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Building Ethiopia Since 1954

Investigating City Growth Parameters for Emerging Towns in Ethiopia: The Case of Adadi Mariam, Bishan Guracha, and Ginchi Towns in Oromia Regional State.

By: Gezu Yadete Kumbi

A Thesis Research Submitted in the partial Fulfillment of the Requirements for the Degree of Master of Science in Urban Planning at Addis Ababa University

Advisor: Berhanu Woldetensae (Associate Professor)

November, 2023

Addis Ababa, Ethiopia

Declaration

I, Gezu Yadete Kumbi, hereby declare that the work being compiled in this proposal entitled "Investigating City Growth Parameters for Emerging Towns in Ethiopia: The Case of Adadi Mariam, Bishan Guracha, and Ginchi Emerging Towns in Oromia Regional State.**"** is my original work and has not been presented for a degree of any other university. All the materials and resources of references used for this proposal have been duly acknowledged.

Addis Ababa, Ethiopia

November, 2023

Gezu Yadete Kumbi _____ _____

Candidate Signature Date

Confirmation

I, as a Masters Research Advisor state, that Gezu Yadete Kumbi has carried out this thesis research on the topic "Investigating city growth parameters for emerging towns in Ethiopia: The Case of Adadi Mariam, Bishan Guracha, and Ginchi Emerging Towns in Oromia Regional State**"** under my supervisions and it is sufficient for the partial fulfillment for award master's degree in urban planning.

Addis Ababa, Ethiopia

November, 2023

Dr. Dipl. Eng. Berhanu Woldetensae (Associate Professor) _____ _____

Advisor Signature Date

This thesis is submitted to the Ethiopian Institute of Architecture, Building Construction and City Development (EiABC) and the School of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the degree of Masters of Science in Urban Planning.

Title of Thesis: Investigating city growth parameters for emerging towns in Ethiopia: The Case of Adadi Mariam, Bishan Guracha, and Ginchi Emerging Towns in Oromia Regional State.**"**

Candidate: Gezu Yadete Kumbi

Date: November, 2023

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Abstract

Urbanization is a burning issue in developing countries like Ethiopia. However, the process does not happen all at once; rather, factors that occur gradually determine a city's spatial growth to attain its full capacity for expansion. Therefore, this study aimed to investigate growth-driving parameters and indicate ways of managing urban spatial growth in the emerging towns of Adadi Mariam, Bishan Guracha, and Ginchi in Oromia Regional State in Ethiopia. The methods applied for the study were a cross-sectional study using descriptive and explanatory research approaches to identify parameters contributing to spatial growth in these towns. Thirteen (13) parameters were developed and ranked using snowball sampling techniques. Eighty (80) questionnaires for Ginchi town, seventy-five (75) for Bishan Guracha, and sixty-five (65) for Adadi Mariam were used for each town. Then detailed interviews were conducted with six (6) key informants from each town to understand the top-five ranked parameters' level of influence over the last 20 years. The result showed that the top-five growth parameters of the towns vary. The existence of a tourist attraction center, the provision of market service, proximity to major towns, the addition of new education services, and a specialty in agricultural productivity were the top-five ranked parameters for Adadi Mariam, respectively. Land and housing rent value, political decision influence, proximity to major towns, proximity to industries, and land topography ranked 1-4, while climate condition and the existence of a tourism attraction center ranked 5th for Bishan Guracha. Similarly, transportation accessibility, provision of market service, location on the national road, provision of administrative services, and addition of new educational services are the top five identified growth parameters for Ginchi town. Generally, Adadi Mariam town is mainly a religious event and tourism-dependent town. Whereas, land value and politics due to its location between Hawassa and Shashemene towns influenced Bishan Guracha highly. Ginchi town mainly developed due to its transportation connectivity with many woredas and other towns. Thus, techniques and strategies based on an understanding of the potentials of each town and development gaps that strengthen growth parameters should be applied to help the growth of emerging towns.

Keywords: emerging towns; growth parameters; spatial growth; top-five ranked parameters

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Table of Contents

List of Figures

Figures **Page**

List of Tables

Tables **Page**

List of Annexes

ANNEXES **Page**

Acronyms and Abbreviations

AA:	Addis Ababa
AAU:	Addis Ababa University
CSA:	Central Statistical Agency
EiABC:	Ethiopian Institute of Architecture, Building Construction and City Development
FGD:	Focus Group Discussion
GIS:	Geographic Information System
KM:	Kilo Meter
LULC:	Land Use Land Cover
KGs:	Kindergartens
MoUD:	Ministry of Urban Development
MWUD:	Ministry of Works and Urban Development
TVET:	Technical and Vocational Education and Training
UNDESA:	United Nations Department of Economic and Social Affairs
UNDESAPD:	United Nations Department of Economic & Social Affairs Population Division
XML:	Extensible Markup Language

CHAPTER ONE : INTRODUCTION

1.1. Background of the study

Urbanization has both negative and positive consequences. Suppose the development is not guided by planning and policies. In that case, it has a wide range of negative societal, environmental, and economic consequences (Woltjer, 2014; Glaeser and Steinberg, 2017). Particularly, in the developing world, where the existing urban infrastructure is inadequate for the current population. Such poor urban infrastructure and social services in the developing world even lead the urban centers to areas of complicated problems rather than the center of national economic surplus and job opportunities. Along with the rapid urban population increase, poor planning activities and development strategies in developing countries have adverse negative impacts on the growth of cities (Maheshwari and Bristow, 2016).

According to Tan et al. (2009), as the urbanization phenomenon is an unstoppable activity, it needs strict guidance to facilitate citizen development and national objectives with sustainability principles. Shi et al. (2016) also discussed that spatial urban development needs timely and frequent evaluation through accurate mapping and urban planning. Meanwhile, Akujuru (2016) argued that there should be a mechanism that restricts urbanization or that there should be ways to direct the development to intended areas. Shabu et al. (2021) studied the impacts of urban expansion in Nigeria. They recommended formulating an effective law and policy to control and overcome the negative impact of urbanization, thereby attaining the intended growth.

Scholars indicated that ways of guiding the development of urbanization through planning and, hence, attaining the intended development require investigating to understand the context and characteristics of a city. For instance, Kerong and Wei (2013) discussed that studying the

contextual growth of cities helps for both a better understanding of the urbanization process and its evolution in terms of size distribution, effective policy-making, and scientific-based urban planning. Similarly, Duranton (2016) showed that yesterday's cities' growth drivers are different from tomorrow's city growth drivers; hence, a good understanding of what drives urban growth is likely to attain better results than simple figuring.

Understanding urban growth is about identifying driving factors for city growth. These help policymakers, urban planners, and regional economists formulate policy or spatial development plans to guide the overall development of a city (Bhattarai and Conway, 2010; Dewan and Yamaguchi, 2009). The driving factors for city growth might differ from city to city or region to region. All over the world, research conducted in different cities on factors influencing growth showed slight differences. For instance, Li et al. (2018) summarized the literature and grouped factors influencing growth in Indian cities into themes such as governance and politics, economic growth and markets, social inclusion, geography, infrastructures, and employment and human capital.

Whereas Kolomak and Evgeniya (2012) described external growth parameters (infrastructure, security) and internal parameters (economic, social, infrastructure, human capital, and environmental situation) as factors that determine the growth of Russian cities. On the other hand, da Mata et al. (2007) studied the influencing factors for Brazilian cities' growth and found that geography, road connectivity, educational attainment, and economic specialization were important drivers of city growth. Another study in Colombian cities by Duranton and Puga (2013) revealed that agglomeration of economies, human capital, smaller firms, and greater diversity in production are important drivers of city growth.

In the same way, in Nepal, driving factors of Nepal's urban growth were studied by Rijal et al. (2020) and found that socioeconomic factors made the highest (62%) contribution to

urbanization, where political factors (14.5%), physical factors (12%), and planning and policy factors (11.5%) were also influencing factors, respectively. In addition, Rijal et al. (2020) also indicated that climate and physiographic features make the area attractive for urban development.

However, the main cause of urbanization in Ethiopia is mainly population growth, resulting from factors aggravated by the failure of the rural economy because of climate change, rural population increments, and the expansion of education and technology. As a result, the rural-to-urban migration of the population is increasing (Bezu and Holden, 2014; Eshetu and Beshir, 2017), and it accounted for 30–37% of urban population growth between 2007–2017 and will be 38–48% in 2037. However, this does not indicate the factors that attract more population to a city than other urban centers; rather, it is only related to the cause of migration from rural to urban. Particularly, the driving factors for the development of the emerging town in Ethiopia are not focused on research and understanding the factors that pull populations and the reason for spatial growth direction, including economic development.

Hence, this study uses emerging towns such as Bishan Gurach, Ginci, and Adadi Mariam as case study areas to analyze driving factors for emerging city growth and rank driving parameters. Understanding the hierarchy of contributing factors within urban centers of different contexts helps planners, policymakers, and economists focus on strengthening specific parameters (Rijal et al., 2020; Dewan and Yamaguchi 2009b; Bhattarai and Conway 2010), while also assisting the government to invest in the right city with the right development strategies (Duranton, 2016).

1.2. Statements of the Problems

Like any other sub-Saharan country, the urbanization of Ethiopia is characterized by poor planning activities and rapid horizontal urbanization without control. On the other hand, it is the least urbanized region of the world but the fastest-urbanized region, mainly characterized by rural-to-urban migration (Kebbede, 2017; UNDESA, 2018). For instance, the World Bank (2015) estimates that the urbanization level in Ethiopia will reach between 30-35 million (27–30% of the total population) by 2025 and 42.2 million (40% of the total population) by 2037. The urban growth rate is more than 4.0% per year, the highest in Africa and the world (MWUD, 2007). Accordingly, migration takes up a larger portion of the urbanization of Ethiopia (Paul and Emily, 2010; CSA, 2014), where rural-to-urban migration shared 30–37% of urban population growth between 2007–2017 and will reach 38–48% in 2037 (World Bank (Ethiopia Urbanization Review), 2015).

Therefore, in the face of this rapid urbanization, poor planning activities challenge urban urban management even more and result in multiple environmental, social, and economic challenges (Kasa et al., 2011). Indicating that the urban centers developed informally without a planning guide, the planning activities follow the development and expansion direction rather than development following planning and urban expansion in preplanned areas and directions. However, suppose planning, policy, and strategy depend on understanding the contextual characteristics of emerging towns. In that case, it helps guide their development through scientific-based planning output.

In the coming decades, these emerging towns and others with similar characteristics will expect growth in both spatial expansion and urban population. In respect to this, such emerging towns will be expanded spatially towards all the adjacent available lands without selecting lands, expansion sites, or management. However, once the factors pulling more

migrants to those urban centers are identified scientifically, it will help city planners and managers guide the development and expansion along the defined land areas.

On the other hand, the government may plan to invest in those emerging towns, such as in roads and transportation infrastructure, social services, manufacturing, and other development, but those development projects may or may not benefit those towns. But scientifically understanding the parameters contributing to development in such emerging towns will help to manage such developmental activities. Furthermore, such identification will also give power to selected lands for urbanization or sustainable land use zoning for urban development. Therefore, this study used Bishan Guracha, Adadi Mariam, and Ginchi towns as case study emerging towns to study and identify parameters contributing to growth in those emerging towns and to develop alternatives for managing urban growth based on important contextual emerging towns' growth parameters.

1.3. Research Questions

The study was based on the following research questions per the objectives:

1. What does the spatial development trend of those selected emerging towns look like?
2. What are the influencing parameters for the spatial growth of selected towns?
3. How do the factors influence the spatial growth of the selected study towns?
4. What is the advisable alternative for emerging towns' management concerning the characteristics of the towns?

1.4. Objective of the Study

1.4.1. General Objective

The main objective of this study is to identify driving factors for urban spatial growth in emerging towns of Bishan Guracha, Adadi Mariam, and Ginchi and to indicate ways of managing urban growth for the selected towns and others with similar characteristics.

1.4.2. Specific Objectives

The study focused on the following four objectives: to understand the growth-influencing factors in the selected study towns.

1. To describe the spatial development trends of the selected emerging towns
2. To identify the driving parameters of the growth in the selected case study towns.
3. To examine the influence of identified parameters on the spatial growth of the selected towns.
4. To indicate ways of managing the spatial growth of emerging towns based on their characteristics.

1.5. Delimitation (scope) of the Study

1.5.1. The spatial scope

The spatial scope of this study was limited to only the three selected emerging towns, i.e., Bishan Guracha, Adadi Mariam, and Ginchi. The selection of the towns considered the main city growth parameters such as accessibility, sensitivity to political interest, availability of tourism centers in the town, natural resources, and proximity to larger urban centers.

1.5.2. Thematic scope

Even though urban growth factors are due to many parameters such as social, political, economic, geographical, globalization, demographic, technology, and many other factors, this study was only focused on parameters that directly influence the spatial growth of the towns and limited to only thirteen (13) selected parameters by literature review. The study considered the development characteristics but was limited to identifying driving parameters for the spatial growth in those selected three towns. It also examined the influence of those identified driving parameters on the development of the selected towns.

1.5.3. Temporal scope

The data used for land use land cover (LULC) is limited to the satellite images from November 13, 2005, November 20, 2014, and November 29, 2022. The image shows an instant moment at the time of cupturing. Specifically, the November month is sunny, and the sky was clear, so the satellite image was clearly seen with better quality. Hence, the study was limited to the specific image captured on satellite during these days.

1.6. Significance of the study

This study focused on understanding the parameters influencing the growth of emerging towns. This has academic and non-academic significance in different ways. Identifying city growth parameters can offer greater importance to the research community, urban planners, and city developers' stakeholders, as well as decision-maker groups, in terms of understanding why that selected town is growing in a certain direction and what factors are the most important that need improvement for the town's development. Furthermore, it assists the government in terms of which factors of development have to focus more. It helps to minimize investing in the wrong town or towns.

On the other hand, this helps to attain urban growth management through spatial planning, which in turn helps to achieve sustainable development. Further, it also provides the opportunity to understand the trends of changes in built-up areas due to driving variables. Finally, the findings of this study can serve as an initial input for future research directions for interested groups in these areas.

1.7. Limitation of the Study

To conduct this study, the researcher has faced some challenges related to data collection methods and the security condition of the country. Regarding the data collection challenge, the second phase of data collection on each town's identified and ranked growth parameter to address objective three of the study focus group discussion (FGD), which contained six members, was proposed. Members were selected from each town to conduct the discussion. However, it became very difficult to organize all the members because of the absenteeism of the participants. However, later on, the researcher tried another method to save time and complete the study on schedule. Thus, instead of FGD, key informants were proposed, and a detailed interview was conducted on the influence of each identified top-five growth parameters for each town.

The second difficult challenge was the security situation in Adadi Mariam town. This town was locked from transportation service, access, bank service, and telecom network service for more than two months because of security issues in the town and surrounding areas. This challenged conducting interviews with key informants, which was not safe. The only option was to wait and then collect the data as soon as the situation became safe.

1.8. Organization of the Paper

This study paper is divided into five main sections. Accordingly, the first section provides background information on the parameters of city growth and important related insights. The section also contained other subsections such as the research objective, statement of the problems, research question, significance of the study, and limitations of the study. The second chapter deals with reviews of academic discourses that were relevant to this study. The review was focused on factors that drive urbanization. Chapter three presents a brief background on the selected case study towns and the research methods and materials used for this study. The chapter has further sub-sections such as the description of the study area, research design, and methods. Section four was about the results and discussion of the study. The chapter discussed the results and discussion concerning the research questions, the findings of the study, and the findings of other studies. The final section was about the conclusion and recommendation.

CHAPTER TWO : REVIEWS OF THE LITERATURE

2.1. Introduction

The literature review is the basis for this study, particularly for developing methodology. This section of the study focused on a similar study conducted worldwide that gives insight and theoretical frameworks on the issues related to parameters for city growth. Accordingly, the review sections are organized into subsections such as the concept of city growth, factors for city growth, factors affecting city growth (i.e., retarding factors), and city growth in the context of Ethiopia. The identified gaps are included in the reviews as the main sub-sections. The review also started with the definition of some major frequent terms. It ended with a summary of the overall reviews.

2.2. Definition of Terms or Concepts

City Growth: it is the social, cultural, economic, and physical development of cities and the underlying causes of these processes (Duranton, 2013). Urban growth is an increase in the absolute size of an urban population.

City Growth parameters: are the city's driving factors or contributing factors (Li et al. 2018; Rijal et al.2020).

2.3. Theoretical review

Several studies have discussed city growth models with urban growth factors. For instance, Duranton and Puga (2013) discussed urban growth concerning the monocentric city model. Accordingly, they argued that limited transportation, roads, and housing supply retards urban

growth. However, providing better amenities can shift cities' monocentric evolution (development) into several emerging centers or subcenters.

In the same way, Molotch (1976) discussed city models, particularly comparing the city's machine growth theory with the city's development and city models. Accordingly, unlike the natural growth of cities (which are presented with monocentric or sectorial models), ‘city as a machine of growth theory’ argues that urban growth is driven by a coalition of interest groups who all benefit from a city’s continuous growth and expansion. Hence, the growth of cities is a social, political, and largely planned and intended result. Molotch (1976) illustrated this with an example: If a real estate developer is interested in a city, this in turn may involve other interested groups, which leads to urban growth and further benefits other groups' property values. Therefore, geography, transportation, or space are not the only determining factors of social and population distribution in the city but also the interests of social actions or groups.

Generally, the arguments indicated that understanding social or group interests and investing in amenities based on those interests will lead to the city's development.

Furthermore, Kerong and Wei (2013) discussed that, from the perspective of new economic geography and the empirical evidence of the U.S. urban system evolution, how cities develop and grow in a large country shows that city growth follows a sequential pattern in the long run: cities with the highest market potential are the first to grow rapidly. Similarly, a study from a Russian city indicated that cities' size and distribution significantly influence their growth (Kolomak, 2012).

The concept of sequential growth of cities means that, accordingly, cities or regions grow sequentially, such that the largest cities grow faster than the others, second cities grow next, and then third cities grow fourth (Cuberes, 2009, 2011).

2.4. Conceptual review

2.4.1. Concept of City and Growth

Urban growth refers to the process of growth and economic agglomerations. The pattern of concentration of economic activity and its evolution is an important determinant, and in some cases the result, of urbanization, the structure of cities, the organization of economic activity, and national economic growth. The size distribution of cities determines the patterns of urbanization, which results in city growth and city creation. The evolution of cities' size distribution is closely linked to national economic growth (Bullivant, 2012).

The literature witnesses that multi-massive investments lead to the growth of cities. Particularly, developing nations facing rapid urbanization need massive investments to accommodate the population increase in their cities. For instance, in 1900, American cities emphasized their investment in urban water supply systems, which had extremely long-lasting effects (Glaeser, 2011). Glaeser also discussed the case of European and North American cities and concluded that better infrastructure for city development, such as sanitation, had long-lasting public health consequences, and other major urban infrastructure investments, such as roads, schools, etc., have played the best role in their urban centers' growth.

However, according to Duranton (2016), tomorrow's or future's city growth drivers will not be the same as the previous growth factors; also, overinvestment, underinvestment, or investing in the wrong city may be very costly and may not lead to the intended development. Accordingly, Duranton argued that a systematic understanding of city growth drivers would

likely lead to better development results. On the other hand, some studies have indicated that some single or multiple city growth drivers or parameters have a significant effect on overall growth.

City growth parameters such as the characteristics of cities' production structure (Glaeser et al., 1992), human capital (Glaeser and Saiz, 2004), amenities (Rappaport, 2007; Carlino and Saiz, 2008), and roads (Duranton and Turner, 2012) have positive impacts on the development of the city. In summary, city growth can be understood as the spatial expansion of a city and its financial abilities, such as the attraction of multiple businesses or investments, the attraction of different human capital, and labor wages (Duranton and Turner, 2012).

2.4.2. Factors/parameters for city growth

Literature has been using factors, parameters, and phrases such as determinants for city growth in different contexts such as regional, local economic development, and national levels to explain contributing factors for growth. For instance, Li et al. (2018) used both parameters and factors interchangeably to study the growth divergence and convergence of Indian cities. They grouped all influencing factors into thematic categories such as governance and politics, economic growth and markets, social inclusion, geography, infrastructure and employment, and human capital, which they called buckets. Kolomak and Evgeniya (2012) studied factors influencing city growth in the Russian Federation. They categorized the findings as external influencing factors (infrastructure, security) and internal factors (economic, social, infrastructure, human capital, environmental situation) that determine Russian cities' growth.

In the same way, in the US, city parameters such as city population, wage rate, education infrastructure, unemployment, and employment share of manufacturing were identified as

drivers of urban growth (Scheinkman and Shleifer, 1995). Similarly, da Mata et al. (2007) studied Brazilian cities' growth, and Duranton (2016) studied Colombian cities' growth and found that geography, road connectivity, educational attainment, and economic specialization were important drivers of subsequent city growth. Another study by Duranton and Puga (2013) revealed that the agglomeration of economies, human capital, smaller firms, and greater diversity in production are important drivers of city growth.

Other studies in Asia indicated that sociocultural, political, and developmental factors drive urban population growth and city growth (Rimal et al., 2018). Some studies were also focused on a few factors of city development, such as high net migration, natural increase, administrative reclassification (Araya and Cabral, 2010; UNDESAPD, 2018); urban-rural linkages, geography, and local landscape systems (Álvarez-Berríos et al., 2013); greater educational and health institutions, social services, and other facilities (UNDESA, 2014); and non-agricultural economic activities (Pradhan and Perera, 2005).

For instance, in Nepal, migration is the most significant contributor to urban growth (MoUD 2015), with greater economic potential and accessibility to public services. Weak urban development planning and poor institutional arrangements have fostered rampant urban development and the fragmentation of large agricultural areas (Bhattarai and Conway 2010). Rijal et al. (2020) studied the driving factors for urbanization in Nepal. They found that socioeconomic factors made the highest (62%) contribution to urbanization, while political factors (14.5%), physical factors (12%), and planning and policy factors (11.5%) were also influencing factors, respectively. In addition, climate and physiographic features, along with favorable government plans and policies, make the area attractive for urban development.

Contextually, the dynamics of city growth and urban system evolution are attracting more attention in urban geography studies. Cities with the potential for high markets or diversity of

economic exchange have more chances of rapid growth than other cities with fewer market activities. Kerong and Wei (2013), for instance, argued that city growth follows a sequential pattern: cities with the highest market potential are the first to grow rapidly, and only when their growth rates slow down at some point do cities with the second-highest market potential become the fastest-growing ones, and then the third one goes up.

Generally, the underlying elements that trigger urban expansion are usually considered their driving factors (Dewan and Yamaguchi, 2009). These form a complex system of dependencies and impacts at various temporal and spatial levels (Ellis, 2007). Furthermore, Li et al. (2018) studied economic growth divergence and convergence in India and summarized the driving factors of city growth-based literature reviews as follows:

Geography: Accordingly, geography is related to the location of a city, including its climate condition, and has a significant influence on the development of cities (Behrens and Robert Nicoud 2015). Meanwhile, Glaeser (2012) indicated that precipitation, elevation or topographic character, rs, and temperature also impact city growth factors.

Population in-migration (urbanization): these include parameters such as rate of urban boundary redefinition, population size and density, rate of migration, and housing stocks in urban areas (Duranton, 2015, 2016; Rosenthal and Strange, 2004). In addition, parameters related to employment structure and job opportunities, such as labor pooling factors, the shares of self-employment, and wage employment, influence urbanization and inmigration (Glaeser, Scheinkman, and Shleifer, 1995; World Bank, 2012).

Economic and Market Access: This includes measuring parameters such as nearby economic activity weighted by distance or travel time, proximity to large cities, ports, industrial areas, natural resources, and economic facilitating infrastructures such as road

networks (Redding and Venables, 2004). More specifically, economic activities, including the availability of agriculture processing manufacturers, economic diversity, and specialization in production, play a great role in the development of cities (Duranton, 2016; Glaeser et al., 2015; Rosenthal and Strange, 2010).

Infrastructure: Infrastructure plays a central role in the development of cities (Li et al., 2018). Connectivity and accessibility are crucial in cities or regional development (Donaldson, 2018; Glaeser, 2012).

Service and Social Inclusion: equity among all social, cultural identities, and diversity have a positive implication for the city's development (Li et al. 2018). Service may include the hinterlands and social services such as the centers' education, health, and religious and administrative services.

Governance and Politics: The quality of governance and political interest also influences economic policies that strongly affect local growth (Besley and Burgess, 2004).

2.4.3. Factors Affecting City Growth Negatively

The factors negatively affecting the growth of urbanization or locality are always related to planning and governance characteristics. A study by Rijal et al. (2020) in Nepal argued that weak spatial planning and policy were the factors negatively affecting city growth in some regions of Nepal. Similarly, other literature also indicated that weak urban development planning and poor institutional arrangements significantly negatively impact urban development (Bhattarai and Conway, 2010). Like poor institutional setup, poor governance, such as corruption, has a role in reducing the development of an area (Besley and Burgess, 2004).

Rapid population increase is a challenging factor for the urbanization of the developing world, where it has resulted in a wide range of societal, environmental, and economic consequences; in particular, most urban infrastructure and services are inadequate already for the needs of the current population and even more challenging to accommodate future population growth (Turok & Mcgranahan, 2013). The other challenge is that most of these developing urban centers have poorly documented and projected population data. This intern has brought multifaceted problems to city administration regarding housing, the development of informal housing, adequate physical urban infrastructures, and planning problems, which significantly impact the development of cities (Terama et al., 2019).

2.5. Contextual Review

2.5.1. World City Growth

Measurement of urban growth rests on a definition of an urban area, which is not standard throughout the world and differs even within the same country depending upon the nature of local jurisdictions and how they might have changed over time (Mikovits et al., 2014). Accordingly, different variables might be used to define the boundary, such as economic variables (i.e., population, area, employment, and density or output measures), commuting patterns, and density measures. Those are not common or consistent throughout the world.

However, the pattern of world urbanization, the pattern of concentration of economic activity, the structure of cities, the organization of economic activity, and the overall national economic growth are the result of the process of city growth (Bullivant, 2012). The evolution of cities' size distribution is closely linked to national economic growth. These growth processes result from the interdependent economic activities of cities, even though there are still no growth centers in the world (Terama et al., 2019).

Within many countries, urban development attains an almost regional scale through a widening diffusion of the urban phenomenon in space. Again, new means of transport (i.e., including time and types) and the almost ubiquitous communication technology play a decisive role. In general, for the nations that are advanced with technology, it is no longer necessary for all specialized urban functions to be carried out within the closest proximity to one another or for the persons engaged there to reside at very short distances from their places of work (Seto et al., 2012). The specialization in producing world cities has appeared to be successful in both spatial and economic development (Li et al., 2018).

The consequence is an increased geographical sprawl of urbanized regions and a penetration of features of an urban type even beyond them into areas inhabited at no more than rural settlement densities. This horizontal expansion affects industrial activities, housing, economic activities, and various other services that were previously collected in the central business district of a city. The new sub-regional or even regional composites now constitute what are commonly described as metropolitan areas (Kii, 2021). Accordingly, these areas have a strictly urban core, highly urbanized tentacles along major transport arteries, and extensive adjacent areas of lower settlement density. Because of the high frequency of transport and communications to and from the city, the latter areas undergo a profound influence, so that the way of life also meets several of the sociological criteria of urbanism.

In general, future world population projections and growth delineate that world urban areas are centers for accommodating all incoming populations, focusing on essential input policy development and sustainable strategies for the growth of world urban centers (Kii, 2021).

2.5.2. City Growth in Ethiopia

There is a limited literature gap in the Ethiopian context; however, some of the existing literature indicates that the main factor in city growth in Ethiopia is population increase. Accordingly, rural-to-urban population migration is considered a major factor for urban growth dynamics in Ethiopia (Paul & Emily, 2010). In recent times, the proportion of migrants moving from rural to urban areas has been increasing (Bezu & Holden, 2014; Eshetu & Beshir, 2017). According to the World Bank (Ethiopia Urbanization Review) (2015), migration accounted for 30–37% of urban population growth between 2007–2017 and will be 38–48% in 2037. A recent study by Mekuriaw and Gokcekus (2019) in Debere Markos, North Ethiopia, indicated the availability of different infrastructure and its topographic nature, which are the main driving forces for the town's growth.

In general, a population increase in the urban centers of Ethiopia, including a natural increase, is considered the main factor, along with polling factors such as job opportunities, urban infrastructure, service, and the intended life quality in urban areas. These are the assumed factors that cause migration from rural to urban centers.

2.6. Methodological Review

The studies conducted in Nepal, India, Colombia, Brazil, Russia, and others related to this paper used regression models, correlation analysis, factor analysis, and probity estimation to develop urban centers. For instance, Duranton (2016) systematically examines the drivers of population and urban growth in Colombian cities between 1993 and 2010. The study indicated that fertility plays a great role in population growth, and higher wages, education, industry, roads and connectivity, and urban amenities were among the drivers of city growth.

Whereas, Kolomak and Evgeniya (2012) used factor analysis and urban analysis to identify parameters of city growth and found that monthly wages, spatial concentration of industrial enterprises, concentration of mining industry, volume of investments in fixed assets, and number of doctors were found to be influencing. Likewise, Li et al. (2018) studied regional development in India by using regression, correlation, and Bayesian averaging models to identify the divergence and convergence of local regions in the country.

2.7. Summaries of the Literature

This section presents a summary of discussed literature based on cities' growth parameters. The summary is organized in table format, stating the authors, year, and main finding.

Table 2:1. Summaries of Literature

Author and year of publication	country	Main finding	Methods used
Li et al. (2018)	India	They grouped all influencing factors into a thematic, called a 'bucket' such as governance and politics, economic growth and markets, social inclusion, geography, infrastructures and employment, and human capital.	Correlation, regression, and Bayesian model
Kolomak, Evgeniya (2012)	Russia	Categorized the findings as external factors (infrastructure, security) and internal factors (economic, social, infrastructure, human capital, environmental situation)	factor analysis and urban analysis
Rijal et al. (2020)	Nepal	Found socioeconomic, political physical, and, climate and physiographic features. Weak spatial planning and policy were negatively affected.	Regression
Bhattarai and Conway (2010)		Weak urban development planning and poor institutional arrangements	Regression
da Mata et al. (2007)	Brazil	Geography, road connectivity, educational attainment, and economic specialization were drivers of city growth.	Regression
Scheinkman and Shleifer, (1995).	US	population, the rate of wage, education infrastructures, unemployment, and the employment share of manufacturing were drivers of urban growth	-
Duranton and Puga (2013) and Duranton (2016)	Colombia	Agglomeration of economies, human capital, smaller firms, geography, road connectivity, and greater diversity in production are drivers of city growth.	Regression

Source : Computed by the Author: (2023)

CHAPTER THREE : MATERIALS AND METHODS

3.1. Introduction

This section briefly describes the case study towns (i.e., Adadi Mariam, Bishan Guracha, and Ginchi town) with subsections such as the location of the case study towns, selection criteria, and characteristics of their expansion. The research design and methodology adopted to conduct the study, data sources and collection, sampling techniques, and data analysis methods are presented briefly in the chapter, point by point.

3.2. The Research Design

This study followed a cross-sectional design using qualitative and quantitative research approaches to identify driving parameters for urban growth in case-study towns. Qualitative research was conducted through interviews with prominent elders, town administrators, and other residents of each town who knew about the spatial and economic service development of the town and was used as a key informant for detailed interviews about each factor or parameter of growth.

The quantitative approach was based on a survey of residents who stayed there for a long time, municipality workers, and prominent elders to fill out the prepared survey questionnaires. The questionnaires were focused on driving parameters that have so far been recognized as factors of urban growth in the literature, and the identified key informants were asked to rank those city growth parameters.

3.3. Research Methods

The survey is used to quantify the parameters that contributed to the growth of the selected towns. Using the satellite image, spatial growth trends were detected and used as quantitative data to compare with the identified factors through the survey. The survey questionnaires included both closed-ended and open-ended questions. In general, the survey questionnaires contain variables related to the background formation of the town, location and accessibility, facilities and services, background information of key informants, and literature-based parameters for city growth.

The respondent was asked to rank the listed parameters for city growth in their town. The open-ended question was also used to allow the respondent to express any idea that was not included in the survey. The qualitative method was addressed through interviews with the experts and prominent elders who know about the town very well. Accordingly, people who knew about the physical and spatial activities of the selected towns were selected as key informants (i.e., the experts and prominent elders) from each town.

3.4. Study Sites Selection Criteria

The three study towns were selected according to the selection criteria listed in Table 3.1, in addition to accessibility and data collection capability. Accordingly, Bishan Guracha fulfills most of the criteria, while Ginchi and Adadi Mariam fulfill the medium and least criteria, respectively. Hence, the selection criteria were set to address and examine different scenarios so that the study could represent the towns with the highest, medium, and lowest chance for development.

The selection of the emerging towns is based on three main reasons. The criteria were focused on three different towns with different characteristics and factors of city development. Accordingly, the first was to select an emerging town in which political interest and influence are the major factors for development. In line with this, Bishan Guracha, an emerging town near Hawasa City, is the best fit for this study. Furthermore, natural resources, data availability, research time, and the budget that the study might consume are also considered in selecting the town.

In general, a rough assessment by the researcher indicated that there is high political interest, natural resources such as Lake Hawassa, recreational opportunities such as Wando hot springs and tourism, proximity to major cities, transportation access, access to national roads, access to land, low housing values, and topography are the criteria used to select the town.

The second was to select a town with high transportation access and a center of transport hubs for rural hinterlands and major cities. Accordingly, Ginchi town has six transportation outlets, and it is the center of a transport hub for rural hinterlands in the region by connecting Tullubollo-Busa in the south direction, Jeldu, Elfeta, Bake, and Meta Robi woredas in the northern to Zonal town (Ambo), and a national capital (Addis Ababa) city in a western and eastern directions, respectively. In addition, it is a woreda administrative town and market center for the adjacent rural hinterlands that Ginchi fits a criteria to be selected for this study.

The third was to include an emerging town that has no access to national asphalt roads and no active or direct transportation but has some specialty or values its development, such as natural resources, agricultural specialty, or tourism attractions like heritages. As a result, Adadi Mariam is well-known for its rock-hewn church. It has not directly accessed the national road; however, it is connected by unpaved roads extending 12 km from the main roads connecting Addis Ababa to Butajira. As the town is known for its tourist attractions and

high agricultural production such as wheat, teff, and beans, it fits the criteria to select for this study.

Table 3:1 The characteristics of the selected emerging towns

Characteristics of the towns	**Selected towns**		
	Bishan Guracha	Ginchi	Adadi Mariam
Proximity to larger towns	√	X	X
Availability of natural resource	√	X	X
Recreational values	√	X	X
Tourism	√	X	√
Political influence	√	X	X
Transportation access	√	√	X
Through national road	√	√	X
Low housing rent values	√	√	√
Access to land for housing	√	X	X
Administrative services	√	√	X
Education service up preparatory school	√	√	√
Education service (TVET and colleges)	X	√	X
Markets service for hinterlands	√	√	√
High transportation linkage(transportation hub)	X	√	X
Linking more than four rural woredas' town	X	√	X
High agricultural productions	√	√	√
Availability of data	√	√	√

Source : Computed by the Author : (2023)

'√' is the town has the character, while 'x' is the town does not have the character

3.5. Description of the Study Towns

This study was based on the three selected emerging towns (i.e., Bishan Guracha, Adadi Mariam, and Ginchi) with different contextual characteristics regarding accessibility, political interest, natural resources, and proximity to larger urban centers.

The selected towns are spatially located in different directions from the capital city of Addis Ababa. Accordingly, Adadi Mariam is a small town about 65 km southwest of Addis Ababa,

in Leman Woreda. Southwest Showa Zone of Oromia Regional State. It is located in the Southwest Shoa Zone, specifically at 8o 37′ 58.48″N and 38o 29′ 57.78″E. It does not directly access national roads; however, it is connected by unpaved roads extended 12 km from the main roads from Addis Ababa to Butajira.

Bishan Guracha is an emerging town on the verge of Hawassa town, sharing the same boundary in the northern direction of the city, about 16 km away from other bigger urban centers in Sheshemanne (Figure 1.1). The town is located between Shashemene and Hawassa towns in Oromia Regional State and Sidama Regional State, respectively. The town is also situated on a flat landform mainly suitable for agricultural activities and bounded by Hawasa (Habas) Lake on the western and black river and Hawassa on the southern direction.

Ginchi is also an emerging town located in the western part of Addis Ababa, about 80 km away on the roads from Addis Ababa to Ambo. Specifically, the town is located at 9o 01′ 48.27″N and 38o 08′ 51.80″E. It serves as a transportation hub connecting different rural centers and other small towns to a zonal town (Ambo) and the national capital (Addis Ababa) city. Accordingly, it is connected and used to transport rural areas of Alfeta and Bake in the north direction in the same way as Jeldu woreda and Meta woreda again in the north direction. In the southern direction, the town is directly connected to Busa, Tullubolo, and the Dandi areas. In the western direction, it’s found within a short distance from Ambo and Addis Ababa in the eastern direction.

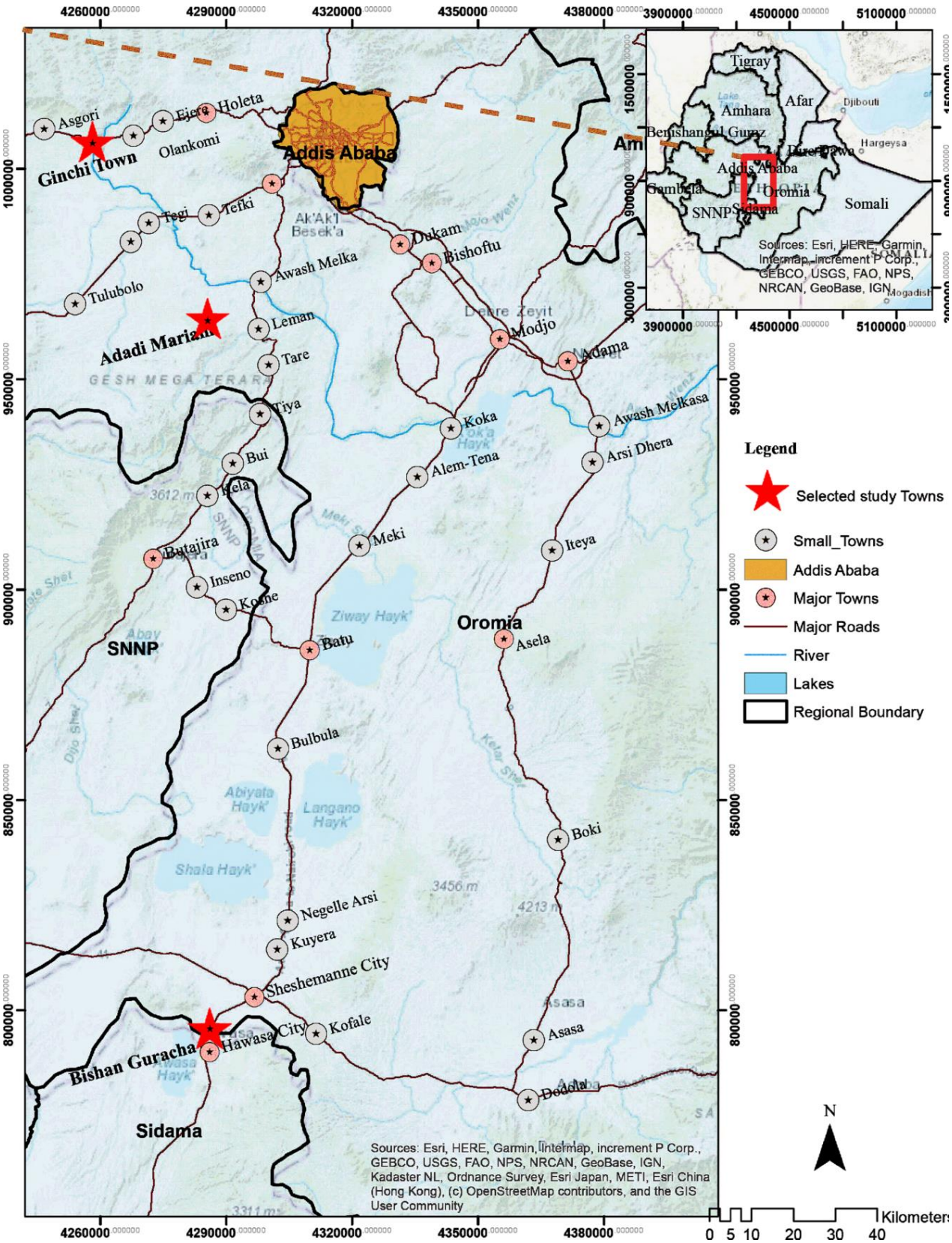

Figure 3:1: Location maps of the selected study towns
Source: Computed by the Author : (2023)

3.6. Data Variables

Dependent Variable: The response variable for this study was the 13 parameters identified for the respondents to be ranked from 1 to 13. The variables are the availability of job opportunities in the study towns, proximity of the towns to industry areas, political decisions and influences, existence of tourism attraction centers, land topography and climate conditions, specialty in agricultural production, land and house rent values, proximity to the major towns or cities, establishment of new educational services, administrative service for hinterland, location on the main road, market service for hinterlands, and transportation access from/to study towns to the other towns.

Independent Variables: The study's independent variables are classified into two categories. The first one is all about Background Information of the City; such as Year of foundation, Distance from the major city, Distance from the national road, Number of proximity towns, Surrounding agricultural products, Climate and soil character, Topography of the town and surroundings, Numbers of access roads to the city, Transportation types, Frequency of transportation services per day to the town, Services of the town, Administrative service, Social service provision for the hinterland, Hinterland markets service, Structures of the town, Population change rate, The Main top four type of jobs available in the town, Number of jobs created/rate of creation per year, Types and numbers of education service, Types and numbers of religious service, Numbers of language speaking, Type of intra-transport and numbers of routes, Types of Pavements in the urban centers, and Types of dominant business activities. Those Variables have been collected from government offices as background data.

Independent Variables: The study's independent variables are classified into two categories. The first one is all about background information about the city, such as the year of foundation, distance from the major city, distance from the national road, number of

proximity towns, surrounding agricultural products, Climate and soil character, topography of the town and surroundings, Number of access roads to the city, transportation types, frequency of transportation services per day to the town, services of the town, Administrative service, social service provision for the hinterland, Hinterland Markets Service, Structures of the town, population change rate, the top four types of jobs available in the town, number of jobs created/rate of creation per year, Types and numbers of education services, types and numbers of religious services, Numbers of languages spoken, types of intra-transport and numbers of routes, types of pavements in urban centers, and types of dominant business activities. Those variables have been collected from government offices as background data.

The second one focused on the background of the respondents for the questioners and was mainly used to describe the characteristics of the respondents. These include the gender of the respondents, Age of the respondents, how long they stay in this town, Level of Education, Occupation

3.7. Data Types and Sources

Both primary and secondary data were used for this study. The primary data were collected through survey questionnaires, interviews, and observation. The primary data collection has passed through two phases, as described in the next subtopic. Secondary data were collected from reviews of the literature to formulate variables of study (i.e., parameters influencing city growth). Some secondary data, such as population data and other socioeconomic profiles of the city, were collected.

In addition, satellite images were used in all case study towns as secondary data to identify the development trends of the towns and to understand the spatial growth characteristics and

direction of horizontal expansions. The detection periods were determined based on the clear differences and changes in spatial expansion trends in previous years.

3.8. Data Collection Methods

The data collection method for this study was designed to collect the data in two phases to address all the research objectives.

3.8.1. First Phase Data Collection

The first and second objectives of the study were addressed during the first phase of the data collection period. However, the third objective of this study, which was about the influence of identified city growth parameters on the development of each town, needs two rounds of data collection based on the results. Hence, collecting data and identifying those parameters was mandatory before conducting detailed interviews of those identified top-five parameters (i.e., first phase data collection).

Accordingly, during the first round of data collection, the data was collected to address the present study objectives one and two. For the first objective, satellite images from 2005, 2014, and 2022 were downloaded for each town, and on-site variation and observation were also conducted along with questionnaire distribution and surveying in each town. The researcher planned to start to analyze the development trend from 2000, but satellite images during this time were not clear, which is challenging for analysis in Ginchi and Adadi Mariam. On the other hand, there were no significant spatial development changes between 2000 and 2005; hence, starting from one of these detection times does not affect the result or output of the study.

During the second phase of data collection, questionnaires were distributed to each town to answer research question number two of this study. The process and steps of surveying residents were explained in the sampling section of this chapter.

3.8.2. Second Phase Data Collection

This data collection stage started after the data collected during the first round was analyzed, interpreted, and reported. Once the top five parameters that influenced the development of each study town were identified, this second data collection stage was started in October 2022. The second round of data collection was planned through focus group discussions (FDG). However, because of absences and the challenges of selected members of FGD, the method was shifted to key informant interviews consisting of prominent elders, experts, and residents who know the town well, who stayed for a long time in the town, and members from city administrators included in key informants' interviews.

3.9. Sampling Design

3.9.1. Sample Population

The study's target population was the residents of the study towns who know the spatial development history of the town and those who can understand and identify the effect of the growth factors on the corresponding town's spatial development. Specifically, the residents who lived in that specific town for a long time, older people, municipality workers, planning-related professionals, and prominent elders are the targeted population to provide relevant data for the study.

3.9.2. Sample Size Determination

The sample size was determined in consideration of two major conditions. The first was the capability of the researcher to collect data from all three towns according to the scope and objectives of the study. This included the financial limitations, the research time schedule, and the complexity of the data collection process for all three towns. The second condition was the demographic comparison and suitability of the respondents to give the data and information planned by the researcher from all the towns.

Accordingly, the researcher decided to collect 120 questionnaires from Ginchi town in consideration of the town's wideness and convenience for data collection. While 100 questionnaires for both Bishan Guracha and Adadi Mariam town considering the town's scale and distance from the researcher's center of residence.

3.9.3. Sampling and Sampling Technique

Non-probability sampling methods were followed for this study, both for the study town selection and for residents who participated in survey questionnaires. Accordingly, using criteria, the towns were selected conveniently (refer also to Table 3.1).

Concerning identifying residents who participated in the survey questionnaires, snowball sampling methods were used to identify key informants, or those who know about the development history, spatial development direction, factors or reasons for change, and developments of each town. Accordingly, the researcher selected first some respondents who knew the area and town very well and then used their recommendations to ask other residents until enough information was collected from each town.

Accordingly, in June 2022, 120 questionnaires were planned to be collected and distributed for Ginchi town, 100 questionnaires for Bishan Guracha town, and lastly, in September 2022, 100 questionnaires were planned and distributed for Adadi Mariam town. However, upon actual collection, only 97 were returned from Ginchi, 82 for Bishan Guracha, and 65 for Adadi Mariam.

3.10. Methods of Data Analysis

For the analysis of the collected data, quantitative and qualitative methods were used as per the data and research questions, as also described in detail as follows:.

3.10.1. Quantitative Data Analysis

Quantitative analysis, i.e., measuring central tendency (i.e., mean, mode, or frequencies), was used to characterize the data, especially to explain the characteristics of the responses. In addition, descriptions of maps and graphs were illustrated using this method to answer the research questions of this study.

In general, description methods were applied to quantitative data collected through survey questionnaires. Requency was widely used for variables indicating the characteristics of the respondents. To rank parameters of city growth for the study town, a formula was used to calculate and rank those variables of city developments.

Accordingly, the rate of each parameter was organized and counted using Excel per town to find the total score of each city's growth parameter. Thus, the total parameter score was calculated based on the number of rates as indicated in the formula. The number rates are multiplied by the order number or rank number, where the parameters rated on the first rank

are multiplied by 10 order numbers (i.e., by considering 10/10), and the one rated at the end is multiplied by 1.

$Ya= (Nr\__i) R_1 +(Nr\__i) R_2 +(Nr\_i) R_3 +…….(Nr\_i) R_n……..……..(1)$

And $R=10-(i-1)$ -…… (2)

Source: Developed by the Author: (2023)

Where Y_a is the parameters of the city growth of the three towns i.e. Y presented the 13 parameters of growth such as political decision and inference, land, and housing rent value, the existence of tourist attraction centers, proximity to the industrial area, proximity to the major town/s, because of its location on the main roads, transportation access from the town to other areas, specialty in agricultural production, its administrative service for hinterlands, its market service for the hinterlands, because of new educational services, land topographic and climate condition and job opportunity in the town, where 'a' presented the three study town i.e. Ginchi, Bishan Guracha, and Adadi Mariam.

Nr……..is the number of rates at the given order or rank (i),

'i' …is the order number or rank from one to ten listed as on the 1^{st}, 2^{nd},3^{rd}…..and 10^{th}

R…….is the rank values difference i.e. ranged 1 to 10 or 10/10 to 1/10, where 10 or 10/10 is for the first rank and 1/10 or 1 is for the last rank with the lowest rank values out of ten.

3.10.2. Qualitative Data Analysis

Qualitative data was believed to be close-ended to triangulate survey data collected by close-ended questions with their responses to open-ended questions for the survey questionnaires, as well as the interviews of key informants. For the analysis of qualitative data, the responses

were grouped and coded according to their concern into themes and subthemes for the results of open-ended survey questions.

The themes identified were also analyzed along with the results of close-ended questionnaires of the ranked parameters of city growth based on the relationships of their concern to specific parameters of emerging city growth.

The qualitative data collected from key informants was organized on each of the top five identified parameters of growth for each town and discussed in order according to the questions and concerns about the development of each parameter. Since there were similarities in the interview responses' ideas, one of the best answers was selected and discussed in the results under research objective number three of this study.

3.10.3. Emerging City Expansion Detection and Analyzing

Accordingly, three periods of detection (i.e., 2005, 2014, and 2022) were determined based on a clear difference between the development trends of the towns. The image before 2005 of some selected study towns was not clear and covered by clouds; as a result, the time selection started in 2005.

On the other hand, there was no significant difference in the spatial expansion of each town between 2000 and 2005; hence, using the 2005 image is nearly the same in terms of spatial development. The detection periods have eight-year intervals, i.e., from 2005–2014 and 2014–2022, there are eight-year differences.

Accordingly, the current boundary of each study town overlapped with Google Earth Pro Online, and the satellite images of 2005, 2014, and 2022 were carefully downloaded. All the images downloaded were geo-referenced by using an XML file for location and a GIS

application. Once again, the georeferenced images were mosaicked to minimize the image to one raster to process the data easily and remove and clip other unnecessary data from the georeferenced images.

The GIS application of raster data and a spatial analysis image classification model were used. Thus, a supervised raster image classification tool with a maximum likelihood of raster data detection and signature methods was applied for all of 2005, 2014, and 2022, the selected periods' mosaicked satellite images, to classify and detect urban land use and other land cover change in each of the selected emerging towns over the last 20 years.

3.11. Ethical Considerations

In this research, ethical issues were considered using different techniques. The first was that the data collectors informed the participants of the study about the aim of the study and that they should only participate in the study based on their willingness. Even after starting the interview or filling out the questionnaire, participants could be told it's their right to escape questions they don't know what to answer or quit participation. Confidentiality was assured by using pseudonyms or by coding the questionnaires.

This allowed the ethical consideration issues stated by Jenny and Karsten (2018): "The participants must provide explicit, active, signed consent to taking part in the research, including understanding their rights to access their information and the right to withdraw at any point."

CHAPTER FOUR : RESULTS AND DISCUSSION

4.1. Introduction

This chapter is briefly organized into two main sections, i.e., the results of the collected data and the discussion of the results. The result section has a sub-section, such as the description of the respondents in terms of their socio-economic status, which is relevant to this study, and their characteristics of know-how about the respective towns. The qualitative coded data, spatial growth trends of each town over the last 20 years, and parameters that have been determining the growth of each town and the ranks of parameters are also other sub-sections of the results.

For the discussion section, those results are organized and discussed briefly to know how the top five selected parameters affect the spatial growth of the town based on the respondent's specific perception of the changes happening to the corresponding towns in their time of presence in the town.

4.2. The Results

4.2.1. Description of the Respondents

This description section has two parts, i.e., about the socio-demographics and economic characteristics of the respondents. The others are about their level of knowledge of the respective study towns, the reason to know, and their understanding and perception of the development and expansion of the towns. All the variables described in this sub-section are used as independent variables.

4.2.1.1. The Socio-Demographic Characteristics of the Respondents

In general, about 320 questionnaires were distributed to study towns; however, only 220 questionnaires were found to be valid and properly filled out by residents who knew the town well. The valid numbers of questionnaires properly attempted or samples (N) per study town are indicated in each result presentation and discussion (Table 4.1).

Accordingly, out of 220 samples, 80 were from Ginchi town, and 75 and 65 were from Bishan Guracha and Adadi Mariam, respectively. Out of 80 participants in Ginchi, 46.3% were males, and 64% of samples in Bishan Guracha were males, while for Adadi Mariam, about 52.8% were males, and the remaining percentage was female participants for the towns (Table 4.1).

53.8% of the participants' ages fall between 31 and 41, and 18.5% fall between 41 and 50 in Ginchi. However, about 41.3% of participants in Bishan Guracha are less than 30 years old, while about 73.8% of participants in Adadi Mariam are above 30 years old (Table 4.1). About 80% of the surveyed samples had at least stayed for more than 10 years in Ginchi, while about 76.7% and 73.1% of the surveyed samples stayed for more than 10 years and knew well about the towns of Bishan Guracha and Adadi Mariam, respectively. These indicated that most of the participants can judge and explain the trends of each respective town's developments and expansion.

Regarding the occupation characteristics of the respondents, 44.6% were unemployed and daily laborers in Adadi Mariam, while 23.1% were farmers. In Bishan Guracha, 78.7% were government workers, and 13.3% were unemployed. Similarly, 48.8% of the respondents in Ginchi town were government workers, mainly municipality workers, and 30% were farmers.

When their level of education is concerned for Adadi Mariam, 29.2% were illiterate and 27.7% completed preparatory classes. In Bishan Guracha, 69.3% of the respondents attended the TVET program, and 13.3% completed their first degree. The levels of education in Ginchi town's respondents included 51.3% of 1st degree holders and 15% of master's degree holders.

Table 4:1 Characteristics of the respondents in terms of their socio-demographics

Variables	**Categories**	**Ginchi (N=80)** in %	**Bishan Guracha (N=75)** in %	**Adadi Mariam (N=65)** in %
Gender	Male	46.3	64	52.8
	Female	53.7	36	47.2
Age	below 30 years	17.8	41.3	26.2
	31-40	53.8	26.7	26.2
	41-50	18.5	22.7	30.8
	51-60	6.3	6.7	12.3
	61-70	3.8	2.7	1.5
	above 70 years	0	0	3.1
How long did you stay in this town?	less than 10 years	20	13.3	16.9
	10-15 years	41.3	26.7	9.2
	16-20 years	27.5	40	23.1
	21-25 years	6.3	2.7	24.6
	26-30 years	5	1.3	13.8
Level of Educations	Illiterate	7.5	2.7	29.2
	Elementary (1-8)	3.8	10.7	10.8
	secondary school (9-10)	5	1.3	20
	preparatory school (11-12)	3.8	2.7	27.7
	TVET	13.8	69.3	3.1
	1st degree	51.3	13.3	9.2
	2nd degree and above	15	0	0
Occupation	Farming	30	1.3	23.1
	Daily laborer	15	5.3	18.5
	Government (in municipal)	48.8	78.7	10.8
	Unemployed	6.3	13.3	44.6
	Others	0	1.3	3.1

Source : Computed from questioners by the Author : (2023)

4.2.1.2. Characteristics of Respondents about Knowledge of the Study Towns

In addition to socio-demographic characteristics, variables that can depict the character of respondents in terms of know-how about the respective studies were included in the study questionnaires. Thus, the level of knowledge about the development and expansion of the town, how the respondents could know the development and spatial expansion of the town, and how they evaluated the recent development of the corresponding town were the variables used to know the level of participants' judgment on the spatial development of the respective study towns (Figure 4.1).

Accordingly, about 62.5% of respondents said they “knew” about spatial development trends in Ginchi very well, while 26.3% of them replied “knew well” (Figure 4.1). In Bishan Guracha, about 33.3% know the development very well, and 64% replied, “Know well." Likewise, about 66.2% of the surveyed samples in Adadi Mariam said they knew the development and spatial expansion of the town very well, while 23.1% of them replied that they knew it well.

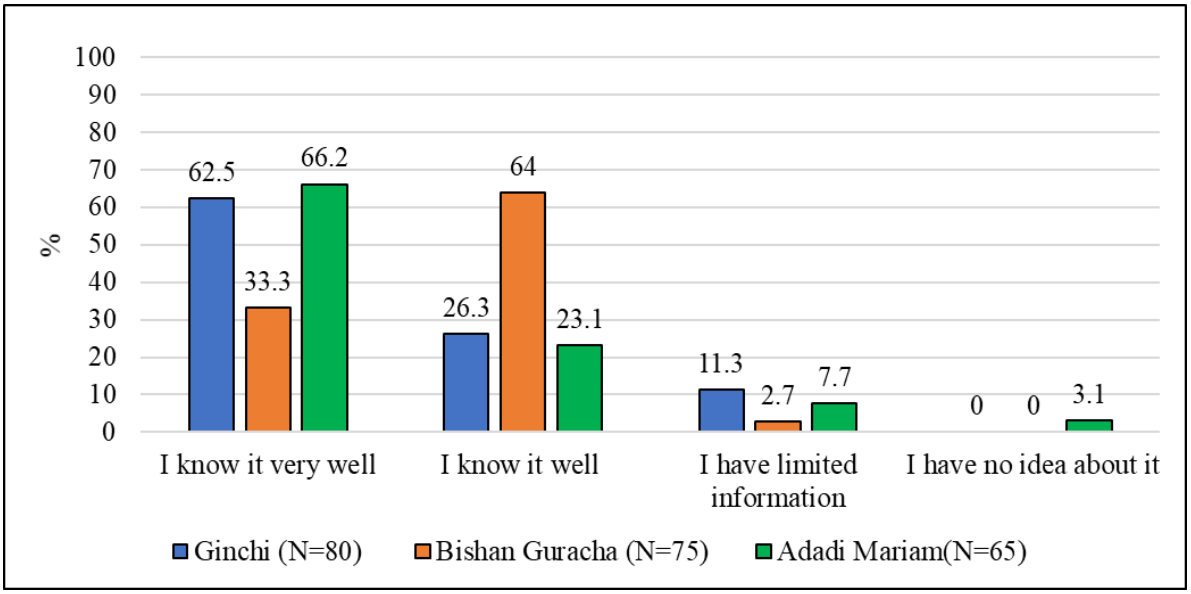

Figure 4:1: Respondents level of know-how about the spatial development trends of the towns
Source: Computed by the Author: (2023)

Those who answered “know very well” are those who know the town's detailed history of development, including the specific effect of the parameters on spatial growth, and those who answered “know well” are those who have basic knowledge about the causes and reasons for corresponding towns’ spatial growth factors.

Regarding how those participants can know the development and spatial expansion of each town, In Ginchi, 44.9% of the participants said that they were able to know the development trends of the town because they were born and raised there, while 43.6% said it’s because they stayed in the town for a long period of time. Similarly, in Bishan Guracha town, 29.3% of participants stated they were able to know the spatial development trend because they were born and raised there, and 49.3% said it’s because they work in the municipality (Figure 4.2). In Adadi Mariam, about 70.8% of the participants were able to know the spatial development because they were born and grew up in that town.

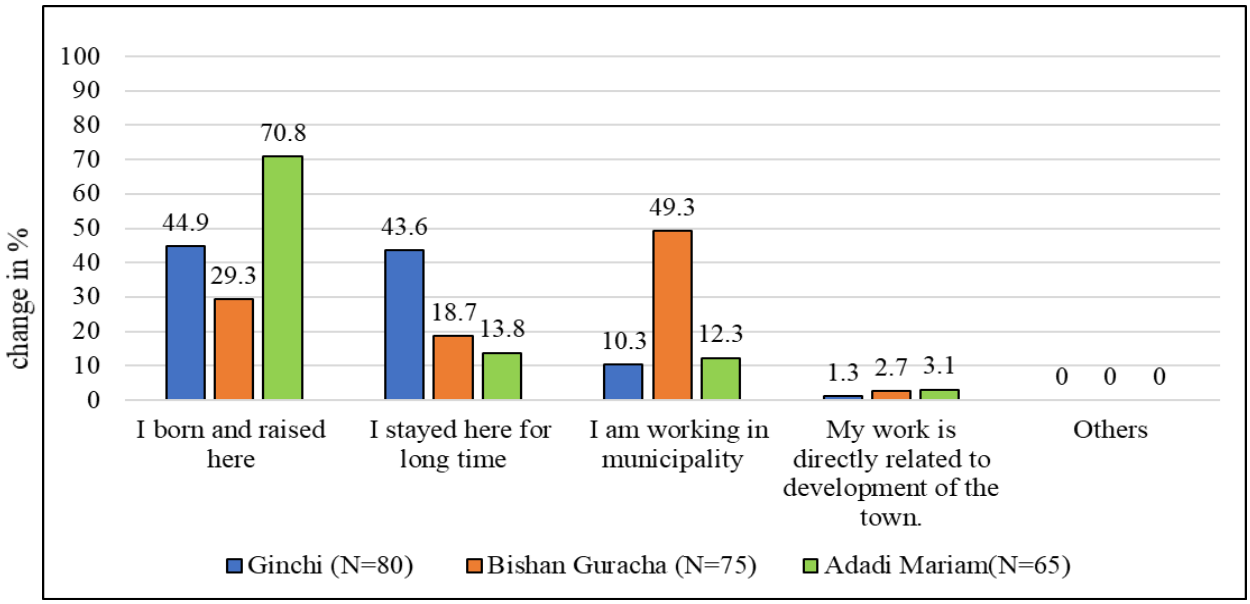

Figure 4:2: How able the respondent know the spatial development trends of the towns
Source: Computed by the Author: (2023)

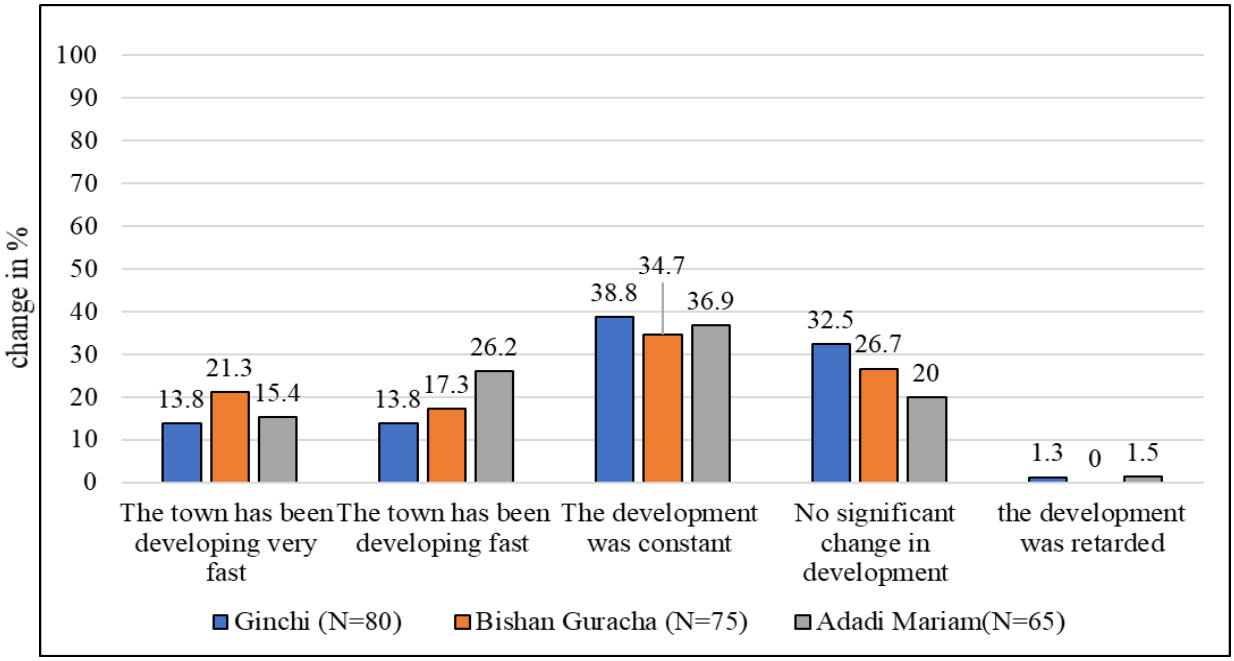

Figure 4:3: Respondents' evaluation of the spatial development of study towns in percent
Source: Computed by the Author: (2023)

The spatial development of the towns was asked of the participants, and the findings indicated that 38.8% said the town stayed constant in spatial growth for Ginchi town, while 32.5% evaluated no significant change in the spatial development of the town (Figure 4.3). In the same way, for Bishan Guracha town, 34.7% of the participants' recent development evaluation fell under constant spatial development, and 26.7% replied there was no significant change.

4.2.2. The Spatial Development Trends of the Selected Emerging Towns

The satellite images were the main data sources used to detect the spatial development of those study towns and to describe the spatial development trends of the towns. The GIS application of raster data and a spatial analysis image classification model were used. Thus, a supervised raster image classification tool with a maximum likelihood of raster data detection and signature methods was applied for all 2005, 2014, and 2022 selected periods to classify and detect urban land use change in each study town.

4.2.2.1. The Spatial Development Trends of Adadi Mariam Town

Adadi Mariam is a small emerging town mainly known for its historical values due to the last rock-hewn church out of the 12th church built by King Lalibela. As a result, the settlement served as a center for weekly markets and religion for a long time and eventually developed into a town.

The town is about 12 km away in the western direction from the main road from Addis Ababa-Butajira-Hosanna-Worabe-Arba Minch. According to the town's administration data, the town got urban status in 2014, and the first basic plan was developed by the Oromia Urban Planning Institute in 2015.

In general, the town has shown non-progressive spatial development as indicated by satellite image detection over the last 20 years for this study (Figures 4.4 and 4.5). Accordingly, the 2005 Adadi Mariam urban spatial development showed that only the area around the main road and the center was urbanized (Figure 4.4 a). As indicated in the figures, the land covered by the building was only 4.4% of the total area. After 8 years in 2014, the land covered by buildings became 14.1%, showing that the spatial urbanization of the town increased more than three times compared to 2005 (Figures 4.4b and 4.5).

The current spatial development phase also showed a significant change in spatial expansion (horizontal development) and inward expansion, or an increase in housing density. The urban area has grown to 20.3% of the total town's boundary. In general, the satellite image detection results in the last 20 years showed that the town has been expanding faster from 2005 to 2014 than compared to the current one (Figures 4.4 and 4.5).

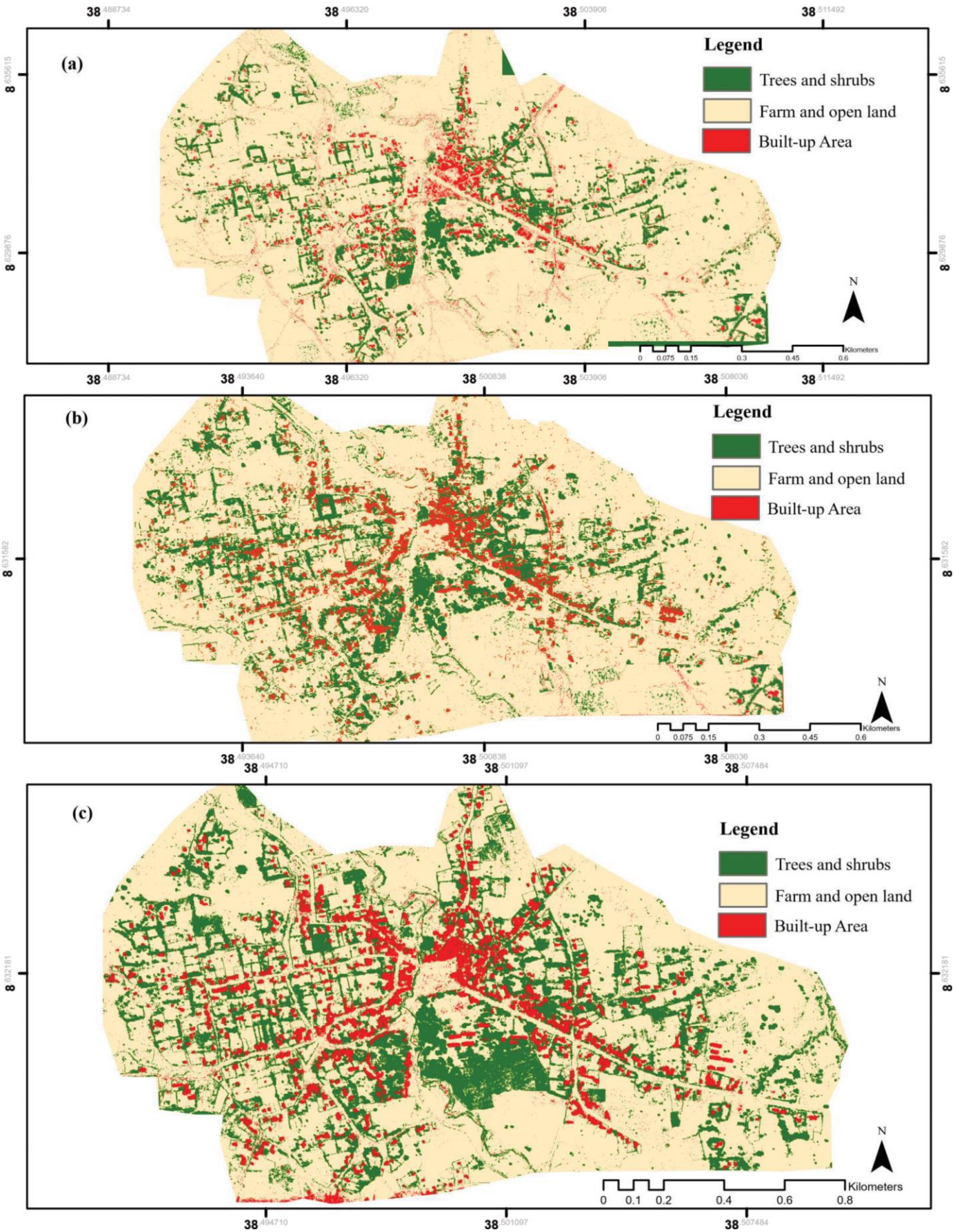

Figure 4:4: Adadi Mariam town's urban spatial development over the last 20 years; 2005(a), 2014(b), and 2022(c)

Source: Computed by the Author: (2023)

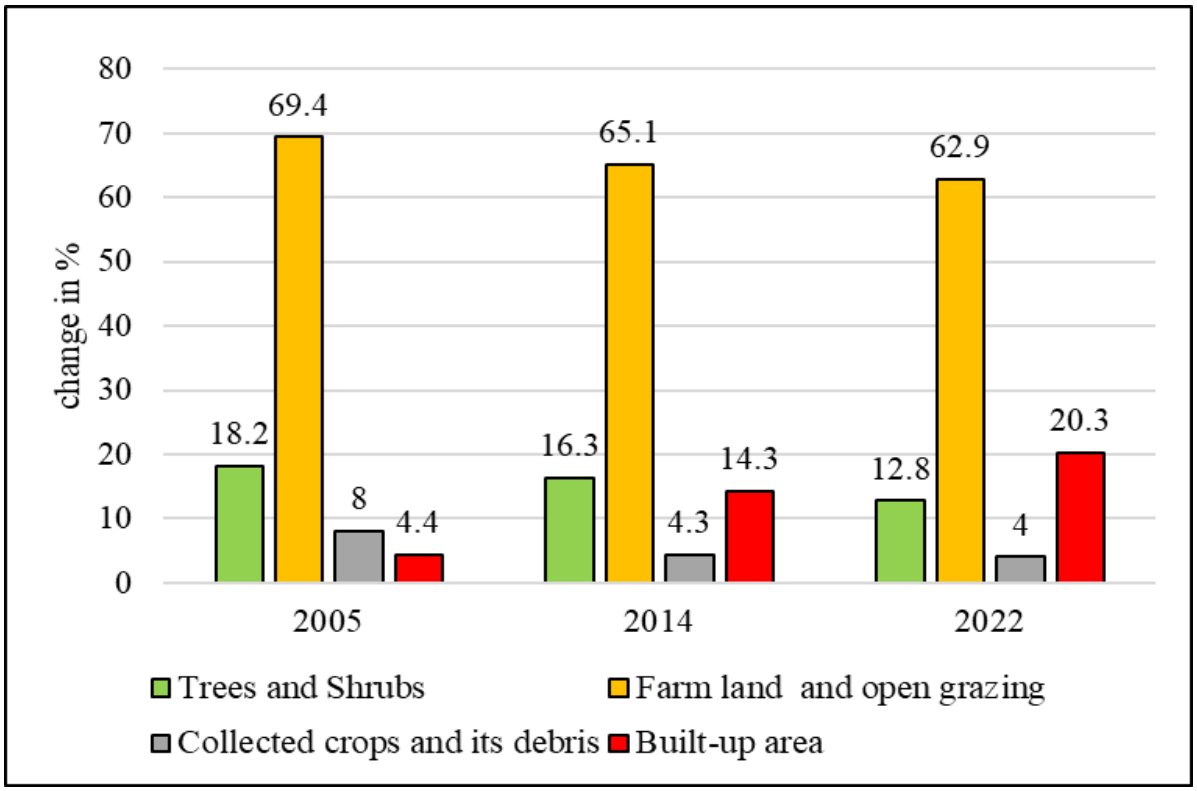

Figure 4:5: Adadi Mariam town land use changes and urban spatial growth in percentage
Source: Computed by the Author: (2023)

4.2.2.2. The Spatial Development Trends of Bishan Guracha Town

Bishan Guracha town has a special political interest due to its location and economic interest, and thus has administrative equal status with some major towns such as Sheshemene, Adama Bishoftu, Sebeta, and others. As a result, the town has shown significant spatial development over the past few years, mainly after it gained political interest mostly after 2016 and onwards, as verified by the results of the satellite image detection (Figures 4.6, 4.7, b, and c).

Furthermore, the town is accessible to tourist places such as Wondo Host Springs on the eastern side, Cheleleki Wet Lands on the south-eastern side, Lake Hawasa (Habas) on the western side, and Senkelle National Park on the western side. The town is physically directly linked with Hawassa airport, Tula town, and other rural centers in the Sidama region and Oromia.

As indicated by the land use cover change and urbanization level detection results of 2005,

the built-up land use, or the land areas of the town that were covered by housing, were only 1.6% of total land urbanized by that time (Figures 4.6 and 4.7 a). However, after 8 years in 2014, the urban land use of Bishan Guracha increased from 1.6% that was in 2005 to 3.6%, showing doubled spatial urban expansion. Currently, both spatial urban expansion and housing density have increased dynamically compared to 2014. The urbanization of the town has increased more than four times as much as it did in 2014. Accordingly, 12% of land coverage was recorded in 2022, while land uses like farmland and open grazing areas decreased from that in 2014 (82.7%) to 60.5% in 2022 (Figure 4.6, Figure 4.7c).

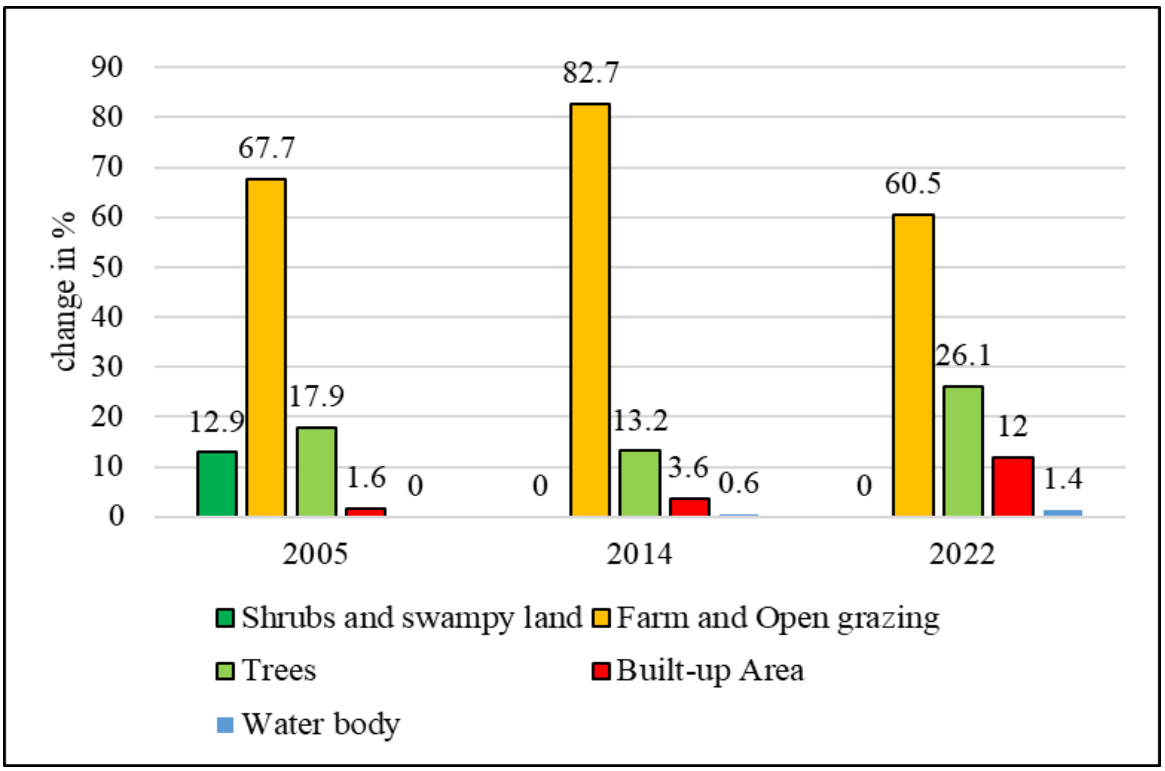

Figure 4:6: Bishan Guracha town land use chnges and spatial growth in percentage
Source: Computed by the Author: (2023)

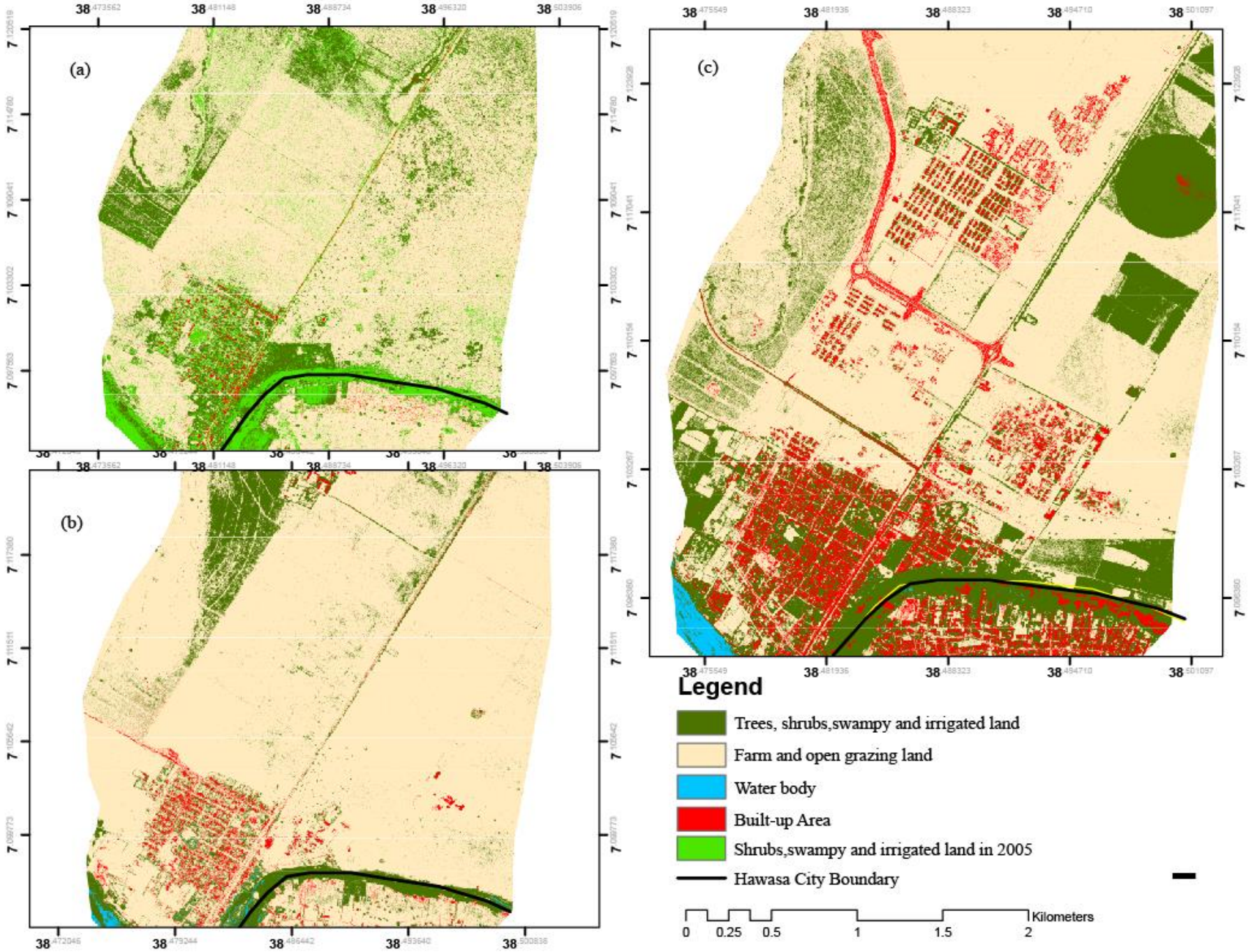

Figure 4:7: Bishan Guracha Town's urban spatial development over the last 20 years; 2005(a), 2014(b), and 2022(c)

Source: Computed by the Author: (2023)

4.2.2.3. The Spatial Development Trends of Ginchi Town

Ginchi town is special because of its direct connection with different rural woredas such as Jeldu, Shukute, and Elfeta in the northern direction and Dandi, Wonchi, and Busa in the southern direction that passes through the town to access both the capital city, Addis Ababa, and the capitals of the zone, Ambo Town. Compared to another town on the corridor with similar status, Ginchi has benefited from this spatial connection to other hinterlands and transportation services. As a result, over the last 20 years, the town has shown significant spatial growth and development, as indicated by satellite image detection (Figure 4.9).

The interpretation of the image detection was based on the areas of the town calculated using a GIS application to quantify the change in percentages. Accordingly, in 2005, the urban land use and areas that were covered by built-up area were only 32.09 hectares, which means only 4% in proportion and a relatively low density of housing that was mainly confined around the main roads to Addis Ababa (eastern and western directions from the centers of the town) and the secondary roads that run south and north directions from the center of the town (Figure 4.9).

The built-up area in 2005 was only 32.09 hectares (4%) and the other 5.7% were roads, quarry sites, and others from the total area of 802.59 hectares of town, while the left 724.9 hectares (90.3%) were farmlands, open grazing lands, and lands that were covered by shrubs and trees (Figure 4.8). However, the 2014 satellite image detection results indicated that urban built-up land increased from the 4% it was in 2005 to 8.7% in 2014, showing that urban built-up land doubled in 8 years over the period 2005–2014 (Figures 4.8 and 4.9).

In contrast, farmland and open grazing land decreased from 65.6% in 2005 to 55.1% in 2014 and 50% in 2022. Green areas like trees and shrubs have also decreased over time due to the

built-up environmental increments. As a result, the number of trees and shrubs planted in 2005 was 24.7%, and in 2005, it was 24.7%, while this figure fell to 23.9% in 2014 and 18.3% in 2022. Road infrastructure and quarry sites also increased from 5.7% in 2005 to 12.3% in 2005 to 12.3% in 2014, and this figure increased to 13.6% in 2022.

In general, the detection results over the last 20 years indicated that Ginchi town's spatial urban growth increased more than four times that it did before 2005. The spatial development was characterized by densifying existing urban land use areas and horizontal expansion by following the major access road towards major cities and other roads that connect the woreda and hinterlands.

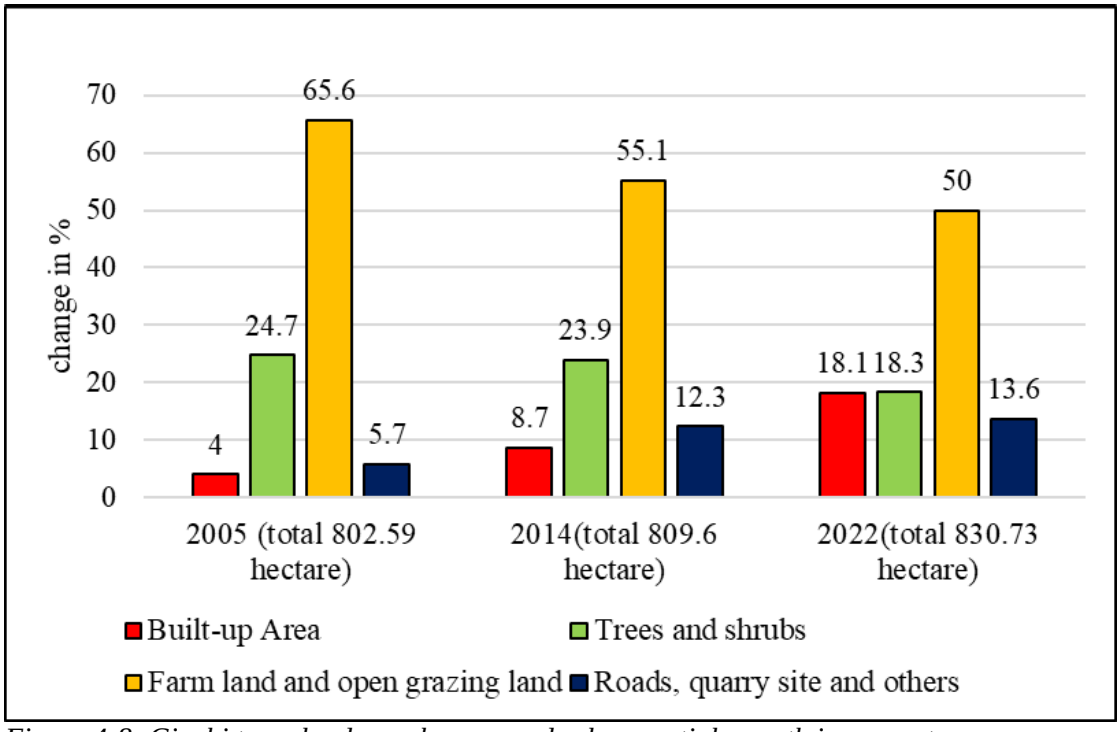

Figure 4:8: Ginchi town land use changes and urban spatial growth in percentage.
Source: Computed by the Author: (2023)

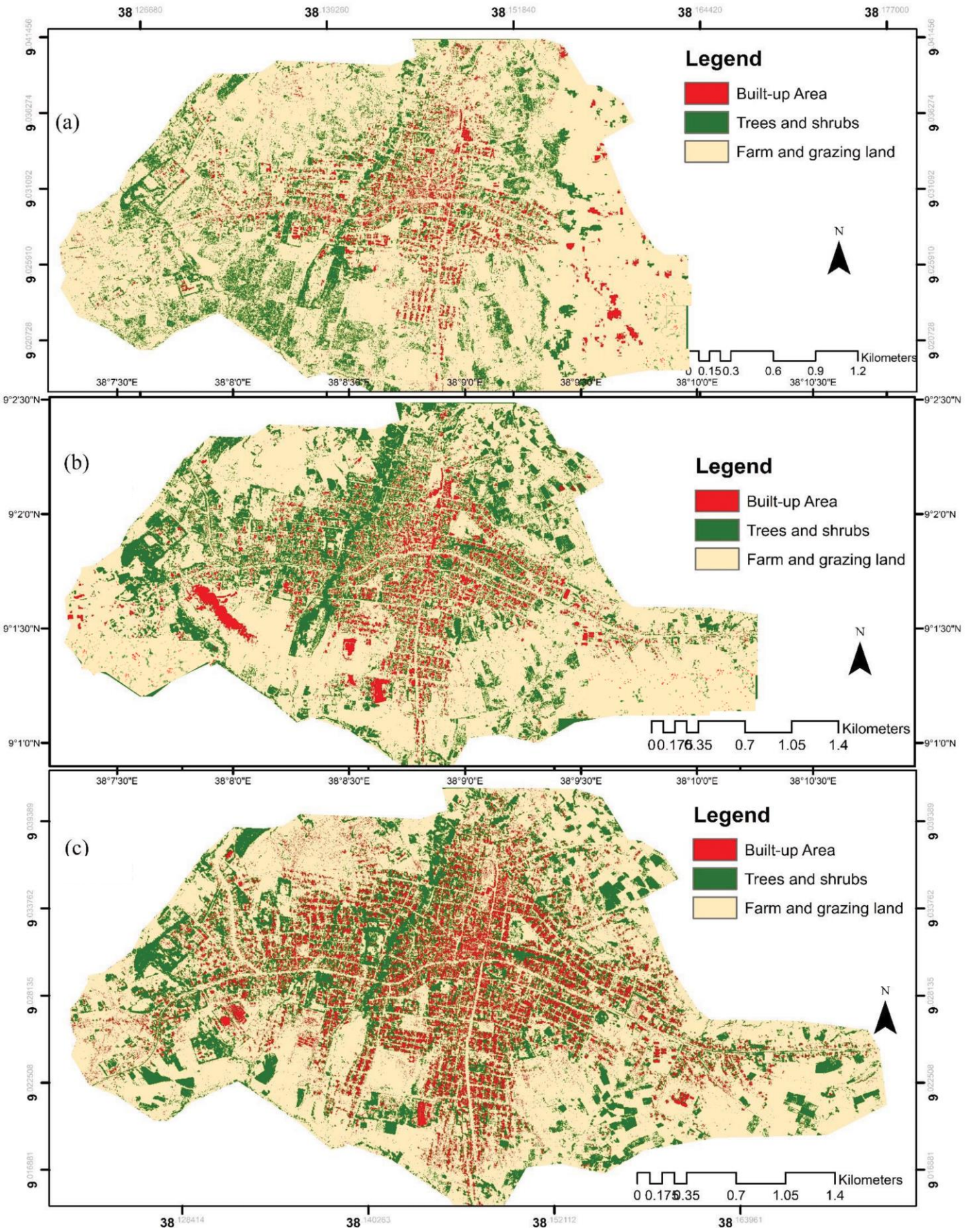

Figure 4:9 : Ginchi Town's urban spatial development over the last 20 years; 2005(a), 2014(b), and 2022(c)
Source: Computed by the Author: (2023)

4.2.3. Growth Parameters of the Case Study Towns

Based on the survey results for each study town, the rate of each parameter is organized and counted using Excel per town and calculated based on the formula (1,2) indicated in chapter three of this study to find the total score of each city growth parameter. Thus, the total score of parameters was calculated based on the number of rates and multiplied by order number (rank number), where the parameters rated on the first rank are multiplied by 10 order numbers (i.e., by considering them as 10/10), and the one rated at the end is multiplied by 1.

4.2.3.1. Growth Parameters for Adadi Mariam Town

Unlike Bishan Guracha and Ginchi town, the availability of tourist attraction centers contributed highly to the development of Adadi Mariam town, which was rated highly and ranked as the first factor (572 out of 650) of spatial growth by the respondents. Other factors of growth such as market service for the hinterlands with a score value of 563, proximity to the major towns with a score value of 535, establishments of new denudation or other social services with a score value of 522, and specialty in agricultural productions with score values of 499actors of city growth that rated high and ranked top five by respondents (Figure 4.10 and Figure 4.11).

In addition to those factors of spatial growth, other parameters such as job opportunities (156), administrative service values for the hinterlands (176), political decisions and influence (206), and land and housing rent values (241) are perceived as contributing less to the spatial and non-spatial development activities of the town by the respondents (Figures 4.10 and 4.11).

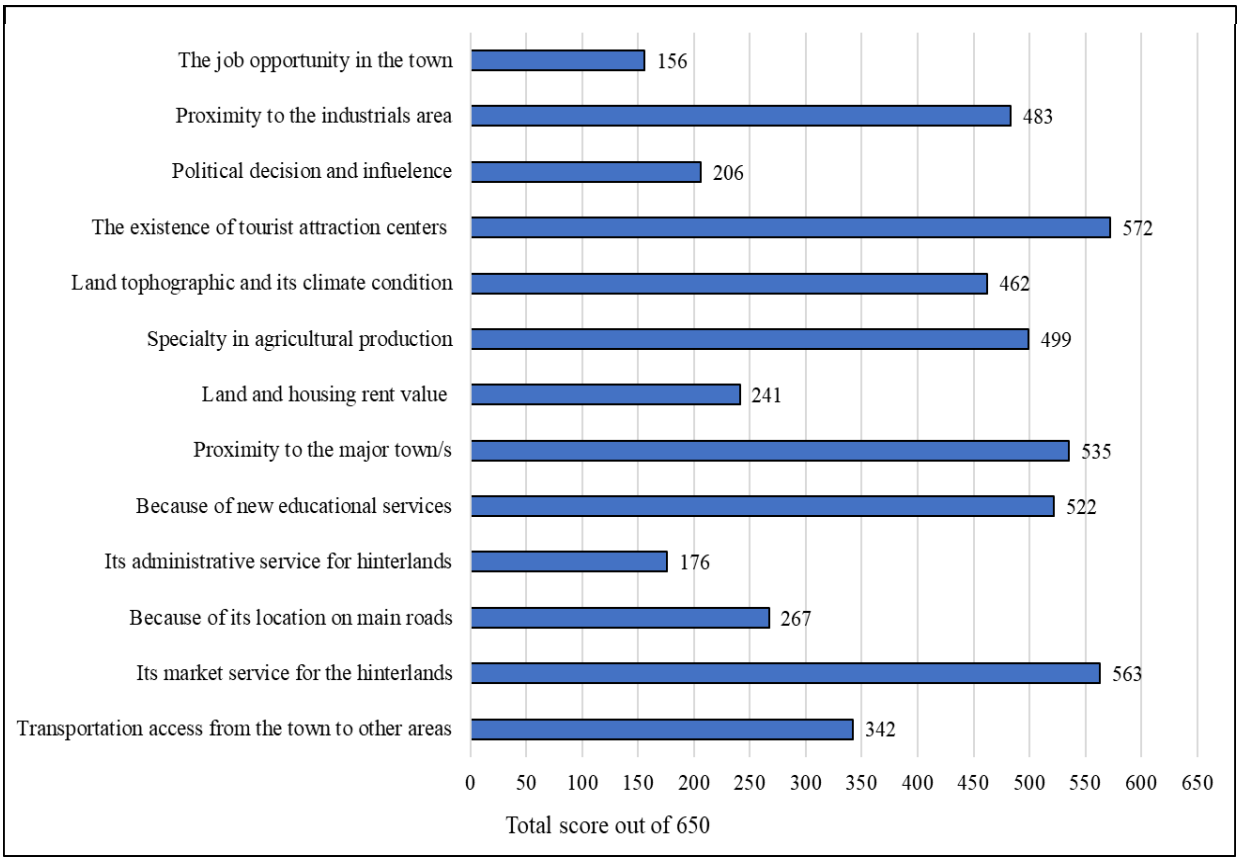

Figure 4:10: Total score of parameters for Adadi Mariam town
Source: Computed by the Author: (2023)

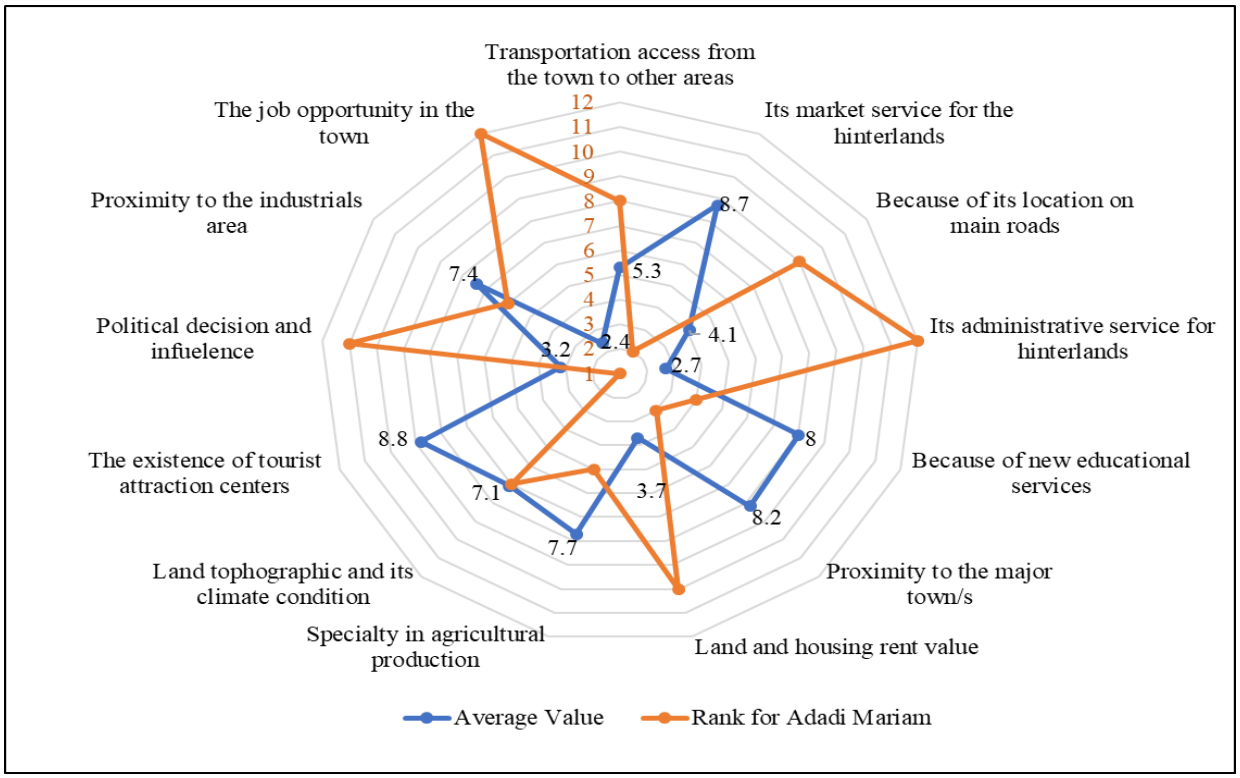

Figure 4:11: Average score and rank of parameters for Adadi Mariam town
Source: Computed by the Author: (2023)

4.2.3.2. Growth Parameters for Bishan Guracha Town

The most-rated growth parameters by the respondents in Bishan Guracha were identified as land and housing rent values, with high score values of 650. Whereas, political decisions and influence with score values of 604; proximity to the major towns with score values of 565; proximity to industrial areas with score values of 511; availability of tourist attraction centers with score values of 511; and topographic and climate conditions with score values of 504 are the top five contributing parameters for the spatial growth of the town (Figure 4.11).

Political influence ranked as the second most important factor that contributed to the development of the town; as a result, the town has gotten special political attention at the regional level and has equal status in administration with major cities in the regions such as Adama, Bishoftu, Sheshemanne, etc. Also, the proximity of this town to major towns has contributed to spatial development, such as housing construction, optional rent for residential houses, and low values of land in the areas. Thus, the town serves as a satellite city for both Hawassa and Sheshemanne (Figure 4.12).

However, other factors of spatial growth such as administrative service for the hinterlands with a 226 score, establishments of new educational services and other social services with a 253 score, availability of job opportunities with 306, market service for the hinterland areas with a 312 score, and specialty in agricultural production with 339 are the parameters of growth that were rated less by the respondents and thus ranked as the least top five (Figure 4.11 and Figure 4.12). Other parameters, such as location on the main roads, existence of tourism attractions, and transportation access from or to, are rated medium, indicating that the influence of these development parameters is perceived as medium for the town (Figures 4.12 and 4.13).

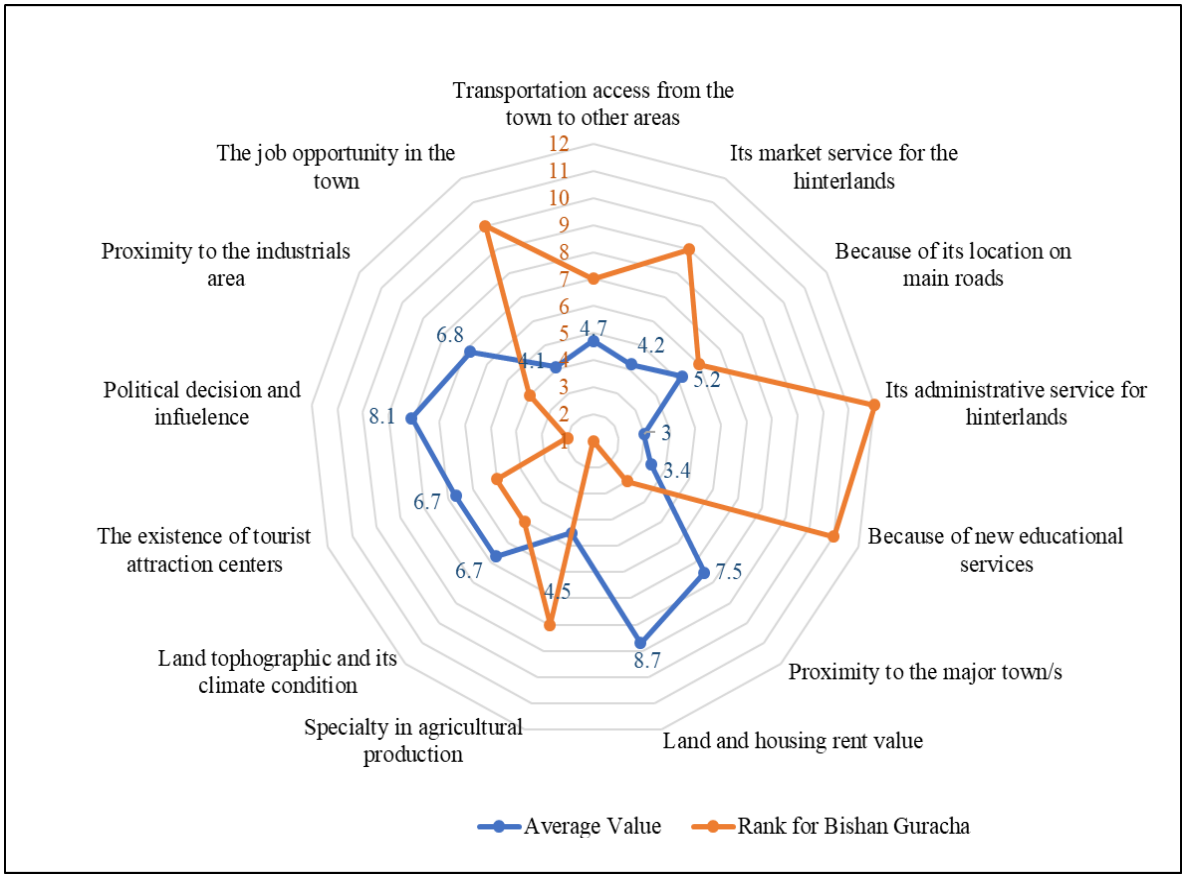

Figure 4:12: Total score of parameters for Bishan Guracha in town
Source: Computed by the Author: (2023)

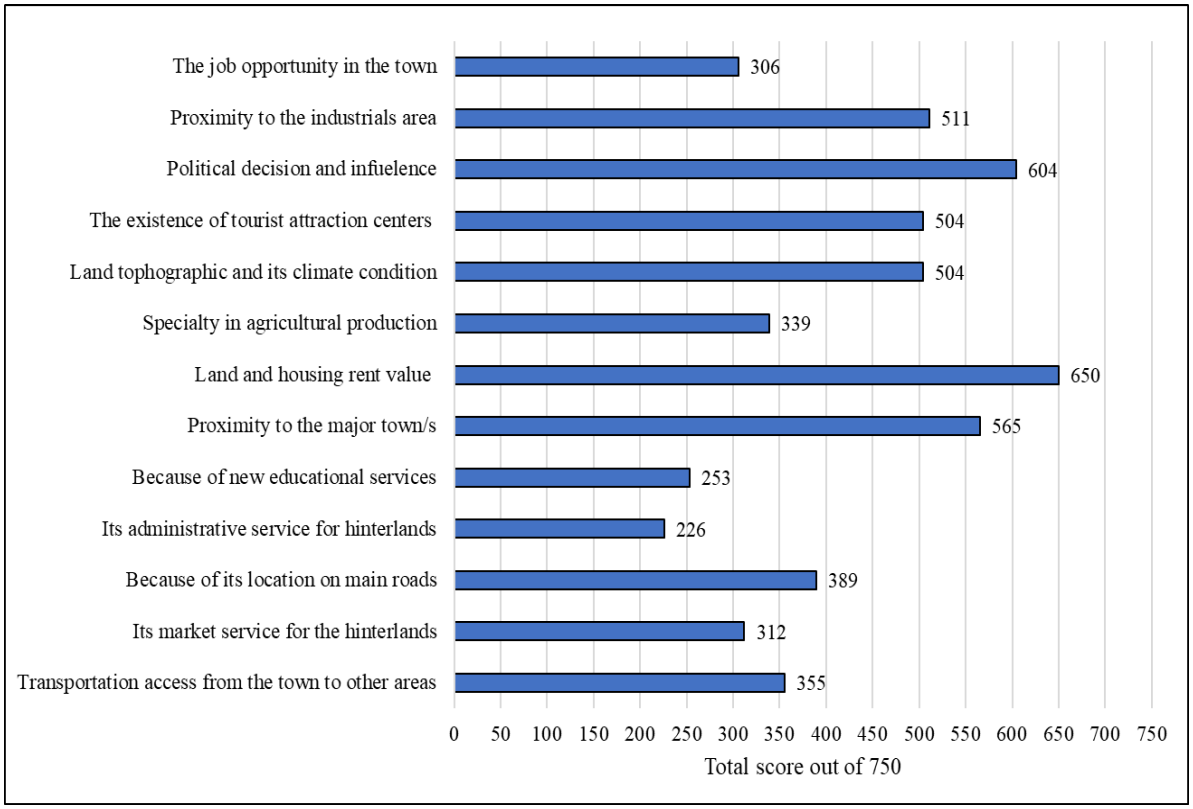

Figure 4:13: Average score and rank of parameters for Bishan Guracha town
Source: Computed by the Author: (2023)

4.2.3.3. Growth Parameters for Ginchi Town

According to this study's results from the respondents' answers, there are many factors contributing to the growth of Ginchi town. Accordingly, the transportation access from the town to other areas is the most influential and activating parameter for Ginchi town, with a total score of 682 (Figure 4.14) and an average value of 8.5. Accessibility and connectivity of the town to other rural woredas, such as Elfeta, Meta, and Jaldu rural woredas, as well as northern and southern directions such as Dawo and Wanchi rural woredas, have contributed to the spatial and economic activities of the town.

Other parameters, such as market service for the hinterlands with a total score of 649, the existence of the town on the main road with a score of 606, its administrative service for the hinterlands with a score of 553, and the establishment of new educational services with a score of 510, are the top five ranked parameters for the spatial growth of Ginchi town, respectively (Figure 4.14).

As a result of the town's administrative service for the Dandi woreda and its market service for all the rural hinterlands, two weekly market services have also contributed to the town's development. Furthermore, the respondents perceived that the location of the town on the main national roads from Addis Ababa-Ambo-Nekemte-Asosa and the establishment of new high schools, TVET College, and other private colleges in the town had attracted more residents and service seekers to the town, which also contributed greatly to both spatial and non-spatial development of the town. However, city growth parameters such as job opportunities in the town, proximity to the industrial area, political decision and influence, and the existence of tourist attraction centers are rated less by the respondents, with scores of 124, 174, 231, and 272, respectively, showing that these factors have little effect on the growth of the town (Figure 4.14 and Figure 4.15).

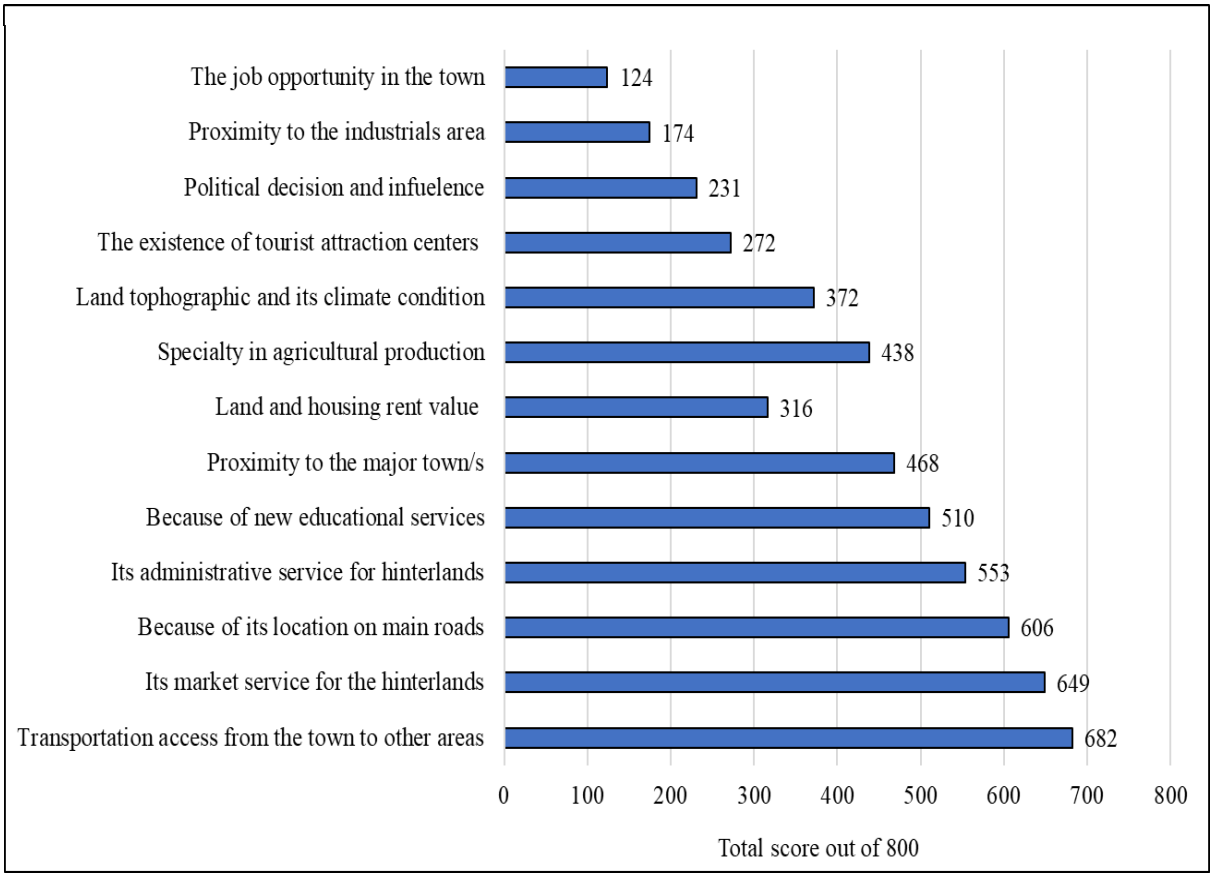

Figure 4:14: Total score of parameters for Ginchi town
Source: Computed by the Author: (2023)

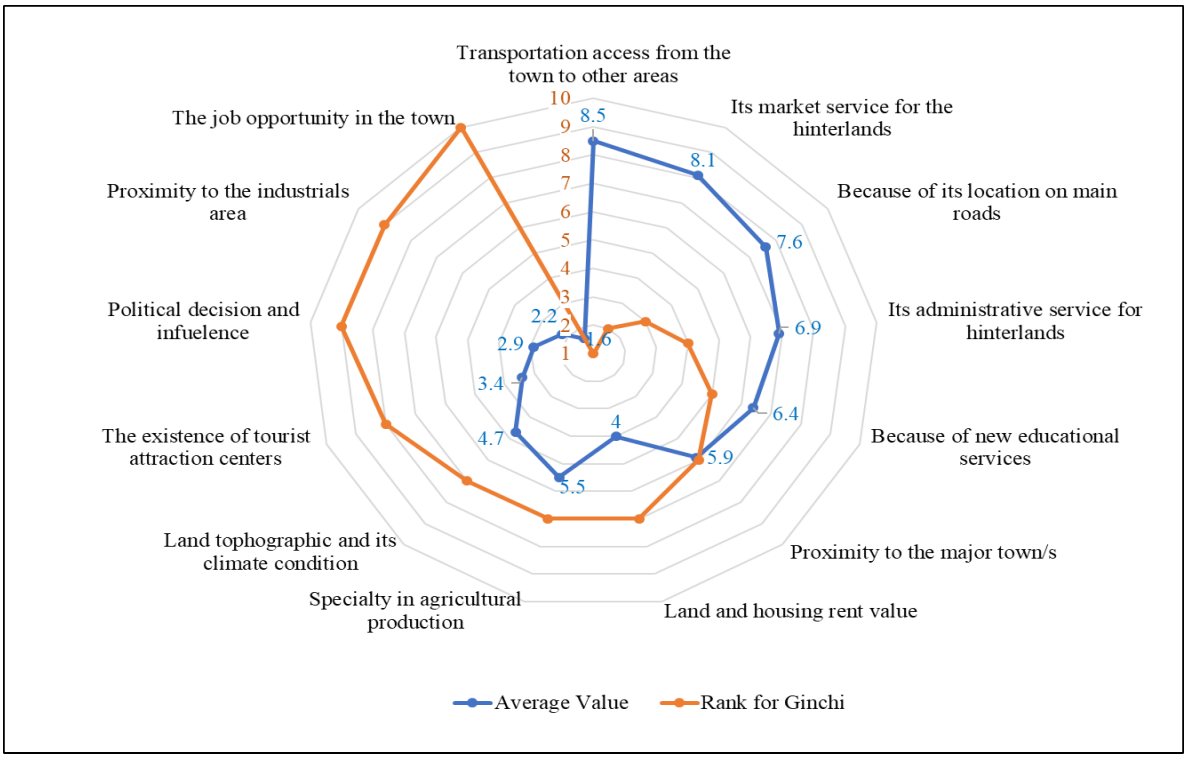

Figure 4:15: Average score and rank of parameters for Ginchi town
Source: Computed by the Author: (2023)

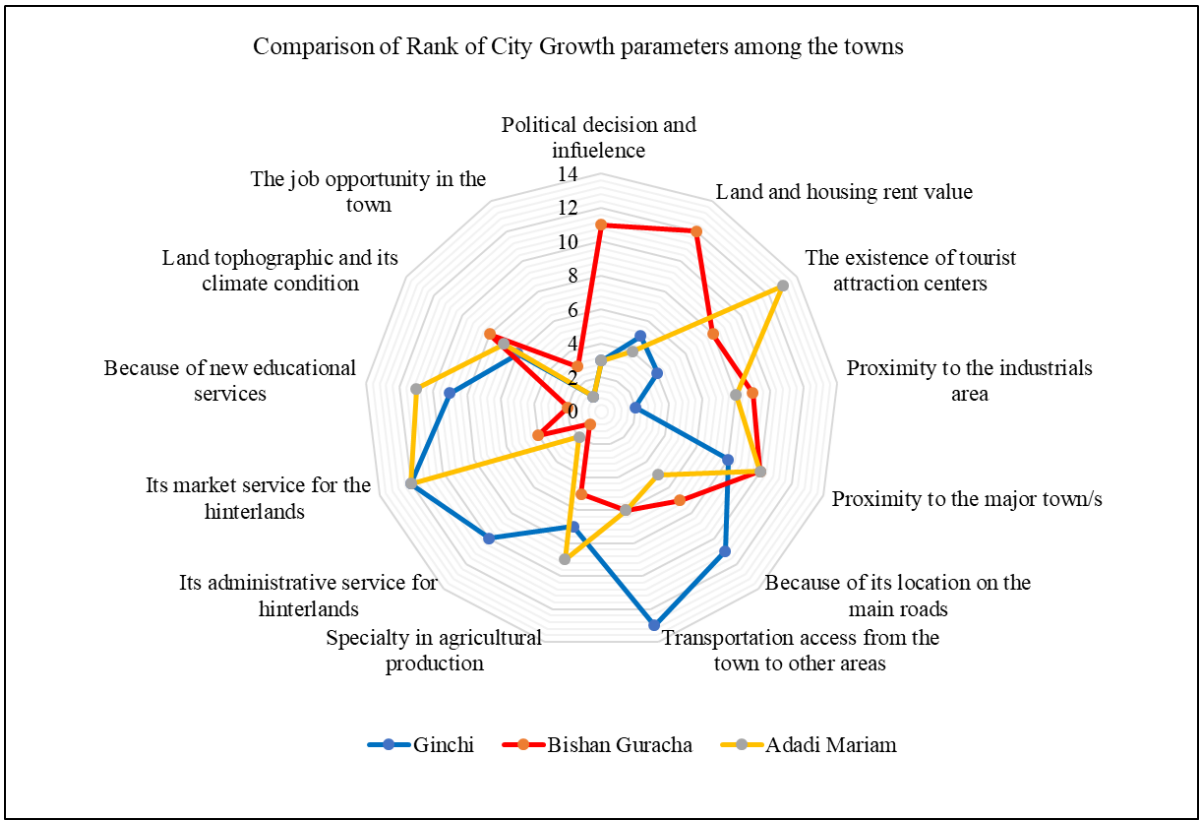

Figure 4:16: Comparison of parameters rank among the three towns
Source: Computed by the Author: (2023)

The three towns (Adadi Mariam, Bishan Guracha, and Ginchi) varied in spatial growth parameters. As we can see from Figure 4.16, Adadi Mariam and Ginchi share market service for hinterland in common as their spatial growth parameters, while Adadi Mariam and Bishan Guracha share proximity to major towns.

There are also specific parameters that highly influence one town. Accordingly, the influence of political decisions and the value of housing rent are the specific parameters of Bishan Guracha. Similarly, its transportation access and location on the main road are the parameters that affect Ginchi's spatial growth specifically. The existence of a tourism center and a specialty in agricultural products are the specific growth parameters for Adadi Mariam (Figure 4.16).

4.2.4. The Influence of Top-Five Identified Spatial Growth Parameters of Study Towns

4.2.4.1. The top five Ranked Parameters on Spatial Growth of Adadi Mariam

Based on the results of Section 4.2.3.1 above, the first five identified parameters of city growth were analyzed based on the second phase of detailed data collection from the town. The information of each key informant collected during the secondary data collection phase was organized to understand the five influences of those growth parameters on the town. The detailed influence of each of the parameters on the town's development is discussed as follows:.

4.2.4.1.1. The Existence of Tourist Attraction Center (1st ranked)

According to interview results and data from the Culture and Tourism Bureau of Kersa Malima Woreda, Adadi Mariam is the first tourist destination, followed by the pre-historic site of Melka Kunturre in the Woreda. According to all the key informants' interview results, the only reason for the establishment and foundation of Adadi Mariam town is the church constructed 900 years ago by King Lalibela.

For instance, one of the informants, a 76-year-old priest of Adadi Maraim Church, explained, "The tourist attraction center that's why we are here—is a church. This church is among the rock-hewn churches, i.e., the 12th church of Lalibela, built on the last stage. As a result, this area eventually became a center of religious, service, and weekly markets for the area and surrounding region."

In the same way, a respondent from the Kebele Administration Office witnessed that the church currently serving as a heritage is the reason for the town's foundation. He said, "First of all, I agree with your finding of parameters of city growth for Adadi Mariam. It is true, and everybody who knows about the town can witness that the first pioneers for this area is the

church. Following this, the priority of any development of infrastructure or service was given to this center compared to the surrounding hinterlands."

The results of key informants' interviews have also indicated how the existence of tourist attractions contributed to the town's development and how the existence of this historical heritage became the cause for the spatial expansion of the town and contributed to the development of new infrastructure in the town.

The respondents reasoned in detail with examples. For instance, a former Kebele administrator during the Derg regime and an 82-year-old elderly man who explained the history well said, "During Haile Selassie's regime, elementary schools were built in the eastern direction of the church, and then the area became more of a service center by dominating other hinterland or surrounding areas. In the same way, during the Durgi regime, the road that connected the town was built, and other community centers such as shops, farmer training centers, and others emerged. Then markets become two times weekly, which is on Sunday (i.e., bigger market day) and Thursday (small weekly market)."

According to the former Kebele Administrator, the origin and main reason for these development attractions is the church, which means that the aim was to use the values of this heritage as one of the tourist attractions and make this area a town. Also, it's attracting tourists; in a week, three or four times, international tourists come here to visit the church. Because of the church, many development activities were attracted, and priorities were given to the area rather than surrounding nearby centers.

Therefore, said the respondent, if this church is not built here, I doubt there is currently any town here. Three of them indicated as follows: "All the consecutive administrative regimes of the country have the same attitude towards this town in adding some infrastructure and

developments by giving fever for this town because of this church than other areas in the surrounding region." This showed that politically there was a willingness to develop the town to exploit the tourism potential, and whenever there was a development opportunity in the area or Woreda, priority was given to Adadi Mariam.

In terms of the contribution of the church to the spatial expansion of the town, two informants argued, "As a result of the heritage, different social services such as a school were built in the fever of Adadi Mariam during the emperor regime, and gravel roads, farmers training centers, and other developments such as cooperative farmer services were started to give service during the Dergi time by giving priority to Adadi Mariam over the surrounding region.

For example, when the elementary school was proposed during the emperor's time, it was moved to the area called Becho Kore, but later on, the government of H/Selassie shifted here to make this area stronger and more of a service center because of this historical rock-hewn church." This shows that there was service demand among the centers, but the decision was based on a political decision to strengthen and favor Adadi Mariam Church as a heritage.

Currently, the government also provides social services such as high schools and preparatory schools, veterinary clinics, health centers, electricity, and drinking water networks to make the town a strong center of tourism. This was justified by the informant from the Kebele Administration office, who stated that "in the same way, the government is proceeding to build a 22-meter-wide and 13-kilometer asphalt road that connects the church to the national road running from Addis Ababa to the southern part of the country. The road is planned along with a national road 330 km long from Addis Ababa to Worabe-Hossaina."

The informant continues... "Now the question is why the government planned to build a 22-meter-wide asphalt road connected to national roads. It is not for the high economic activities

of Adadi or another benefit; rather, the only reason is to boost tourism and accessibility to this rock-hewn church heritage. One of the best examples to prove that the tourism center or church facilitated the development of the town is that every year during Hidar 21, the unpaved road that connects Adadi Mariam is renovated to facilitate easy access to the church during the annual holiday, which improves the service of the road infrastructure of the town."

According to the teacher from Adadi Mariam Preparatory School, "all the education services seen in the town are built because of the church; even the preparatory school, which was built before 4 years, was first proposed for Gibiso town by the Southwest Showa zone. As soon as they heard the information, the local community asked the woreda and zone administration. After a long debate, the administration transferred the school proposed for Gibiso to Adadi Mariam." He also argued that "starting from the first market to the current asphalt road to be built, all the physical infrastructure you see in this town is because of this church."

4.2.4.1.2. Markets Service for the Hinterlands (2nd ranked)

Next to the church of Adadi Mariam, the market service for the hinterland was the second factor of spatial growth for the town. The interview result indicated that all the key informants had a positive view and agreed with the rank of a factor of growth for Adadi Mariam that the market is the second reason for growth.

The market service became two times a week starting with the Derg regime. The former Kebele Administrator said, "I want to note that the construction of this rock-hewn church is the reason for the foundation of the market here. If there was no church here, the marketplace may be another place not here." He argued that a weekly market service in town has contributed much to the spatial development and expansion of the areas next to this church.

On market day, the business is active and there is a diversity of business activities; however, on other days, all business is off and weak. For example, a teacher from a preparatory school stated... “I can note several reasons why the market has contributed to the town's development. The establishment of grain mills was because of the market; the first shops were because of the market. From the very beginning of the weak market up until now, there have been different local drinking houses that only function on the market days, which are Sunday and Thursday, but on other days these houses are close. Those businesses are increasing from time to time, expanding to all areas on all streets in the town.”

On the other hand, the market service has contributed to the town's development in terms of connecting major towns and some small centers, which opened an opportunity for interaction among all hinterlands and major towns to exchange their communities. For instance, the informant from the Kebele administration of Adadi Mariam explained this by saying, “On Sunday and Thursday, there are different merchants who brought some commodities and sold them here from Addis Ababa, Sebata, Leman, Gibiso, Tole, Awash Melka, Habebe, etc. These make the town very hot on these two days, and business is also active in all sectors on these days. Now all weak activities are only due to the weak market.”

Furthermore, as the reason for market service, pass linkage to all directions of hinterlands is developed on the unpaved roads that connect all rural hinterlands to Adadi Mariam town. Those main updates passed to unpaved rural roads have facilitated the corridor development of the town, and now the town is expanding following those main outlets.

The informant from the Kebele Administration office argued that “the market benefit is not only for business but also for the pass used to connect Adadi Mariam to other various hinterlands for long periods are now developed into unpaved rural centers connecting roads."

All these roads were constructed by following the pass that the hinterlands used to come here. For example, the Awash and Kelach roads in the northern direction; the Awash Felte, Roge, and Kombolcha roads in the eastern direction; Biyo, Dayu, Muti, Leman, Awash Melka, and Gibiso in the eastern direction; Worabo, Ula, Geto, Wodajure, and Haro on the southern; Wanji and other rural kebele again towards the southern direction; and Golole, Temsa, Kore Sabi, and Tole on the western direction of the town are all good quality rural roads connecting those centers with the town." Accordingly, those roads have strong potential for the town to expand as a corridor development.

4.2.4.1.3. Proximity to Major Towns (3rd ranked)

The market service and other economic activities are because the town is located a short distance from Addis Ababa City and Sebeta town. The teacher from the preparatory school said, “There are many merchants that only focus on trades of crops, and the grain trade coverage on weekly market days is nearly 50% of the total area of the marketplace. The teacher argues this market is because of the town's presence near Sebeta and Addis Ababa."

The informant from the Kebele Administration also strengthened the idea of the teacher, saying that “as the town is very near to the capital city of Addis Ababa, which is only about 62 km away, it opens the opportunity to transport the grains twice a day on market days and once a day on normal days. Hence, many merchants were attracted to trade grain in the area."

4.2.4.1.4. Addition of new Social Service; Schools (4th ranked)

Concerning the contribution of new services to the town's development, according to interview results, the newly built high school and preparatory school in 2016 significantly changed the spatial and housing density of the town, especially around the areas of the school. The scattered housing over the wide plot became dense, and the emergence of small

shops in the direction of the school and the linear development of renting housing in the town following the main outlet are some effects of those new school services.

The main change in housing density is because of the construction of rent housing to accommodate the workers of the school, and students come from different directions, such as from Becho Kere School, Gerbiya School, Tumewato School, Golole School, and others, as witnessed by interviews with key informants.

For instance, the former kebele administrator said, “I can tell you my own story related to this factor: I have wide land or a plot more than 1500 meters square, then when the school started here, housing problems happened in the town, and I also noticed some of my friends were building some rectangular houses sized 4 meters by 4 meters, and they told me to rent them, then I also started to build immediately six rooms, and now I am getting 2400 birr every month from the rent." While the other key informants said, “Because of that school, the values of housing rent are increased, the numbers of housing units are increased, and also the number of populations is increased in the town.”

A 76-year-old priest said that “the newly built high school and preparatory school have contributed much for the development of the town as well as for individuals. The residents have benefited from rented housing, while the town has benefited through taxes and others' incomes. Generally, this new school has brought some significant changes in the spatial development of the town and the economy.”

4.2.4.1.5. Specialty in Agricultural Productivity (5th ranked)

Concerning this parameter of emerging city growth, the interview results indicated two of the key informants have an idea that agricultural production can be considered along with the

market as a factor of growth, while the others tried to distinguish the difference between these two factors' contribution to the development of the Adadi Mariam.

For instance, the former Kebele Administrator said, "Here, it’s difficult to reason out which factor of growth is independent between the specialty in agricultural production and the market service for the hinterland because both of them are interdependent. However, on market days, if you see and have a walk in every street corner of the town, you see here and there merchants of grains and crops; they transport those crops every day or three times—four times—to Addis Ababa."

Likewise, the informant from the Kebele Administration also said that “the main source of income for every market attendee from each rural area’s is agriculture; they always bring some grains such as teff, wheat, and beans to buy something for their daily needs.” This indicated that the market service for hinterland and specialty in agricultural production, particularly the production of crops such as wheat, teff, and beans, are the weekly market's main actors.

4.2.4.2. The top-five Ranked Spatial Growth Parameters of Bishan Guracha

Land and housing rent value, political decisions and influence, proximity to major towns, and proximity to the industrial area are the top four influencing parameters, while land topography and climate conditions equally rank the existence of tourist attractions in an area as the fifth parameter for the spatial growth of Bishan Guracha town, respectively. The detailed influence of those top five factors was analyzed based on the information collected from selected key informants for each parameter.

4.2.4.2.1. Land and Housing Rent Value (1st ranked)

The summary of the results from key informants indicated that housing rents and land values cause the town's spatial development because of the town's main factors. The major factor was the ease of access to land through leases or cooperative housing. The other factor was the lower values of housing rents compared to the other nearby cities of Hawassa and Sheshemene. Concerning the ease of access to lands, the informants indicated several reasons, such as the availability of land for housing, the ease of bureaucracy to get land for housing, and the government's will to increase the town's spatial development. Those factors paired together and became the cause of the ease of getting land through leases and cooperative housing.

For instance, an architect and urban planner who was born and lives in the town said, "There was free land that was taken from farming investors that private farmers did not own. Those lands were proposed for housing and town development, and then the town's administrator started to give those lands to anybody who asked for housing. Whether from Sheshemene or any rural woredas or kebele in western Arsi, there were no problems. However, they only needed to build a house and make the town active."

Likewise, the Deputy Head for Land Administration of Bishan Guracha argues that "at the beginning, when the town became one of the special towns of Oromia, the process to access land was very simple, and the bureaucracy made it very easy to take land for housing. The land given was of two types: villa housing and simple housing. But through time, the ease of getting land became complex, even though it has contributed very much to the sprawl of the town and the increase in population numbers in the town."

Regarding lower-value housing rents, the Deputy Mayor of the Town said, “The main cause is the housing problems in the nearby towns of Sheshemene and Hawassa, and also the available housing is high in rent values. This resulted in a high demand for rental housing in Bishan Guracha, where most of them are daily laborers, government workers, industry workers, and students from Hawassa and Sheshemene towns.

These make the town busy during the morning and night while dead and active during the day, as witnessed by all of the key informants.” He also argues with an example: “In all of the private courtyards, in all of the plots and blocks, there is housing built for rent for people who are working in Hawassa or Sheshemene. They go in the morning and come in the evening.” In general, this showed that the town is active at night and dead or empty during the day.

4.2.4.2.2. Political Decisions and Influence (2nd ranked)

An architect and urban planner who was born and lives in the town said the political decisions and influence at the regional level have contributed to dynamic change in the town. Because of the town’s location on the verge of Hawassa and the availability of natural resources such as Habas Lake (Hawassa Lake), farming investment, open land resources, and development opportunities have encouraged political interest in the town by the Oromia regional government. He argues that the new administrative organization of the town shows how the Oromia regional state intends to upgrade the level of the town to a larger scale.

Currently, the town has become one of the special towns directly administered by the regional government. The regional government is administered with equal status with other cities or towns in Oromia, such as Adama, Bishoftu, Sebeta, etc. Thus, the political interest and focus of the regional government have changed the development of the town both spatially and economically, as witnessed by key informant interviews.

For instance, a surveyor professional who works in the municipality of Bishan Guracha said, “I strongly agree that the main cause of the spatial stretch of the town is the government's decision on the town. After the town became one of the special towns, the land started to be delivered to the residents and anyone who asked to live here from another town, such as Sheshemene or any other area of Western Arsi Zone. Also, the establishment of different government offices and the arrival of new government workers into the town have contributed much to the spatial development and caused the emergence of small businesses such as shops, restaurants, etc. in the town.”

Likewise, the deputy head of land administration added that “the political interest in the town has shown us some improvements in terms of good governance, housing development, construction, and pavements of street networks in the town, considering the previous administrative service of the town.” The architect and urban planner indicated that “my expectation for the development of the town was high when the regional government decided to make the town one of the special towns for development and to utilize the existing natural and investment opportunities in the town and its region. However, implementation is not according to the plan, even though it has brought some tangible development in activating and expanding the physical area of the town.”

In general, the results of interviews with key informants indicated that political decisions and interest in utilizing a natural resource in the region of the town and making the investment changed and activated the town’s development in a short time. Because of these changes, both physical infrastructure and other services have developed in the town, which has contributed significantly to its growth in all sectors.

4.2.4.2.3. Proximity to Major Towns (3rd ranked)

Regarding proximity to the major town parameter for the spatial growth of Bishan Guracha town, the key informants have indicated two perspectives. Three of the informants argued with the idea that the existence of the Sheshemene and Hawassa retarded the economic and daily activities of the town. At the same time, three of them said it had positively contributed to the spatial development of the town.

Accordingly, the town's deputy mayor described that the city only serves as a dormitory town for both towns, especially Hawassa. But to buy commodities or other products (for the market), the residents always go to one of those major towns. This has resulted in the very slow economic development of the town. The architect and planner living in the town also shared the deputy mayor's view. They said, "I consider the existence of two major towns negatively impacting the development of Bisha Gurach. Because the town is near and found between the two towns, people who live in Bishan Guracha or rent here for residence but always go to Hawassa for recreation, to market, etc. Hence, the business activities in town are not marketable."

Unlike this idea, 72-year-old town residents have a positive attitude towards the existence of those towns and Bishan Guracha's proximity to the towns. They argued that the existence of these towns is an opportunity where there is a high population density and high values of land or housing rents. Hence, the residents of both towns are coming here and using Bishan Guracha as a satellite town. These contributed to spatial expansion and will bring economic development to the town. For instance, one of the ideas among the key informants is that it is very good for the town to be between the two major towns because most of the residents who buy land for housing and rent houses are from these two towns and who work in Hawassa

Industrial Park. This has resulted in a stretch of the town, a dynamic change in population, and new arrivals to the town.

4.2.4.2.4. Proximity to Industrial Area (4th ranked)

In the same way as proximity to major towns, proximity to industrial area parameters has also divided the key informants into two. Accordingly, four of the key informants argue that proximity is a positive factor for the spatial growth of the town. In contrast, two of them argue that it's negatively impacting growth.

The worker from Hawassa Industrial Park described that the Hawassa industrial zone influenced the spatial expansion of the town significantly. He argued that the existence of the industrial zone at a nearer distance from the town made the workers of the industrial zone prefer Bishan Guracha to Hawassa due to many reasons. For instance, its easily accessible transportation, shortest distance to the towns, relatively low house rents compared to Hawassa, and availability of convenient and wide lands for housing.

The Land Administration deputy office head also explained the importance of the proximity of the town to the industrial zone, saying, "It is very good for the town to be near industrial parks because a huge number of the residents who live in the towns are working in Hawassa industrial parks and other small-scale industry workers. This is because the housing prices in Hawassa are very high compared to Bishan Guracha. This creates a huge opportunity for Bishan Guracha town to grow spatially following the demand for housing in the town."

Unlike this stand, two informants argue that the town failed to appeal as attractive due to the low income of the residents. The surveyor in the town explained this as follows: "Attractiveness and quality of the town are very important for people when choosing to live in any town. When we come to Bishan Guracha, the people come here searching for

affordable housing and low-cost rent. This made the town full of under-standard houses that were not attractive, resulting in low investment attraction and slow economic growth that leads to limited spatial growth compared to its potential for growth.

4.2.4.2.5. Topography, climate condition & Existence of tourism attraction (5th ranked)

a. Land Topography and Climate Condition

Land topography and climate conditions in Bishan Guracha have been ranked 5th, equal to the existence of tourism attractions in the towns as spatial growth parameters. Four informants believe this parameter didn't influence the spatial growth of the town, in particular. The deputy office head for the Bishan Guracha town administration argues, "Almost all the towns in rift valleys shared the same flat topography and almost the same climate. Hence, we can't point out this parameter as a spatial growth factor for the town. Rather, I believe the natural resource and specialty in agricultural production can be more influential than its topography's influence on spatial growth. Because the town provides so many fruits and grains for Hawassa and other nearby towns and hinterlands."

Unlike the above idea, the surveyor of the town administration and a 72-year-old resident of the town argued that the town's topographic placement and climate condition are the most important for the town to grow spatially. Specifically, the surveyor said, "The town is located on a flat surface with good climate conditions for living. This is due to the surrounding lakes and water ponds. It creates a cool and ventilating environment that is preferable for recreation and living."When we come to topography, said the surveyor, "the housing we build and the infrastructure we construct are directly affected by the town's topography. So we might not consider its importance, but the choice of the people to live in the town will be influenced by its topography one way or another."

b. Existence of a Tourism Attraction Center

The informants have discussed the existence of tourism attraction centers as a spatial growth parameter, and they all agree on their influence on the town's growth. The town's Deputy Mayor explained this: "Hawassa airport, Hawassa industrial zone, Hawassa Lake, and other surrounding tourism centers have contributed to the town's growth. Because when the tourists come to this area, the resources and economic activities touch every corner of the surroundings."

The 72-year-old resident of the town also highly agreed and explained as follows: "When tourists come to Hawassa and the surrounding area for many reasons, the economic activities of the town increase equally, and the town becomes active. The farmers sell their products, and the merchants actively come to the town. For example, the moment tourists stopped coming to Hawassa due to peace problems happening in Hawassa, many economic activities declined, and many people from my neighborhood moved to Sheshemene to continue their trade activity. This means the attraction of tourists in the surrounding area has contributed to the spatial growth of the town."

The Land Administration deputy head strengthened this idea by saying, "Bishan Guracha Town shared the same lake that Hawassa Town shared. The only difference is how we use it. With many investments coming to our town, recreational facilities and resorts are increasing, targeting the amount of tourism potential in the town. So, the presence of tourism attraction centers in and surrounding the town is one of the parameters influencing the town's spatial growth."

4.2.4.3. The Top-Five Identified Spatial Growth Parameters of Ginchi

Transportation access from the town to other areas, market service for the hinterlands, location on the main national road, administrative service for the hinterland, and addition of a new social service (education service) are the top five identified parameters for Ginchi town, respectively. The detailed influence of that top-five factor on Ginchi town's spatial growth was analyzed based on the information collected from selected key informants. The results of each parameter are discussed as follows:.

4.2.4.3.1. Transportation Access From the Town to Other Areas (1st ranked)

According to key informants' interview results, the transportation access and linkage opportunity with many woredas of the West Shoa to Ginchi town has contributed to both spatial developments (i.e., linear expansion of the town) following the main outlet of the town, infrastructure development (i.e., transportation terminal and asphalt road), overall business activities and other services, and high movements and population in the town.

Concerning the physical expansion of the town, there are more linear housing developments following the outlet towards major connecting woredas on the north of the town, in the southern direction, and in the western and eastern directions. For instance, a planning expert in the municipality of Ginchi discussed the town's linear development, saying, "I believe the opportunity of connection to different woreda has contributed much to the spatial development of the town. You can easily walk in the town and observe the housing development by relating to the access road to different rural woredas."

In the same way, Ginchi Town's Land Administration Officer indicated the contribution of transportation access and spatial expansion by noting that "because of that six-transportation access and outlet, the expansion of the town followed those outlets and is developing in

multiple directions. People from different woredas are settling and building their housing in the town, both formally and informally, in the direction of their woredas. These indicated that, unlike many towns that follow main transportation development, Ginchi town is developing in different directions linearly, all along the main road access that runs towards the west and east, while on the other hand, following the other four out-lets runs to the southern and northern directions (Figure 4.17).

According to the officer, the housing density is falling as the distance from those connecting roads increases (Figure 4.17). These transportation hubs and the town's connectivity will result in rapid spatial expansion and the need for more transportation facilities, both intra-town and inter-town, or in rural areas (woredas). In terms of the development of the town's infrastructure, compared to other similar woreda's administrative small towns, Ginchi is developing more rapidly in terms of infrastructure such as roads, businesses (i.e., shops, groceries, pensions, and other small businesses), educational services such as colleges and vocational schools, and other incoming industries and investments in the region of the town, as all of the key informants witnessed.

For instance, the investor, transportation car owner, and resident of the town described the effect of the transportation access as follows: "Because these transportation connectivities are different woreda in the zone, and those all woreda use this access to be served from their zone or to Addis Ababa, they have to come here, which has made the town develop easily, and now it is the stronger town next to Ambo in the zone. Moreover, now that different business activities have developed independently, investments are coming in using the potential of town centrality for future development and labor engulf to here."

Likewise, the planning expert of the town said that "this town can be considered a hub of transportation, where different rural woredas such as Dandi Woreda in the southern direction,

Wol-mera woreda in the eastern direction, Elfata woreda, Gindaberat woreda, Abuna Gindaberat, Jaldu, Cobi woreda, Meta woreda in the northern direction, and the nearby hinterland of this town use transportation access to this town to access Ambo or Addis Ababa. This makes business relatively active in the town, attracts more transportation service providers, and makes the town active all the days of the week.

Despite the town's business activities and other developments, there is high transportation demand at Addis Ababa's main Merkato terminal to access Ginchi. As indicated by an investor in the transportation sector who said, “there is high transportation demand at Addis Merkato main terminals due to the town’s connection and transportation linkage to other areas and different rural woredas that need access to the town and then distributed to their respective areas by using transportation services such as medium buses and taxis (minibuses). This has contributed to business and market activities that support services such as small restaurants, shops, and several different drinks as per passengers' abilities.”

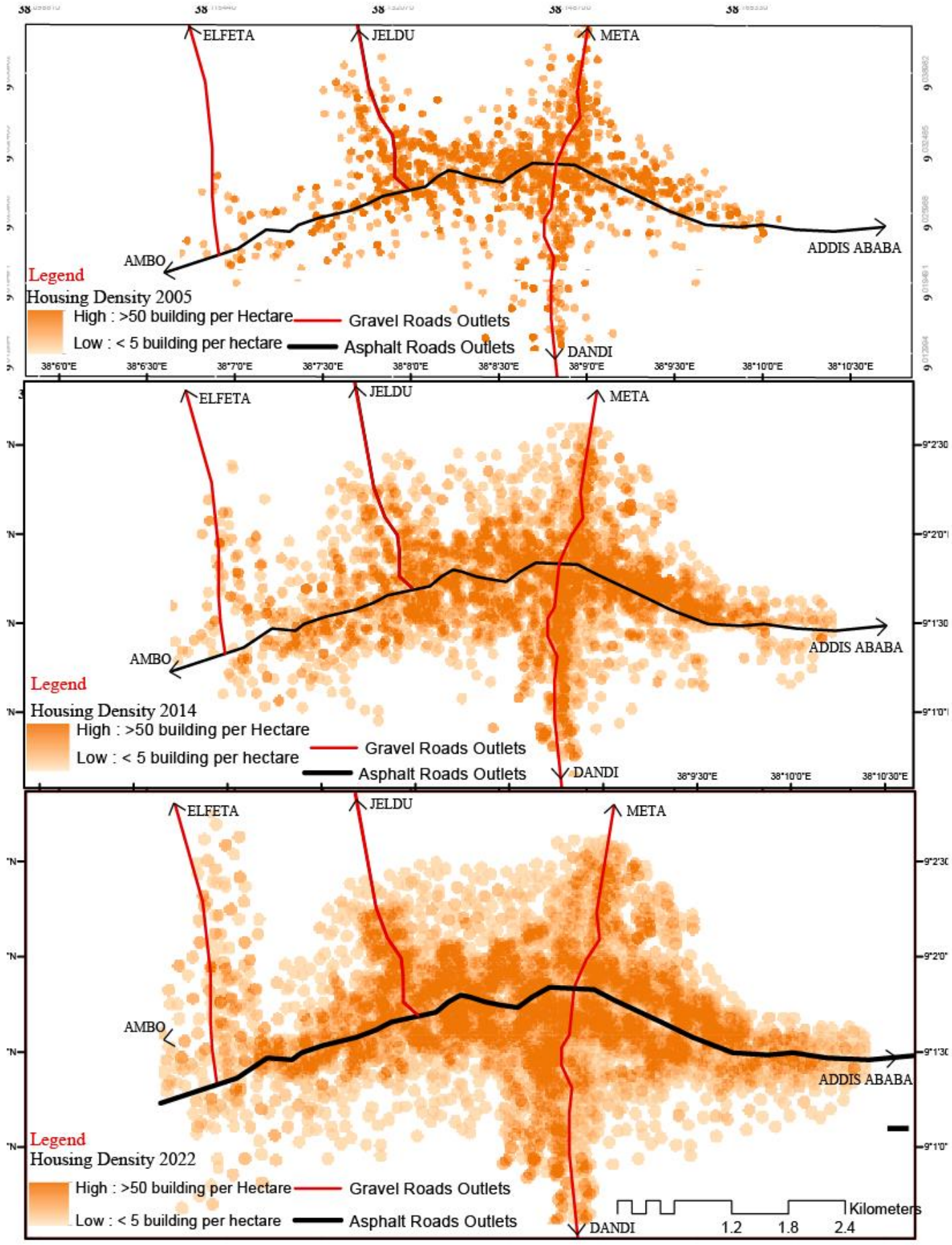

Figure 4:17: Ginchi town's Building Density along the outlets; 2005, 2014, and 2022

Source: Computed by the Author: (2023)

4.2.4.3.2. Markets Service for the Hinterlands (2nd ranked)

Market service is the second factor in spatial growth for Ginchi. The interview results on the effect of market service on the growth of the town indicated that on the weekly market days, the business is more active than any day of the week, and different people and merchants come on those days from different rural and urban areas. Transportation volumes and passengers in need of transport to and from town are high on these days.

All interviewed key informants emphasized their information on economic activity benefits and population influx on weekly market days. While concerning the contribution to the spatial expansion of the town, they have not witnessed and detailed how market service has contributed directly to infrastructure development and spatial sprawl. For instance, because of the market service for the hinterlands and some of the small towns in the areas, all the business activities are open; businesses that are closed on other days are open on market days; and all the houses on every town's streets are open and active.

For instance, the hotel manager and town resident told the researcher that "business is active in the town on Tuesday and Saturday, and some of them operate only on those days. Some small businesses, such as those selling local drinks on the edge of the town or in inaccessible areas, are open on market days.

The other contribution of the market service for town development is the exchange of products, such as agricultural products and commodities, from Ambo, Addis Ababa, Olankomi, Asgori, Holeta, and other small towns in the region that attend the market on Tuesday and Saturday. These have contributed directly and indirectly to the town's development, as informed by key informants.

For instance, Dendi Woreda Hunam resource officer said that “people come here to buy and exchange products from Addis Ababa, Ambo, Asgori, Olankomi, and other woreda towns. This has made the town active on the weekly markets, and rural people come here to buy and sell their agricultural products to those from the towns. In addition, all of the key informants also indicated that during those market days, all transportation activities and additional service providers were also invited because of the market attendees’ influx from all directions to the town. For instance, a planning expert said, "Transportation is busy and high in volume on these market days, and extra private transport operators are always assigned to the town."

4.2.4.3.3. Location of the Town on the Main National Road (3rd ranked)

According to interview results, the main reason for the town's foundation is its location on the main national road that goes from Addis Ababa to Ambo-Nekemte-Asosa/Bedelle-Matu-Gembella. Key informants, including the data from the town administration, indicated that the main reason for the foundation of the town is the road junction, i.e., the roads running to the northern five woreda of Ambo (Western Shoa Zone) and the main national road that connects Addis Ababa with western parts of the country.

Concerning the reason for the town's foundation, two of the key informants said the main national road was the reason for the foundation, while the other four said it was because of the junction along with other roads (which were passed) running to the northern parts of the zone. For instance, a planning expert who argued the main national road is the reason said, “The first settlement started as a few housing clusters eventually following this road (i.e., the national road). Some businesses started because of transportation and the weekly market, but the origin of the settlement is the access to this road."

Meanwhile, the other said, “The foundation is because of people’s interaction as a result of junctions between the northern and southern parts of the woreda. They used to come here and wait for transport to access Ambo or Addis Ababa. Through time, this process has created the current town.” However, all the key informants argued and indicated that the location of the national corridor has contributed more to the spatial and economic development of the town.

Furthermore, the town's current physical structure and spatial development direction are mainly on the national road corridor. Most of the commercials and services (which are older in the town) are built following this corridor.

Moreover, the housing conditions found on the main national road are relatively bad compared to the peripheral housing, while high-rise or ground-plus housing is emerging on this corridor. This indicates that most of the town has been developing following the main national road that runs from Addis Ababa to the western part of the country.

4.2.4.3.4. Administrative Service for Hinterland (4th ranked)

Ginchi town grew spatially in the 4th place due to the administrative service of the town for the hinterland and rural kebeles as being the capital of Dandi Woreda. Here the detailed interview results on the effect of those factors on the development indicated that it has many contributions and has changed the town’s development in terms of population growth, spatial developments such as residential housing, government offices, new educational services, and other economic development in a very short time.

In line with those changes and spatial development, the town has experienced both population influxes because of migration and economic activities. The town’s strategic location is at the junction of radiating roads and is acting as the center of peripheral woredas in the northern

parts of Zone, which in turn contributes to population growth and the development of relative business activities.

As indicated by a planning expert in the municipality of Ginchi, “after the town becomes Wenda’s capital and different social services are introduced into the town, new people who are workers, students, and others have started to reside in the town.”

In addition, the hotel manager and town resident said, “Most of the housing and new development areas have developed since the town became the administration center for Dandi woreda. Especially for residential purposes for government workers, residents, and others who required housing in the town.”

4.2.4.3.5. Introduction of New Educational Service in the Town (5th ranked)

The introduction of new education services was one of the factors in the spatial growth of the town and ranked fifth. Here, the detailed interview results on the effect of the factor on spatial development are discussed as follows:.

According to the Dandi woreda’s education bureau head, “there were major changes in the town's spatial development following the new education services, such as the new TVET (technical and vocational college) and high and preparatory schools in the town. As a result of these education services, the town started to sprawl rapidly in all directions, following the main outlet and surrounding newly planted institutions.”

Private housing developers started to build housing in their court years and on available plots with different standards to rent for students and workers according to their needs. These resulted in the town's physical stretch and density over the last two decades. For instance, the Land Administration officer explained this by saying, “This town rapidly developed and

stretched after government and private schools such as TVET, colleges, high schools, and other primary and KGs opened here. This created a demand for housing for rent, and the town gave more land to residents to build more rented housing."

4.3. Discussion of the Results

This section of the report focuses on the main finding as the study's objective and is presented briefly in comparison with previous studies and pointed out in the literature as follows: The results of each town are summarized as per the title of the objectives and discussed in paragraphs for each town.

Ginchi has been developing spatially, showing both inward expansions and outward directions by engulfing other land use into urban land use characteristics, i.e., built-up areas such as roads, housing, and quarry sites. The development was linear, following the major access road towards major cities and other roads that connected woredas and hinterlands. The town has been developing spatially in the density of housing (inward expansions) and spatial expansion (outward direction) by engulfing farming land and other land use into urban land use character, i.e., built-up areas such as roads, housing, and quarry sites.

The interpretation of the image detection was based on the areas of the town calculated using a GIS application to quantify the change in percentages. Accordingly, in 2005, the urban land use and areas that were covered by built-up areas were small in proportion and had a relatively low density of housing that was mainly confined around the main roads to Addis Ababa (eastern and western directions from the centers of the town) and the secondary roads that run south and north directions from the center of the town.

Urbanization of those three towns: When considering urban expansion intensity and dynamics, all three towns' development and spatial expansion were low. The growth was

more natural following the population increase in the town and some migration. But if that growth is supported by infrastructure or the agglomeration of different productions, the intensity and dynamics of development will be high.

However, for Ginchi town, there was rapid development following the main outlet, and there were strong signs of change from a monocentric town pattern to several centers. As described by Duranton and Puga (2013), limited transportation, roads, and housing supply retard urban growth and tend to develop naturally following a monocentric model. However, suppose those services are improved, especially by focusing on specialization. In that case, the development will change into several emerging centers or sub-centers. Similarly, Bullivant (2012) argued that urban growth is based on economic agglomerations and activating parameters that shift rapidly.

On the other hand, in all of those study towns, there was no investment practiced over the last 20 years that can result in towns' spatial expansion, and population growth by attracting more immigrants has resulted in less spatial expansion. In particular, Bishan Guracha and Adadi Mariam have not made such remarkable investments, while Ginchi has benefited from road construction investments over the last two years.

There are also several proposed lodges and hotels in Bishan Guracha that have not yet started because multi-sectoral investments lead to the growth of the cities (Glaeser, 2011; Bullivant, 2012), where specialty in production is even more important (Duranton & Puga, 2013; Li et al., 2018).

The difference in parameters of growth among the three selected study towns and factors of growth of cities or local regions vary from region to region and urban to urban in the world, as indicated by researchers and discussed on pages 2, paragraph 3, and 11 of this study.

The services provided by Ginch town for its hinterlands have also been considered and ranked as factors of growth for the town. The results of the key informant interview also indicated that services such as administration, education, or health and markets in Ginchi town for the hinterland have contributed to and caused spatial expansion and economic activities. In line with this finding, Li et al. (2018) indicated that services such as market services and social services like educational and administrative services are stimulators for the spatial and economic development of the urban center.

Transportation access from the town to other areas is the most influential and activating parameter for Ginchi. Recreational access from the town to other areas is the most influential and activating parameter for Ginchi. The accessibility and connectivity of the town to other rural woredas have contributed to the spatial and economic activities of the town. This finding is in line with the discussion by Álvarez-Berríos et al. (2013), who pointed out that linkage to urban centers or rural areas is a factor for the city. Furthermore, transportation access to Ginchi as a factor of development agreed with the discussion and findings by Li et al. (2018), Donaldson (2018), and Glaeser (2012), who indicated that connectivity and accessibility play crucial roles in cities or regional development.

In contrast to Ginchi town, parameters such as land and housing rent values, political decisions and influence, proximity to the major towns, proximity to industrial areas, and topographic and climate conditions were the most important and ranked the top five contributing parameters for growth in Bishan Guracha town. However, growth factors such as administrative services for the hinterlands, establishments of new educational services and other social services, job opportunities, and market service for the hinterland areas are the parameters of growth that are rated less.

These findings are in line with the discussions of Duranton (2016) and Rosenthal and Strange (2004), who stated that population size and density, rate of migration, and housing stocks in urban areas are key parameters for growth. In addition, the World Bank (2012) also discussed in their report parameters related to employment structure and job opportunities, such as labor pooling factors, the shares of self-employment, and wage employment, which are also influencing factors for urbanization and inmigration. For Bishan Guracha town, the main factor that positively or negatively affects the development of the town is its proximity to major towns or its location between two bigger towns. These contributed to the town being a satellite town where most of the residents and workers of those towns live but work in major towns.

The case of Bishan Guracha's finding for this study agrees with the points of Redding and Venables (2004), as discussed, measuring parameters such as nearby economic activity weighted by distance or travel time, proximity to large cities, ports, industrial areas, natural resources, and economic facilitating infrastructures such as road networks have a positive influence on the development.

Furthermore, economic activities such as the availability of agriculture processing manufacturers, economic diversity, and specialization in production play a great role in the development of cities (Duranton, 2016; Glaeser et al., 2015; Rosenthal and Strange, 2010). Similarly, in the case of Bishan Guracha, the availability of Hawassa industrial parks has contributed to the housing and land values of the town, where most of the residents benefit from housing rent and a few from small businesses such as shops and restaurants.

Political interest and influence by the Oromia regional government have contributed greatly to improving the town's infrastructure, land delivery, and good governance. As a result, the town physically stretched outward, mainly because of residential housing construction

activities. Also, a study by Besley and Burgess (2004) indicated that political interest is the basis for economic policies that will result in stimulation of business and local growth, but for Bishan Guracha, a witness from key informant interviews, even though there was a plan to change the town, it was not implemented, rather only changing the administrative system.

In general, this study is in line with the study and discussion of Li et al. (2018), Rimal et al. (2018), and Rijal et al. (2020), where political interest and influence are major forces that can accelerate the development of cities or regions in a short time. The other parameters that ranked in the top five for Bishan Guracha are topography and climate conditions, indicating that geographic elements such as location and climate conditions (Behrens & Nicoud 2015) can also influence the development of cities or regions.

As indicated by Redding and Venables (2004), the availability of tourist attraction centers or natural resources that have economic potential and value has an appositive influence on attracting more people and activating cities. Accordingly, sometimes it is a reason for the foundation or development of settlements. More specifically, economic activities, including the availability of agriculture processing manufacturers or specialization in production, play a great role in developing cities or settlements (Rosenthal & Strange, 2010; Glaeser et al., 2015; Duranton, 2016).

Likewise, according to the above arguments, the foundation of Adadi Mariam was based on the establishment of the Orthodox Church and then eventually developed because of market service mainly based on agricultural productions. The availability of a tourist attraction center contributed highly to the town's development, which was rated highly and ranked as the first factor in growth. Other growth factors, such as market service for the hinterlands, proximity to the major towns, establishments of new denudation or other social services, and a specialty

in agricultural productions, were the major growth factors that ranked high and ranked in the top five for Adadi Mariam.

In general, the spatial development of all three case study towns was characterized by low urbanization intensity and dynamics. When the current spatial expansion is compared with their respective basic plans, the development is not according to the plans. In all three towns, the governance systems are poor in terms of good governance. For instance, when the researcher asked government officials working in Ginchi and Bishan Guracha, most of them had no idea how cities or urban areas could grow fast, and there were problems regarding how to identify unique local potential and plan for both spatial and economic development.

Such problems have also been discussed by previous scholars. For example, the study by Rijal et al. (2020) in Nepal argued that weak spatial planning and policy were the factors negatively affecting city growth in some regions of Nepal. Similarly, other literature has also indicated that weak urban development planning and poor institutional arrangements have significant negative impacts on urban development (Bhattarai & Conway, 2010). Like poor institutional setup, poor governance, such as corruption, has a role in reducing the development of an area (Besley & Burgess, 2004). In general, the inability to utilize potential and identify key parameters for local growth directly indicates the level of governance systems and development policy.

As per the aim of this study, understanding the parameters of city growth can help politicians, local governments, policymakers, and planners use those specific parameters or factors of growth for local or urban centers. In line with this, a lack of understanding and planning based on existing potential and parameters for growth in the selected study town has resulted in slow development of the town over the past 20 years. However, the study has indicated that the provision of better amenities based on the understanding of specific or economic

specialization can shift the monocentric evolution (development) of cities into several emerging centers or sub-centers (Duranton & Puga, 2013; Seto et al., 2012).

Furthermore, Duranton (2016) discussed that tomorrow's or future city growth drivers would not be the same as the previous growth factors; also, overinvestment, underinvestment, or investing in the wrong city may be very costly and may not lead to the intended development. Therefore, a systematic understanding of city growth drivers will likely lead to better development results. On the other hand, some studies have indicated that some single or multiple city growth drivers or parameters have a significant effect on overall growth.

CHAPTER FIVE : CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This study was a cross-sectional study to understand the contributing factors to the growth of Ginchi, Bishan Guracha, and Adadi Mariam emerging towns. The study used both qualitative data (satellite images for detection of town development trends, interviews of key informants on identified factors of growth) and quantitative data (surveys of residents who knew about the development of the town).

The results of satellite detection showed the urbanization process of the towns over the last 20 years was slow in terms of horizontal urbanization intensity and dynamic (i.e., density of housing for inward and outward expansion was slow). However, suppose those growths were supported by infrastructure, an agglomeration of different productions, well-organized planning, and policy. In that case, the intensity and dynamics of development will be high.

Furthermore, the detection results indicated that all three towns were monocentric due to limited infrastructure that could stimulate development and job creation, which also pointed to poor policy, poor research-based planning, and a lack of research-based political influence for the development of those towns. However, suppose those services are improved, especially by focusing on specialization and stimulating the existing parameters of growth. In that case, especially by focusing on specialization and stimulating the existing parameters of growth, there is a high probability of changing the monocentric character developments of those towns into multi-centers or more spatially and economically developed centers.

However, Ginchi town had rapid development following the main outlet. It has been developing spatially, both inwardly and outwardly, over the last 20 years. The development

was linear, following the major access road towards major cities and other roads that connected woredas and hinterlands. However, Bishan Guracha town was expanding slowly until 2014, as the detection results indicated; however, the detection results between 2014 and 2022 showed the urban expansion and density of housing have increased dynamically due to the parameters discussed in the findings.

Likewise to Ginchi, Adadi Mariam's spatial urbanization followed main out-let paths (i.e., now developed to the rural unpaved road) that connect the town's different rural centers. However, the overall development of Adadi was slow compared to the other two towns, which were confined only to the main road, around the center, and the church. Regarding the results of contributing factors or parameters for the study town and their effects on the town's development, the study indicated proposed growth parameters. Some of them contributed to the development of the towns, but they vary from study town to study town.

Accordingly, parameters such as the transportation access from the town to other areas, market service for the hinterlands, location on the main road, administrative service for the hinterlands, and establishment of new educational services were important factors of growth for Ginch town. Transportation and connectivity opportunities have played a great role in the town's development. However, there is a weakness in using this potential for the spatial and economic development of the town, indicating that transportation and connectivity were not supported by policy and planning based on an understanding of the context.

In addition, the town can be a center of service, as the results of key informant interviews indicated services such as administration, education, or health and markets in Ginchi town for the hinterland have contributed to and caused spatial expansion and economic activities. However, this needs more organized planning, development policy, and political interest that

is based on contextual understanding and utilizing the local potential for the development of the areas.

In contrast to Ginchi, for Bishan Guracha, parameters such as land and housing rent values, political decisions, and influence, proximity to the major towns, proximity to industrial areas, and topographic and climate conditions were contributing parameters for the town's growth. The special interest here is political. Political interest and influence by the Oromia regional government have contributed greatly to improving infrastructure, land delivery, and the good governance of Bishan Guracha town. As a result, the town physically stretched outward, mainly because of residential housing construction activities. Even though this has changed the town's development, there is a lack of planning and policy on how this town can benefit from its location between the two bigger towns and the existing natural resources.

Regarding the development of Adadi Mariam town, the availability of a tourist attraction center contributed greatly to the development of the town, which was rated highly and ranked as the first factor in growth. Other factors, such as market service for the hinterlands and a specialty in agricultural productions, were also important factors that have been supporting the development of the town.

As per the aim of this study, understanding the parameters of city growth can help politicians, local governments, policymakers, and planners use those specific parameters or factors of growth for local or urban centers. In line with this, a lack of understanding and planning based on existing potential and parameters for growth in the selected study towns has resulted in slow development of the town over the past 20 years. However, the provision of better amenities that can support and activate the specific potential factors or parameters of growth based on the understanding of specific or economic specialization can speed up the development of cities or emerging towns.

5.2. Recommendation

The study has highlighted important understandings regarding the factors or parameters of growth for each study town. This understanding also indicated areas for improvement for study towns as well as other towns with similar characteristics found everywhere in the country or any developing nation. The recommendations of this study are summarized and presented based on the study's main findings and research question. The spatial development of all the studied towns was slow, following the main access road running through the towns. In all of the towns, spatial developments were not guided deliberately based on well-organized spatial planning or policy.

Therefore, emerging towns should guide their town's development direction through spatial planning. These can be achieved through the following strategies: These strategies should be considered in two ways: defining the direction of the town's horizontal spatial expansion and understanding the importance of the town in the hinterland, regional and national, in terms of its role in development, production, natural resources, and any other resource that the town has. Regarding defining the spatial development of the study towns, the entire town should follow organized and well-planned planning and policy-oriented spatial development rather than waiting for the existing way of natural growth, which puts the town's growth under challenge. To achieve this, all the study towns' concerned bodies should know the overall towns' land resources and should inspect cost-benefit analyses for the development of each town.

Furthermore, those studying towns with natural resources that have potential tourism resources should limit buildings and use them for tourism activities and developments. Hence, each town's concerned body should consider and guide the direction of the town's spatial expansion with those natural resources. For instance, Adadi Mariam and Bishan

Guracha have such potential. For Bishan Guracha, it's a must to protect the Lake Hawassa shore or edge from sprawl or deliberate expansion instead of using it for tourism attractions and activating the town.

Whereas, Adadi Mariam should also consider areas of the church and other nearby places related to religious context for the town's development. The concerned body of Adadi Mariam should also consider activating other places with very strong potential for tourism, such as Gibzina Caves, 2 km away in the western direction of town, and Tibebu Caves, 4 km away in the southern direction. Likewise, Bishan Guracha, along with Sheshemene and Hawassa, should also develop potential tourism resource areas such as the hot spring of Wondo, the national parks of Senkelle, Cheleleki wetlands, and others to create well-networked tourism centers for common developments.

The town's administrator should use a strong strategy and align with the tourism and culture bureau of the woreda zone and, if important, with the region to develop those potential places. In general, in any way, the spatial development of each of the study towns should consider those resources for the town’s development based on well-organized development strategies, planning, and policy.

Regarding the understanding of the town’s importance, each town’s concerned body should provide specific parameters of growth based on understanding and hence use those parameters for the town’s development. The first step is that all study towns’ concerned bodies should understand their town based on all factors contributing to the development of the town. Each of the study town's concerned bodies should understand their town’s potential parameters for growth and use them for the development of planning, strategy, and spatial expansion of the respective town. Furthermore, projects that can boost the town and set the development track spatially and economically should be formulated sustainably. All the study

towns should reconsider the gaps in the current development by strengthening the identified top-five parameters. The following points of recommendation are forwarded to the study towns specifically.

5.2.1. Adadi Mariam town

Regarding the development of this town, the church and weekly market service based on agricultural production were the key parameters for the town's development. The researcher believes that if the concerned body of the town effectively works on tourism and development related to agricultural activities, it will boost the development of the town in a very short time. Regarding tourism, the concerned body should work on different networks of available tourist-attracting sites. Therefore, well-defined and measurable strategies should be used to maximize the tourism-pulling capability of the town. This will create several networked job opportunities for the town, resulting in both spatial and economic development of the areas.

5.2.2. Bishan Guracha Town

The study indicated that the development of this town is under the influence of the two larger towns (Sheshemene and Hawassa). The housing gaps and land values in larger towns have contributed to spatial development, along with government or political interest in Bishan Guracha town. The political interest in the town should be extended, and emphasis should be placed on how to develop the town both spatially and economically. Hence, it needs to re-evaluate the benefits of the towns and boost and maximize the benefits to ensure the importance of Bishan Guracha for the development of the region as well.

However, the town concerned should consider the gaps found in Hawassa and Sheshemene towns. Hence, understanding the gaps in those larger towns, along with the above

recommendations, is the key to the development of Bishan Guracha. The concerned body of the town should also consider the gaps with the existing potential of the town and use that potential to invest to fill the gaps in the larger town so that the town will be overwhelmed by people from both larger towns and result in the rapid economic and spatial development of the town.

For instance, the researcher recommends one gap found in both Hawassa and Sheshemene towns, but it's a potential opportunity for Bishan Guracha, i.e., the lack of public parks in Hawassa or Sheshemene. Hence, the town should provide a quality and large public park using the open space found in the town and other potential places such as Kalaleme Mount town, Lake Hawassa, and the existing open land; hence, the town will have resulted in a very busy, vibrant, and active town in terms of economic, social, and spatial development.

5.2.3. Ginchi Town

The accessibility and transportation opportunities, location, and services such as weekly markets and administrative services were Ginchi's development engines. Regarding improving these growth parameters, the town's concerned body should carefully work on and develop strategies for the town's development. The town's concerned body should facilitate the projects or services supporting transportation in town or along the corridors. Because of the existing linkage opportunity, there is a high probability of more immigration. Therefore, the town's concerned body should use that migration as an opportunity and support the development through practical investments in service, education, job creation, and housing development other than the road corridors. The town's concerned body should also consider the tourist-attracting places as a potential factor for developing the town's development with innovative strategies and committed implementation to boost the spatial and economic development of the town in all aspects.

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ANNEXES

Annex 1: Draft Publishable Article

Identifying influencing parameters of city spatial growth for the emerging towns of Bishan Guracha, Ginchi, and Adadi Mariam of Ethiopia: Evidence from the towns' key informants

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Identifying influencing parameters of city spatial growth for the emerging towns of Bishan Guracha, Ginchi, and Adadi Mariam of Ethiopia: Evidence from the towns' key informants

Abstract

In developing countries like Ethiopia, the emerging towns expand spatially towards all the adjacent available land without identifying the potential for development and through trial-and-error investment and poor urban growth management. Hence, understanding the influencing parameters of urban growth helps to easily attain the intended growth and improve the lives of the residents. Therefore, this study aimed to investigate growth-driving parameters and indicate ways of managing urban spatial growth in the emerging towns of Adadi Mariam, Bishan Guracha, and Ginchi in Oromiya Regional State in Ethiopia. The method applied for the study was a cross-sectional study using descriptive and explanatory research approaches to identify parameters contributing to spatial growth in these towns. 13 parameters were developed based on literature and ranked using snowball sampling techniques. 80 questionnaires were used for Ginchi town, 75 for Bishan Guracha, and 65 for Adadi Mariam from residents who knew very well about each town's development. Then detailed interviews were conducted with six key informants from each town to understand the top-five ranked parameters' level of influence on the growth of respective towns over the last 20 years. The result showed that the growth parameters of the towns vary. The existence of a tourist attraction center, provision of market service for hinterlands, proximity to major towns, addition of new education services, and specialty in agricultural productivity were the top-five ranked spatial growth parameters for Adadi Mariam, respectively. Land and housing rent value, political decisions and influence, proximity to major towns, and proximity to industrial areas ranked from 1 to 4, and the two parameters, land topography and climate condition, and the existence of a tourism attraction center, ranked fifth as Bishan Guracha town's spatial growth factors. Similarly, transportation access from and to the town, provision of market service for the hinterlands, location on the main national road, provision of administrative services for the hinterland, and addition of new educational services are the top five identified parameters for Ginchi town. Techniques and strategies that are based on understanding the potentials of each town and development gaps in regions and strengthening the existing potential that considers the specific factors of growth should be applied to help the growth of each study town.

Keywords: emerging towns; parameters of growth; spatial growth; top-five; ranked parameters

1. Introduction

Urbanization has both negative and positive consequences. Suppose the development is not guided by planning and policies. In that case, it has a wide range of negative societal, environmental, and economic consequences (Woltjer, 2014; Glaeser and Steinberg, 2017). Scholars indicated that ways of guiding the development of urbanization through planning and, hence, attaining the intended development require investigating to understand the context and characteristics of a city. For instance, Kerong and Wei (2013) discussed that studying the contextual growth of cities helps for both a better understanding of the urbanization process and its evolution in terms of size distribution, effective policy-making, and scientific-based urban planning. Similarly, Duranton (2016) showed that yesterday's cities' growth drivers are different from tomorrow's city growth drivers; hence, a good understanding of what drives urban growth is likely to attain better results than simple figuring.

Those driving factors for city growth might be different from city to city or region to region. These help policymakers, urban planners, and regional economists formulate policy or spatial development plans to guide the overall development of a city (Bhattarai and Conway, 2010; Dewan and Yamaguchi, 2009).

However, the main cause of urbanization in Ethiopia is mainly population growth, resulting from polling factors aggravated by the failure of the rural economy because of climate change, rural population increments, and the expansion of education and technology. As a result, the rural-to-urban migration population is increasing (Bezu and Holden, 2014; Eshetu and Beshir, 2017), and it accounted for 30–37% of urban population growth between 2007 and 2017 and will be 38–48% in 2037. However, this does not indicate which factors attract more population to a city than another city; rather, it is only related to the cause of migration from rural to urban. Particularly, the driving factors for the development of the emerging towns in Ethiopia are not focused on research and understanding gaps in the factors that poll populations, the reason for spatial growth direction, or economic development in small towns.

Hence, this study uses emerging towns, i.e., Bishan Gurach, Ginci, and Adadi Mariam, as a case study area to analyze driving factors for city growth and rank those driving parameters. Understanding the hierarchy of contributing factors within urban centers of different contexts

helps planners, policymakers, and economists focus on strengthening specific parameters (Rijal et al., 2020), and it assists the government in investing in the right city with the right development strategies (Duranton, 2016). In respect to this, such emerging towns will be expanded spatially towards all the adjacent available lands without selection of lands or expansion sites and management. However, once the factors polluting more migrants to those urban centers are identified scientifically, it would help city planners and managers to guide the development and expansion along the defined areas of land and other cities with similar characteristics in Ethiopia or any other world.

2. Literature Review

Urbanization has both negative and positive consequences. Suppose the development is not guided by planning and policies. In that case, it has a wide range of negative societal, environmental, and economic consequences (Woltjer, 2014; Glaeser and Steinberg, 2017). Particularly in the developing world, the situation is even worse, as the existing urban infrastructure is already inadequate and is inadequate for the current population. Such poor urban infrastructure and social services in the developing world even lead the urban centers to areas of complicated problems rather than the center of national economic surplus and job opportunities. Along with the rapid urban population increase, poor planning activities and development strategies in developing countries have adverse negative impacts on the growth of cities (Maheshwari and Bristow, 2016).

According to Tan et al. (2009), because urbanization is an unstoppable phenomenon, it requires strict guidance to facilitate citizen development and national objectives while adhering to sustainability principles. Shi et al. (2016) also discussed that spatial urban development needs timely and frequent evaluation through accurate mapping and urban planning. Meanwhile, Akujuru (2016) argued that there should be a mechanism that restricts urbanization or ways to direct the development to intended areas. Shabu et al. (2021) studied the impacts of urban expansion in Nigeria. They recommended formulating an effective law and policy to control and overcome the negative impact of urbanization, thereby attaining the intended growth.

Understanding the factors that influence the development of urban centers, both spatially and economically, makes it easier to achieve the desired results. Furthermore, once those influencing parameters and their level of influence are identified, it assures policymakers,

urban planners, and regional economists to formulate policy or spatial development plans to guide the overall development of a city (Bhattarai and Conway, 2010; Dewan and Yamaguchi, 2009).

The driving factors for city growth might differ from city to city or region to region. Research conducted in different cities on factors influencing growth showed slight differences. For instance, Li et al. (2018) summarized the literature and grouped factors that influence growth in Indian cities into themes such as governance and politics, economic growth and markets, social inclusion, geography, infrastructure, and employment and human capital. Kolomak (2012) described external growth parameters (infrastructure, security) and internal parameters (economic, social, infrastructure, human capital, and environmental situation) to determine the growth of Russian cities.

On the other hand, da Mata et al. (2007) studied the influencing factors for Brazilian cities' growth and found that geography, road connectivity, educational attainment, and economic specialization were important drivers of city growth. Another study in Colombian cities by Duranton and Puga (2013) revealed that agglomeration of economies, human capital, smaller firms, and greater diversity in production are important drivers of city growth. In the same way, in Nepal, driving factors of Nepal's urban growth were studied by Rijal et al. (2020), who found that socioeconomic factors made the highest (62%) contribution to urbanization, while political factors (14.5%), physical factors (12%), and planning and policy factors (11.5%) were also influencing factors, respectively. In addition, Rijal et al. also indicated that climate and physiographic features, along with favorable government plans and policies, make the area attractive for urban development.

Like any other sub-Saharan country, the urbanization of Ethiopia is characterized by poor planning activities and rapid horizontal urbanization without control. On the other hand, it is the least urbanized region of the world but the fastest-urbanizing region, mainly characterized by rural-to-urban migration (Kebede, 2017; UNDESA, 2018). Therefore, in the face of this rapid urbanization, poor planning activities even more challenge the management of the urban area and result in multiple environmental, social, and economic challenges (Kasa et al., 2011). Indicating that the urban centers developed naturally without a planning guide, the planning activities follow the development and expansion direction rather than development following planning and urban expansion in preplanned areas and directions.

However, understanding the contextual characteristics of emerging towns means that planning, policy, and strategy depend on understanding the contextual characteristics of emerging towns. In that case, it helps guide their development through scientific-based planning output. Understanding the hierarchy of contributing factors within urban centers in different contexts helps planners, policymakers, and economists focus on strengthening specific parameters. (Rijal et al., 2020; Dewan and Yamaguchi 2009, Bhattarai and Conway 2010) and while it assists the government to invest in right city with right development strategies (Duranton, 2016). Therefore, this study used Bishan Guracha, Adadi Mariam, and Ginchi towns as case study emerging towns to study and identify parameters contributing to growth in those emerging towns and to develop alternatives for managing urban growth based on important contextual emerging towns' growth parameters.

3. Research Methods and Materials

Study Towns' Selection

The three study towns were selected according to the selection criteria listed in Table 3.1, in addition to accessibility and data collection capability. Accordingly, Bishan Guracha fulfills the most criteria, while Ginchi and Adadi Mariam fulfill the medium and least criteria, respectively. Hence, the selection criteria were set to address and examine different scenarios so that the study could represent the towns with the highest, medium, and lowest chance for development.

The selection of the emerging towns is based on three main reasons. Accordingly, the first was to select an emerging town in which political interest and influence are the major factors for development. In line with this, Bishan Guracha, an emerging town near Hawasa City, is the best fit for this study. Furthermore, natural resources, data availability, research time, and the budget that the study might consume are also considered in selecting the town. In general, a rough assessment by the researcher indicated that there is high political interest, natural resources such as Lake Hawassa, recreational opportunities such as Wando hot springs and tourism, proximity to major cities, transportation access, access to national roads, access to land, low housing values, and topography are the criteria used to select the town.

The second was to select a town with high transportation access and a center of transport hubs for rural hinterlands and major cities. Accordingly, Ginchi town has six transportation

outlets. It is the center of a transport hub for rural hinterlands in the region by connecting Tullubollo-Busa in the south direction, Jeldu, Elfeta, Bake, and Meta Robi woredas in the northern to Zonal town (Ambo), and the national capital (Addis Ababa) city in the western and eastern directions, respectively. In addition, it is a woreda administrative town and market center for the adjacent rural hinterlands. Hence, Ginchi fits the criteria to be selected for this study.

Table 1: The characteristics of the selected emerging towns

Characteristics of the towns	**Selected towns**		
	Bishan Guracha	Ginchi	Adadi Mariam
Proximity to larger towns	√	X	X
Availability of natural resource	√	X	X
Recreational values	√	X	X
Tourism	√	X	√
Political influence	√	X	X
Transportation access	√	√	X
Through national road	√	√	X
Low housing rent values	√	√	√
Access to land for housing	√	X	X
Administrative services	√	√	X
Education service up preparatory school	√	√	√
Education service (TVET and colleges)	X	√	X
Markets service for hinterlands	√	√	√
High transportation linkage(transportation hub)	X	√	X
Linking more than four rural woredas' town	X	√	X
High agricultural productions	√	√	√
Availability of data	√	√	√

Source : Computed by the Author : (2023)

'√' is the town has the character, while 'x' is the town does not have the character

The third was to include an emerging town that has no access to national asphalt roads and no active or direct transportation but has some specialty or values its development, such as natural resources, agricultural specialty, or tourism attractions like heritages. As a result, Adadi Mariam is well-known for its rock-hewn church. It has not directly accessed the national road; however, it is connected by unpaved roads extending 12 km from the main roads connecting Addis Ababa to Butajira. As the town is known for its tourist attractions and high agricultural production such as wheat, teff, and beans, it fits the criteria to select for this study.

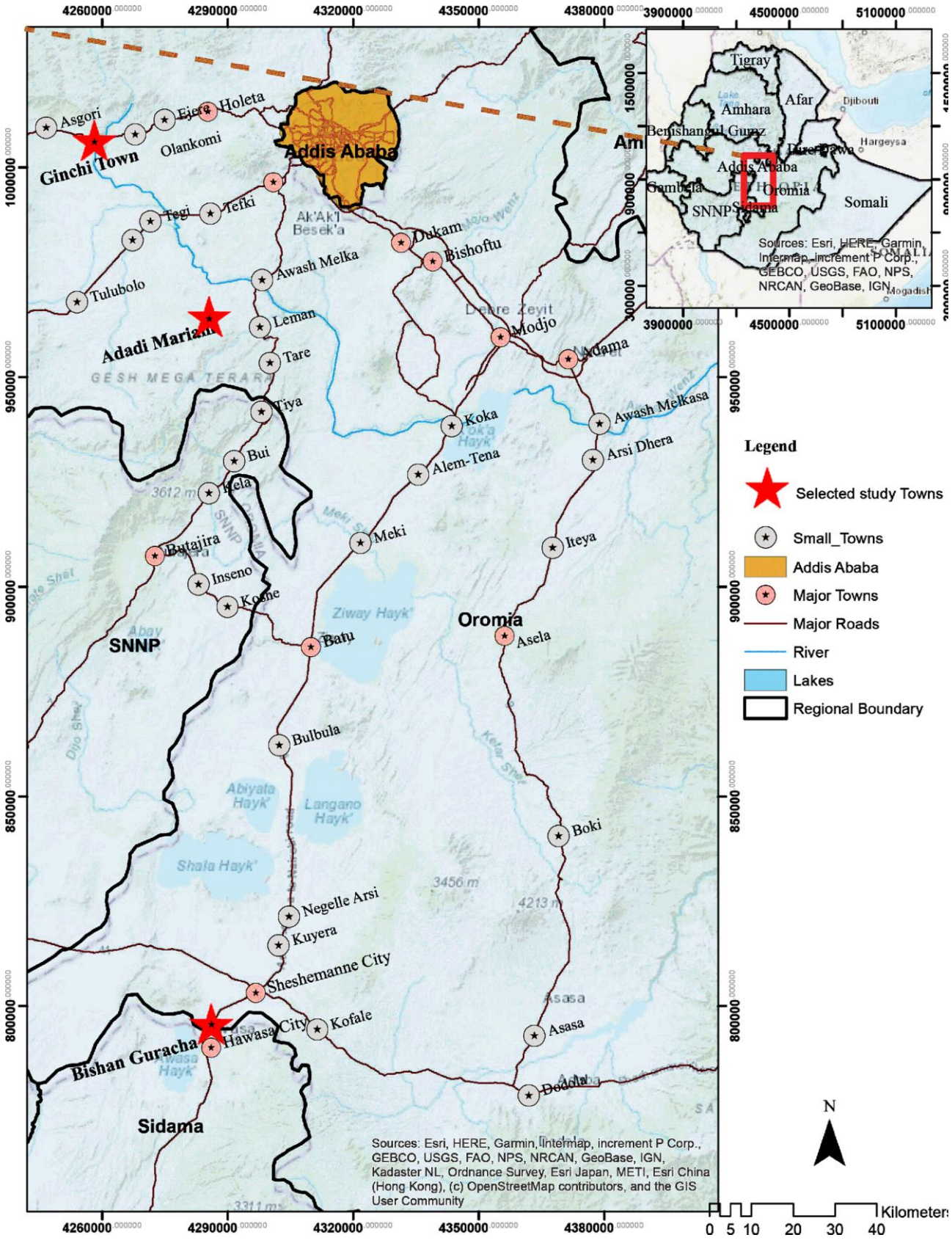


Figure 1: Location maps of the selected study towns

Source: Computed by the Author:(2023

The Methods

The study was based on the information from the prominent elders, town administrators, and other residents of each town who know about both the spatial and economic development of the respective town, and those who know the historical service development of the town were included in the survey to understand the influencing factors of growth for the selected emerging towns.

The questionnaires focused on driving parameters that are recognized as factors of urban growth in the literature so far. However, it is contextualized with real activities in the study town in a way that is understandable for the respondents in the respective study towns. The survey questionnaire has three parts, i.e., the first part is about the socio-demographic characteristics of the respondents with six variables. The second part is about how to know about the respective study emerging town that seeks to explain the level of knowledge of respondents to the historical spatial and economic developments of the towns and the reasons they were able to know the development characteristics were included in the survey question.

Finally, the third part contains the factors influencing the spatial growth of the respective study towns with thirteen variables, and the respondents were asked to rank them in a way or order of greater contribution to the development of the respective emerging town.

Sampling

Probability sampling methods were followed for this study for the town selection and residents who participated in survey questionnaires. Accordingly, using criteria, the towns were selected conveniently (refer to Table 1).

To identify residents who were participating in the survey questionnaires, snowball sampling methods were used to select key informants who knew about the development history, the history and trends of spatial development direction, factors or reasons for change, and developments of the respective town. Accordingly, the researcher first selected some respondents who knew the area and town very well; then, they used their recommendation to ask other residents until enough information was collected from each study town.

Accordingly, in June 2022, 120 questionnaires were planned and distributed for Ginchi town, 100 questionnaires for Bishan Guracha town, and lastly, in September 2022, 100 questionnaires were planned and distributed for Adadi Mariam town. However, upon actual collection, only 80 were returned from Ginchi, 75 from Bishan Guracha, and 65 from Adadi Mariam. Hence, the analysis and interpretation of the results for identifying influencing parameters were based on the actual returned questionnaires.

Data Analysis Methods

The descriptive method was applied to analyze the data collected through survey questionnaires. Variables indicating the characteristic of the respondent's frequency were widely used. To rank parameters of city growth for the study town, the following formula was used to calculate the total score of each influencing city growth parameter and the rank of those variables.

Accordingly, the rate of each parameter was organized and counted using Excel per town to find the total score of each city's growth parameter. Thus, the total parameter score was calculated based on the number of rates as indicated in the formula. Then the number of rates is multiplied by the order number or rank number, where the parameters rated on the first rank are multiplied by 10 order numbers (i.e., by considering 10/10), and the one that is rated at the end is multiplied by 1.

$Ya= (Nr\__i) R_1 +(Nr\__i) R_2 +(Nr\_i) R_3 +…….(Nr\_i) R_{10}……..……..…..(1)$

And $R=10-(i-1)$ -……..…… (2)

Source; developed by the author, May 2022

Where Y_a is the parameters of the city growth of the three towns, i.e., Y presented the 13 parameters of growth such as political decision and inference, land and housing rent value, the existence of tourist attraction centers, proximity to the industrial area, proximity to the major town(s) because of its location on the main roads, transportation access from the town to other areas, specialty in agricultural production, its administrative service for the hinterlands, its market service for the hinterlands, because of new educational services, land topography and climate condition, and job opportunity in the town,

where ‘a’ presented the three study towns i.e. *Ginchi, Bishan Guracha, and Adadi Mariam.*

Nr……..is the number of rates given by respondents at the given order or rank (i),

‘i’ …is the order number or rank from one to ten listed as on the 1^{st}, 2^{nd},3^{rd}…..and 10^{th}

R…….is the rank values difference i.e. ranged 1 to 10 or 10/10 to 1/10, where 10 or 10/10 is for the first rank and 1/10 or 1 is for the last rank with the lowest rank values out of ten.

4. The Results

Socio-demographic and knowhow about the study towns of the respondents

Demographic explaining variables such as age, gender, level of education, and occupation; and other variables that can indicate know-how about the respective study town of respondents, such as years of stay in the town and level of knowledge about the development and expansion of the town, how were you able to know the development and spatial expansion of this town? The questions about how you evaluate the recent development of the town were included in the survey questionnaires. In general, about 320 questionnaires were distributed to study towns; however, only 220 questionnaires were found to be valid and properly filled out by residents who knew the town well. The valid numbers of questionnaires properly attempted or samples (N) per each of the study towns are indicated in each result presentation and discussion (Table 2).

Accordingly, out of 80 participants in Ginchi, 46.3% were males, and 64% of 75 samples in Bishan Guracha were males, while for Adadi Mariam, about 52.8% were males (Table 2). Most of the participants’ age categories fall between 31-41 and 41-50 in Ginchi (72.3%), but about 41.3% of participants in Bishan Guracha are less than 30-year-old, while about 73.8% of participants in Adadi Mariam are above 30 years old (Table 2). In terms of occupation characteristics of the respondents, most of them are farmers (i.e., %) and government workers (48.8%) in Ginchi, while almost all government workers (78.75%) in Bishan Guracha town and Adadi Mariam are employed, people, and daily laborers. When their level of education is concerned, for Ginchi, most of the participants reached TVET and 1st degree levels of education, while in Bishan Guracha, most of them attended TVET, and in Adadi, preparatory and illiterate are the dominant percentages.

About 80% of the surveyed samples had at least stayed more than 10 years in Ginchi, while about 76.7% and 73.1% of the surveyed sample stayed more than 10 years and knew well about the towns of Bishan Guracha and Adadi Mariam, respectively. These indicated that most of the participants can judge and explain the trends of each respective town's developments and expansion.

Similarly, when asked how those participants knew the development and spatial expansion of each town concerned, in Ginchi, 44.9% of the participants said that they were able to know the development trends because they were born and raised there, while 43.6% of them said they stayed in the town for a long time so that they could know the development and spatial expansion trends of that town. For Bishan Guracha town, the participants stated that they can know the development and expansion because they were born and raised there (i.e., 29.3%) and they are working in the municipality (i.e., 49.3%) (Table 2). However, in Adadi Mariam, about 70.8% of the participants were able to know the development and spatial expansion because of the reason they were born and grew up in that town (Table 2).

The spatial expansion and overall development of the towns were asked of the participants. The finding indicated that 38.8% said it was constant for Ginchi town. In comparison, 32.5% evaluated it as having no significant change in the development of the town (Table 2). In the same way, for Bishan Guracha town, most of the participant's recent development evaluation falls under constant development (34.7%) and no significant change (26.7%). But for Adadi Mariam, about 26.2% of the participants have an attitude that the town has developed fast, while 36.9% of the participants rate the development as constant (Table 2).

Socio demographic Variables	Categories	Ginchi (N=80) in %	Bishan Guracha (N=75) in %	Adadi Mariam (N=65) in %	Variables related to know how about respective towns	Categories	Ginchi (N=80) in %	Bishan Guracha (N=75) in %	Adadi Mariam (N=65) in %
Gender	Male	46.3	64	52.8	Level of knowledge about the development and expansion of the town	I know it very well	62.5	33.3	66.2
	Female	53.7	36	47.2		I know it well	26.3	64	23.1
Age	below 30 years	17.8	41.3	26.2		I have limited information	11.3	2.7	7.7
	31-40	53.8	26.7	26.2		I have no idea about it	0	0	3.1
	41-50	18.5	22.7	30.8	How were you able to know the development and spatial expansion of this town?	I was born and raised here	44.9	29.3	70.8
	51-60	6.3	6.7	12.3		I stayed here for a long time	43.6	18.7	13.8
	61-70	3.8	2.7	1.5		I'm working in a municipality	10.3	49.3	12.3
	above 70 years	0	0	3.1		My work is directly related to the development of the town.	1.3	2.7	3.1
Level of Educations	Illiterate	7.5	2.7	29.2		Others	0	0	0
	Elementary (1-8)	3.8	10.7	10.8	How long did you stay in this town?	less than 10 years	20	13.3	16.9
	secondary school (9-10)	5	1.3	20		10-15 years	41.3	26.7	9.2
	preparatory school (11-12)	3.8	2.7	27.7		16-20 years	27.5	40	23.1
	TVET	13.8	69.3	3.1		21-25 years	6.3	2.7	24.6
	1st degree	51.3	13.3	9.2		26-30 years	5	1.3	13.8
	2nd degree and above	15	0	0	Based on your experience, how do you evaluate the recent development of the town?	The town has been developing very fast	13.8	21.3	15.4
Occupation	Farming	30	1.3	23.1		The town has been developing fast	13.8	17.3	26.2
	Daily laborer	15	5.3	18.5		The development was constant	38.8	34.7	36.9
	Government	48.8	78.7	10.8		No significant change in development	32.5	26.7	20
	Unemployed	6.3	13.3	44.6		the development was retarded	1.3	0	1.5
	Others	0	1.3	3.1					

Table 2: Characteristics of the respondents in terms of their socio-demographic and knowhow about the respective study towns

Source: Developed by the Author : (2023)

Results on City Growth Parameters

The rate of each parameter was organized and counted using Excel per town and calculated based on the formula (1,2) to find the total score of each city growth parameter. Accordingly, the results of each town's city growth parameters' total score and the rank of growth parameters are presented as follows:.

According to this study's result and the respondents' assumptions, there are several factors contributing to the growth of Ginchi. Accordingly, transportation access from the town to other areas is the most influencing and activating parameter for Ginchi town, with a total score of 682 (Figure.2(a)) and hence ranked the first parameter for growth (Figure.2(a)). Accessibility and connectivity of the town to other rural woredas such as Elfeta, Meta, and Jaldu rural woredas, as well as northern and southern directions such as Dawo and Wanchi rural woredas, have contributed to the spatial and economic activities of the town.

Other parameters such as market service for the hinterlands with a total score of 649, its location on the main road with a score of 606, administrative service for the hinterlands with a score of 553, and establishments of new educational services with a score of 510 are the top five ranked parameters for the growth of Ginchi town, respectively (Figures 1(a) and 3(a)).

The town's administrative service for the Dandi woreda and its market service for all the rural hinterlands (two weekly market services) have also contributed to the development of the town. Furthermore, the respondents perceived that the location of the town on the main national roads from Addis Ababa-Ambo-Nekemte-Asosa and the establishment of new high schools, TVET College, and other private colleges in the town have attracted more residents and service seekers to the town, which has also contributed greatly to both spatial and non-spatial development of the town. However, city growth parameters such as job opportunities in the town, proximity to the industrial area, political decisions and influence, and the existence of tourist attraction centers are rated less by the respondents, with scores of 124, 174, 231, and 272, respectively, showing that these factors have little effect on the growth of the town (Figures 1(a) and 3(a)).

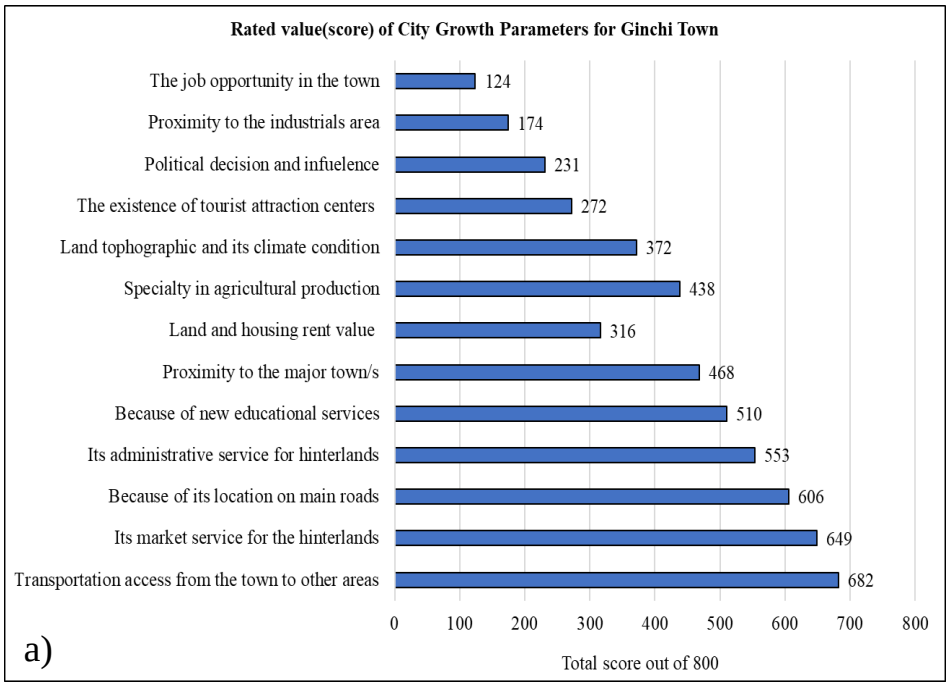
In the construction of Ginchi town, the parameters for city growth that were mostly rated by respondents in Bishan Guracha are identified as land and housing rent values with high score

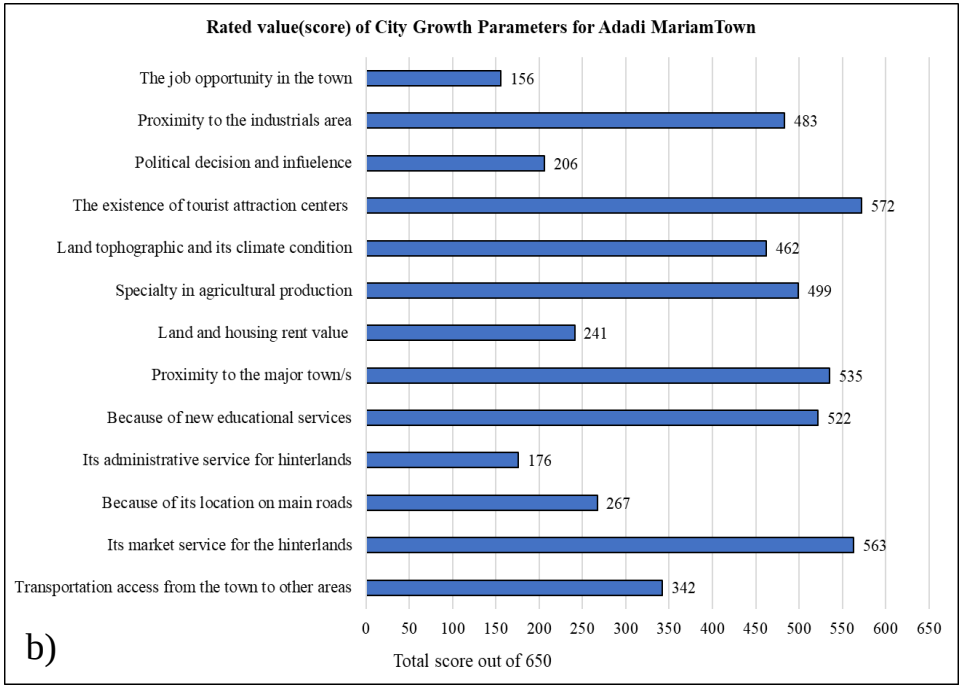
values of 650; political decisions and influence with score values of 604; proximity to the major towns with score values of 565; proximity to industrial areas with score values of 511; availability of tourist attraction centers; and topographic and climate conditions with score values of 504 are the top five parameters for the growth of the town (Figures 1(c) and 3(b)).

The parameter of political influence has been rated highly and ranked as the second most important factor that contributed to the development of the town; as a result, the town has gotten special political attention at the regional level and has equal status in administration with major cities in the regions such as Adama, Bishoftu, Sheshemanne, etc. Also, the proximity of this town has contributed to spatial development, such as housing construction, optional rent for residential houses, and low land values in the areas. Thus, the town is serving as a satellite city for both Hawassa and Sheshemanne cities (Figures 1(a) and 3(a)).

However, factors of growth such as administrative services for hinterlands, establishments of new educational services and other social services, job opportunities, and market service for hinterland areas are the parameters of growth that were rated less by the respondents and thus ranked as the least top four. Other parameters such as location on the main roads, specialty in agricultural production, and transportation access from/to are rated medium, indicating that the influence of these parameters is perceived as medium for the town (Figures 1(a) and 3(a)).

Unlike Bishan Guracha and Ginchi town, the availability of tourist attraction centers contributed highly to the development of Adadi Mariam town, which was rated highly and ranked as the first factor of growth by the respondents. Other factors of growth, such as market service for the hinterlands with a score value of 563, proximity to the major towns with a score value of 535, establishments of new denudation or other social services with a score value of 522, and specialty in agricultural productions with a score value of 499, are the major factors of city growth that were rated high and ranked in the top five by respondents (Figures 1(b) and 3(c)). In addition to those factors of growth, other parameters such as job opportunities, administrative service values for the hinterlands, political decisions and influence, and land and housing rent values are perceived as contributing less to the spatial and non-spatial development activities of the town by the respondents (Figures 1(b) and 3(c)).





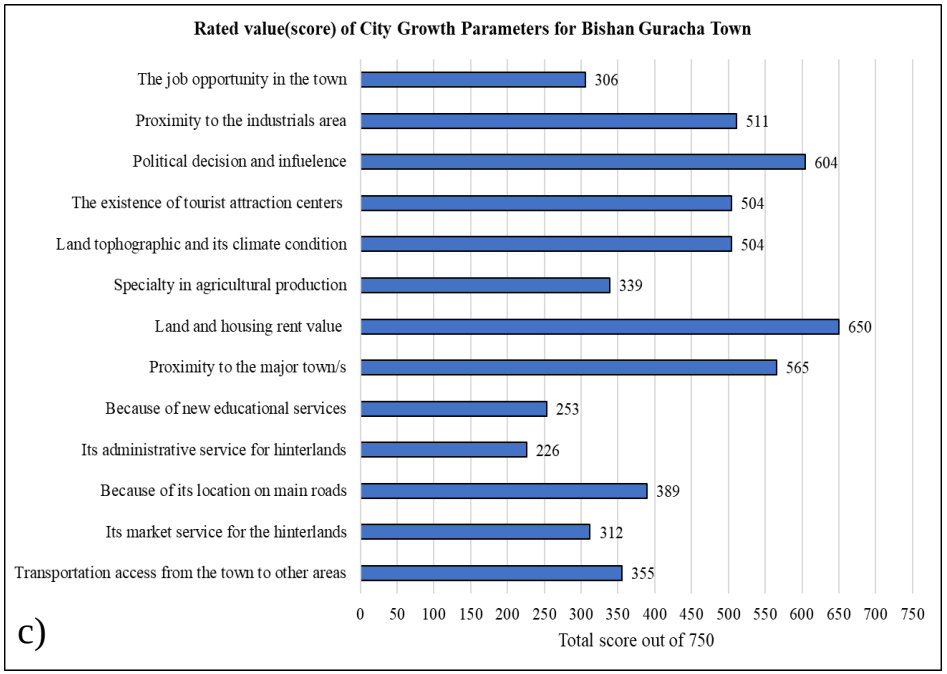
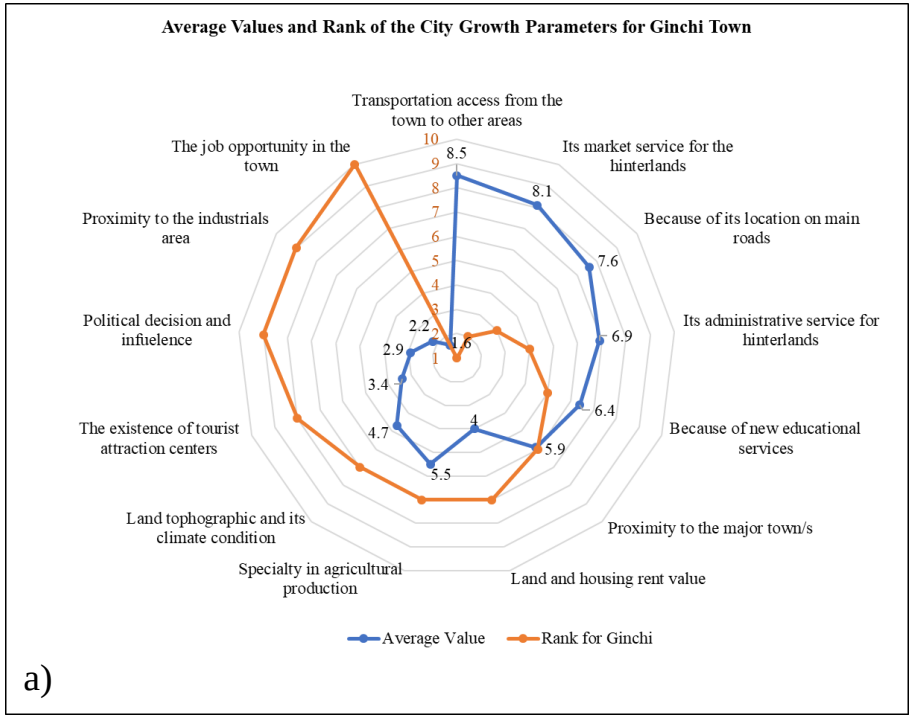
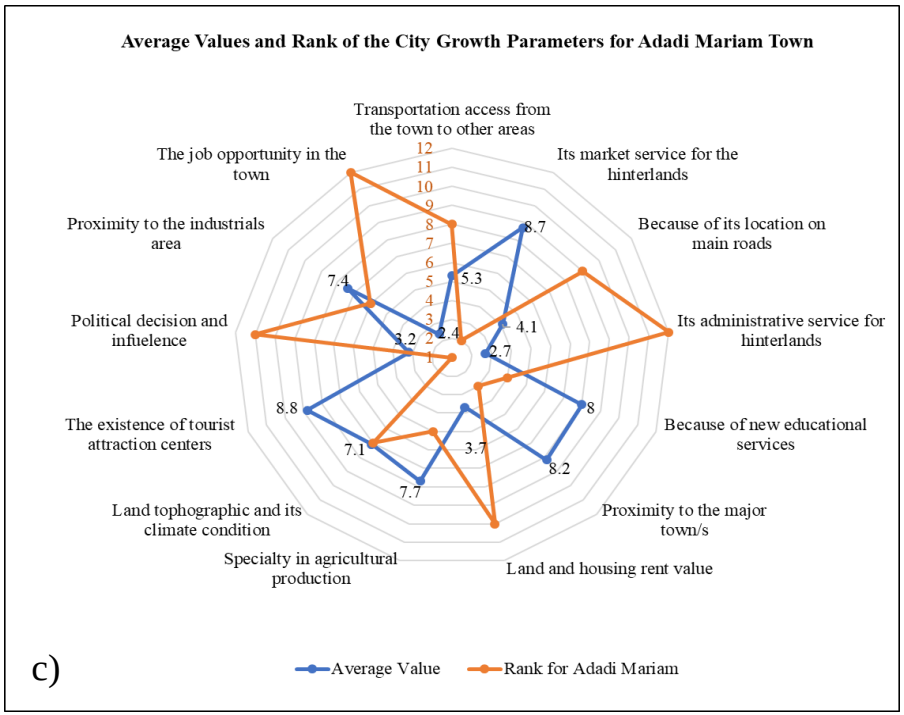
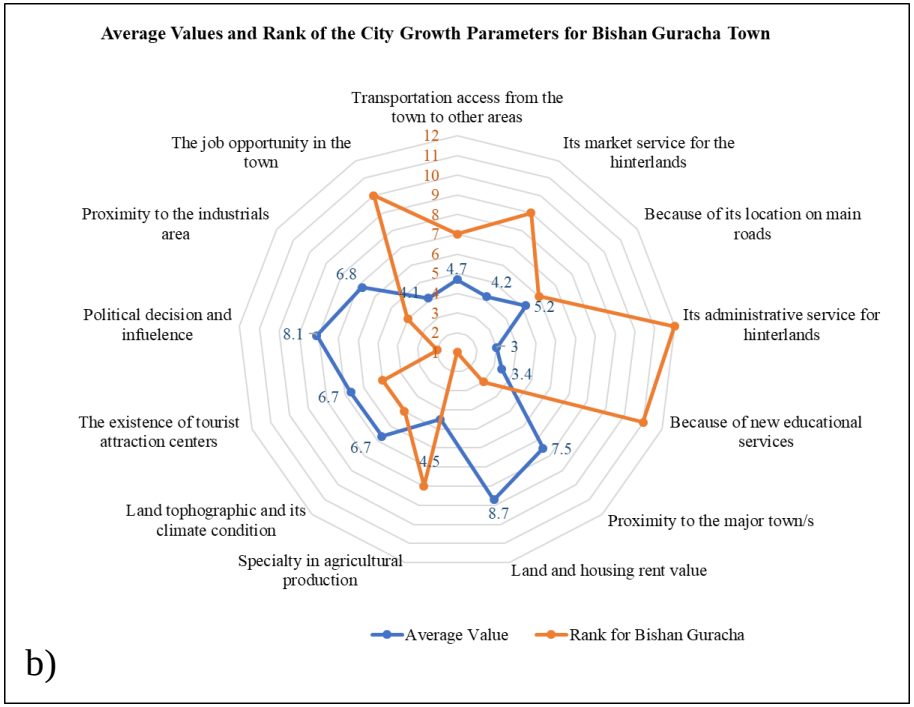


Figure 2: The weighted total score of the city growth influencing Parameters for the study towns

Source: Developed by the Author : (2023)







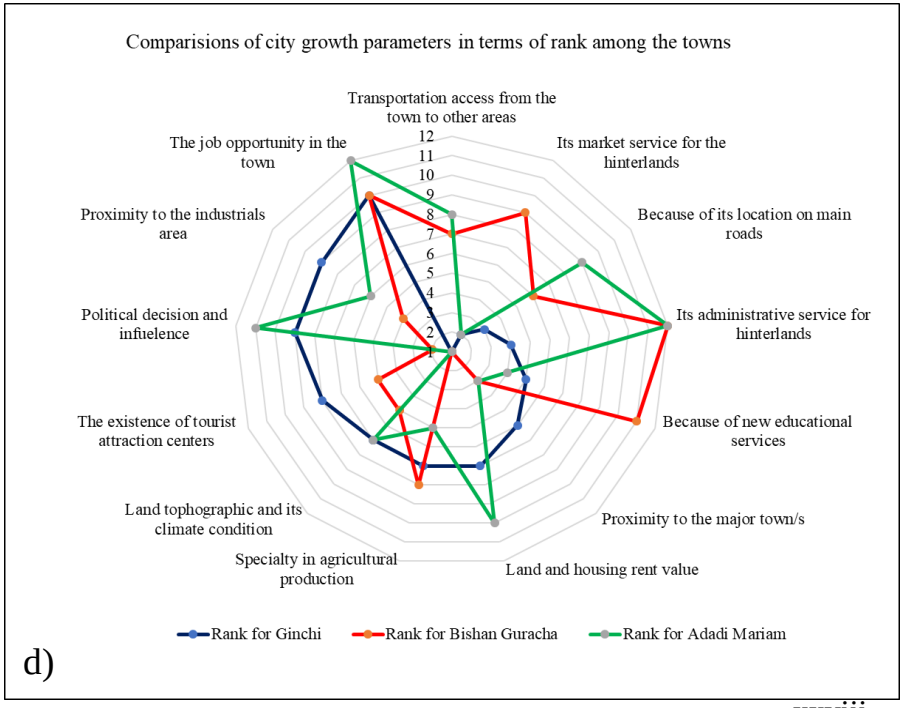


Figure 3: Average Values and its comparisions of city growth Parameters for the study towns

Source: Developed by the Author : (2023)

3. Discussions of the results

All the selected study towns have been developing spatially, showing both inward expansions and outward directions by engulfing other land use into urban land use character, i.e., built-up areas such as roads, housing, and services. For Ginchi town, there was rapid development following the main outlet and strong signs of change from a monocentric town pattern to several centers. As described by Duranton and Puga (2013), limited transportation, roads, and housing supply retard urban growth and tend to develop naturally following a monocentric model. However, especially by focusing on specialization, the development will change into several emerging centers or sub-centers. Similarly, Bullivant (2012) argued that the urban growth process is based on economic agglomerations and activating parameters that can shift growth rapidly.

On the other hand, in all of those study towns, there was no investment practiced over the last 20 years that can result in towns' spatial expansion, and population growth by attracting more immigrants has resulted in less spatial expansion. Particularly, Bishan Guracha and Adadi Mariam have not had such remarkable investments, while Ginchi has benefited from road construction investment over the last two years. There are also several proposed lodges and hotels in Bishan Guracha that have not yet started. Massive investments lead to the growth of the cities (Glaeser et al., 2015; Bullivant, 2012), and if a specialty in production is added, it is even more important for the development (Duranton & Puga, 2013; Li et al., 2018).

Based on the identified rank results, parameters such as transportation access from the town to other areas, market service for the hinterlands because of its location on the main road, administrative service for the hinterlands, and establishments of new educational services were the top five ranked parameters for the growth of Ginchi town, respectively. Similar to these findings, Pradhan and Perera (2005) and UNDESA (2018) also discussed several parameters that encouraged urban development, such as educational and health institutions, services, infrastructure, and non-agricultural economic activities.

Like the difference in growth parameters among the three selected study towns, factors of growth in cities or local regions vary from region to region and urban to urban in the world, as indicated by researchers. For instance, Kolomak (2012) studied factors influencing city growth in the Russian Federation and found that parameters such as infrastructure, security, economic, social, human capital, and environmental situation influenced growth. Meanwhile,

in the U.S., city parameters such as city population, the rate of wage, education infrastructure, unemployment, and the employment share of manufacturing were identified as drivers of urban growth (Scheinkman and Shleifer, 1995). In South America, the study conducted by da Mata et al. (2007) in Brazilian cities and Duranton (2016) in Colombian cities indicated that geography, road connectivity, educational facilities, and economic specialization were important drivers of city growth.

Transportation access from the town to other areas is the most influential and activating parameter for Ginchi. Accessibility and connectivity of the town to other rural woredas such as Elfeta, Meta, Cobi, Gindeberat, Abuna Gindeberat, and Jaldu rural woredas towards northern and southern directions such as Dawo and Wanchi rural woredas and urban centers such as Ambo, Asgori, Olankomi, Shukute, Addis Ababa, Holota, and Busa have contributed to the spatial and economic activities of the town.

This finding aligns with the discussion by Álvarez-Berríos et al. (2013), who pointed out that linkage to urban centers or rural areas is a factor for the city. Furthermore, transportation access to Ginchi as a factor in development is agreed upon in the discussion and findings by Li et al. (2018), Donaldson (2018), and Glaeser (2004), who indicated that connectivity and accessibility play crucial roles in cities or regional development. In line with this finding, Li et al. (2018) indicated that services such as market services and social services like educational and administrative services are stimulators for urban centers' spatial and economic development.

In contrast to Ginchi town for Bishan Guracha town, parameters such as land and housing rent values, political decisions and influence, proximity to the major towns, proximity to industrial areas, and topographic and climate conditions were the most and ranked the top five contributing parameters for the growth of the town. However, growth factors such as administrative services for the hinterlands, establishments of new educational services and other social services, job opportunities, and market services for the hinterland areas are the parameters of growth that are rated less.

These findings align with the discussions of Duranton (2016) and Rosenthal and Strange (2010), who stated that population size and density, rate of migration, and housing stocks in urban areas are key parameters for growth. In addition, the World Bank (2015) also discussed in their report parameters related to employment structure and job opportunities, such as labor

pooling factors, the shares of self-employment, and wage employment, which are also influencing factors for urbanization and in-migration. For Bishan Guracha town, the main factor that positively or negatively affects the development of the town is its proximity to major towns or its location between two bigger towns. These contributed to the town being a satellite town where most residents and workers of those towns live but work in major towns.

The case of Bishan Guracha's finding for this study agrees with the points of Redding and Venables (2004), as measured parameters such as nearby economic activity weighted by distance or travel time, proximity to large cities, ports, industrial areas, natural resources, and economic facilitating infrastructures such as road networks have a positive influence on development. Furthermore, economic activities such as the availability of agriculture processing manufacturers, economic diversity, and specialization in production play a great role in the development of cities (Duranton, 2016; Glaeser et al., 2015; Rosenthal and Strange, 2010). Similarly, in the case of Bishan Guracha, the availability of Hawassa industrial parks has contributed to the housing and land values of the town, where most of the residents benefit from housing rent and a few from small businesses such as shops and restaurants.

Political interest and influence by the Oromia regional government have contributed greatly to improving the town infrastructure, land delivery, and good governance. As a result, the town physically stretched outward, mainly because of residential housing construction activities. Also, a study by Besley and Burgess (2004) indicated that political interest is the basis for economic policies that will stimulate business and local growth. In general, this study is in line with the study and discussion of Li et al. (2018), Rimal et al. (2018), and Rijal et al. (2020), where political interest and influence are major forces that can accelerate the development of cities or regions in a short time.

Regarding the development of Adadi Mariam town, the availability of a tourist attraction center contributed greatly to the town's development, which was rated highly and ranked as the first factor in growth. Other growth factors, such as market service for the hinterlands, proximity to the major towns, establishments of new denudation or other social services, and a specialty in agricultural productions, were the major growth factors that ranked high and ranked in the top five for Adadi Mariam.

As indicated by Redding and Venables (2004), the availability of tourist attraction centers or natural resources that have economic potential and value has an appositive influence on attracting more people and activating cities. Accordingly, sometimes it is a reason for the foundation or development of settlements. More specifically, economic activities include the availability of agriculture processing manufacturers, or specialization in production, which plays a great role in developing cities or settlements (Rosenthal & Strange, 2010; Glaeser et al., 2015; Duranton, 2016). Likewise, to the above arguments, the foundation of Adadi Mariam was based on the establishment of the Orthodox Church and then eventually developed because of market service that was mainly based on agricultural productions.

In general, as per the aim of this study, understanding the parameters of city growth can help politicians, local governments, policymakers, and planners use those specific parameters or factors of growth for local or urban centers. In line with this, a lack of understanding and planning based on existing potential and parameters for growth in the selected study towns has resulted in the slow development of the towns over the past 20 years.

However, a study has indicated that providing better amenities based on an understanding of specific or economic specialization can shift cities' monocentric evolution (development) into several emerging centers or sub-centers (Duranton & Puga, 2013; Seto et al., 2012). Furthermore, Duranton (2016) discussed that tomorrow's or future city growth drivers would not be the same as the previous growth factors; also, overinvestment, underinvestment, or investing in the wrong city may be very costly and may not lead to the intended development. Therefore, a systematic understanding of city growth drivers is likely to lead to better development results. On the other hand, some studies have indicated that some single or multiple city growth drivers or parameters have a significant effect on overall growth.

4. Conclusions

The study aimed to understand the contributing factors for the growth of Ginchi, Bishan Guracha, and Adadi Mariam as emerging towns. The study used a snowball-based inquiry of residents who know about the development history of respective emerging towns well to understand the factors influencing the growth of these towns. The study highlights the importance of understanding the factors influencing town growth and using them for development planning.

The results indicated that all the towns were monocentric due to limited infrastructure and poor policy and planning. However, with improved services and a focus on specialization, there is a possibility of transforming these towns into multi-centers or more economically developed centers. The study identified various contributing factors to the growth of each town. For Ginchi town, transportation access, market service, administrative service, and new educational services were important factors. The town experienced rapid development following the main outlet road with spatial urban growth. However, these factors needed better planning and development policies based on the town's potential.

Land and housing rent values, political decisions, proximity to major towns and industrial areas, topography, and climate conditions influenced Bishan Guracha town's growth. Tourist attraction centers, market service, and a specialty in agricultural production drove Adadi Mariam's development. For Bishan Guracha town, the study suggests understanding the gaps found in the larger nearby cities of Sheshemanne and Hawasa and then using them to boost economic and spatial development. Adadi Mariam town should focus on tourism and agricultural-based development, utilizing the available tourist attractions and agricultural potential. Ginchi town should facilitate transportation projects, utilize in-migration as an opportunity, and consider tourist attractions for development. The study emphasizes the need for innovative strategies and policies to accelerate the spatial and economic development of the towns.

The study’s findings provided that all towns should guide their development through spatial planning and policy. This can be achieved by understanding the town's potential and importance in terms of development, production, and natural resources. The study suggests identifying specific growth parameters and using them for town development. Also, strengthening the identified parameters by filling the gaps in current development will help to achieve both the spatial and economic development of the respective towns and any other emerging towns with similar characteristics in Ethiopia or anywhere in the world.

Credit authorship contribution statement

Gezu Yadete Kumbi: Conceptualization, Data Collection, Methodology, Resources, Software, Visualization, Writing (original draft), Writing (review and editing) **Berhanu Woldetensae:** methodology, supervision, writing, review, and editing.

Acknowledgment

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Annex 2: Survey Questionnaires

Dear respondent, this questionnaire is conducted for an academic purpose for the fulfillment of an MSc degree in Urban Planning. Specifically, in the study titled **"City Growth Projection Parameters for Emerging Towns in Ethiopia in the Case of A, B, C, and D Towns."** Therefore, your response is only for academic purposes and the information you provide determines the conclusion of this research. Thank you for your cooperation.

Part I: Background Information of the City

1. **Year of foundation_____ Reason of foundation_____**

2: Location

1.2. **Distance from major city:** _____kilometers

1.3. **Distance from national road**: _____kilometers

1.4. **Numbers of proximity towns:** _____numbers

1.5. **Does the town near natural resources** (such as parks, tourism areas, production centers, mining lands, rivers or lakes, etc.) 1: yes 2 No, if yes please state them _____?

1.6. **Surrounding agricultural products:** 1: wheat and teff 2: maize 3: cash crops and fruits 4: livestock 5: others _____

1.7. **Climate and soil character**: _____

1.8. **Topography of the town and surroundings:** 1: flat 2: gentle slope 3: sloppy 4: very steep and hilly 5: others_____

2. <u>Access</u>

2.2. **Does it have first level asphalt road**: 1: yes 2. No

2.3. **Numbers of access roads to the city**: _____

2.4. **If it has more than one access, what type of road pavement**: _____

2.5. **Transportation types:** 1. minibus 2. Medium bus 3: both mini and medium bus 4: bigger bus 5. Others_____

2.6. **On average what is the frequency of transportation services per day to the town**: _____

2.7. **Does the town have a transport terminal?** 1. Yes 2. No

Services of the town

1. Administrative service: 1. Zonal service, 2. Woreda service 3. Not have administrative service 4. Others_____

2.8. **Social service provision for the hinterland:** 1. religious service, 2. healthy service 3. Education services 4. Others_____

2.9. **Hinterland markets service:** 1. weekly markets 2. Every day markets 3. Gullit services 4. Others___

3. Structures of the town

3.2. **Population change rate**: _____per year

3.3. **The Main top four type of jobs available in the town:**

_____,_____,_____,_____

3.4. **Number of jobs created/rate of creation per year: _____**

3.5. **Types and numbers of education service**: _____types _____numbers

3.6. **Types and numbers of religious service**: _____types _____numbers

3.7. **Numbers of language speaking: _____**

3.8. **Type of intra-transport and numbers of routes: _____, _____,_____, and _____ routes**

3.9. **Types of Pavements in the urban centers: _____**types_____, _____, _____

3.10. **Types of dominant business activities: _____, _____, _____**

Part II: The Respondents' Backgrounds

4. Gender: 1. Male 2. Female

4.2. **Age of the respondent:** 1. below 30 2. 31-40 3. 41-50 4. 51-60 5. 61-70 6. above 70

4.3. **Year of stay in the town:** less than 10 years 2.10-15 years 3. 15-20 years 4. 20-25 years, 5. 25-30 years 6. More than 30 years

4.4. **Level of education:** 1. illiterate 2. Elementary (1-8) 3. Secondary school (9-10) 4. Preparatory school (11-12) 5. TVET 6. Others_____

4.5. **Occupation:** 1. farming 2. Daily laborer 2. Government (in municipal) 3. Unemployed

1. **How much do you know about the spatial development of the town?** 1. I know it very well 2. I know it well 3. I have limited information 4. I have no idea about it.

4.6. **If you know it well and very well; what is the main reason for you to know about the development of the town?** 1. I was born and raised here 2. I stayed here for a long time 3. Because I am working in municipality 4. My work is directly related to the development of the town. 5. Others

Part III: Reason for the development of the town

5. **Based on your experience and understanding, how do you evaluate the development of the town over the last few years?** 1. The town has been developing very fast 2. The town has been developing fast 3. The development was constant 4. No significant change in development 5. The development was retarded 6. Others
6. **Based on your experience and understanding how do you rate the following reasons for your town's development?**

s.no.	Reasons	Rank	remark
1	Political decision was the main actor in the development of the town		
2	Land values and housing rent values are the main reason		
3	The existence of natural resources such as parks, lakes, forests, tourist attraction centers, etc.		
4	Proximity to the industrial area/the introduction of industry		
5	Proximity to the major town/s		
4	Because of its location on main roads		
5	The availability of transportation access from the town to other areas		
6	Specialty in agricultural production		
7	Because of its administrative service for Hinterlands		
8	Because of its market service for the hinterlands/in the catchment areas		
9	The introduction of new educational services		
10	Favorability of land resources for housing and its climate condition		
11	The job opportunities in the town		

7. **Do you any comments or recommendation regarding the driving for growth of your town**_____

Annex 3: Translated questionnaire to Afan Oromo

YUUNIVARSIITII FINFINNEE, DAMEE BARNOOTAA PILAANII MAGAALAA GAAFFII QORANNOO BARNOOTA MAASTERSIIF QOPHAAYE

Foormiin Kun barumsa qofaaf waan ooluuf sodaa tokko malee akka guuttan jechaa fedhii keessan waanta'eef galatoomaa, Ulfaadhaa!

Barsiisaa Gazzuu Yaadatee (Qorataa)

Kutaa 1ffaa: Eenyummaa Gafatamtootaa

1. **Saala:** Dhiira ☐ Dubara ☐
2. **Umurii:** 30 gadi ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 61-70 ☐ 70 Ol ☐
3. **Waggaa meeqa Magaalaa kana keessa turtani?**
   Waggaa 10 gadi ☐ 10-15 ☐ 15-20 ☐ 20-25 ☐ 25-30 ☐ **waggaa 30 ol** ☐
4. **Sadarkaan Barnoota Idilee keessanii meeqa? A**. Hin baranne **B.** Sadarkaa 1ffaa (1-8) **C.** Sadarkaa 2ffaa (9-10) **D.** Qophaayina (11-12) **E.** BLTO/ TVET **F.** Digirii 1ffaa **G.** Digirii 2ffaa **8**. Isaa Ol
5. **Hojii:** 1. Qotee Bulaa 2. Humnaan Bulaa 2. Hojjetaa Mootummaa 3. Hojii dhabaa
6. **Guddinafii babaldhinaa magaala kanaa hagam beektu? 1.** Sirriittin beeka **2.** Haga tokko nanbeeka **3.** Baeyyee hin beeku **4.** Homaa hin beeku
7. **Yoo beektu ta'e, akkamitti beekuu dandeessani? 1.** Asittin dhaladhee gudadhe **2.** Wagga dheeraan jiraadhe **3.** Bulchiinsa magaalaa keessa waanan hojjedhuuf **4.** Hojiin koo guddina magaalaa waliin waan wlqabatuufi.

Kutaa 2ffaa: Babaldhina magaalaa kanaatiif wantoota sababa ta'an

8. **Hubannoofii beekumsa keessanirratti hundaa'uudhaan, Guddinaafii babaldhina magaalli kun yeroo dhihootii as taasisaa jirtu akkamitti madaaltu?** 1. Akka malee gudachaafii babaldhataa jirti **2.** Haga tokko Gudachaafii babaldhataa jirti **3.** Guddina walfakkaataa ta'e qabdi **4.** Guddinni hinjiru 5. Guddinni ishee dubatti deebi'aa jira.
9. **Hubannoofii beekumsa keessanirratti hundaa'uudhaan, Guddinaafii babaldhina magaalaa kanaatiif waantota sababa ta'aniif sadarkaa nuu kennaafi.**

- **Yoo yaadichatti amantan sadarkaa itti amantan irratti hundaa'uudhaan tokkoo (1) haga Kudhaniitti (10) qaphxii kennaafi.**

no	Haalota / Sababoota	Rank										
		Itti Hin amanu	1	2	3	4	5	6	7	8	9	10	Itti Nan amana
1	Murtiiwwan Siyaasaatu baldhina magaalaatiif sababa ta'e	>>>>>											<<<<<
2	Gatii lafaafii kiraa manaatu baldhina magaalaatiif sababa ta'e	>>>>>											<<<<<
3	Qabeenya Uumamaa akka Paarkii, Haroowwan, Bosonaafi hawwata turizimiitu baldhina magaalaatiif sababa ta'e.	>>>>>											<<<<<
4	Industirii magaalli qabdu ykn Dhiheenya Magaalli naannoo Industiriiraa qabdutu sababa ta'e.	>>>>>											<<<<<
5	Dhiheenya magaalaa guddaarraa qabdutu baldhinasheef sababa ta'e	>>>>>											<<<<<
4	Dhiheenya ykn Karaa guddaa nannoo qaxxaamururra jirachuu isheetu sababa ta'e.	>>>>>											<<<<<
5	Walqunnamtii dandii Gejjibaa magaalota biro waliin qabdutu baldhina magaalaatiif sababa ta'e	>>>>>											<<<<<
6	Misooma Qonnaa Naannoo magaalichaa jirutu baldhinasheetiif sababa ta'e	>>>>>											<<<<<
7	Tajaajila Bulchiinsaa ummata naannawaa magaalichaaf kenutu sababa ta'e	>>>>>											<<<<<
8	Tajaajila Daldalaa uummata naannoo magaalichaaf kenutu sababa ta'e	>>>>>											<<<<<
9	Dhaabbilee barnootaa haaraa banametu babaldhina magaalaaf sababa ta'e	>>>>>											<<<<<
10	Haala qilleensa mijataafii bakka jireenyaaf filatamaa ta'uu magaalichaatu sababa ta'e	>>>>>											<<<<<
11	Carraa hojii baldhaa magaalicha keessa jirutu babaldhina magaalichaaf sababa ta'e	>>>>>											<<<<<
12													

10. Magaalli kun akka sirriitti baldhatuufii guddatuuf maaltu godhamuu qaba jettaanii yaaddu?

_____

_____

Annex 4: Example of properly attempted all the survey questionnaire

YUUNIVARSIITII FINFINNEE, DAMEE BARNOOTAA PILAANII MAGAALAA GAAFFII QORANNOO BARNOOTA MAASTERSIIF QOPHAAYE

Foormiin Kun barumsa qofaaf waan ooluuf sodaa tokko malee akka guuttan jechaa fedhii keessan waanta'eef galatoomaa, Ulfaadhaa!

Barsiisaa Gazzuu Yaadatee (Qorataa)

Kutaa 1ffaa: Eenyummaa Gafatamtootaa

1. **Saala:** Dhiira [✓] Dubara [ ]
2. **Umurii:** 30 gadi [✓] 31-40 [ ] 41-50 [ ] 51-60 [ ] 61-70 [ ] 70 Ol [ ]
3. **Waggaa meeqa Magaalaa kana keessa turtani?**
   Waggaa 10 gadi [ ] 10-15 [ ] 15-20 [ ] 20-25 [ ] 25-30 [✓] **waggaa 30 ol** [ ]
4. **Sadarkaan Barnoota Idilee keessanii meeqa? A.** Hin baranne **B.** Sadarkaa 1^ffaa (1-8) **C.** Sadarkaa 2^ffaa (9-10) **D.** Qophaayina (11-12) **E.** BLTO/ TVET **F.** Digirii 1^ffaa **G.** Digirii 2^ffaa **8.** Isaa Ol
5. **Hojii:** 1. Qotee Bulaa 2. Humnaan Bulaa 2. Hojjetaa Mootummaa 3. Hojii dhabaa
6. **Guddinafii babaldhinaa magaala kanaa hagam beektu? 1.** Sirriittin beeka **2.** Haga tokko nanbeeka **3.** Baeyyee hin beeku **4.** Homaa hin beeku
7. Yoo beektu ta'e, akkamitti beekuu dandeessani? **1.** Asittin dhaladhee gudadhe **2.** Wagga dheeraan jiraadhe **3.** Bulchiinsa magaalaa keessa waanan hojjedhuuf **4.** Hojiin koo guddina magaalaa waliin waan wlqabatuufi.

Kutaa 2^ffaa: Babaldhina magaalaa kanaatiif wantoota sababa ta'an

8. **Hubannoofii beekumsa keessanirratti hundaa'uudhaan, Guddinaafii babaldhina magaalli kun yeroo dhihootii as taasisaa jirtu akkamitti madaaltu?** 1. Akka malee gudachaafii babaldhataa jirti **2.** Haga tokko Gudachaafii babaldhataa jirti **3.** Guddina walfakkaataa ta'e qabdi **4.** Guddinni hinjiru 5. Guddinni ishee dubatti deebi'aa jira.

1

9. **Hubannoofii beekumsa keessanirratti hundaa'uudhaan, Guddinaafii babaldhina magaalaa kanaatiif waantota sababa ta'aniif sadarkaa nuu kennaafi.**

- **Yoo yaadichatti amantan sadarkaa itti amantan irratti hundaa'uudhaan tokkoo (1) haga Kudhaniitti (10) qaphxii kennaafi.**

no	Haalota / Sababoota	Rank											
		Itti Hin amanu	1	2	3	4	5	6	7	8	9	10	Itti Nan amana
1	Murtiiwwan Siyaasaatu baldhina magaalaatiif sababa ta'e	>>>>>						✓					<<<<<<
2	Gatii lafaafii kiraa manaatu baldhina magaalaatiif sababa ta'e	>>>>>									~~✓~~	✓	<<<<<<
3	Qabeenya Uumamaa akka Paarkii, Haroowwan, Bosonaafi hawwata turizimiitu baldhina magaalaatiif sababa ta'e.	>>>>>							✓				<<<<<<
4	Industirii magaalli qabdu ykn Dhiheenya Magaalli naannoo Industiriiraa qabdutu sababa ta'e.	>>>>>									✓		<<<<<<
5	Dhiheenya magaalaa guddaarraa qabdutu baldhinasheef sababa ta'e	>>>>>							✓				<<<<<<
4	Dhiheenya ykn Karaa guddaa nannoo qaxxaamururra jirachuu isheetu sababa ta'e.	>>>>>								✓			<<<<<<
5	Walqunnamtii dandii Gejjibaa magaalota biro waliin qabdutu baldhina magaalaatiif sababa ta'e	>>>>>		✓									<<<<<<
6	Misooma Qonnaa Naannoo magaalichaa jirutu baldhinasheetiif sababa ta'e	>>>>>									✓		<<<<<<
7	Tajaajila Bulchiinsaa ummata naannawaa magaalichaaf kenutu sababa ta'e	>>>>>		✓									<<<<<<
8	Tajaajila Daldalaa uummata naannoo magaalichaaf kenutu sababa ta'e	>>>>>	~~✓~~									✓	<<<<<<
9	Dhaabbilee barnootaa haaraa banametu babaldhina magaalaaf sababa ta'e	>>>>>	✓										<<<<<<
10	Haala qilleensa mijataafii bakka jireenyaaf filatamaa ta'uu magaalichaatu sababa ta'e	>>>>>						✓					<<<<<<
11	Carraa hojii baldhaa magaalicha keessa jirutu babaldhina magaalichaaf sababa ta'e	>>>>>		✓									<<<<<<

10. **Magaall i kun akka sirriitti baldhatuufii guddatuuf maaltu godhamuu qaba jettaanii yaaddu?**

[illegible]

YUUNIVARSIITII FINFINNEE, DAMEE BARNOOTAA PILAANII MAGAALAA GAAFFII QORANNOO BARNOOTA MAASTERSIIF QOPHAAYE

Foormiin Kun barumsa qofaaf waan ooluuf sodaa tokko malee akka guuttan jechaa fedhii keessan waanta'eef galatoomaa, Ulfaadhaa!

Barsiisaa Gazzuu Yaadatee (Qorataa)

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1. **Saala:** Dhiira ☑ Dubara ☐
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3. **Waggaa meeqa Magaalaa kana keessa turtani?**
   Waggaa 10 gadi ☑ 10-15 ☐ 15-20 ☐ 20-25 ☐ 25-30 ☐ **waggaa 30 ol** ☐
4. **Sadarkaan Barnoota Idilee keessanii meeqa? A.** Hin baranne **B.** Sadarkaa 1ffaa (1-8) **C.** Sadarkaa 2ffaa (9-10) **D.** Qophaayina (11-12) **E.** BLTO/ TVET **F.** Digirii 1ffaa **G.** Digirii 2ffaa **8.** Isaa Ol
5. **Hojii:** 1. Qotee Bulaa 2. Humnaan Bulaa 3. Hojjetaa Mootummaa 3. Hojii dhu[illegible]a
6. **Guddinafii babaldhinaa magaala kanaa hagam beektu? 1.** Sirriittin beeka **2.** Haga tokko nanbeeka **3.** Baeyyee hin beeku **4.** Homaa hin beeku
7. **Yoo beektu ta'e, akkamitti beekuu dandeessani? 1.** Asittin dhaladhee gudadhe **2.** Wagga dheeraan jiraadhe **3.** Bulchiinsa magaalaa keessa waanan hojjedhuuf **4.** Hojiin koo guddina magaalaa waliin waan wlqabatuufi.

Kutaa 2ffaa: Babaldhina magaalaa kanaatiif wantoota sababa ta'an

8. **Hubannoofii beekumsa keessanirratti hundaa'uudhaan, Guddinaafii babaldhina magaalli kun yeroo dhihootii as taasisaa jirtu akkamitti madaaltu? 1.** Akka malee gudachaafii babaldhataa jirti **2.** Haga tokko Gudachaafii babaldhataa jirti **3.** Guddina walfakkaataa ta'e qabdi **4.** Guddinni hinjiru 5. Guddinni ishee dubatti deebi'aa jira.

9. **Hubannoofii beekumsa keessanirratti hundaa'uudhaan, Guddinaafii babaldhina magaalaa kanaatiif waantota sababa ta'aniif sadarkaa nuu kennaafi.**

➢ **Yoo yaadichatti amantan sadarkaa itti amantan irratti hundaa'uudhaan tokkoo (1) haga Kudhaniitti (10) qaphxii kennaafi.**

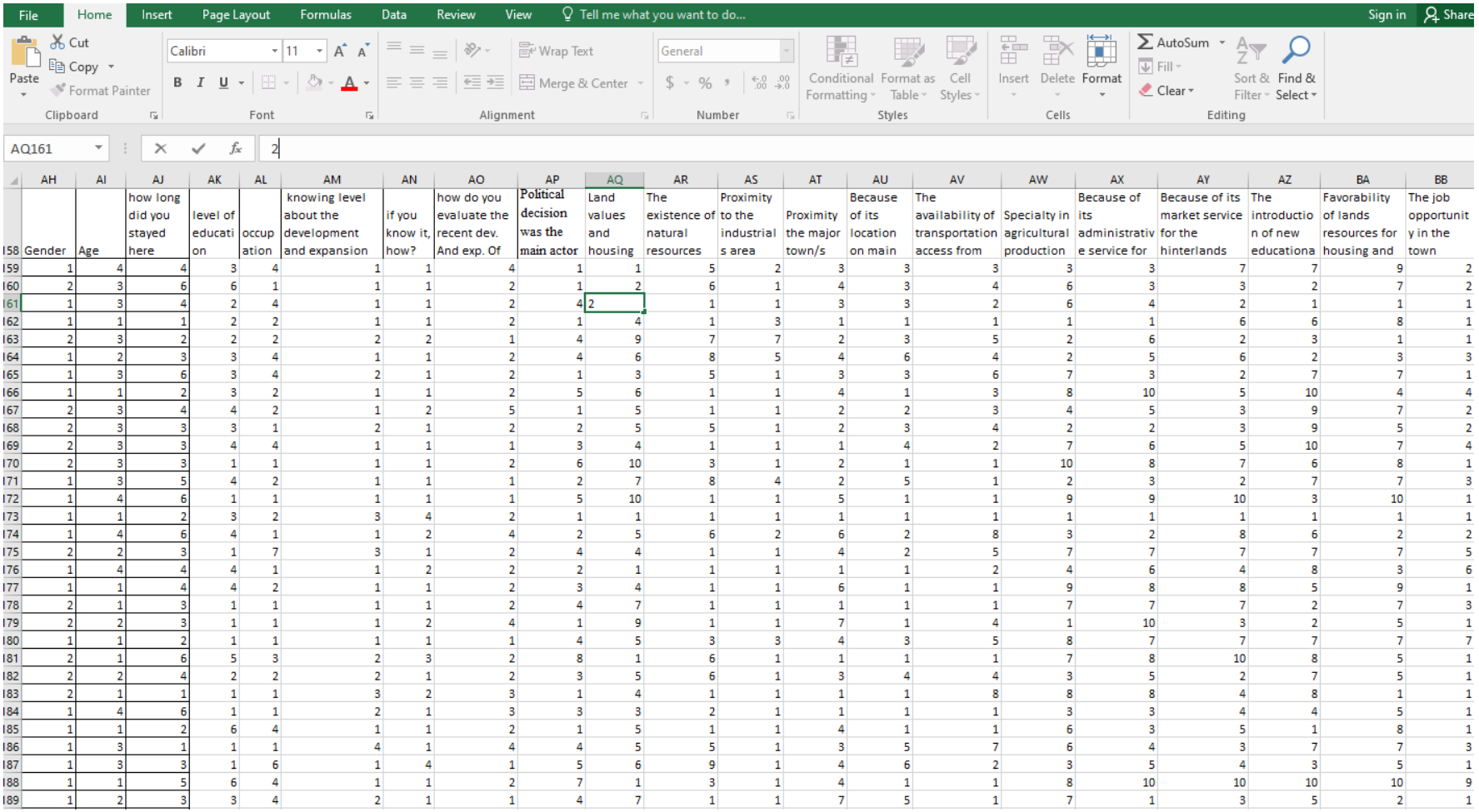
no	Haalota / Sababoota	Rank											
		Itti Hin amanu	1	2	3	4	5	6	7	8	9	10	Itti Nan amana
1	Murtiiwwan Siyaasaatu baldhina magaalaatiif sababa ta'e	>>>>>							✓				<<<<<<
2	Gatii lafaafii kiraa manaatu baldhina magaalaatiif sababa ta'e	>>>>>	✓										<<<<<<
3	Qabeenya Uumamaa akka Paarkii, Haroowwan, Bosonaafi hawwata turizimiitu baldhina magaalaatiif sababa ta'e.	>>>>>			✓								<<<<<<
4	Industirii magaalli qabdu ykn Dhiheenya Magaalli naannoo Industiriiraa qabdutu sababa ta'e.	>>>>>	✓										<<<<<<
5	Dhiheenya magaalaa guddaarraa qabdutu baldhinasheef sababa ta'e	>>>>>				✓							<<<<<<
4	Dhiheenya ykn Karaa guddaa nannoo qaxxaamururra jirachuu isheetu sababa ta'e.	>>>>>	✓										<<<<<<
5	Walqunnamtii dandii Gejjibaa magaalota biro waliin qabdutu baldhina magaalaatiif sababa ta'e	>>>>>	✓								✓		<<<<<<
6	Misooma Qonnaa Naannoo magaalichaa jirutu baldhinasheetiif sababa ta'e	>>>>>									✓		<<<<<<
7	Tajaajila Bulchiinsaa ummata naannawaa magaalichaaf kenutu sababa ta'e	>>>>>										✓	<<<<<<
8	Tajaajila Daldalaa uummata naannoo magaalichaaf kenutu sababa ta'e	>>>>>										✓	<<<<<<
9	Dhaabbilee barnootaa haaraa banametu babaldhina magaalaaf sababa ta'e	>>>>>										✓	<<<<<<
10	Haala qilleensa mijataafii bakka jireenyaaf filatamaa ta'uu magaalichaatu sababa ta'e	>>>>>										✓	<<<<<<
11	Carraa hojii baldhaa magaalicha keessa jirutu babaldhina magaalichaaf sababa ta'e	>>>>>											<<<<<<
12											✓		

10. Magaalli kun akka sirriitti baldhatuufii guddatuuf maaltu godhamuu qaba jettaanii yaaddu?

Guddinni magaalaa tokko Ulonfooni Bu'uraa Gadhaaffee Guddinaaf fatafis Guthan keessaa tokko Qaandii, Ibsoofi Bishaan fakachuu, akkasumas projeectiiwwan adda adda ta'e Gaaraa Keemuu Ilan.

Annex 5: Datasets in Excel

Datasets for Adadi Mariam



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Cut Copy Format Painter Paste Clipboard | Calibri 11 Font | Wrap Text Merge & Center Alignment | General Number | Conditional Formatting Format as Table Cell Styles Styles | Insert Delete Format Cells | AutoSum Fill Clear Sort & Filter Find & Select Editing

AQ161 2

	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB
158	Gender	Age	how long did you stayed here	level of education	occupation	knowing level about the development and expansion	if you know it, how?	how do you evaluate the recent dev. And exp. Of	Political decision was the main actor	Land values and housing	The existence of natural resources	Proximity to the industrial s area	Proximity the major town/s	Because of its location on main	The availability of transportation access from	Specialty in agricultural production	Because of its administrative service for	Because of its market service for the hinterlands	The introduction of new educationa	Favorability of lands resources for housing and	The job opportunity in the town
159	1	4	4	3	4	1	1	4	1	1	5	2	3	3	3	3	3	7	7	9	2
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161	1	3	4	2	4	1	1	2	4	2	1	1	3	3	2	6	4	2	1	1	1
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163	2	3	2	2	2	2	2	1	4	9	7	7	2	3	5	2	6	2	3	1	1
164	1	2	3	3	4	1	1	2	4	6	8	5	4	6	4	2	5	6	2	3	3
165	1	3	6	3	4	2	1	2	1	3	5	1	3	3	6	7	3	2	7	7	1
166	1	1	2	3	2	1	1	2	5	6	1	1	4	1	3	8	10	5	10	4	4
167	2	3	4	4	2	1	2	5	1	5	1	1	2	2	3	4	5	3	9	7	2
168	2	3	3	3	1	2	1	2	2	5	5	1	2	3	4	2	2	3	9	5	2
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173	1	1	2	3	2	3	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1
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179	2	2	3	1	1	1	2	4	1	9	1	1	7	1	4	1	10	3	2	5	1
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188	1	1	5	6	4	1	1	2	7	1	3	1	4	1	1	8	10	10	10	10	9
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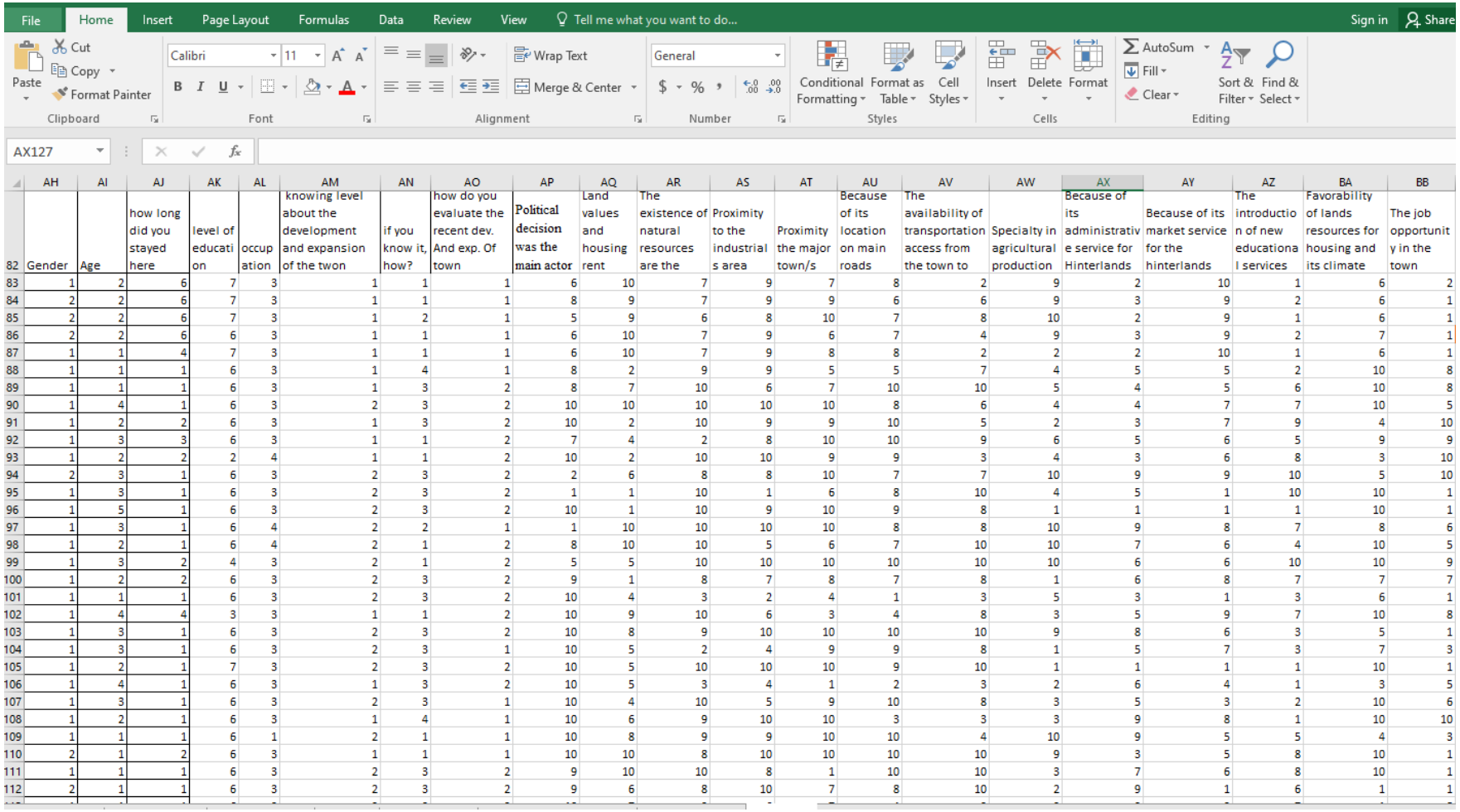
Datasets for Bishan Guracha



	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB
82	Gender	Age	how long did you stayed here	level of education	occupation	knowing level about the development and expansion of the twon	if you know it, how?	how do you evaluate the recent dev. And exp. Of town	Political decision was the main actor	Land values and housing rent	The existence of natural resources are the	Proximity to the industrial s area	Proximity the major town/s	Because of its location on main roads	The availability of transportation access from the town to	Specialty in agricultural production	Because of its administrative service for Hinterlands	Because of its market service for the hinterlands	The introduction of new educational services	Favorability of lands resources for housing and its climate	The job opportunity in the town
83	1	2	6	7	3	1	1	1	6	10	7	9	7	8	2	9	2	10	1	6	2
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88	1	1	1	6	3	1	4	1	8	2	9	9	5	5	7	4	5	5	2	10	8
89	1	1	1	6	3	1	3	2	8	7	10	6	7	10	10	5	4	5	6	10	8
90	1	4	1	6	3	2	3	2	10	10	10	10	10	8	6	4	4	7	7	10	5
91	1	2	2	6	3	1	3	2	10	2	10	9	9	10	5	2	3	7	9	4	10
92	1	3	3	6	3	1	1	2	7	4	2	8	10	10	9	6	5	6	5	9	9
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103	1	3	1	6	3	2	3	2	10	8	9	10	10	10	10	9	8	6	3	5	1
104	1	3	1	6	3	2	3	1	10	5	2	4	9	9	8	1	5	7	3	7	3
105	1	2	1	7	3	2	3	2	10	5	10	10	10	9	10	1	1	1	1	10	1
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111	1	1	1	6	3	2	3	2	9	10	10	8	1	10	10	3	7	6	8	10	1
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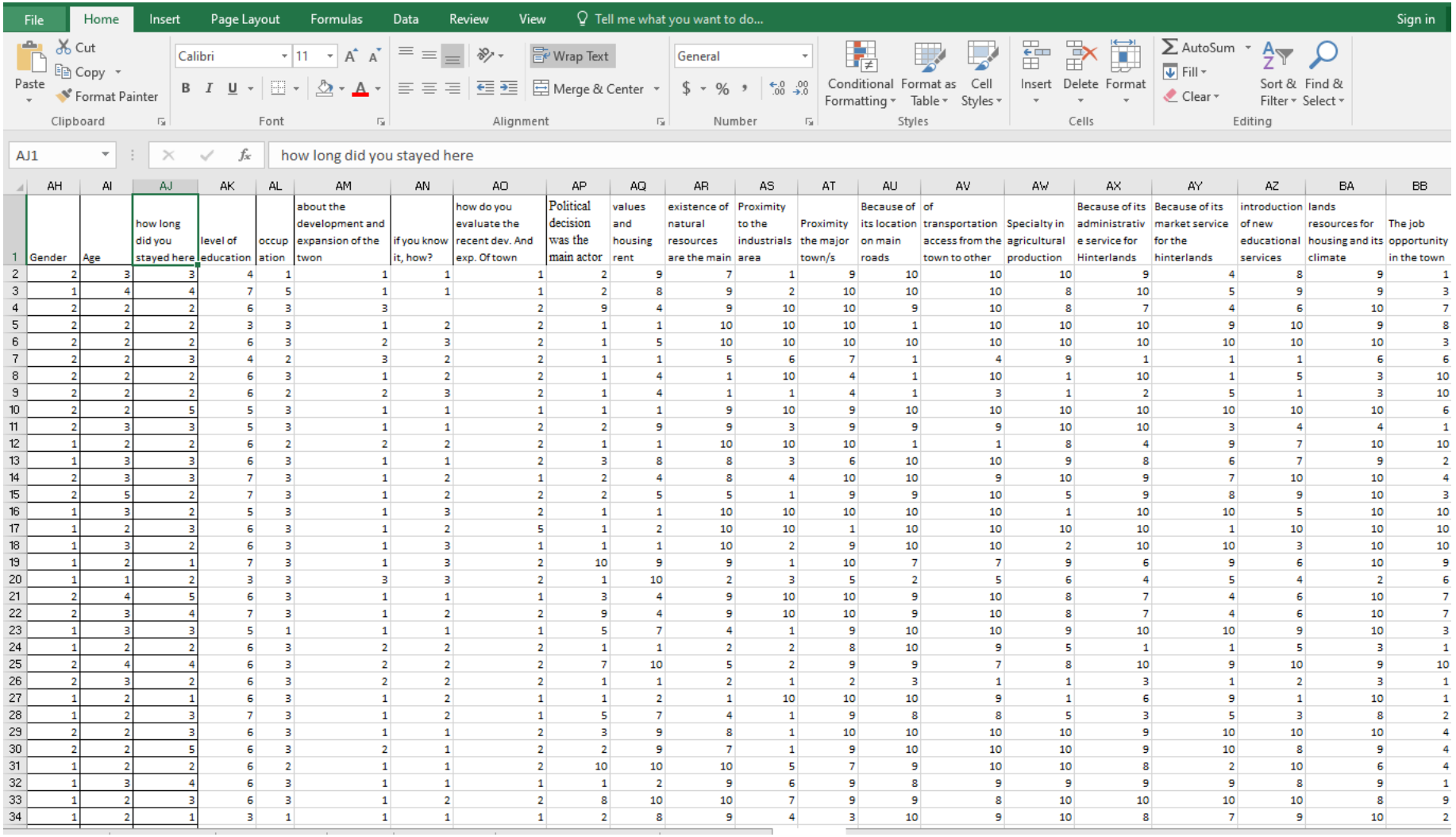
Dataset for Ginchi town



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AJ1 fx how long did you stayed here

	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB
1	Gender	Age	how long did you stayed here	level of education	occup ation	about the development and expansion of the twon	if you know it, how?	how do you evaluate the recent dev. And exp. Of town	Political decision was the main actor	values and housing rent	existence of natural resources are the main	Proximity to the industrials area	Proximity the major town/s	Because of its location on main roads	of transportation access from the town to other	Specialty in agricultural production	Because of its administrative service for Hinterlands	Because of its market service for the hinterlands	introduction of new educational services	lands resources for housing and its climate	The job opportunity in the town
2	2	3	3	4	1	1	1	1	2	9	7	1	9	10	10	10	9	4	8	9	1
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4	2	2	2	6	3	3		2	9	4	9	10	10	9	10	8	7	4	6	10	7
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