblers and wholesalers. The transfer of produce either occurs directly at the households location, through cooperatives or at the local open market. However, according to the FAO (2018), 96% of all smallholder households sell their crops at the open market which indicates that this is the place where most interactions between the different actors find place. Producers mainly sell their crops at smaller markets and are rarely found at regional market places (Gebremedhin & Hoekstra, 2008). At these smaller open markets they are likely to sell their produce to either assemblers, wholesalers, retailers or directly to local consumers. By being part of a cooperative however, farmers can cut out the middlemen and achieve a higher net margin (Shiferaw, & Teklewold, 2007; Amera et al. 2018).

Assemblers

Two different studies, one on coffee (Shumeta, Urgessa & Kebebew, 2012) and one one sesame (Meijerink, 2014) have shown different results in regard to whom is the biggest direct client of the producer, assemblers or wholesalers. However, the importance of the assembler as the first link between the producer and the wholesaler is emphasized in both cases. The assemblers (also known as collectors) are a type of local traders. Their purpose is to collect produce from different producers either directly at the farm or on the local market. After which, they resell it directly to wholesalers at the same market or at a bigger regional market or they sell to

local consumers. Assemblers/traders tend to specialize in the trade of one type of commodity mainly due to license costs (payments to authorities), lack of capital and/or lack of demand (Gunning, Krishnan, Mengistu, 2018)

Wholesalers

These traders which can be seen at work in fig. 7 are responsible for the transportation of most agricultural produce to the urban centers. They facilitate operations between the cities and rural hinterland and are often the final linkage between these two. In their practices wholesalers either trade directly with local farmers or assemblers after which they facilitate the transfer of produce to regional cities or directly to the capital Addis Ababa. Here the produce is either sold to urban retailers or exporters.
In the case of the sesame market it has been estimated that of its entire production, producers sell 34,4% to wholesaler directly (Meijerink, 2014). Beside this, almost the entire annual sesame production in Ethiopia has at some point been handled by the wholesalers. Another study on the most significant grain crops in Ethiopia concluded that 51% of producer sales are directly to wholesalers (Gebremedhin et al. 2008), underpinning their crucial role in the agricultural market.

Retailers

As far a research on Ethiopia is concerned, the retailers of the rural open markets are not a common subject. However, Marocchino (2009) argues that retailers are the most numerous group attending the open market. A large share of these retailers are female residents of the same settlement in which they are active and only 10% of them are outsiders (Marocchino, 2009). Retailers are important as they are the last in line in delivering the product to the final consumer. A specific research on Chickpea markets in Ethiopia estimated that retailers that operate on a rural and/or **woreda** level have a 12% share in this specific market (Shiferaw, Teklewold, 2007).

A Woreda is the third of four administrative levels recognized by the Ethiopian government only subceeded by Kebele's. A woreda itself is part of a z one which then is part of one of the nine regions that make up the Federal Democratic of Ethiopia.

Unfortunately, in most of the related research papers rural retailers are mainly considered as an extension of the smallholder farmers and thus the focus lies mainly on the transaction of agricultural products to final consumers. However retailers on rural open markets also trade in a wide variety of consumer goods like clothing, hygiene products, processed food, beverages and so on (Gunning et al. 2018).

Consumers

At the end of the supply chain products, processed or unprocessed, end up on the consumer market. In the end effect, with 77,3% (World Bank, 2015) of the Ethiopian population working agriculture most consumers are producers as well. Rural consumers spend approximately 56% of their annual income on food and non-alcoholic beverages (CSA, 2018). In comparison; inhabitants of the EU spend an average of 12,2% of their income on food and non-alcoholic beverages (Eurostat, 2019). As is for instance the case in the Chickpea market, consumers obtain their produce either from retailers, assemblers, wholesalers or directly from the producers (Ameda, 2014; Shiferaw, Teklewold, 2007). However, as is mostly the case, studies that elaborate on the supply chain of a specific commodity tend to show different outcomes when talking about which marketing channel is utilized the most.

2.4 *Retail*

To be able to relate the spatial economic embedment of the open market on a local level one has to study how different types of retail are manifested in space. Because a lack of research on the spatial layouts of open markets in Ethiopia, it is unclear if the dividation of commodity groups across space has any effect on the surrounding built context and dynamics. As was already mentioned previously, the organization of open markets might come across as chaotic. However, different commodities are clustered together which

creates a certain level of order (Horvath, 1968). In his study Horvath (1968), recognized the following fifteen commodity groups;

- Spices
- Hops
- Butter and cheese
- Pottery
- Cloth
- Manufactured goods
- Vegetables
- Fuel
- Red peppers,
- bread
- Animals
- Hides and skins
- Coffee
- Salt
- Rains, pulses and oil seeds

These commodity groups can be subdivided into two different classes. The raw products and the manufactured and/or processed products. One can assume the most raw products are of local making, whilst manufactured products mostly have their origin in bigger regional cities. However, an estimate of only 5% to 7% of consumer expenditures is spent on manufactured goods (Gunning et al. 2018), once again emphasizing the importance of the open market in retailing the local unprocessed products.

When talking about retail one must also mention the pricing on the open market. Research has found a direct correlation between the welfare of an area and its level of isolation. In fact, the more isolated a village is located the higher the transport costs are. This inevitably means that isolation leads to a decrease in welfare because of three reasons; farmers get less money for their product, consumer goods are more expensive and the access to manufactured goods declines because lack of margin and/or demand. (Gunning et al. 2018). Furthermore, pricing can differ a lot depending on the time of the year. Take the livestock market for instance, in which the pricing per unit tends to rise during religious and cultural festivals (Ayele et al. 2006). However, more influential in determining open market

prices are the different seasons. Concerning agriculture the Meher and the Belg seasons are most crucial. Both seasons have their share of rainfall, however during the Meher season the precipitation rate is considerably higher. This is reflected in the fact that 96,6% of annual crop production finds place in the Meher season (Taffesse, Dorosh & Asrat, 2012). In the end effect the consequence is that pricing during the Meher harvest is of the lowest order whilst pricing during the entire Belg season is very high. Various crop specific studies have shown that market prices can differentiate up to 200% between peak harvest and off season harvest (Ferris & Kaganzi, 2014; Food and Agriculture Organization, 2019; Minten et al. 2018). Nevertheless, Minten et al. (2018) argues that the discrepancies in price because of seasonality have decreased over the past decade for four reasons;

Overall production has increased, which leads to a higher amount of food availability all year round.
Markets are better integrated thus regional/domestic differences in produce availability can be smoothed.
Producers are relatively more wealthy thus they are not forced to sell immediately after harvest.
Storage conditions have improved which improves the shelf life of produce.

Finally, for producers to set a price, 54% of the smallholder farmers rely on visiting nearby markets to obtain information, whereas 45% gets their price information from fellow farmers (Haile, Kalkuhl, & Usman, 2015).

03
Hypothetical Model

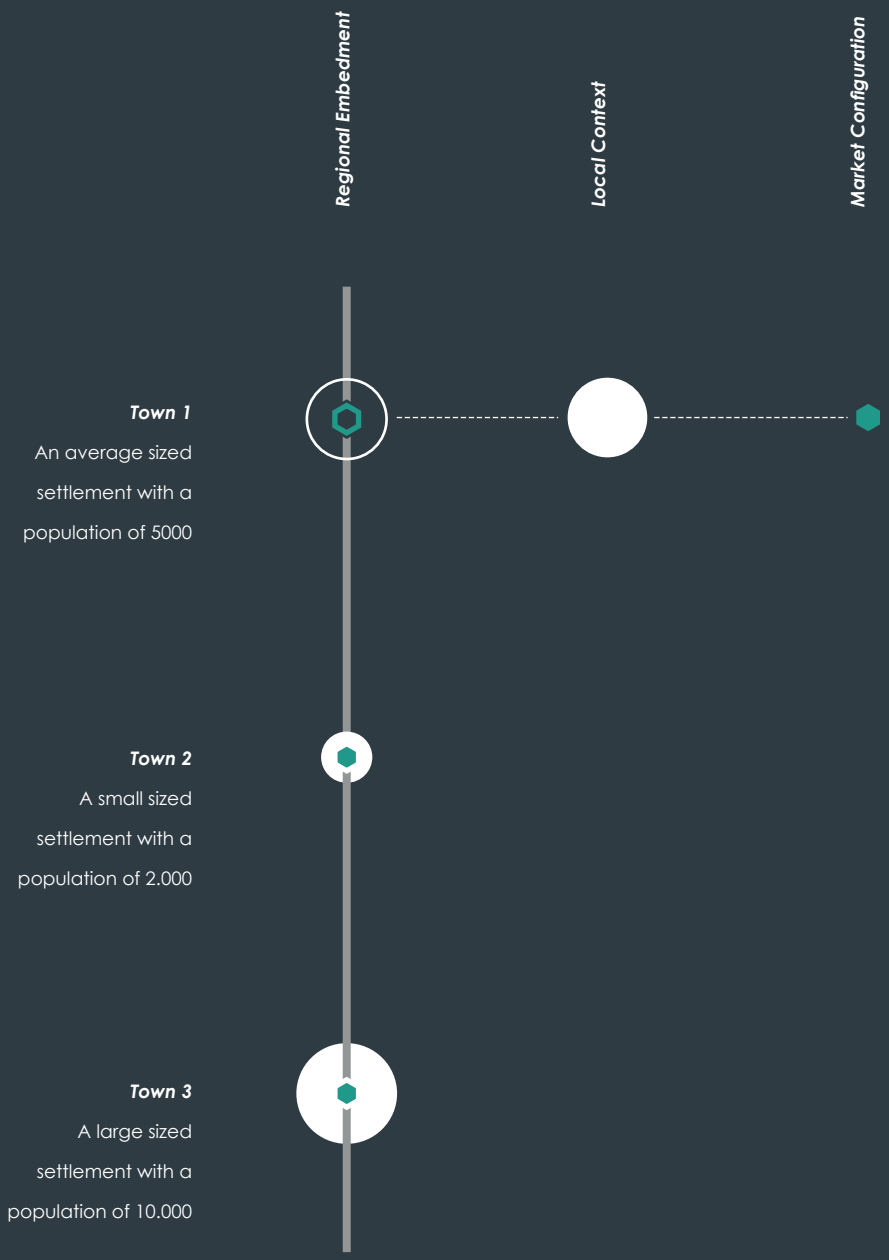
In this chapter the outcomes of the literature review on spatial economic characteristics of rural open markets in Ethiopia will be merged into a hypothetical model. This model represents a multitude of studies and research and will later on be verified by a case study combined with an analysis of satellite imagery. To smoothen the verification process it is important that each element of the model is highlighted individually and that the variables needed for its testing are clear and basic. To establish the hypothetical model three different scales will be followed (fig. 9);

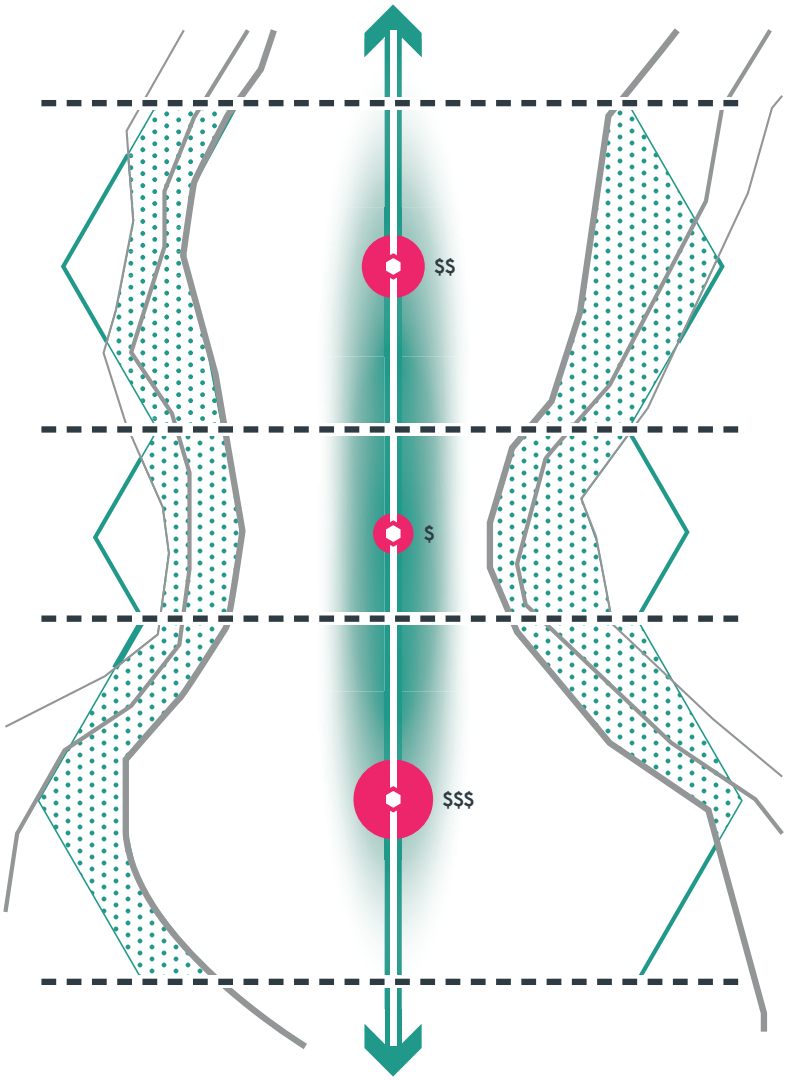
Regional embedment; will investigate the significance of the open market on a regional level. Considers the historical context, surrounding terrain, catchment area and the different zones in which market actors operate.

Local context; a more specific examination of the local context. What amenities are present and are they significant? How is the market connected by infrastructure and does the market contribute to commercialization in close proximity?

Market configuration; study of the market on the smallest scale in which the focus lies on what types of products are sold and how the commodities are distributed through space, investigating retail behaviour and mapping related functions that are adjacent to that market.

fig. 9 *Basic properties hypothetical model*


Regional Embedment
Local Context
Market Configuration
Town 1
An average sized settlement with a population of 5000
Town 2
A small sized settlement with a population of 2.000
Town 3
A large sized settlement with a population of 10.000



Primary Zone

Unfit for agriculture

Secondary Zone

$ Pricing level

Tertiary Zone

Catchment border

fig. 10 *Model of Regional Embedment*

3.1 *Regional Embedment*

Because an open market is not an individual entity and has intimate spatial and economic relations with both its local and more regional companions, the regional embedment is portrayed in a way that allows us to see the differences in spatial economic significance. Therefore, a string of open markets in differently sized settlements is proposed. In fig. 9 one can see the different basic properties of respectively town 1, town 2 and town 3, each containing an open market. In the final case study a similar real life situation will be studied. To better understand the economic significance of the market a short historical reflection will be performed first followed by an assessment of the terrain is important for determining the agricultural area. As was mentioned previously the Ethiopian law prescribes that slopes over with a gradient over 30% can't be used for growing crops unless benched terraces are used. Therefore these areas will be marked as unfit for agriculture (see fig. 9). Afterwards, the catchment area has to be defined. With it one can reveal various spatial characteristics of the open market like the number of people it facilitates, the amount of arable land that the market represents and the maximum distance people are willing to travel for this specific market. For the hypothetical model it is assumed that unlike in Christaller's central place theory the central places are situated in a one dimensional string and thus are not equally distributed among space. This means that the most important aspect that one has to define is the border where on open market's catchment area ends and the next begins. In fig 10, one can see that this border is defined by the differences in settlement size between open markets and is therefore not fixed for eternity . After one has defined the border along the string, the second step is to see how far farmers and/or assemblers are willing to travel to visit the open market in the second dimension. In the hypothetical model this distance can theoretically expand infinite. However, in real life it is most likely that at some point it will meet with a border of another open market's catchment area. Furthermore, the hypothetical

To validate the regional embedment the following tasks have to be performed:

• Question market occupants about the duration and means of their travel to get to the specific open market.

• Analyse price differences of products between various nearby open markets.

• Define the rural density of your research area.

• To figure out the supply chain, try to identify the actors by questioning the market attendees and asking for their area of operation.

model assumes that smaller towns respectively have smaller markets which is also reflected in their pricing. This would mean that open markets in smaller towns have smaller catchment areas since they're competing with open markets that have higher pricing. Finally, it is likely to assume that the locational factors are of a great influence on the shape of the catchment area. This topic will be addressed further in the local context scale.

Finally the supply chain needs to be investigated. In rural Ethiopia it is a complex, mostly informal, mechanism. Therefore, it is difficult to point out its exact functioning. In the hypothetical model three different zones of operations are recognized; the primary, secondary and tertiary. The primary zone of operation is that one of the hinterlands. It is the sphere of activity for producers (smallholder farmers) and assemblers, its size being equal to the catchment area. In this zone the main objective of its actors is to deliver goods to the open market. The secondary zone is the area where mainly retailers and traders like assemblers and smaller wholesalers are active. They're respectively occupied with the local storage of goods and the regional trade between different rural markets. The sphere of activity can extend across multiple markets. Finally, the tertiary zone accommodates the interregional trade and forms the linkage between the rural settlements and the urban centers and is mainly facilitated by wholesalers. To shape a readable model the zones are very fixed. However, it is not unlikely to assume that actors are active across multiple zones and that borders of different zones are not easy to recognize.

3.2 *Local Context*

The local context discusses the proximity of various public amenities like schools, health clinics, municipal buildings and such (fig. 11). The hypothetical model suggests that better infrastructural connections contribute to the accessibility of public functions. For this reason, three different road hierarchies are recognized as can be seen in

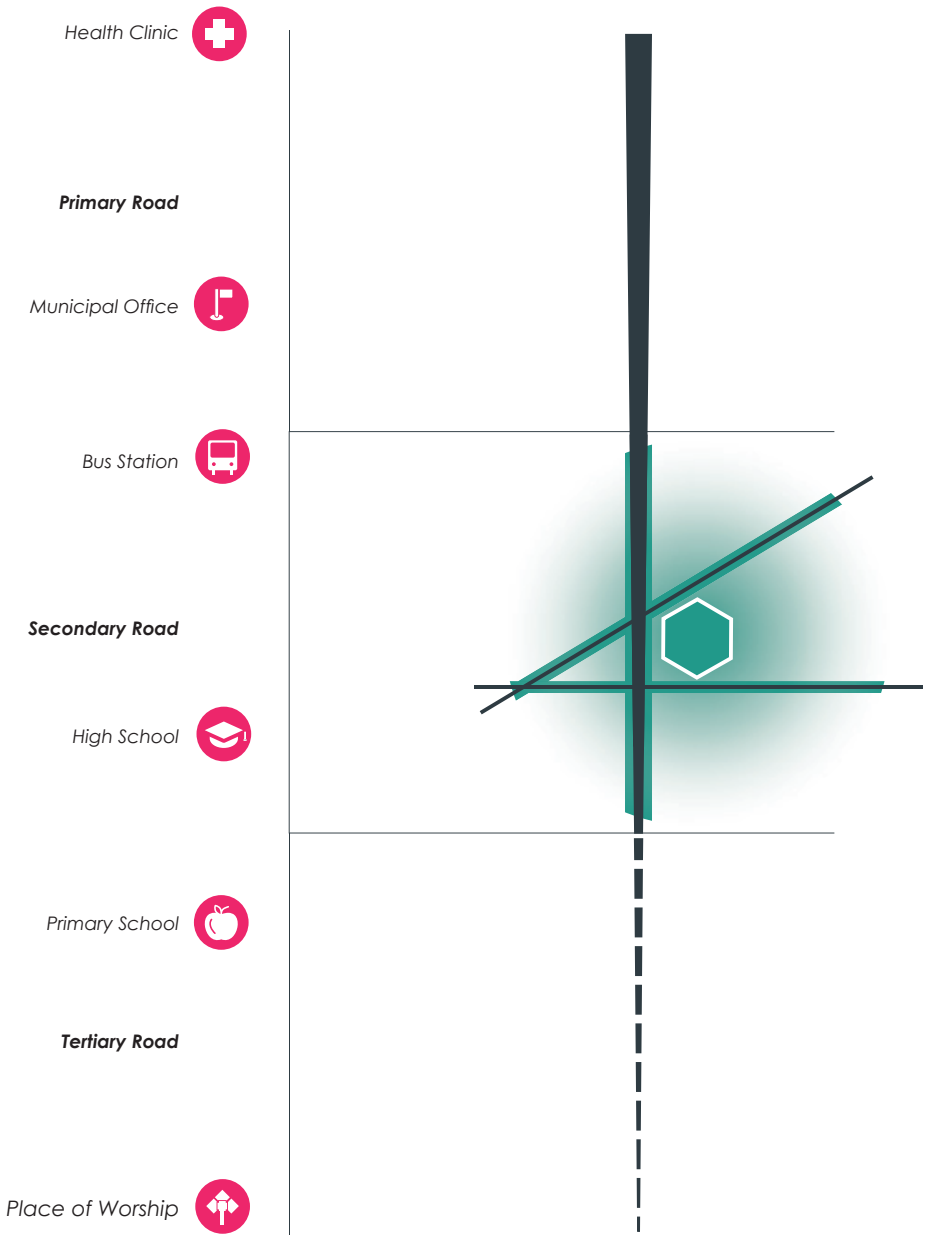
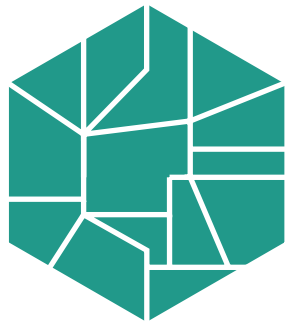


fig. 11 *Model of Local Context*

Commodity groups *are clearly seperated from each other*



Adjacent functions *are not related with the configuration of commodity groups*

10/90 divide *between manufactured and local products*

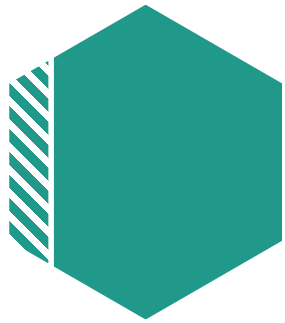


fig. 12 *Model of Market Configuration*

fig. 11. Primary roads are those that are asphalted and can facilitate high amounts of traffic in each weather condition. Secondary roads are unpaved roads that are still accessible to trucks and buses. Tertiary roads are unpaved roads or tracks that do not have a transcending purpose for the region and are mostly only accessible by foot (with exception for the few that are accessible by terrain vehicles). A town located along a primary road would offer a higher amount of amenities then a town located along a secondary road. Subsequently, a town located along a secondary road would therefore offer a higher amount of amenities then a town that just has access to a tertiary road. In addition, as is also shown in fig. 11, it is assumed that the open market is one of the central elements in the town and its economic benefits can be seen in the direct surroundings. The direct suroundings will be commercialized. In case the market is not located along the main road of the town, the pathways that connect both will most likely be fully commercialized.

To validate the local context the following tasks have to be performed:

- *Analysis of road hierarchy through personal observations and by studying satellite imagery.*
- Assessment of the local public amenities.
- Observation of commercial activity in the direct suroundings of the open market.

3.3 *Market Configuration*

To establish a clear portrait of an open market, one has to map its configuration (fig. 12). As is mentioned in the literature review, it is very common that these markets are subdivided in commodity groups. The hypothetical model therefore assumes that this is the case. No specific literature was found that relates the functions adjacent to the open market with the subdivision of commodity groups. Therefore, the model assumes that this relation in space is absent. The main question that remains is if there is any adjacent functions at all. Finally, it is assumed that the share of manufactured products on the rural market like clothing, processed foods, cutlery and tools is lower than 10%, this because it is in harmony with the consumer expenditures of the rural Ethiopians (Gunning et al. 2018).

To validate the market configuration one should perform the following three tasks:

- Count the market stalls and the commodity they sell.
- Determine which commodity groups are present and map them.
- Map functions that are adjacent to the open market.

04
Case Study

To invigorate the hypothetical model a case study was performed on open markets in the settlements of Kon, Arbit and Geragera located in North Wollo zone. The case study exists out of a multitude of personal observations, contacts and countings. The aim is to verify the hypothetical model and possibly strengthen its credibility. The specific case studies have been selected for three reasons. First, the three settlements resemble the lay out of the hypothetical model in a way that makes a final comparison easier. The settlements are equally distanced from each other as the crow flies (fig. 13), they all contain a respectable open market and the settlements are each of a different size. However, because the most recent census is over 10 years old the exact population sizes remains unclear. Secondly, the settlements are all accessible by car which makes a visit possible. Finally, the advantage of having a personal contact who grew up in one of the specific towns and is familiar with the area and the language proved to be crucial in performing the survey successfully.

North Wollo can be found in the Northeast of the Amhara region (fig. 14). Being the second most populated region in Ethiopia, North Wollo is home to approximately 1,5 million people of which 90% rural residents and 10% **urban residents** (Population Census Commission, 2008). The Central Statistical Agency predicted (2013) the population to increase to 1,8 million by 2017 of which approximately 85% rural residents and 15% urban residents. However, this projection

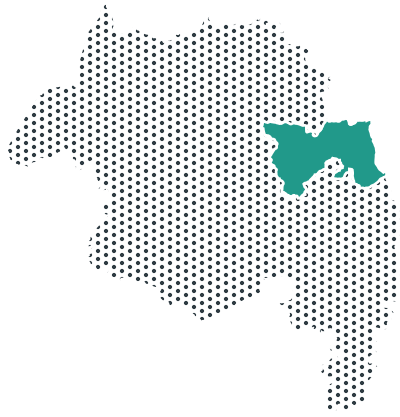
Using the Ethiopian Central Statistical Agency's definition, one can call himself an urban resident in Ethiopia when living in a settlement that has 2000 or more inhabitants. Anything less is considered as rural. For this reason small settlements which do have an open market but have less then 2000 inhabitants are counted up with the rural residents of a region.

fig. 13 *Case study locations*


Geragera
Arbit
Kon
ca. 14 km
ca. 14 km

Ethiopia

Amhara



North Wollo

fig. 14 *Location of North Wollo in Ethiopia*

also indicated that the incline of urban population between 2007 and 2017 will be around 74%.

The zone is characterized by a series of highland areas, mountains and deep canyons with elevations ranging from approximately 1000 meters till over 4000 meters above sea level. Furthermore, the zone contains two important road connections which intersect at Weldiya, North Wollo's capital. The A2 connects Weldiya with Mekelle in the north and with Addis Ababa in the south while the other road connects Weldiya to cities in the west along Lake Tana like Bahir Dar and Gondar and the country of Djibouti in the east. North Wollo is part of the historical Wollo province which also includes the zone South Wollo. Especially these two zones have been victim to a long history of serious famines in respectively the 60's, 70's and 80's in which hundreds of thousands of people died from starvation (Cutler, 1988). North Wollo remains drought prone and food insecure being one of the most famine exposed zones of the country (Ege & Adal, 2000). The reason for this can be found in the fact that because of its high elevation during the main Meher rain season either the temperatures are too low or the rains are too excessive resulting in low harvests. This means that the area is highly dependent on the Belg rain season in which the seasonal temperatures are higher. However, through climate change these Belg rains tend to fail every now and then which leads to droughts, which leads to crop failure and finally could result in a regional famine.

From an economic point of view North Wollo is like most of Ethiopia an agricultural dependent zone. However, when considering its population to be approximately 1% of the total Ethiopian population, North Wollo does not play a major role in the total share of domestic agricultural production as can be seen in fig. 15. In this figure one can also see that the major agricultural crops in North Wollo in terms of production are chili peppers, cabbages, oil

seeds and safflower. Data on livestock and forestry is insufficient for making any definitive conclusions. Nevertheless, from both personal observations and contacts it is logical to assume that both of these agricultural industries have a major role in the local economy.

The specific case studies of Geragera and Arbit are located in the Meket woreda whereas Kon is located in the Wadla woreda (fig. 14 & 16). Both woredas are adjacent to each other with a combined projected population of 419.255 inhabitants (Central Statistical Agency, 2013) Between 2004 and 2008 the Meket woreda specifically, was subject to the Meket Livelihood Development Project (MLDP) which aimed to alleviate problems concerning the inclining food security by investing in various measurements in six different contexts, one of them being open markets (Save the Children, 2008). Concerning the open markets, a measurement that was supported was the construction and improvement in maintenance of tertiary roads, which led to a travel time reduction

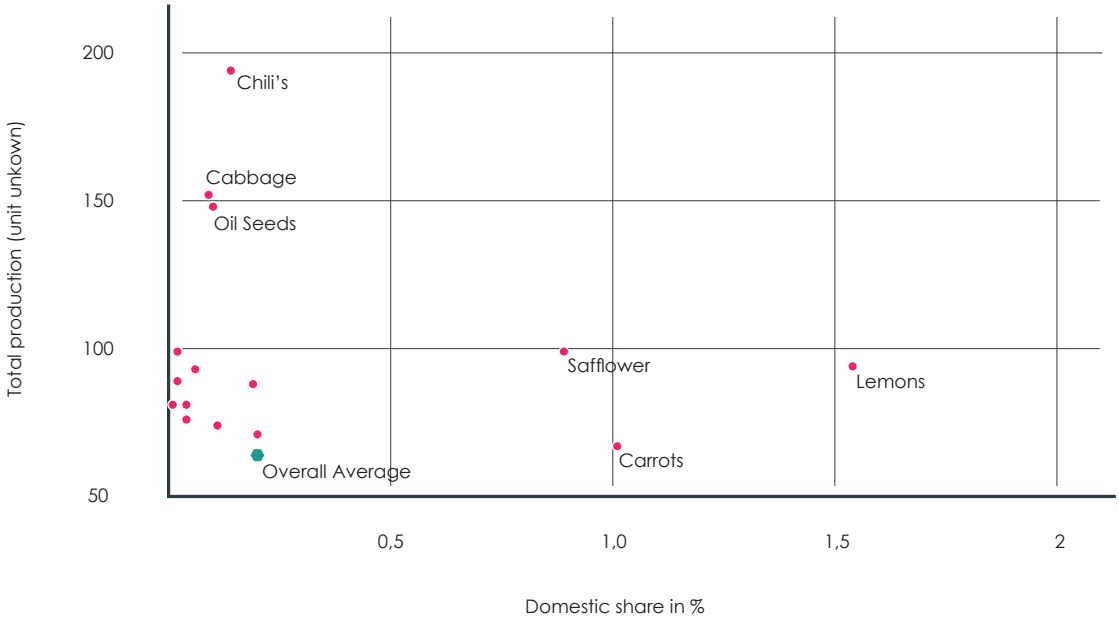


fig. 15 *Top 10 produced crops in North Wollo (Ethiopia Data Portal ,2013)*

of 15% to 25% and subsequently made the markets more accessible for the old, physically impaired and blind. However, other measurements were not sufficiently thought through, to solve the problems they were concerned with. For instance, a less successful measurement was the construction of market shelters. Although meant as a preservation method for perishable products, to few market shelters were constructed which resulted in most of them being occupied by local retailers of manufactured products leaving the sellers of agricultural products still sitting on the floor and their produce in the sun. The MLDP also tried to promote the usage of horse carriages, but because most of the roads/paths are in poor condition the carriages are limited to using the main road. Finally, a market information network was implemented by facilitating notice boards that include price information. The aim was to give locals a better bargaining position. Traders however, did not agree with this measurement and took the notice boards down.
These stories tell us that although well intended, measurements

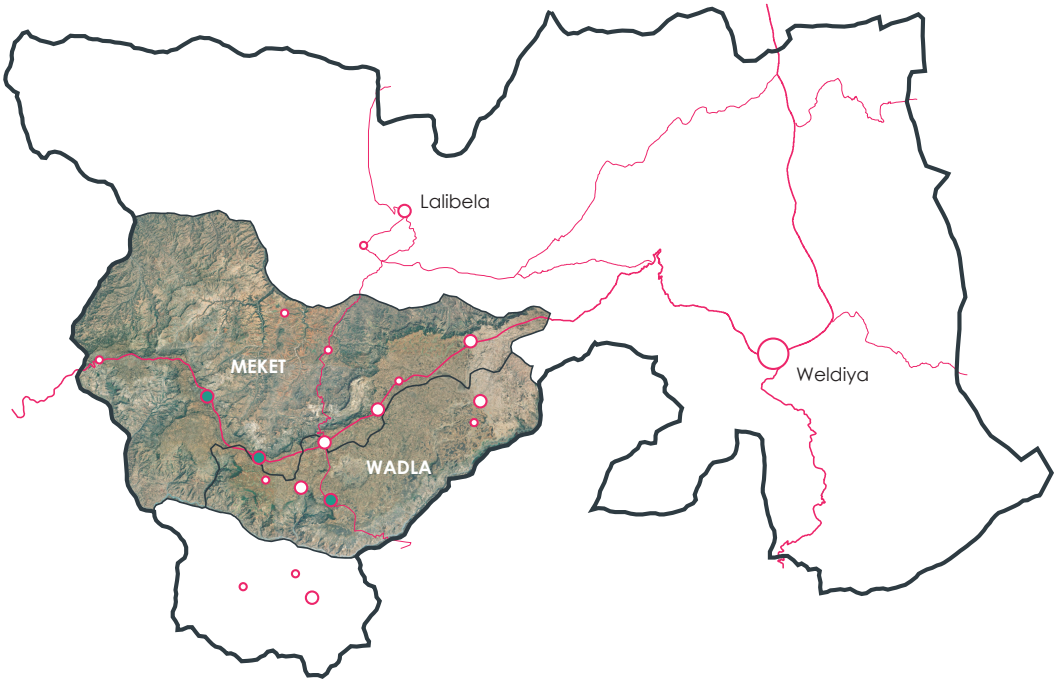


fig. 16 *Meket & Wadla Woreda location in North Wollo*

EXPLANATION BOX

To establish the case studies a field study was performed between 14.06.2019 and 15.06.2019. During this field study all three markets were subject of a mapping and additionally market occupants were shortly interviewed. Of these interviews the results were written down in a matrix (see appendix A & B). The indicated directions of travel were later translated to the 8 cardinal and intercardinal directions; North, Northeast, East, Southeast, South, Southwest, West, Northwest. Furthermore, for the market occupants that indicated that they traveled by foot their approximate time traveled was multiplied by a factor 1,4 meter per second resulting in an estimate travel distance in meters (appendix A). The speed factor derived from a research on rural transport in Sub-Saharan countries in which the walking speed in rural areas is indicated to be 5 kilometers per hour (Chamen, Crossley & Kienzle, 2009). After the field study the data was visualized by using Rhino, Grasshopper and Adobe Illustrator. For the mapping of the regional embedment, first a basic map of the region in which the three case studies are located was created. By using the Grasshopper script Gismo all primary and secondary roads and areas in which the slope is over 30% (non-agricultural lands) were extracted. Additionally, by using satellite imagery the urban areas and a wide selection of footpaths (tertiary roads) were traced. Afterwards, the following steps were undertaken to establish catchment areas for each case study (fig. 17 & 18):

1. The central point (open market) is placed.
2. In one cardinal or intercardinal direction all possible routes from the central point are displayed.
3. Along these routes, the desirable distance from the open market is set.
4. After performing step 1 to 3 for every direction the created points are connected and subsequently the catchment area is shaped.

Two catchment areas will be displayed; the maximized, which is the result of just using the highest indicated travel time and the average, which is a depiction of all the indicated travel times combined. The visualizations of the local context and the market configuration are the direct result of qualitative observations. For the local context findings were written down whereas the market configuration was mapped (appendix C).

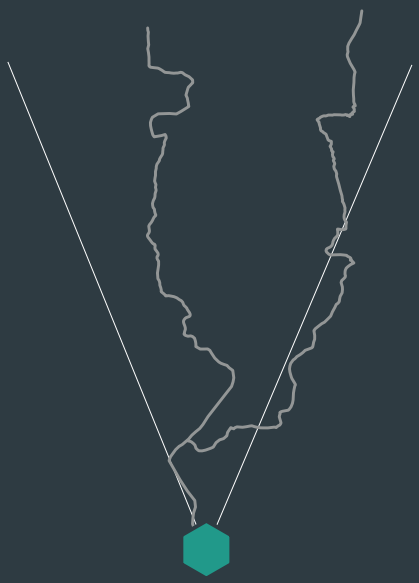


fig. 17 step 1 & 2

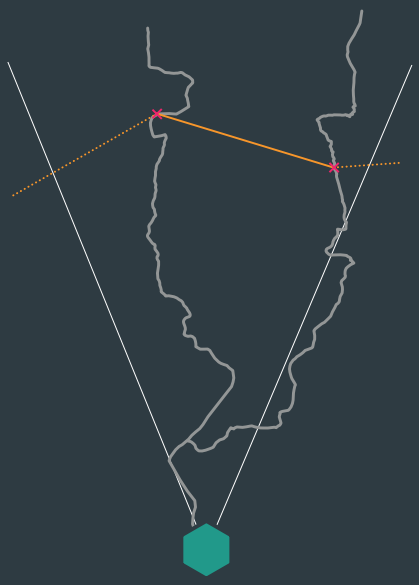


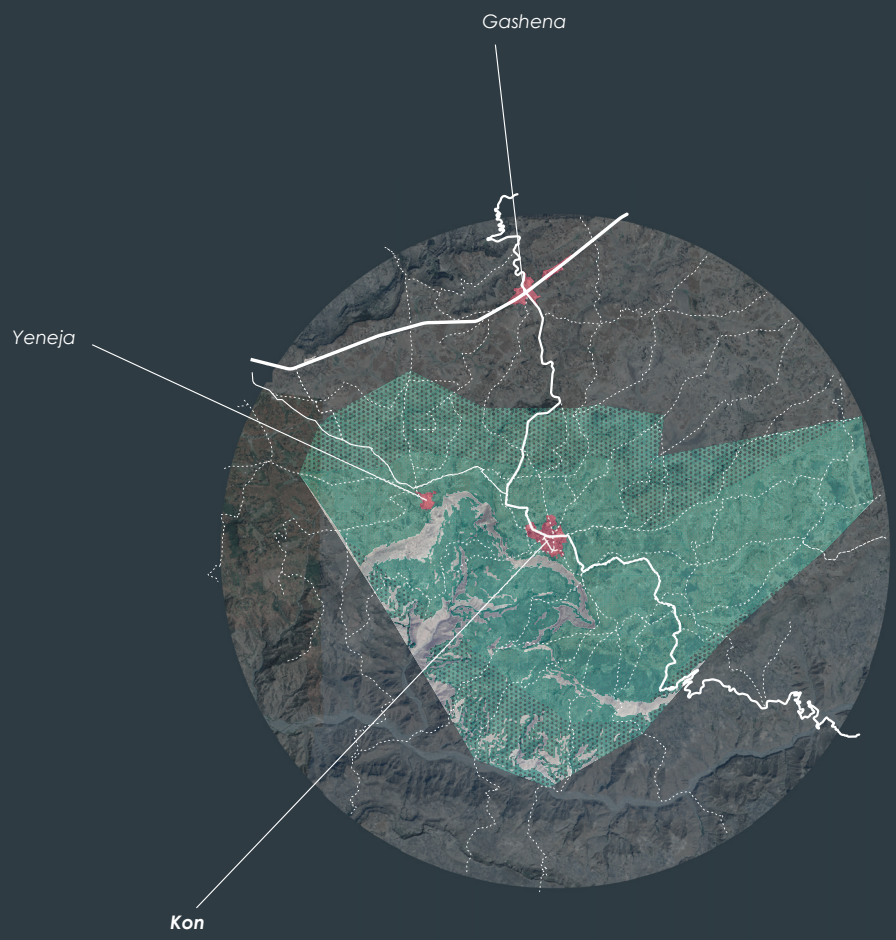
fig. 18 step 3 & 4

that focus on creating economic diversity and measurements that aim for a better spatial accessibility, possibly fail if they are not considered as two interrelated subjects.

4.1 *Kon*

The town of Kon is a remote settlement that on the one hand offers access to vast amounts of highlands in the north and northeast, whereas on the other hand it borders the deep canyons of the Bashilo River watershed which is characterized by incredible rugged terrain. Having 4291 inhabitants according to the 2007 population census (2008), Kon was indicated as the only urban settlement in the Wadla woreda. Because of this reason Kon is also known as the administrative center of the Wadla Woreda. However just north of Kon one can find the town Gashena which, because of its location on an important junction and because it is situated along an all weather road, grew explosively in the last ten years and will most likely be considered as an urban settlement in the upcoming census as well. Although it remains unclear, it seems that the border of the Wadla woreda has been adapted to fit in Gashena, which previously used to be part of the Meket Woreda. This development can be an indication that Kon is losing its local importance. Although its market is relatively big, its accessibility in comparison to the other case studies is currently below average. The main road to Kon exists out of a bumpy street which limits the top speed considerably. Besides, Gashena has developed a respectable market itself.

Nevertheless, more so than nearby other open markets, the market in Kon is very interesting in a historical retrospect. In close proximity of Kon one can find the ancient market of Yeneja (fig. 19) which just like Kon is situated along the historical route that connects Gondar, just north of Lake Tana, with Dessie towards the Southeast. The route is first mentioned in the chronicles of emperor Tewodros II. Here it is described that in 1868, to fight of British expeditionary forces, Tewodros had a canon built in the historical city of Gafat



Maximized Catchment	
Area	*185.911 m^2*
Population	*35.335*
Average Catchment	
Area	*119.164 m^2*
Population	*25.329*

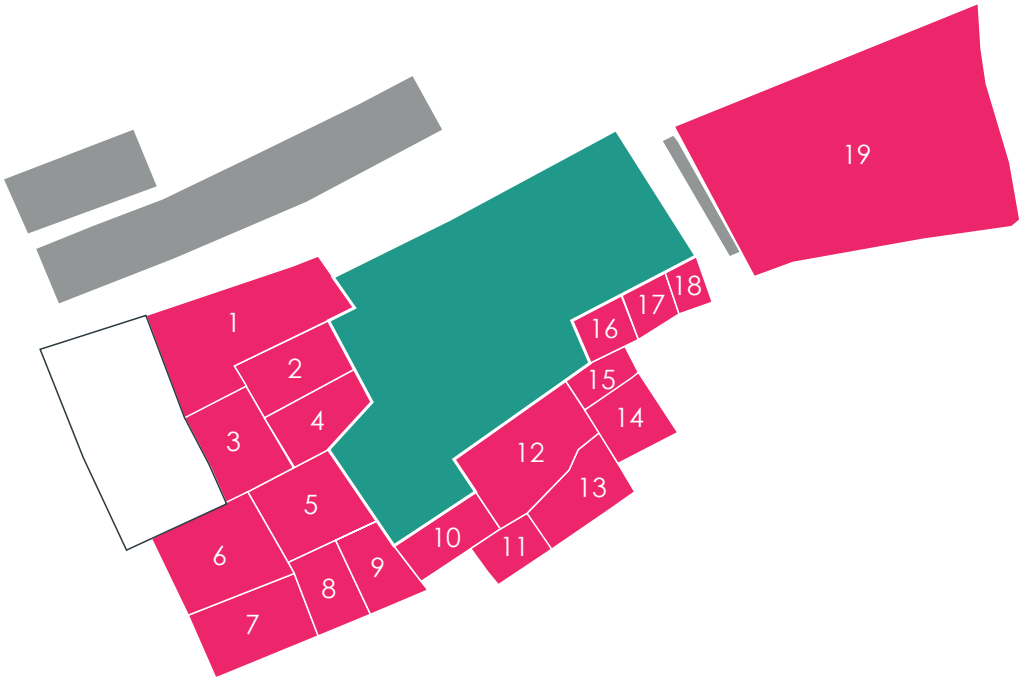
from which he had it transported to Magdala, passing the likes of Geragera, Arbit, Yeneja and Kon in the process (Tadesse, 2015). During the Italian occupation between 1935 and 1940, to improve their access to rural Ethiopia and its resources, a paved road was constructed following the same historical route (Bertazzini, 2018). In the latter part of the 20th century, being the first display in Ethiopia of Chinese investment, the all weather road (China Road) between Weldiya and Wereta was constructed in 1972 (Moody & Nan, 2012). Combined with the construction of the road from Lalibela to Gashena to Kon (date unknown) and the deterioration of old road segment from Arbit to Yeneja to Kon presumably led to relative better accessibility of Kon in comparison to Yeneja. It is therefore logical to assume that Yeneja market lost most of its economic activity to the open market in Kon. As mentioned before, the close proximity of the open market in Gashena and its effects on the open market in Kon is an interesting similar case that should be studied further to be able to reach a solid conclusion. However, the fact that the market in Kon is active on saturdays and the one in Gashena on tuesdays could cause relieve in competitive tension between the two. Furthermore, one could argue that the open market in Kon covers a catchment area which Gashena (fig. 19) can impossible facilitate. Because of Kon being situated on the edge of steep canyons and its catchment area covering quite an amount of rugged terrain, farmers that reside in the Bashilo watershed might not be able to Gashena because distances would become to large.

When taking a closer look at the town of Kon one can see that the position of the market is not along the main street as can be seen in fig. 20. The assumption is therefore that the open market descends from an older era. The market is now semi embedded into the planned urban fabric of the surrounding town making it hard to tell whether the connecting streets are consciously planned or came into existence through frequent usage. In close proximity to the market, on the edges of the ravine, the oldest orthodox church

fig. 19 *Regional Embedment Kon*

in Kon can be found. The combination of these two elements indicates that the settlement originated from this specific point. As far as amenities go, Kon is facilitated quite well. It offers all levels of basic education and although the majority of the population in Ethiopian orthodox there is also a mosque. In close proximity of the open market one can find a veterinary hospital and just outside of the town a health clinic can be found. The economic significance of the market manifests itself in the fact that all the direct streets connecting the main street with the market are fully commercialized. These streets are filled with small gastronomy businesses or small retail shops. Along the main road big public buses, minibuses and bajaj's drop of and pick up passengers, products and livestock after which it is only a 5 minute walk to the market.

fig. 20 *Local Context Kon*



Manufactured Products	
Storage	
Donkey Parking	
Raw Products	
1	Grains & Peas
2	Barley
3	Lentils
4	Corn
5	Coffee
6	Chili's
7	Pottery
8	Gesho
9	Wheat
10	Spices
11	Raffia Grass
12	Vegetables
13	Teff
14	Chickens
15	Animal Salt
16	Sugar Cane
17	Garlic
18	Eggs
19	Goats & Sheep

fig. 21 *Market Configuration Kon*

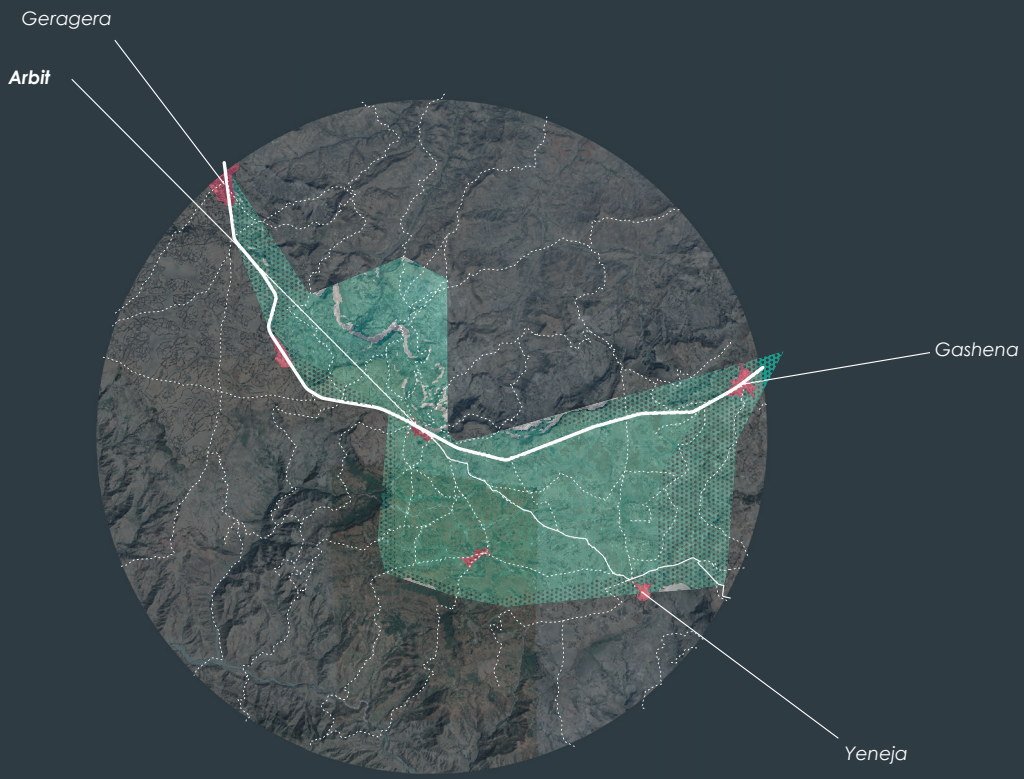
When zooming in on the market square, one can see it exists out of two parts (see fig. 21). On the eastern side of the market the fenced off sheep & goat market can be found (fig. 23). All other commodities are located just west of it. The big storage units on the north side of the market are used for the storage of various local products by wholesalers. During the time of the field visit these wholesalers where buying up lentils, corn and teff from farmers, however, they indicated their focus product could change due to price fluctuations. Other market participants were farmers which mostly arrived by foot and retailers which in almost all cases where Kon residents that bought their merchandise or product on open markets in either Dessie, Bahir Dar or Weldiya. When comparing the amount of space reserved for the sale of manufactured products and local products, local products claim a bit more. A possible reason for the placement of the manufactured product stalls could be that the area it occupies is the closest to the main street. This means that the supply of products like shoes, clothing, processed foods, fabrics and household equipment is therefore the most efficient. Furthermore, one can argue that its placement has to do with the fact that most of the manufactured product stalls that can be seen in fig. 22 are actual stalls for which a certain tax payment is required, whereas most of the local products are exhibited on the ground which indicates a more informal kind of trade.

4.2 *Arbit*

In the Meket woreda along the all weather road in between Gashena and Geragera one can find Arbit (fig. 24). With all new developments being orientated on the main street causing its linear shape, this small settlement's characteristics resemble a lot of new urban settlements in Ethiopia. Just like Kon arbit is situated along the edges of the same highland area, except the watershed in this case is that of the Tekeze River. The lands surrounding this specific watershed seem to be more accessible than those of the Bashilo

fig. 22 *Market stalls in Kon selling manufactured products*

fig. 23 *Sheep & Goat section at the open market in Kon*



Maximized Catchment	
Area	*136.261 m^2*
Population	*16.163*
Average Catchment	
Area	*90.361 m^2*
Population	*10.718*

River. Arbit, is not mentioned as a town in the 2007 population census, which means that back then its population did not exceed 2000. It is hard to say anything about the current population but it is likely that in the new census, because of its rapid growth, Arbit will be included as an urban area. Because of the lack of information and existing research about Arbit it is hard to say anything about its historical development. Nevertheless, just like Kon, Arbit it is located along the old route described in the chronicles of emperor Tewodros II. Arbit is in fact the place where the old route detaches from the all weather road and leads you across the Italian made gravel road to Yeneja and Kon respectively. Its location along this old road and the new all weather road could suggest that Arbit has some economic significance. This is also displayed in the catchment area (fig. 24) which covers a remarkable area which includes Gashena and a smaller unnamed settlement in the south and even overlaps a tiny bit with Geragera. However, it seems that the catchment area does have a lack of coverage over the rugged terrain in the north.

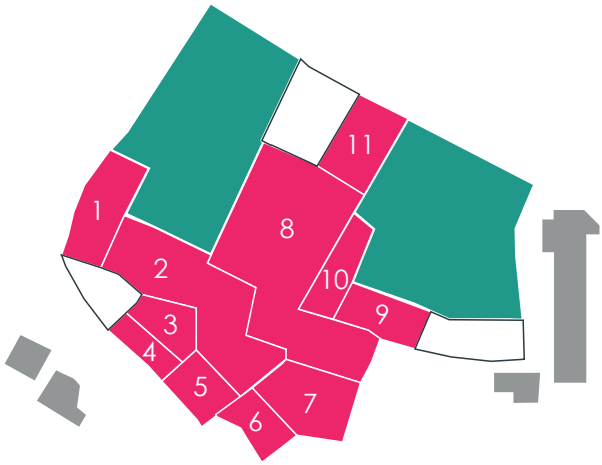
Arbit has one primary school and one church. As fig. 25 shows the church is in quite a close proximity of the market but there is no direct linkage between the two elements like there is in Kon. The market is located in between the all weather road and the old route to Kon and is active on friday. During market days the all weather road is the point from where most of the people enter the market. Here one can also find some small bars that serve coffee, soda, beer and a local brew called tella (made from various grains and gesho leaves). From the main street steeps road immediately decline the steep ravines just north of the market. Compared to Kon, Arbit is a less planned town. So far it has seemed to have expanded linearly along the two main axes.

The market square itself is quite small in relation to that of Kon and Geragera however the variation of commodities being traded seems to be similar, except for the fact that there is no livestock

fig. 24 *Regional Embedment Arbit*

market. Manufactured products are sold in two different areas, although both are located on the main road. Again the local products are divided into different commodity groups but with no direct relation between them except that grains and vegetables seem to be clustered (fig. 26). The open market is active on Fridays and because those in Geragera and Kon are active on Saturday, traders, farmers and retailers were asked if they planned to visit either Geragera or Kon the next day. Of the 24 respondents 12 indicated they would visit Geragera, 8 indicated they would visit Kon and 4 indicated they would not visit either. Unlike Kon, not all interviewed retailers were locals. From all respondents 9 were retailers and of these 8 indicated travel times that suggest that they came from either Geragera, Gashena or Kon.

fig. 25 *Local Context Arbit*



Manufactured Products

Storage

Donkey Parking

Raw Products

1 Raffia Grass

2 Grains

3 Eggs

4 Garlic & Onions

5 Pottery

6 Sugar Cane

7 Cabbages

8 Vegetables

9 Chili's

10 Spices

11 Grains

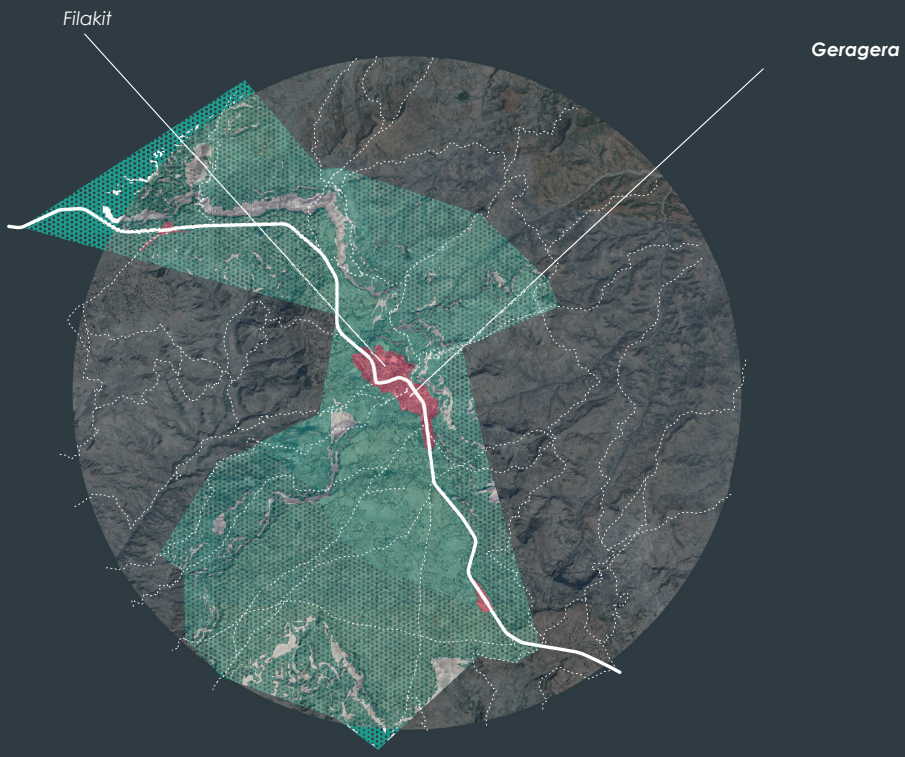
fig. 26 *Market Configuration Arbit*

4.3 *Geragera*

Geragera together with the agglomerated town of Filakit forms the biggest urban area in both the Meket and the Wadla woreda with a projected population of approximately 20.479 inhabitants. The two towns are separated by a slight height difference. Filakit has the highest elevation and is also the administrative center of the Meket woreda. Geragera on the other hand contains the biggest market in the Meket woreda (Save the Children, 2008). Geragera is located right in between the Tekeze river watershed in the northeast and the Bashilo river watershed in the southwest. South and southwest of Geragera lies the highland area Arbit and Kon are located in. Geragera's first mentioning dates back to the early 17th century, in which the emperor Susenyos paused there during a military campaign followed by Yohannes I who visited the town in the late 17th century (Huntingford, 1989). In the late 18th century the emperors regent Ras Ali died in Geragera during which it was the capital of historic Begemder province (Weld-Blundell, 1922). The historic mentionings of Geragera could point out its significance and strategic position in the old Ethiopian empire, also known as Abyssinia. Especially between 1635 - 1855 when Gondar was the capital Filakit would be positioned on the route that connected Abyssinia with present day Djibouti, the Bab-el-Mandeb strait and thus with the Arab world. This is possibly the same route that crosses Arbit and Kon. As a matter of fact, Geragera is located along the same all weather road as Arbit which on this specific point is following the same route as the old Italian road that connects with Arbit and Kon in the southeast. From Geragera gravel roads decline into both previously mentioned watersheds. Both of which are relatively accessible, which could be a possible explanation for the position of the open market.

As fig. 27 shows, Geragera's catchment area is of peculiarly proportions since it does not extend extensively to the west or the east. This is possibly a mere coincidence. Nevertheless, the

fig. 27 *Regional Embedment Geragera*



Maximized Catchment	
Area	*223.220 m^2*
Population	*46.957*
Average Catchment	
Area	*52.577 m^2*
Population	*26.716*

catchment area is bigger than that of Kon and that of Arbit and covers quite a large amount of rugged terrain.

When just looking at Geragera (fig. 28) and the amenities in close proximity of the market of the most striking things is that the large livestock market and the main market are disaggregated but still active on the same day. Because of their disaggregation it is hard to say anything about the markets original position. However, the church on top of the hill that borders the livestock market is definitely a feature that could attract a lot of people. In Filakit one can find the main commercial district in the suroundings of the bus station. However, just like Kon, the streets that are connecting the main market with the main street, as well as the main street itself, are mostly commercialized. Furthermore, one can find a primary school and a health clinic nearby the market. Both market squares are

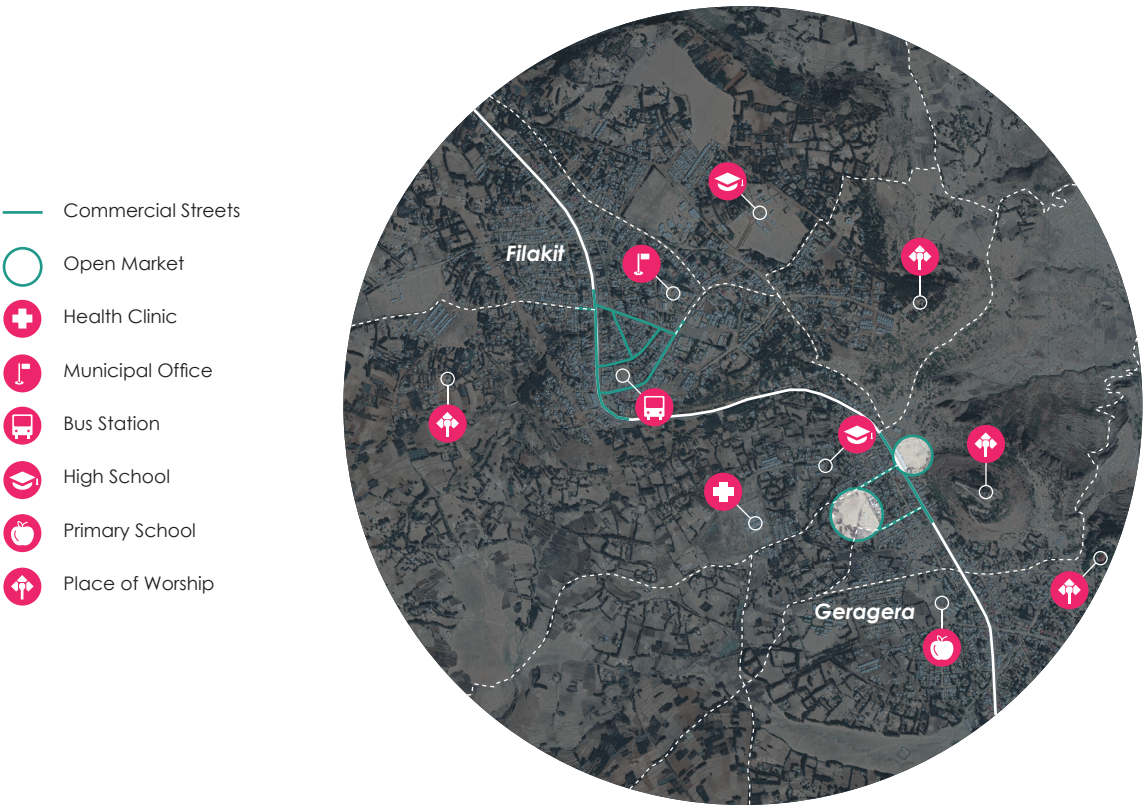
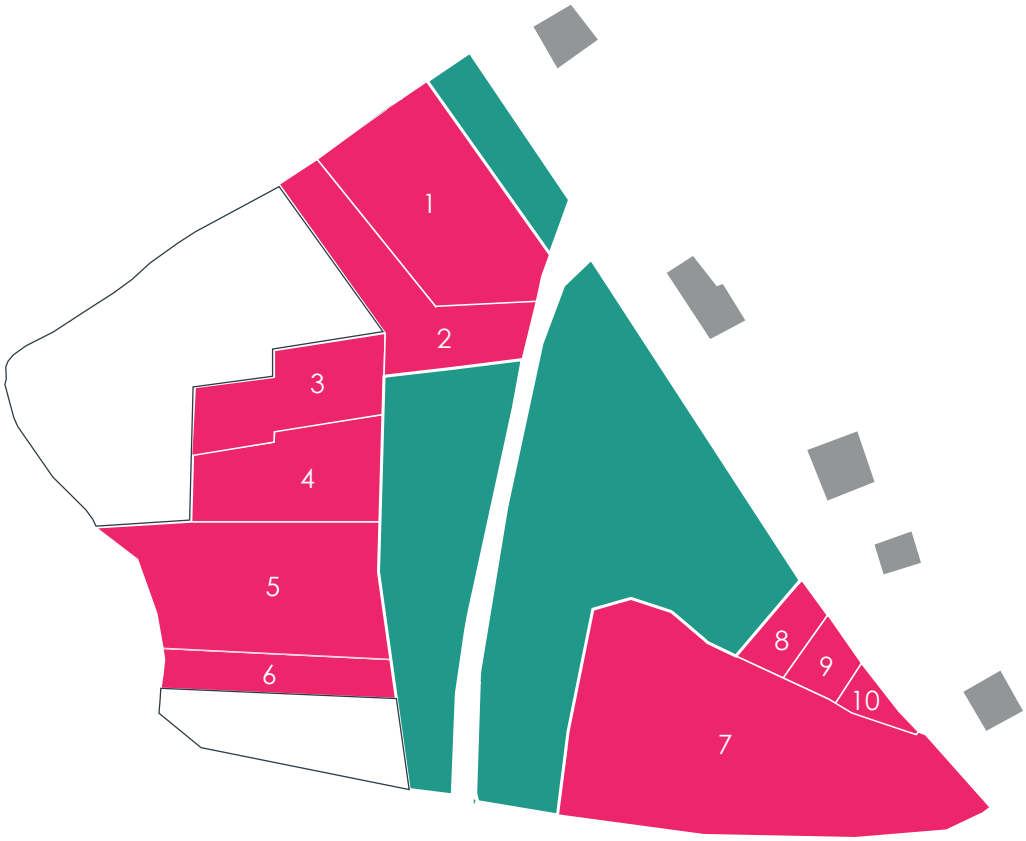


fig. 28 *Local Context Geragera*



	Manufactured Products	**4**	Chili's
	Storage	**5**	Grains
	Donkey Parking	**6**	Animal Salt
	Raw Products	**7**	Miscellaneous
1	Raffia Grass	**8**	Chickens
2	Vegetables	**9**	Honey
3	Potatoes & Onions	**10**	Fruits

fig. 29 *Market Configuration Geragera*

located in between the previously mentioned gravel roads that descend into the northeast and southwest directions.

The main market itself does have some explicit features (fig. 29). Straight through the middle there is a small trench that divides the market into two parts. Both sides of the trench are mainly occupied by stalls from which manufactured goods are sold. Remarkable about this market is the fact that most of the raw products on the western side of the market are sold in stalls. Whereas the raw products on the eastern side are exhibited on the ground, which is the more common practice. In comparison with Kon this main market has a lesser amount of storage space. Nevertheless, adjacent to the livestock market (fig. 30) and along the main road there is a bigger unit, comparable to the one in Kon.

fig. 30 *Livestock market in Geragera*

4.4 *Comparison Study*

By comparing the goal is to point out the difference in economic significance between the different case studies. This comparison starts with looking at the regional embedment. When comparing the average time people travel (fig. 31) to the open market it becomes clear that there where Geragera has the biggest reach on farmers it has the smallest reach on traders. A logical explanation for this could be that the sheer size of Geragera in combination with Filakit results in most of the traders being locals and thus not having to travel far to reach the open market. However, when considering this theory it is interesting to see that Arbit has a smaller reach on traders then Kon. This is even more remarkable, when one realizes that most traders in Kon are locals. It however becomes clear when analyzing the collected data, most of the traders in Arbit originate from either Geragera, Filakit or Gashena. Because of the all weather road between these towns the travel speeds are minimized, whereas the

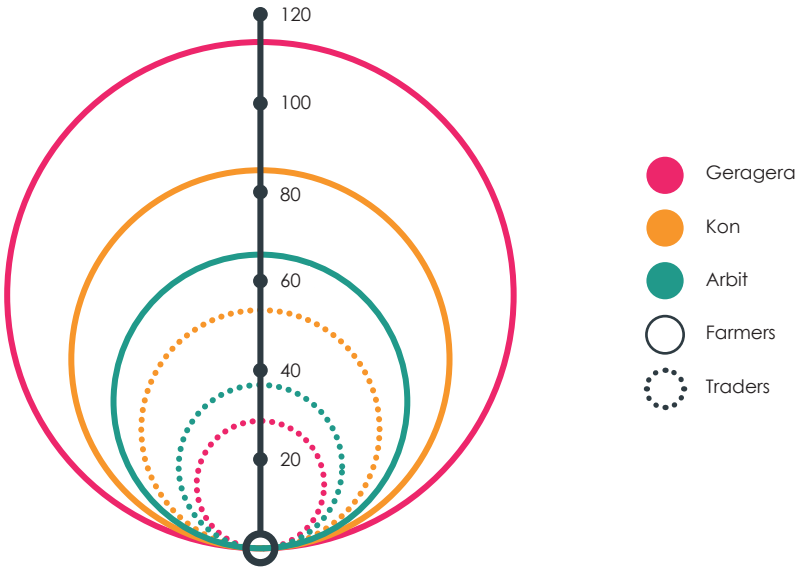
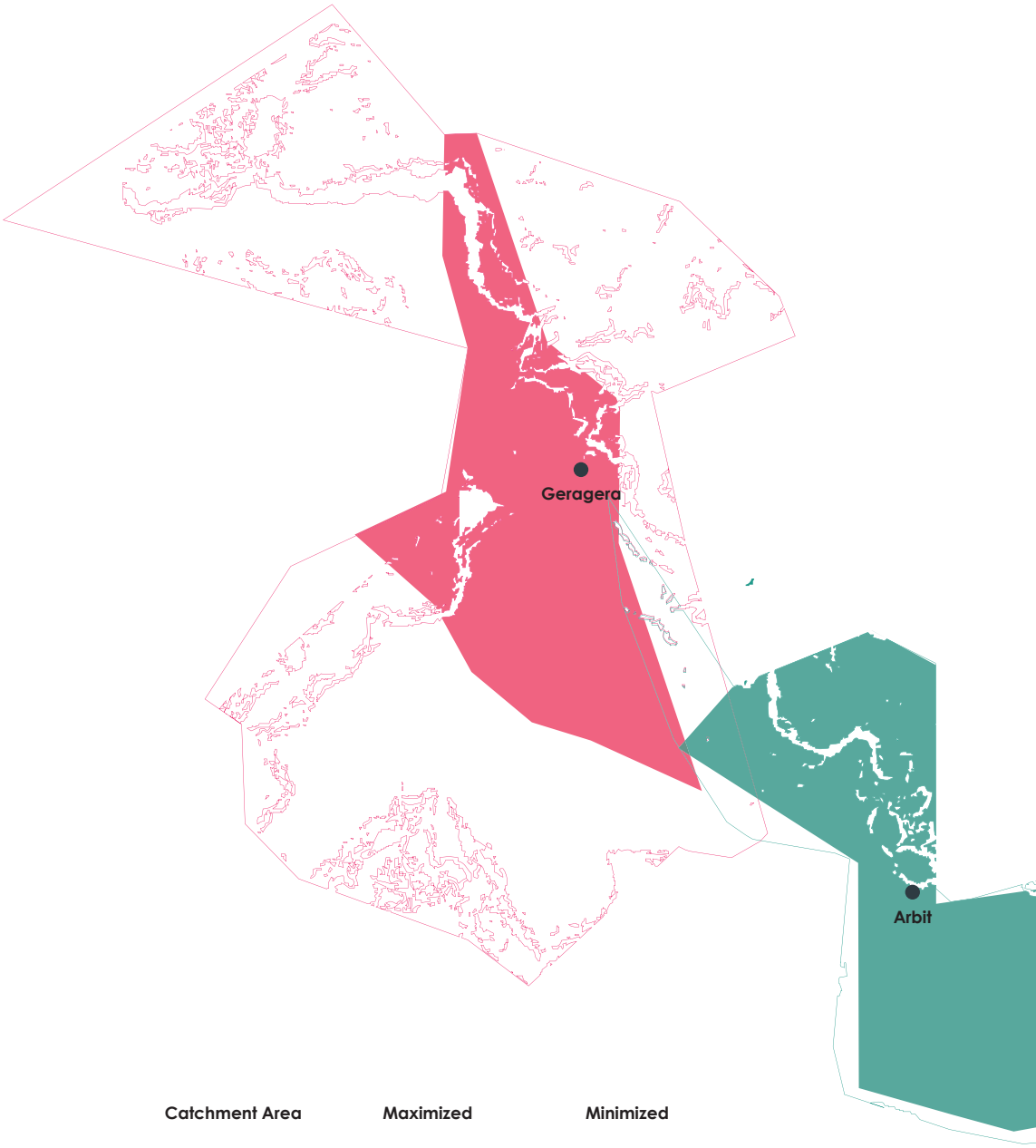


fig. 31 *Travel times to open market of traders & farmers*

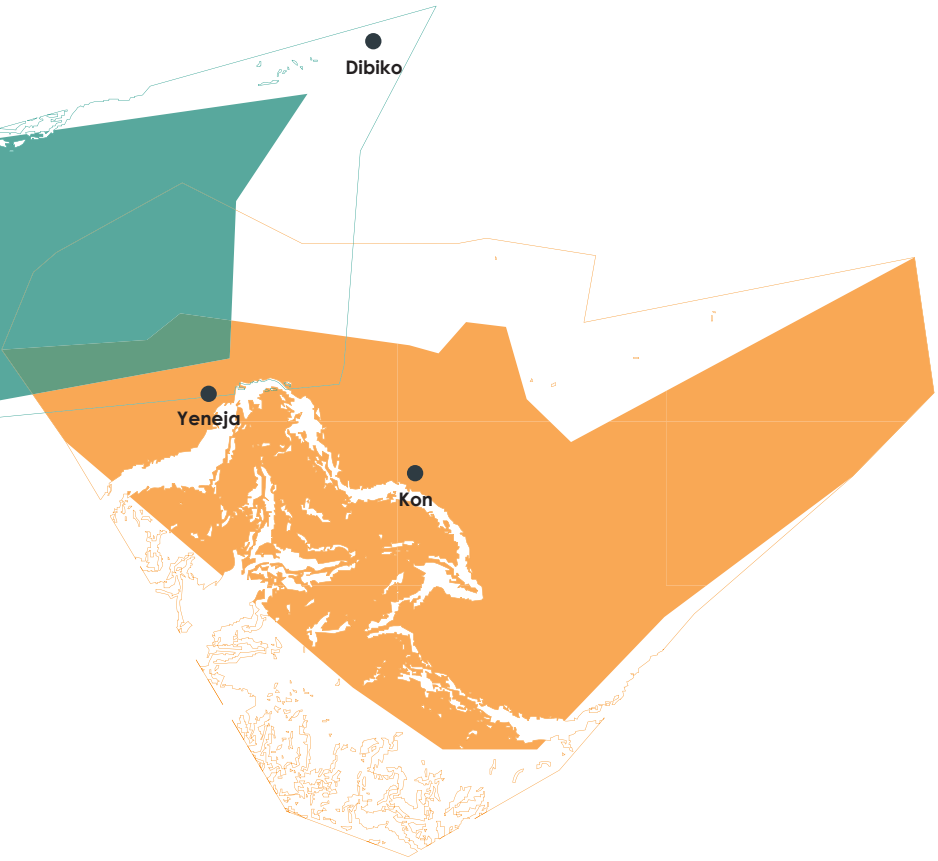


Catchment Area	Maximized	Minimized
Geragera	**223.220** m^2	**52.577** m^2
Population	46.957	26.716
Kon	***185.911*** m^2	***119.164*** m^2
Population	35.335	16.163
Arbit	***136.262*** m^2	***90.361*** m^2
Population	25.329	10.718

fig. 32 *Catchment areas of Geragera, Kon & Arbit*

few non-local traders that are active in Kon need to travel across a gravel road which seriously increases their travel time.

By mapping the travel times of market occupants that arrive by foot, the catchment areas were established. When looking at fig 32, one can see that the maximized catchment area of Arbit overlaps with those of Kon and Geragera which disputes with the hypothetical model. A possible explanation can be the fact that Arbit is active on Fridays whereas Kon and Geragera share the Saturdays. However, when looking at the catchment area that displays the average reach, the overlap is negligible. Interesting is that Geragera has the biggest maximized catchment area but by far the smallest average of all three cases. The big difference is probably a consequence of the high amount of traders/retailers that arrive by foot and live in close proximity of Geragera in comparison to the cases of Kon and Arbit. Finally, worth mentioning is the approximate amount of people



that live in the catchment areas (fig. 33). By dividing the woreda rural population projection for 2017 (Central Statistical Agency 2013) of by its area size a rural population density per Km was defined. As fig 31 shows all the open market maximized catchment areas combined contain 95.756 residents including urban areas, covering about 1/5th of the total population of both Meket and Wadla woredas. This number is likely to be higher considering the fact that the catchment areas cover a lot of highland areas which are presumably more populated than the more rugged watersheds. With regard to pricing there are no noteworthy differences. In fig. 32 one can see a selection of the six products that were each found on all markets and had comparable measurement units. The different units in which products are sold are either per piece, in big cans, or in small cans. The used unit mainly depended on the size and fineness of the specific product. Small differences in prices can be found between the three open market, but they are negligible. This contradicts with the hypothetical model and could be a consequence of the small scale of the open markets and

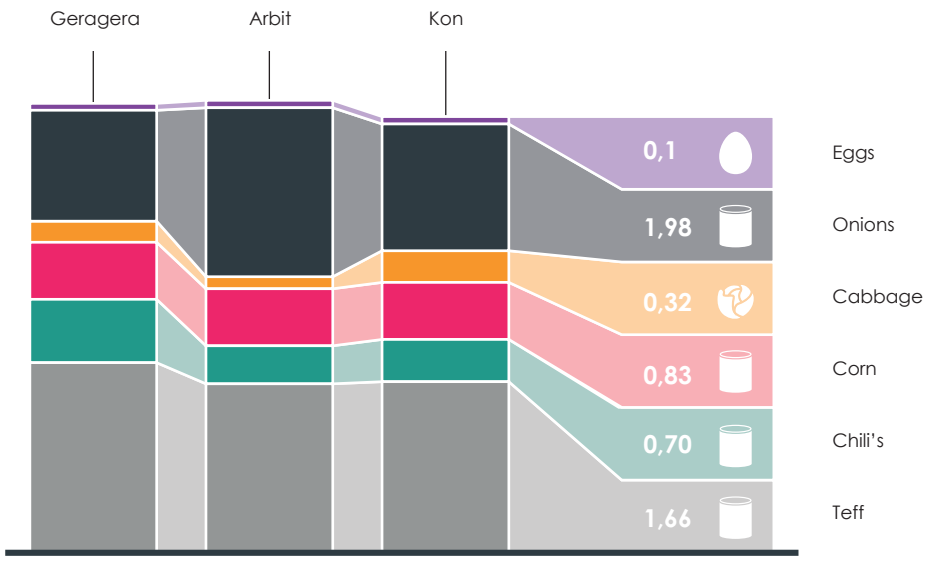


fig. 33 *Price comparison*

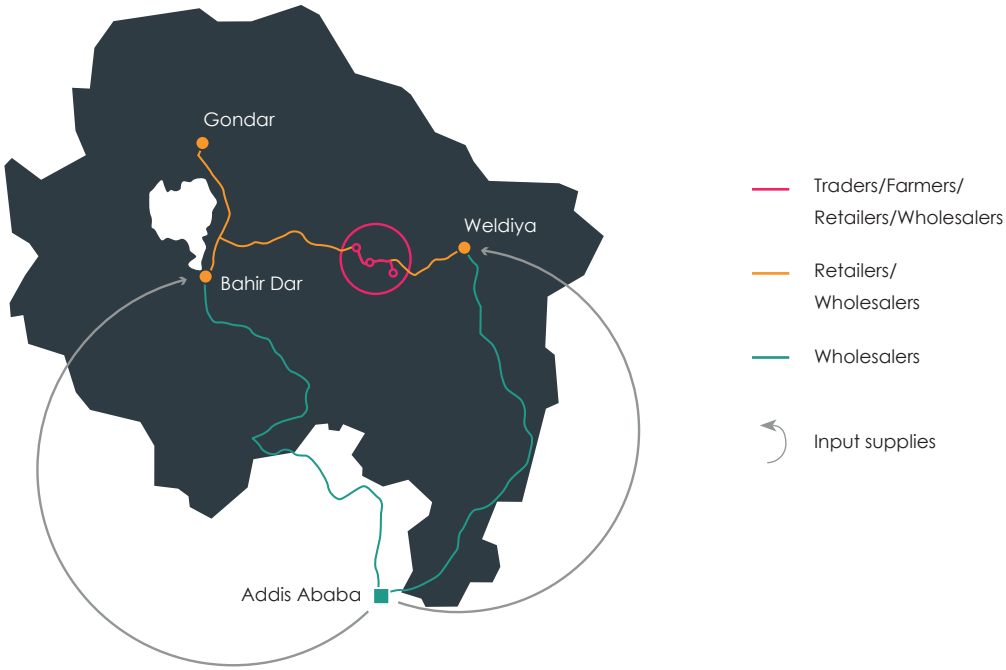


fig. 34 *Supply chain spheres of activity*

their relative small proximity to each other. The supply chain could possibly clarify this. As explained previously, most of the traders and some of the farmers in Arbit are also active in either Kon or Geragera the next day. Arbit in this case could be part of a mediating process during which topical prices are communicated from traders from Geragera to the traders of Kon or the other way around. This theory would support the hypothetical idea that traders and retailers are active in various towns over the course of the week whereas producers only find time to travel to an open market once a week.

By taking a deeper look into the collected data and based on the findings of the previous mentioned MLDP a decent image of the supply chain can be created. Fig. 34 explaines in a simplified image till what extend the different market occupants are active. Farmers and local traders/assemblers are only active in the local spheres and in close proximity of the market. Retailers on the other

fig. 35 *Retailers selling manufactured products in Arbit*

fig. 36 *Storage units at the open market in Kon*

hand, although they are local residents, buy their produce or manufactured products (clothing, fabrics, processed foods and household tools/equipment) in cities in relatively close proximity like Gondar, Bahir Dar or Weldiya after which they sell on the open market in their hometown and others nearby (fig. 35). Wholesalers, cover the biggest area. They own big storage units like in fig. 36 in Geragera and Kon (in smaller degree in Arbit) and sell their collected produce in big batches to bigger parties in the previous mentioned close by cities and to export parties and/or factories in Addis Ababa.

When comparing the different local contexts of the different open markets one can see that all three open markets are bordering a watershed region. Presumably, this is a consequence of the bad accessibility of these watersheds and thus the placement optimizes the connection between the open market and the people who live in these remote regions. However from the three cases, Geragera definitely has the strongest infrastructural connections with these watersheds as various secondary roads that are connected to the open market decline into them.
The biggest difference between the three cases is that Arbit and Geragera have an all weather road connection whereas Kon is only accessible by a gravel road. Nevertheless Kon is very well facilitated which contradicts the hypothetical model to some degree but can be explained by the fact that its catchment area facilitates a lot of people. Therefore, unlike the hypothetical model states, it is more logical to assume that the amount of public amenities is dependent on the town size in relation to its catchment area. This explains why Kon and the agglomeration Geragera/Filakit exceed Arbit in the offer of health and educational services. Both towns have a primary school, a high school, a bus station and a health clinic. Arbit only has a primary school in close proximity to its market. Furthermore, a relation between the location of the church and the open market seems obvious as they are always in close proximity of each other

and they are both two of the most important structures in the rural Ethiopian life. However, whereas the church seems to put more value in positioning itself there where it is visible and prominent the open market in all three cases is settled along at least one of the main routes that connects it with the hinterland. Along these main connections lots of commercial functions ranging between hotels, bars and little shops can be found. However, compared to Kon and Arbit the main commercial district around Geragera is not at the open market but can be found in Filakit close to the bus station. This could prove that beside the open market the bus station could possibly also be an important economic catalyst as well, which is something that was also observed in the town of Gashena.

One can conclude that the three cases differ quite a lot from each other in both regional embedment and local context. The configuration of the open markets however emphasizes this in the most concrete way. When comparing the size of the open market squares it becomes clear that the one in Geragera is by far the biggest. The area of its livestock market alone already exceeds both total areas in Kon and Arbit and it makes up for 49% of the total market area in Geragera itself. This could indicate the significance of Geragera as a regional market for livestock. When looking at fig. 37 and leaving out the livestock market in Geragera, manufactured products claim the largest amount of space on the open markets and are often situated in shaded stalls which are leased from the local municipality whereas local products claim the least amount of space and are mostly displayed on the ground. This is a contradiction with the hypothetical model since it stated that the total share of manufactured products would be only 10%. This could partially be due to most of the sellers of local products sitting on the ground in a very condensed way. This however, would not fully explain the large space manufactured products claim of average 37% on the open markets of Kon, Arbit and Geragera combined. Finally, a significant linkage between adjacent functions and the

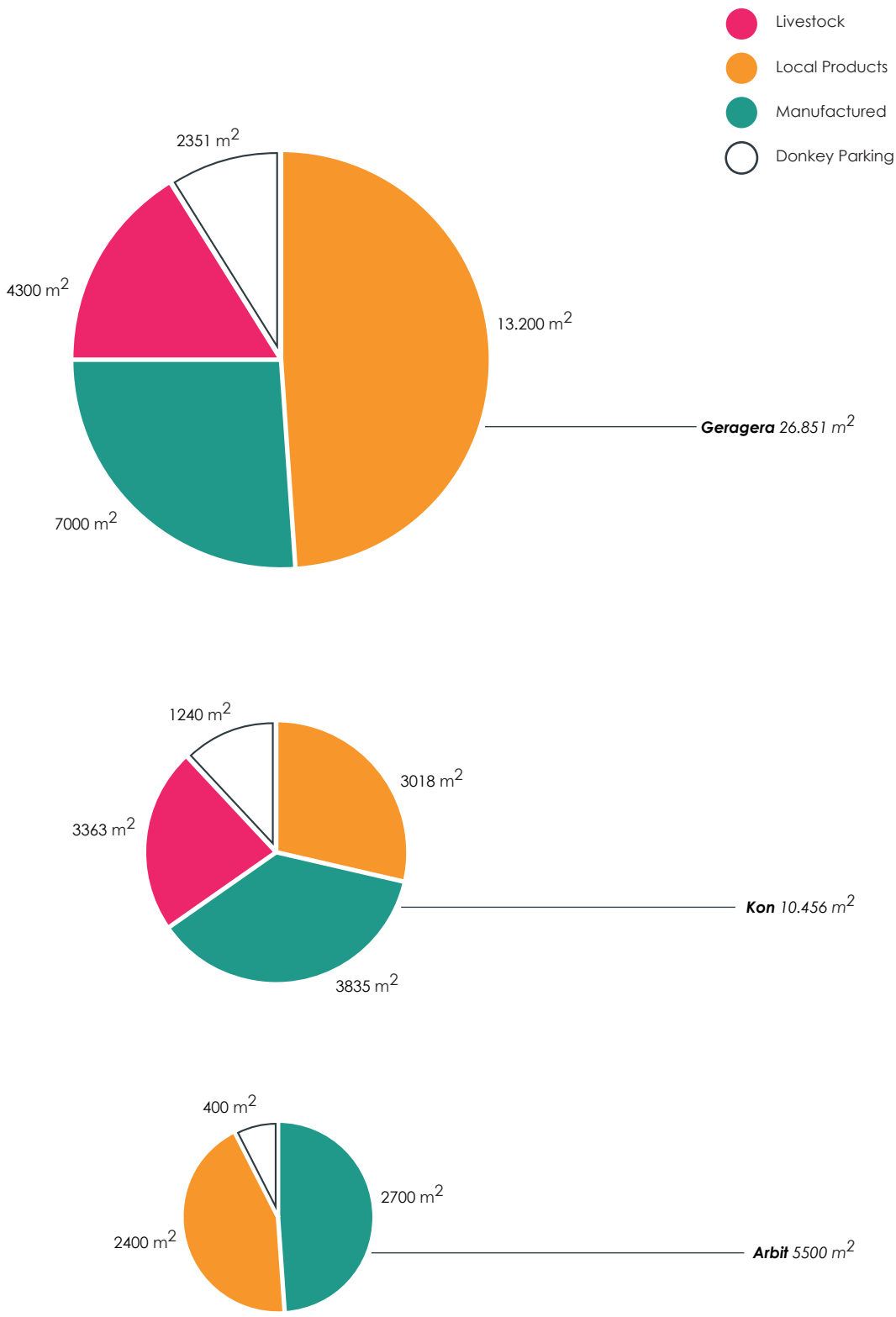


fig. 37 *Market Configuration Geragera*

market commodities could not be found in any of the three cases. It was indicated in the hypothetical model however that there would be linkages that would randomly connect to the various commodity groups. Unfortunately, the only bordering businesses one could find in the three markets were small bars that might get the ingredients for their homebrew Tella beer at the open market and some incidental sewers like shown in fig. 38 that were mainly occupied with the production of big cotton bags. Additionally, the storage unit on the edges of the open market can be seen as businesses, but beside collecting local products they do not serve any industrial function. Finally, when considering manufactured and local products the markets do not seem to differ a lot in the variety of commodity groups. It is simply the quantities that differ and not an offer of products itself.

At the end, one could conclude that the three cases are placed in a strong hierarchical structure. Geragera is obviously the biggest market which is mainly represented in the sheer magnitude of

fig. 38 *Sewers near the open market in Kon making bags and repairing clothes*

its market square and area of operation. This all seems to be the consequence of characteristics which have both spatial and economic aspects. For instance, Geragera is located along the all weather road and thus has an optimal connection with nearby bigger cities and it offers proper access to both the Bashilo and the Tekeze watershed and a vast amount of highland area. The second biggest open market is the one in Kon which might compete with the market in Geragera because they are active on the same day of the week. Nonetheless, the catchment areas do not overlap with each other and seem to form their own system. Both open markets share the fact that the towns they are located in are defined as urban by the Ethiopian government. This is also represented in the access to public amenities which seem to be somehow equal between the two. Arbit in this case is definitely the third wheel on the wagon, and can be seen as a different class open market. Although its location along the all weather road is quite excellent it lacks in other locational factors like the presence of public amenities.
The open market in Arbit seems to serve a sufficient amount of people to account for its own existence. Being active on another day then those in Kon and Geragera, which also seems to be the case for the nearby open market of Gashena and the fact that the catchment areas of both Kon and Geragera do not overlap each other and left some space in between give the open market in Arbit enough economic significance. Finally one can say that these three open markets seem to be very small actors in a very large system. However, what remains largely unclear, is their role in this system and how their exact relation with bigger open markets is organized.

4.5 *Reflection*

Rural open markets in Ethiopia are a magnificent spectacle. The behavioural patterns and economic connections are extremely interesting but also very complex to bring into words and drawings. Therefore, when reflecting on the current hypothetical model one can come to the conclusion that it is too rigid to be put to further use

unless it is corrected. The following statements from the hypothetical model have proven to be untrue or in need of correction:

- Regional embedment; Catchment areas do not overlap and pricing varies depending on settlement size.

  Catchment areas are complex mechanisms, especially when one considers the fact that markets are active on different days. Although the overlap of the various catchment areas was not to significant it did show that different open markets can facilitate each others area. The effect of different days of activity in this matter would need some more research to be able to adjust this hypothesis. Furthermore, it was stated that pricing would be higher depending on the size of a settlement. However, it was proven that in the specific case studies no significant price differences could be found. As was mentioned previously, this could be the consequence of the small scale the study was performed on. Due to the close proximity of the open markets information on pricing might spread more rapid. Additionally, the markets might not differ enough in size and/or significance to project any obvious price differences.

- Local context; Better infrastructural connections contribute to the accessibility of public functions.

  By comparing the cases of Kon and Arbit this statement was proven to be untrue. Locational factors definitely can play a role in contributing to public functions. However, in this matter historical context seems to be the major contributor to the significance of a town. This is mainly displayed in the size a settlement has as a consequence of developments in the past. New developments like the construction of a new road could possibly help shift this momentum which can be witnessed in the case of Gashena but do not necessarily lead to an increase

of importance and thus public amenities in the case of Arbit. In order to improve this specific part of the framework more time needs to be invested in understanding Ethiopian regulation in the placement of amenities and the historical perspective should always be considered leading.

- Market configuration; The share of manufactured goods on the rural market is lower than 10%

As was seen in all three cases, manufactured goods take up a way larger amount of space on open markets then expected. However, this does not necessarily invalidate the statement above. As was mentioned before the share of local products might as well be way bigger than the space it claims because the sellers are more condensed. Nevertheless, it is remarkable to see that most of the sales and activities are occurring on a small part of the market which is quite crowded (fig. 39) whereas the areas were manufactured goods are sold are quite spacious.

fig. 39 *Cramped situations in Geragera's open market*

05
Conclusion

By creating the hypothetical model and performing the case study the goal was to initiate a better understanding of Ethiopian rural open markets and their spatial and economic relevance. A topic which so far has been underexposed. The three case studies can be seen as small players in a big complex hierarchical national system of open markets. This system is a very crucial part of the Ethiopian economy for multiple reasons one being that agriculture is responsible for 43% of the Ethiopian GDP (FAO, 2011). Add to this that a large share of the population lives in the countryside and to potentially improve their livelihoods open markets might prove to be the most important linkages to reach these specific target groups.

To clarify, the research has shown that markets facilitate large amounts of rural residents. As market days are the only event in which rural residents can collectively be approached they offer a lot of potential for educational and organizational purposes. Furthermore, it would be meaningful to investigate ways of empowering these rural residents/producers more in the trading process. Momentarily retailers, assemblers and wholesalers seem to have the upperhand. This is not only reflected in the fact that they occupy big shares of the market squares and all of the stalls. They generally also have better access to storage spaces, motorized transport and pricing information. As was mentioned in the MLDP (Save the Children, 2008), traders try to prevent producers from

fig. 40 *Grain section of the open market in Kon*

obtaining price information by taking down notice boards that provide it. Although intermediaries are crucial in linking the cities with the hinterland, the open market circumstances of the producers, whom literally are the foundation of the Ethiopian economy, can and should be improved. The establishment of smallholder cooperatives through micro-financing in the Meket woreda, for instance, has already proven to increase the bargaining position and the overall wealth of the people involved (Save the Children, 2008). Alternatively, conditions for producers on open rural market squares (fig. 41) could be modernized more by increasing drainage, shading and functionality to improve hygiene and the shelf life of displayed products.

Another clear result that the case studies have pointed out are that locational factors of open markets are crucial in optimizing the catchment area. A hierarchical structure of open markets was recognized which aligned with the presence of specific locational

fig. 41 *Market conditions in Geragera*

factors like infrastructure, access to surrounding areas and the offer of public amenities. This hierarchical structure still has a lot of potential to improve by maximizing catchment area and thus increasing the people it facilitates. Therefore, fewer open markets are necessary which could lead to the centralization of public amenities and a decrease in linkages between the small rural market and the final urban market. As an example one can look at the case studies. In a scenario were two open markets in the likes of Kon and Geragera would be in closer proximity to each other a market like Arbit might become redundant. However, in the existing situation an open market like the one in Arbit plays a meaningful role as it serves the area that is uncovered by its two bigger brothers. Nevertheless, as was indicated in the literature research, the increase in all weather roads like the on in fig. 42 are improving the accessibility of the rural hinterlands (Minten, Dereje, Bachewe, Tamru, 2018) which might make markets like the on in Arbit obsolete in the near future. This whole hypothesis would need

fig. 42 *All weather road with loaded minibuses in Arbit*

to be subject to a follow-up study that would investigate the effects of catchment areas and their accessibility on the distribution of settlements. Additionally, a better understanding of the hierarchy of open markets on a national level considering the stock and flow of products, resources and people could prove to be meaningful.

The goal of this study was to create a portrait of the characteristics and spatial economics of open markets in rural Ethiopia. In conclusion one can say that open markets in Ethiopia are crucial in the existence of a large share of the population. Subsistence farmers (fig. 43) travel from far and wide to sell their produce and most locals are either involved in the transport of these products to bigger markets (fig. 44) or occupy themselves with providing farmers with tools, clothing and non-local products. In improving the livelihoods of these people and their families and prevent them from moving to urban areas the rural open market could prove to be a helpful platform. Considering New Town developments it can be said that an open market forms one of the essential elements that could determine its economic success and the radiation of this success to the hinterland it facilitates.

Finally, it seems logical to assume that in a country where the economy is currently on the fast track changes will remain unpredictable. Most likely, Ethiopia like most African countries will encounter similar trends that occurred during industrialization in Western European countries. For instance, it is clear that the role of open markets will change by the hands of commercialization. An attempt to achieve a more centralized system is already put into action with the establishment of the Ethiopian Commodity Exchange which should result in a fairer trading system for all actors. Nonetheless, the current decentralized open market system that can be recognized in Ethiopia is high in unlocked potential as it can help develop local economies and especially create powerful rural communities that will benefit all involved and prevent exploitation by big outside parties.

fig. 43 *Farmers selling chili's in Geragera*

fig. 44 *Wholesalers collecting garlic in Geragera*

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Appendix A

Arbit 14.06.2019

	Occupation	Time Traveled	Distance	Direction	Transport	
1	Trader	3	252	N/E	Foot	
2	Farmer	60	5040	S/E	Foot + Donkey	
3	Farmer	1		N/E	Bajaj	
4	Trader	30	2520	N/W	Foot + Donkey	
5	Farmer	80	6720	S	Foot + Donkey	
6	Farmer	120	10080	N	Foot + Donkey	
7	Trader	90	7560	S/E	Foot	
8	Trader	60	5040	S/E	Foot	
9	Farmer	30		N	Bajaj	
10	Trader	15		W	Minibus	
11	Trader	15		N/W	Minibus	
12	Trader	10		E	Minibus	
13	Trader	5		E	Bajaj	
14	Farmer	180	15120	E	Foot	
15	Farmer	20	1680	W	Foot + Bajaj	
16	Retailer	15	1260	N/E	Foot	
17	Retailer	30		W	Minibus	

	Product	Buyer	Price	Unit	Remarks
		Locals	17	Kg	Sells also in Weldiya
	Barley	Locals	65	Can	
	Barley	Locals	65	Can	
	Corn	Locals	27	Can	
	Corn	Locals	27	Can	
	White Teff	Locals	80	Can	70 for red teff
	Teff	Locals	75	Can	65 for red teff
	Onions	Locals	80	can	
	Garlic	Locals	130	can	
	Herbs	Locals			
	Herbs	Locals			
	Home Equipment	Locals			
	Small shop	Locals			
	Animal Salt	Locals	20	Block	
	Lentilseeds	Farmers	120	Can	
	Shoes	Locals	50	Pair	
	Shoes	Locals	30	Pair	

	Occupation	Time Traveled	Distance	Direction	Transport	
18	Retailer	5		E	Bajaj	
19	Retailer	20		N/W	Minibus	
20	Trader	20		N/W	Minibus	
21	Farmer	30	2520	N/W	Foot + Donkey	
22	Trader	30		E	Bajaj	
23	Farmer	60		W	Bajaj	
24	Retailer	180	15120	N/W	Foot	
25	Trader	90	7560	E	Foot	
26	Wholesaler	90	7560	S	Foot	
27	Farmer	30	2520	S/E	Foot	
28	Farmer	120	10080	N/W	Foot	
29	Retailer	20		N/W	Minibus	
30	Retailer	40	3360	N/W	Foot + Donkey	

Kon 15.06.2019

1	Trader	0	0	N/W	Foot	
2	Trader	120	10080	N/W	Foot + Donkey	
3	Trader	240			Minibus	
4	Trader	90			Minibus	

	Product	Buyer	Price	Unit	Remarks
	Shoes	Locals	40	Pair	
	Chilipeppers	Locals	18	Can	
	Chilipeppers	Small Traders	18	Can	
	Cabbage	Locals	7	Piece	
	Cabbage	Locals	6	Piece	
	Cabbage	Locals	4	Piece	
	Pottery	Locals	20	Piece	
	Gesho	Weldiya Market	600	Bag	
	Eggs	Addis	3,5	Piece	
	Straw	Locals	50	Batch	
	Straw	Locals	15	Batch	
	Western Clothing	Locals			Buys in Dessie, Addis, Bahir Dar
	Western Clothing	Locals			
	Wheat	Weldiya Marker	14	Kg	
	Sorghum	Addia Abeba	35	Kg	
	Chilipeppers	Locals	20	Can	Comes from Bahir Dar
	Chilipeppers	Locals	20	Can	Comes from Geragera

	Occupation	Time Traveled	Distance	Direction	Transport	
5	Farmer	60	5040	N/W	Walking	
6	Farmer	120	10080	S/E	Foot + Donkey	
7	Farmer	90	7560	S/E	Foot + Donkey	
8	Farmer	150	12600	N/W	Foot	
9	Farmer	150	12600	N/W	Foot + Donkey	
10	Farmer	150	12600	W	Foot + Donkey	
11	Trader	90		N/W	Minibus	
12	Trader	90	7560	N	Foot + Donkey	
13	Farmer	80	6720	N/W	Foot + Donkey	
14	Trader	90		N/E	Minibus	
15	Farmer	120	10080	N/W	Foot	
16	Trader	0	0		Foot	
17	Farmer	60	5040	N/E	Foot	
18	Trader	0			Minibus	
19	Trader	0			Minibus	
20	Trader	0			Minibus	
21	Trader	0			Minibus	
22	Trader	0			Minibus	
23	Trader	0			Minibus	

	Product	Buyer	Price	Unit	Remarks
	Gesho	Locals	150	Bag	
	Wheat	Locals	47	Can	
	Chickpeas	Locals	60	Can	
	Straw	Locals	10	Batch	
	White Teff	Locals	80	Can	70 for red teff
	White Teff	Locals	82	Can	
	Onions	Locals	60	Can	
	Potatoes	Locals	30	Can	
	Cabbage	Locals	15	Piece	
	Animal Salt	Locals	30	Block	
	Garlic	Locals	130	Can	
	Eggs	Traders	3,5	Piece	Assembler
	Chicken	Locals	120		
	Dresses	Locals	350		Gets stuff in Dessie
	Jackets	Locals	120		Gets stuff in Dessie
	Shoes	Locals	45	Pair	Gets stuff in Dessie & Weldiya
	Scarfs	Locals	650		Gets stuff in Weldiya
	Threads	Locals	110		Gets stuff in Weldiya
	Coffee	Locals	20	Small can	Gets stuff in Weldiya & Bahir Dar

	Occupation	Time Traveled	Distance	Direction	Transport	
24	Trader	180	15120	E	Foot + Donkey	
25	Farmer	90		N/E	Minibus	
26	Farmer	60	5040	S	Foot + Donkey	
27	Wholesaler	0			Car	
28	Wholesaler	0			Public bus	
29	Trader	0			Minibus	
30	Trader	0			Minibus	
31	Trader	0			Minibus	
32	Farmer	30	2520	N	Foot + Donkey	
33	Farmer	30	2520	N	Foot + Donkey	
34	Farmer	20		N/W	Minibus	
35	Farmer	90	7560	N/E	Foot	
36	Trader	120			Minibus	
37	Farmer	90	7560	N/W	Foot	
38	Farmer	150	12600	S	Foot	
39	Farmer	120	10080	S/E	Foot	
40	Farmer	15	1260	N/E	Foot	

	Product	Buyer	Price	Unit	Remarks
	Coffee	Locals	19	Small can	Gets stuff in Dessie & Weldiya
	Corn	Locals	27	Can	Gets stuff from Bahir Dar
	Lentils	Locals	60	Can	
	Lentils	Factory Addis	4000	100 Kg	Buys from farmers sells in Addis
	Teff/Corn	Locals	2400/920	Bag	
	Salt	Locals	55	Small can	Gets stuff in Weldiya
	Spices	Locals	45	Kg	Varies per spice
	Chilipowder	Locals	10	Small can	
	Barley	Locals	32	Can	
	Barley	Locals	25	Can	
	Tomato	Locals	15	Kg	
	Sugarcane	Locals	10	2 m	
	Sugarcane	Locals	10	2 m	Comes from Weldiya
	Sheeps	Locals/traders	1300		
	Goats	Locals/traders	2000		
	Goats	Locals/traders	2200		7000 for a big one
	Sheep	Locals/traders	2800		

Geragera 15.06.2019

	Occupation	Time Traveled	Distance	Direction	Transport	
1	Farmer	180	15120	S	Foot	
2	Farmer	50	4200	S/W	Foot	
3	Retailer	7.5	630	N/E	Foot	
4	Retailer	10		N/W	Bajaj	
5	Farmer	150	12600	N	Foot	
6	Farmer	240	20160	N/W	Foot + Donkey	
7	Farmer	60	5040	E	Foot + Donkey	
8	Farmer	60	5040	W	Foot + Donkey	
9	Farmer	20	1680	N/W	Foot	
10	Trader	20		S/W	Bajaj	
11	Trader	3		S/E	Bajaj	
12	Farmer	120	10080	S/E	Foot	
13	Farmer	120	10080	S/E	Foot	
14	Farmer	60	5040	S/W	Foot	
15	Retailer	5	420	N/E	Foot	
16	Retailer	10		W	Bajaj	

	Product	Buyer	Price	Unit	Remarks
	Pottery (Griddle)	Locals	40	Piece	
	Pottery(Kettle or Coffee pot)	Locals	20	Piece	Also active in Hamusit
	Cloth	Locals	0	Piece	Also active in Arbit
	Cloth	Locals	0	Piece	
	Teff (white)	Locals	30	Can(small)	
	Teff (mixed)	Locals	29	Can(small)	70 for red teff
	Barley	Locals	24	Can	65 for red teff
	Barley	Locals	24	Can	
	Eggs	Locals	4	Piece	Also active in Arbit
	Eggs	Locals	3	Piece	Also active in Arbit
	Honey	Locals	160	kg	Gets product from Dessie
	Honey	Locals/Trader	120	kg	
	Raffia Grass	Locals	0	Piece	
	Raffia Grass	Locals	0	Piece	
	Hardened Salt	Locals	0	Piece	
	Shoes	Locals	0	Piece	Also active in Arbit

	Occupation	Time Traveled	Distance	Direction	Transport	
17	Retailer	10		S/W	Bajaj	
18	Retailer	45		S/W	Bajaj	
19	Retailer	10		W	Bajaj	
20	Trader	10	840	S	Foot	
21	Trader	120	10080	N/E	Foot	
22	Retailer	5		S	Bajaj	
23	Trader	20	1680	N/E	Foot	
24	Farmer	180	15120	S/W	Foot	
25	Farmer	120		S/W	Foot/Bajaj	
26	Trader	5	420	E	Foot	
27	Trader	60	5040	S/W	Foot	
28	Trader	20	1680	N/E	Foot	
29	Trader	15	1260	N/W	Foot	
30	Farmer	120	10080	N/E	Foot	

	Product	Buyer	Price	Unit	Remarks
	Shoes	Locals	0	Piece	Also active in Gashena
	Home Equipment	Locals	0	Piece	Also active in Arbit
	Home Equipment	Locals	0	Piece	Also active in Arbit
	Corn	Locals	27	Can	Also active in Arbit
	Corn	Locals	27	Can	
	Onions	Locals	50	Can	
	Onions	Locals	55	Can	Also active in Arbit
	Cabbage	Locals	10	Piece	Also active in Arbit
	Cabbage	Locals	10	Piece	Also active in Arbit
	Red pepper/Chili	Locals	40	Can	Also active in Arbit
	Red pepper/Chili	Locals	20	Can	
	Herbs	Locals	0	Spoon	Also active in Arbit
	Herbs	Locals	0	Spoon	Also active in Arbit
	Hops/Buckthorn	Locals	0	Bag	

Appendix B

Questionaire

Name: Bastiaan Waalderbos
Date: 15.06.2017
Town: Hon

OCCUPATION	TIME TRAVELED	DIRECTION	TRANSPORT METHOD	PRODUCTS	BUYER	PRICE
assembler trade	local Hon		walking ~~minibus~~	eggs	trade	3,50
farmer	7 hour		walking	chicken	locals	120
dresse trader	local Hon		minibus	dresses	locals	350
dresse trader	local Hon		minibus	jackets	locals	≈120 birr
woldyia dresse trader	local Hon		minibus	shoes	locals	45 birr
woldyia trade	local Hon		minibus	traditional scarfs	locals	666
woldyia trade	local Hon		minibus	thread scarf	locals	110
Bahirdar woldyia trade	local Hon		minibus	coffee	locals	20 small cup
Dessie woldyia trader	3 hours		donkey	coffee	locals	19 small / 15 lower
Bahirdar farmer trader	1,5 hours		minibus	corn	locals	22 can
farmer	1 hour		donkey	lentils	locals	60 can
wholesale buy from local	Hon local		car	varies now lentils	Addis factory	4000 birr local
wholesale trader	Hon local		public bus	teff, garden corn, bahr dar	locals	970 corn / 2400 teff
woldyia trader	Hon local		minibus	salt	locals	5 small c
different region trader	Hon local		minibus	spices	locals	45 kg lower price

Questionaire

Name: Fitsum Maran Hailu
Date: 15.06.2019
Town: Gergera

OCCUPATION	TIME TRAVELED	DIRECTION	TRANSPORT METHOD	PRODUCTS	BUYER	PRICE
– farmer (–)	3hr		walking (coming)	Poetry (Sterlo)	local	48
farmer (Hamuleit)	50minute		walking (coming)	Poetry	local	20birr(·
Retailer (Arbit)	5-10min		walking	cloth	local	
Retailer (shop)	10 min		Bajaj	cloth	local	
farmer –	2:30hr		walking	Teff (white)	local	30/2:½
farmer –	4hr		walking + donkey	Teff (mixed)	local	29
farmer	1hr		walking + donkey	Barley	local	[illegible]
farmer –	1hr		walking + donkey	Barley	local	14
farmer (Agrit)	20min		walking	egg	local	3.5
Trader Agrot) (Arbit)	20min		Bajaj	egg	local	3.0
trader (Agrot)	3 min		Bajaj	Honey	→ Trader → local	160/kilo
~~Dressie~~ farmer	2hr		walking	Honey	– local	120/kilo
farmer (–)	2hr		walking	Ant (seber)	– local	
farmer –	1hr		walking coming	seber	local	
Retailer	5minute		walking	salt	local	

Appendix C


sugar cane
x6
x15 (fruit stalls)
donkeys no retail
x15 (vegetables)
x9 (onions)
storage
donkey no retail
toilets


This is raw
products areas
x 200
people
sellers
without
stalls
- cotton thread
- aromatic pine
- garlic
- straws
- green leaves
- straw baskets
- animal
skin
honey
x 50 people
animals
- chicken
textile area
storage
no retails
x 50

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