



SEEK WISDOM, ELEVATE YOUR INTELLECT AND SERVE HUMANITY!

Addis Ababa University
አዲስ አበባ ዩኒቨርሲቲ



College of Social Sciences
School of Graduate Studies

**Urban Economic Structure of the Amhara Region: Assessment Using
Economic Base and Shift Share Analysis**

By:

Abebaw Tesfaw

Addis Ababa University
Addis Ababa, Ethiopia
June, 2022



SEEK WISDOM, ELEVATE YOUR INTELLECT AND SERVE HUMANITY !

Addis Ababa University
አዲስ አበባ ዩኒቨርሲቲ



**College of Social Sciences
School of Graduate Studies**

Department of Geography and Environmental Studies

**Urban Economic Structure of the Amhara Region: Assessment Using
Economic Base and Shift Share Analysis**

By:

Abebaw Tesfaw

Advisor:

Dr. Fekadu Gurmessa

**A Thesis Submitted To the School of Graduate Studies of Addis Ababa
University in Partial Fulfillment of the Requirement for Degree of Masters of
Arts in Geography and Environmental Studies (Specialization in Urban and
Regional Development Planning)**

**Addis Ababa University
Addis Ababa, Ethiopia**

June, 2022

DECLARATOIN

I hereby genuinely verify that the thesis is entirely my own deeds and has not presented for a degree of masters in any other university and all source of materials are duly acknowledged. The thesis title ‘Economic base and shift Analysis of urban industrial structure and employment multiplier modeling: the case of Amhara region two pointes in time of the years 2014 and 2018’ is submitted for the submitted for the degree of master of arts in the Department of Geography and Environmental Studies (Specialization in urban and regional development planning).So, I agree that the library may lend or copy the thesis up on request.

Author’s Name: **Abebaw Tesfaw**

Signature _____

Date of submission June, 2022

Addis Ababa University

College of Social Sciences, School of Graduate Studies

**Department of Geography and Environmental Studies (Specialization
in Urban and Regional Planning Development)**

This is to verify that the thesis by **Abebaw Tesfaw**, entitled: Urban economic structure of the Amhara region: assessment using economic base and shift share analysis and a thesis submitted to partial fulfillment of the requirements for the degree of masters in geography and environmental studies (specialization in urban and regional planning development) complies with the regulation of the university and meets accepted standard with respect to originality and quality

Approved by board of examiners

Adviser	Signature	Date
<u>Dr. Fekadu Gurmesssa</u>	_____	_____
Internal examiner	Signature	Date
<u>Dr. Tebarek Lika</u>	_____	_____
External examiner	Signature	Date
<u>Dr. Getahun Fenta</u>	_____	_____
Head, Department	Signature	Date
_____	_____	_____

ACKNOWLEDGEMENT

I have not enough words to praise and glorify God. He created the universe in silence, and made man by his action, He is our Heavenly father, without His involvement in human affairs all is in vain. Secondly, I would like to express my heartfelt gratitude to my research advisor, Dr. Fekadu Gurmesssa, for his constructive advice, comments, and unreserved support and encouragement in the process of my research undertaking. He devoted a lot of his time in correcting, guiding, and shaping my thesis from beginning up to the end.

Thirdly, I would also like to thank central statistical authority (CSA) office and its workers, for answering, give me the pertinent or relevant data. Fourthly, I would like to express my sincere gratitude and appreciation to Addis Ababa University for providing me with a scholarship to attend the school of graduate studies. Fifthly, I would like to express my gratitude to my father, mother, brothers and sisters for inspiring me to pursue master program.

Finally, my thank goes to both my friends and my class mates for their excellent help in the course of writhing this thesis. Moreover, I would like to thank all who helped and supported me morally , materially, financially, spiritually and also in typing the document of this thesis.

Table of Contents

	Page
DECLARATOIN	i
ACKNOWLEDGEMENT	iii
List of figure	x
Acronyms and Abbreviations	xi
Abstract	xii
CHAPTER ONE	1
1. INTRODUCTION	1
1.1 Background of the Study	1
1.2 Statement of the Problem	3
1.3 Objective of the Study	4
1.3.1 General Objective	4
1.3.2 Specific Objectives	5
1.4 Research Questions	5
1.5 Significance of the Research	5
1.6 Scope of the Study	6
1.7 Limitation of the Study	6
1.8 Organization of the thesis	6
CHAPTER TWO	7
2. Review of related literature	7
2.1 The Concept of Urban Economic Structure, Economic Base and Shift Share Analysis	7
2.1.1 Over view of the Economy of Ethiopia	7
2.1.2 Over View of the Economy of Amhara Region	8
2.1.3 Economic Base Theory	9

2.1.4 Economic Base Model.....	11
2.1.5 Location Quotients (LQ)	12
2.1.6 Export Base Theory	14
2.1.7 Export Employment Multiplier (EEM)	15
2.1.8 Shift Share Analysis (SSA)	16
2.2 Review of Related Literature	20
2.3 Empirical Literature Review	23
CHAPTER THREE	25
3. Research Methodology	25
3.1 Description of the study area.....	25
3.1.1 Climate and topography of Amhara Region	26
3.1.2 Socio-economic condition of the study area	27
3.2 Research Approach and Design	28
3.3 Data type and Sources	28
3.4. Data analysis	31
CHAPTER FOUR.....	32
4. Result and Discussion.....	32
4.1 Location quotient calculation and interpretation.....	32
4.2 Discussion	49
4.2.1 Basic and Non-Basic Industry Sectors	49
4.3 Economic base and Employment multiplier modeling	55
4.4 Comparisons of Amhara region economic changes vis-a-vis the changes of the national economy for two points in time (2014 and 2018)	57
4.4.1 Shift-Share Analysis	57
4.4.2 National growth share, regional industry mix and regional growth share calculations	63

4.4.1 National Growth Share Calculations	63
4.4.2 Industrial Mix Share Calculations	65
4.4.3 Regional Growth Share Calculations	66
4.2.2 The major industrial sectors which have the competitive edge of the Amhara region economy.....	71
CHAPTER FIVE	72
5. Conclusions and Recommendations	72
5.1 Conclusions and summery	72
5.2 Recommendations	75
References.....	77
APPENDIX A.....	80

List of Table

	Page
Table 1. Major urban industrial employment location quotients for amhara region for the 2014 & 2018	32
Table 2 Major urban industrial employment location quotient of amhara region 2014 and 2018 .	35
Table 3 Major urban industrial employment location quotient of amhara region (2014 and 2018)	38
Table 4 .Major urban industrial employment location quotient of amhara region (2014 and 2018)	39
Table 5. Major urban industrial employment location quotient of amhara region (2014 and 2018)	40
Table 6. Major urban industrial employment location quotient of amhara region (2014 and 2018)	41
Table 7 .Major urban industrial employment location quotient of amhara region (2014 and 2018)	42
Table 8. Major urban industrial employment location quotient of amhara region (2014 and 2018)	43
Table 9. Major urban industrial employment location quotient of amhara region (2014 and 2018)	44
Table 10 . Major urban industrial employment location quotient of amhara region (2014 and 2018)	45
Table 11. Major urban industrial employment location quotient of amhara region (2014 and 2018)	47
Table 12. Basic and non-basic industry sector calculation of amhara region.....	50
Table 13. Urban employment of national & amhara region in times 2014 & 2018	61
Table 14. Absolute and percentage employment change national and amhara region in 2014 & 2018	62
Table 15. National growth share calculation of urban employment industry in amhara region...	64
Table 16. Regional industry mix share calculation of urban employment industry in amhara region	66
Table 17. Regional growth share calculation of urban employment industry in amhara region ..	67
Table 18. Results of shift-share analysis, 2014-2018, national/ethiopia versus, amhara region ..	69

List of figure

	Page
Figure 3.1: Map of the study area	26

Acronyms and Abbreviations

BS-	Basic Sector
CSA –	Central Statistics Authority
EBA-	Economic Base Analysis
EM –	Employment Multiplier
LQ=	Location Quotient
MoFED-	Ministry of Finance and Economic Development
NB-	Non-Basic Sector
NG –	National Growth Share
RGS-	Regional Growth Share
RMS-	Regional Mix Share
SSA-	Shift Share Analysis
UEUS-	Urban Industrial Employment and Unemployment Surveys

Abstract

This study attempts to economic structure of the Amhara region: assessment using economic base and shift share analysis. Based on the specific objectives, the researcher assessed basic and non-basic sectors of the region's economy, the major competitive edge economy as well as the shift share analysis and the change of the region economy over the two years. The research data were secondary data and the study used urban industrial employment data for two points in time for the years 2014 and 2018 as conducted by CSA. The research used two time data for the year of 2014 and 2018, to examine basic and non-basic industry sectors of study region for the reason that the most appropriate. As shift share technique used to identify regional mix share, national growth share and industry mix share of the study region. More over the research used quantitative research approach and descriptive research. Result indicate that all mining (0.7 & 0.8), water supply (0.9& 0.8), wholesaler trade (0.7& 0.5) most transportation activities, accommodation (0.9& 0.6) and food services, rental leasing activities (0.8 & 0.1), real estate (0.2&0.21, manufacturing activities are no longer the backbone of the economy of Amhara region economy, for the reason that location quotient results of these sector are less than one. These sectors showed decline of employment over the 5-year period and also based on the finding Amhara region is weak within these industry sectors. While Agriculture, forestry & fishing, manufacturing of textiles (1.3& 1.1) and manufacturing of furniture (1.2& 1.1) gas(1&1) construction of building(1&1),public administration(1&1),education(1&1) sports activities (1.12& 1.1) are the most strong (robust) sectors contributing employment growth for Amhara region in 2014 to 2018 year urban economic sectors. These sectors are the positive economic growth of Amhara region. The employment multiplier (EM) results indicate the total export employment for Amhara region was 7.131, where the total local employment levels is-1586988. Based on industrial growth share calculation, there are a total of six industries that are losing their regional growth share in the local economy as compared to the national: those are wholesale trade (-33291) administrative and support service activities (-22882), professional (-585144), extraterritorial organizations -911232.4, financial and insurance and other service activities. Based on these sectors Amhara region has lost largest amount of jobs. Moreover based on these industry sectors Amhara region falls below the benchmark region. The other industrial sectors such as agriculture, fishing, manufacturing, construction, and education are gaining more amount of jobs employment. The regional and national governments should be providing additional job employment within those sectors. And the planner and the policy makers should try to develop additional investments, new planning and strategies' in each industrial sector.

Keywords: -Economic base analysis, shift share analysis, location quotient Export base theory

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

The term economic structure refers to the contribution of different economic sectors, including agriculture, manufacturing, construction, and trade, to the key macroeconomic variables of output (GDP) and employment (Hausmann R, et, al (2003). Over the past 15 years, Ethiopia's economy has been among the fastest growing in the world (at an average of 9.5 percent per year). Among other factors, growth was led by capital accumulation, in particular through public infrastructure investments. Ethiopia's real gross domestic product (GDP) growth slowed down in FY2019/20 and further in FY2020/21 due to COVID-19, with growth in industry and services easing to single digits. However, agriculture, where over 70 percent of the populations are employed, was not significantly affected by the COVID-19 pandemic and its contribution to growth slightly improved in FY2020/21 compared to the previous year. Ethiopia has a traditional economic system in which the allocation of available resources is made on the basis of primitive methods, and many citizens engage in subsistence agriculture. Ethiopia is a member of the Common Market for Eastern and Southern Africa (COMESA).

Therefore, economic base and shift share analysis is a preferred method among economic development specialists for understanding a local economy. According to (Klosterman, Richard E. 1990) it is a simple yet valuable tool that can be used to gain an understanding of the economic structure of communities. It can provide comparative information on the economic status of a locality across periods and other localities concerning employment conditions and trends.

The economic base theory explains regional economic growth through the levels of a regions export activities. The larger the external demand for a regions goods and services, the larger the economic stimulus. These non-regional expenditures lead to a multiplying effect of regional output, expressed through the economic base multiplier. The economic base model divides total economic activities for a region into either basic activities or non-basic activities (Dinc, 2005).

Basic industries are those exports from a region and bringing wealth from outside/national, while non-basic sector industries are support basic industries. Because export-import flows are usually not tracked at sub-national (regional) levels, it is not practical to study industry output and trade flows to and from a region. As an alternative, the concepts of basic and non-basic sectors are operationalized using employment data (Robert H in, 1928). Urban industrial structure exists, primarily, for the efficient performance of economic base to support its population and surrounding rural and other urban areas (Carter, 1995; Pacione, 2009). Ethiopia's urban structure economy center is characterized by spontaneous growth, a poorly developed economic base, a high level of unemployment, and incidence of poverty (Ministry of Finance & Economic Development (MoFED), 2007).

An employment multiplier is one of the measures used to determine the impact of a specific industry is upon a municipality when it arrives or departs. In its simplest terms, the employment multiplier measures the amount of direct, indirect and induced job created (or lost) in the area of the region. Generally, industries with a higher multiplier are more desirable (Mulligan, et.al 1984). The economic base of most urban industrial structure employment multiplier is mainly of small and medium towns, and is dominated by mainly public administration and distributive services (Solomon M, 2008). But, manufacturing, construction, and others sectors they are expected to be the transformative of the town.

The economic base and shift-share analysis is the indispensable method to urban and regional planning fields (Carter, 1995) because overall urban activities are dynamic in cities and towns cannot exist without urban economic function. Furthermore, the economic base and shift-share analysis would help policymakers, economists, planners, and urban governments to better understand the dynamics of the economy of their urban centers which could, in turn, help in making better economic development plans and monitoring of economic growth of towns and cities. It employs location quotient and shift-share analysis techniques for the two times in point of 2014 to 2018 Gregorian calendar. This period is selected because employment data are available by major industry divisions for the region published by the Central Statistical Agency (CSA) Urban Employment and Unemployment Surveys (UEUS) that could help analyze using the techniques indicated above.

1.2 Statement of the Problem

The economy is one of the most difficult extents of global development, particularly for underdeveloped countries. In general, lack of specialized economic institutions and unemployment might be cited as reasons for the areas' urban and local economies not being addressed (Brown, J. 1969). Low employment multiplier in Ethiopian cities is one of the most important and chronic socioeconomic issues in the local economy. Despite the fact that Ethiopia's economy has achieved significant progress in the recent past; the country still faces enormous development hurdles (WB 2007). This shows that Ethiopia's urban center is under stress as a result of the country's rapid urbanization, with one example being unemployment, as the economy is unable to supply suitable jobs for both rural and urban residents (WB, 2011).

According to the Finance and Economic Development Office (2014), a majority of the Ethiopia population does not have a sustainable and consistent economy and is under-economized. This demonstrates that large proportion of the world population lives in poverty. A large majority of the population in the developing world lives in an economy that is insufficient. Because of weak industrial structure that could not absorb unemployment. As, shift share analysis, employment multiplier and location quotient is the most important method for the analysis of the regional economy.

The low rate of urban employment and the economy's underdevelopment is a major issue, particularly in developing countries like Ethiopia. The majority of people in the Amhara region lack employment opportunities and a viable economy for their low-income category. Ethiopia's metropolitan areas are marked by rapid growth, significant unemployment, and poverty (Ministry of Finance and Economic Development (MoFED), 2013). According Solomon M, 2008, the economic foundation of most metropolitan areas, mostly small and medium cities, is dominated by governmental administration and distribution services. However, they are intended to be the hubs of revolutionary industries like manufacturing, construction, and others in theory.

In the Amhara region economy, it is unknown which industrial sector has a significant competitive edge, which industrial sector has a significant export division, and which industrial sector is self-sufficient. One of the region's most persistent issues is providing an adequate economy for everybody, especially for low and middle-income people. Although deprived

economic conditions are a worldwide issue, these are especially severe in developing countries, like Ethiopia.

The Amhara region's urban industrial structure has not been studied and there is not brief scientific research about which industrial sectors are the most significant sources of employment, which industries are export-oriented, or the region economy's competitive advantages and the basic and non-basic industry sector of Amhara region. This study attempts to address these issues. In the world, researchers have studied the economic base and shift-share analysis of the regions. However, there is no certainly investigation studied regarding economic base and shift-share analysis in Ethiopia, mainly in the Amhara region.

As a result, the current researcher attempt to identify fundamental (basic) and non-basic economic sectors, as well as identify the falling and expanding sectors of the Amhara region's economy, using shift share, location quotient, and employment modeling, as improved approaches for economic planning. Furthermore, employment multiplier modeling and shift share analysis are the most important methods for planners, policymaker municipal governments, and urban socioeconomic study. Attempts that are made organized all of Ethiopia's urban industrial employment structures, but there is still no recognized scientific research at the regional level as to which industrial sector is the region's basic/export oriented economy, and which industrial sector has the potential to engage employment. In addition to these gaps, there is no clear specific objective regarding economic base and shift share analysis within the previous attempts.

1.3 Objective of the Study

1.3.1 General Objective

The general objective of this study is to evaluate the urban economic structure of the Amhara region: assessment using economic base and shift-share analysis, based on urban industrial employment data of Amhara region and Ethiopia or national for two years i.e. 2014 and 2018.

1.3.2 Specific Objectives

The specific objectives of the study area are: to

1. Identify the basic and non-basic industries of the Amhara region
2. To examine the shift-share of urban industrial employment structures Amhara region vis-a-vis the national urban industrial employment structure.
3. Identify industries that have competitive advantage for the regional economy

1.4 Research Questions

1. Which industrial sectors are the basic and non-basic economies of the region?
2. Which economic structures show decline or grow within the Amhara region?
3. What are the major urban industrial sectors of the regional economy that have competitive edge?

1.5 Significance of the Research

This study is contributed for the urban and regional planners to identify basic and non-basic industry sector for the Amhara region economy. Also this study is important to examine major industries that have a competitive edge for the region economy. Moreover it is significance to the region economy to the national economy to analyze the declined and the growing economy for the region within in times of 2014 and 2018. It helps to explain swings in business activities and promotes the design of suitable policies, and employment through the employment multiplier section. It aids in the explanation of industrial activity fluctuation and the creation of relevant policies. Similarly, the purpose of this research is to evaluate which industries create actual economic growth and which industries have the potential to grow. In addition to this the study is important to explaining the existing local economic environment, and it is significance to public administrators to shape the local or regional economy using informed economic development policies. The significance of the shift-share analysis is to identify the extent of industrial diversification and the relative economic growth rate of the region's industries in comparison to national trends. Also this research is important to regional governments, policy makers, municipality administrators and planners to determine which industries are considered a source of net exports and imports activity in the region. It is contribute for performance, in order to ensure the development of appropriate regional policies for regional sectorial and economic performance. Therefore, to monitoring and evaluating regional economic performance shift-share analysis, employment multiplier, and location quotient approach are most significant

methods. Moreover it is important to identify the competitive industrial edge of the region economy.

1.6 Scope of the Study

The study was delimited to an urban economic structure of the Amhara region: assessment using economic base and shift share analysis. And the study used Amhara region and Ethiopia's urban industrial employment structures for two different years in time, namely (2014 and 2018). Geographically this study is delimited to Amhara region .To conducts this study and addresses the knowledge gap; the researcher relied heavily on CSA (Central Statistical Authority) data on Ethiopian urban industrial employment.

1.7 Limitation of the Study

Several studies have challenges that require a certain degree of sacrifice in order to solve the problem. The following are some of the challenges that the researcher had to deal with: Lack of access to documentation about the urban economic. Lack of sufficient time in order to do the research, as well as to process urban industrial employment data and write it up in the most efficient and effective way. The analysis of each urban economic structure employment data is difficult. Because the urban industrial categorization contains a large amount of data, it was difficult to analyze and interpret, however the researcher courageously overcame the hurdle.

1.8 Organization of the thesis

The thesis comprises five major chapters: The first chapter is an introductory section that included the study's background, the statement of problem, research questions, the scope of study objective, and significance of the study, and limitations of the study. The literature review part of Chapter two examines theoretical findings from prior studies on the issue, as well as the underlying notion of the research topic. The third chapter includes a description of the research area as well as research technique, which includes research design and data gathering methodologies. Data analysis, data presentation, data interpretation, and outcomes are covered in Chapter four. The fifth and last chapter, Chapter five, discourses conclusions and recommendations.

CHAPTER TWO

2. Review of related literature

This chapter aim is to offer applicable terminology and concepts, as well as associated literature, empirical review and consisting of conceptual issues concerning economic base, shift share analysis, and location quotient theories and models. It additionally attempts to analyze the findings of crucial empirical research undertaken in numerous areas of the sector which have been associated with it and at once associated with the studies issue

2.1 The Concept of Urban Economic Structure, Economic Base and Shift Share Analysis

The term economic structure refers to the contribution of different economic sectors, including agriculture, manufacturing, construction, and trade, to the key macroeconomic variables of output (GDP) and employment (Hausmann R, et, al (2003). Over the past 15 years, Ethiopia's economy has been among the fastest growing in the world (at an average of 9.5 percent per year). Among other factors, growth was led by capital accumulation, in particular through public infrastructure investments. Ethiopia's real gross domestic product (GDP) growth slowed down in FY2019/20 and further in FY2020/21 due to COVID-19, with growth in industry and services easing to single digits. However, agriculture, where over 70 percent of the populations are employed, was not significantly affected by the COVID-19 pandemic and its contribution to growth slightly improved in FY2020/21 compared to the previous year. Ethiopia has a traditional economic system in which the allocation of available resources is made on the basis of primitive methods, and many citizens engage in subsistence agriculture. Ethiopia is a member of the Common Market for Eastern and Southern Africa (COMESA).

2.1.1 Over view of the Economy of Ethiopia

According to Ethiopia's pre-1991 urban industrial history, secondary economic, commercial, and business activity were confined to the capital, Addis Ababa, and a few towns that were better positioned along the main transportation routes. Most significant urban centers, on the other hand, have experienced rapid growth since administrative decentralization and autonomy were granted in 1991. As a result of recent patterns in industrial employment; it appears that other regional towns are becoming alternative investment hubs.

Ethiopia's economy is a mixed and transitional one with a significant state sector. Ethiopia's government is privatization numerous state-owned enterprises in order to transition to a market economy. Ethiopia is quickly urbanizing, and understanding the characteristics of urban labor markets might help Ethiopia reduce poverty and make a successful transition to a manufacturing and service-oriented economy. Ministers announced the Digital Ethiopia 2025 national transformation strategy in 2020. Its goal is to get the country ready for the rise of a digital-based economy. In 2021, the Ministry of Education began implementing a scheme based on block chain technology to track the performance of five million pupils and teachers and provide digital credentials. However, the banking, telecommunication, and transportation sectors of the economy are dominated by government-owned companies (World Bank and IMF 2019).

2.1.2 Over View of the Economy of Amhara Region

Agriculture, industry, manufacturing, and services are the area's primary financial activities, in step with the Amhara region Economic Bureau; agriculture is the maximum important. Agriculture and manufacturing have been the pillars of the Amhara regional state's economy (Amhara Region Agricultural Bureau, 2010). Natural parks which include alatash Natural Park and the UNESCO-protected Simien Mountains countryside park are a number of the area's key tourist attractions (Amhara Region Tourism Office, 2011).

Subsistence farming provides the main economy for most rural areas of the Amhara Region. The traditional method required much land to lay fallow because, fertilization utilization is minimal. Insecurity land tenure has long been a major factor in discouraging Amhara farmers from producing more than the amount required for subsistence. The sharecropping peasant was essentially a serf who feared the (often absentee) feudal landlord or military quartering that would eat up any surplus. The revolutionary government's villagization program, which involved relocating peasants at command to facilitate state control and deporting peasants to the northern portion of Ethiopia, where many died as a result of poor government planning and support activities, contributed to the anxieties.

Teff is an important product, according to the (CSA, 2005) report, with 115,083 tons produced in the Amhara region in 2004-2005G.C, representing 50.70 percent of total production, as well as hides and skins, pulses, and oil, according to inspection records from the Ethiopia Ministry of Agriculture Authority. Hundreds of foreign visitors flock to Tana, Gondar Castle, and Lalibla,

bringing with them significant economic benefits to the Amhara region. Thousands of people, including foreign visitors, go to Lake Tana and the Gondar Castle for its recreational appeal. They have a lot of potential as a thermal energy source. There are numerous rivers, streams, and springs. Many falls along the rivers could be exploited to generate electricity with little effort. The size of this electric power plant may easily meet Amhara's and Ethiopia's bordering countries' power needs.

2.1.3 Economic Base Theory

The economic base analysis and shift-share analysis consistently can generate data capable of assisting local or regional government officials understand the industrial makeup of their local economy, understand the rate of economic growth, forecast regional and national industrial trends, and interpret the economic impact of current decisions on future growth. Economic base analysis allows researchers to classify an industry within a local economy according to its import-export trade activities. An economic base analysis particular emphasis on the export sector of an economy because it is theorized that export activities are the engine of a local market. Export industries represent the economic base of an economy and are responsible for attracting outside sources of profits for the community. Thus, the economic base analysis allows analysts to determine which industries are “driving” the local economy by identifying industries that export goods and/or services. On the other hand, the shift share analysis allows researchers to comparatively analyze regional and national trends to determine their differences across a fixed period of time (Dinc, 2004).

In planning and geography, the economic base idea has a longstanding experience. The economic base idea was developed in the 1940s and popularized in the 1960s in responding to a need to forecast the impact of new economic activity on regional economies. In addition, it's miles an easy tool for studying local financial progress. It is assumed that all urban jobs can be separated into two categories: fundamental (export) and non-basic (import) (local market oriented). In urban geography, the former is identified to as 'city forming,' while the latter is identified to as 'city serving' (Carter, 1995). The basic/export sector is the engine of the town's economy. As a result, the urban economy is strong, and its future looks bright if it develops sectors that were not as dependent on local consumption (Isard, 1960; Roberts, et al., 2006), but

rather rely on exports. Thus, a varied fundamental function supports the municipality's economy grow and reduce its reliance on a single industry (Edwards, 2007).

The economic base analysis technique is one of the classifications of local industries into import and export groups. Segregating a local economy based on import and export operations is an important component of the concept, according to Arthur Galambos and Eva Schreiber (1978, 5). An economic base analysis is a useful technique to start diagnosing the health of the local economy. A systematic approach of looking at each employment in one's local region and classifying it in one of two ways is to do such a study. As a result, this economic base is a suitable theory for determining if a work is an export job that generates goods and services that are sold primarily outside of the local area] or a non-export one, as well as determining whose job it is. Money from outside the area is injected into the local economy through wages and business income as a result of the export job.

The economic base theory explains regional economic growth by looking at the degree of export activity in a certain region. The economic stimulus is proportional to the size of external demand for a region's goods and services. The economic base multiplier is used to express the multiplying effect of non-regional expenditures on regional output. Exogenous increases in demand for regional enterprises' and businesses' products are encouraged, and assuming there are no supply or capacity limits, they seek to accommodate this demand. In exchange, regional enterprises and businesses raise their demand for intermediate inputs from other regional suppliers, as well as the factors of production of labor and capital.

The economic base theory argues that the means of strengthening and growing the local economy are to develop and enhance the basic sector. The basic sector is, therefore, identified as the engine of the local economy that is why it is named the economic base of the local economy. It drives the town's growth by creating additional jobs in the non-basic or city-serving sectors. This is so because basic sectors produce goods and services for export outside the local area or region. On the other hand, non-basic industries produce goods and services for consumption in the local area or region (Isard, 1960; Dinc, 2002).

An area's export activity can be identified by the use of several analysis techniques. Two of the most well-known economic base analysis techniques are the Location Quotient (LQ) and shift

Share analysis (SSA) (Robert et al.2006). As to Edwards (2007), LQ is a well-known measure of the urban economy because; it helps identify the basic and non-basic sectors of the economy.

2.1.4 Economic Base Model

The economic base model splits the over-all economic activities for an area into either basic activities or non-basic activities. Thus means, basic activities include all regionally produced goods and services sold to people and businesses outside the region. This includes, of course, all goods and services leaving the region. But, it also includes all goods and services that are purchased by people out of town within the region where they are produced. Non-basic activities also include all purchases of regionally produced goods and services by residents or goods and services used by the region itself.

According to the Keynesian macroeconomic model, imports represent the leakage of the economy, in that regional income leaves without further contributing to regional economic activities. Contrarily, export activities bring new dollars into the regional economy, increase regional production of goods and services, and fuel regional economic growth it is the economic base for regional economic growth.

In the context of regional economic development and following the principles of economic base theory, politicians and economic development planners can encourage regional economic growth by promoting export (i.e. increasing injection) and encouraging import substitution (i.e.. decreasing leakages).

To fully understand a region's comparative advantage and competitive position, it is, essential to include factors describing the larger physical and natural resources of the Amhara region. Additionally, it is very helpful to compare the region's selected economic and social fundamental indicators to that of a larger benchmark economy of which the region is a part. To understand more light on the regional economic profile analysis the industry mix of a region and national share of the region necessary. Economic base model is recognizing major industries helps to answer the question of whether the region's economic prosperity is driven largely by one or two main industries or the result of a wide variety of different industries. So, the breakdown of regional employment by industry helps to identify the strengths and weaknesses of the regional economy (Xinhao Wang and Rainer vom Hofe, 2007).

2.1.5 Location Quotients (LQ)

A location quotient (LQ) is an analytical statistic model that measures a region's industrial specialization relative to a larger geographic unit (usually the nation) (Feser, E, and J.2008). The location quotient is a useful measure for assessing the strength and scale of a specific industry in a given region. A location quotient measures how concentrated an industry or even a certain demographic group is in a given area in comparison to the rest of the country (Feser, E. J. 2000). Using the location quotient to find development possibilities and comparative regional advantages is a powerful tool. A significant component of anticipating a region's supply and demand characteristics is evaluating the growth of specific businesses chosen as tenants for commercial property. Quantifying an industry's relative contribution to a regional economy can also aid in predicting the influence of an industry's growth or decrease on the regional economy (Brulhart, R. 2005).

Location quotient calculations are also used by regional governments and planners to determine which industries are considered a source of net exports and imports activity in the region. Import activities have a lower proportion of employees than the national average, making them insufficient to meet the region's economic demand. Because employment productivity surpasses the needs of the local market, export operations are sources of regional competitive advantage. Industrial productivity surpluses can then be exported to other regions. Urban planners and developers can pinpoint certain industries and offer incentives for them to expand in the region. Nurturing these regional competitive advantages might help the region attract more new businesses as well as employment, strengthening the local economy (Fratesi, U. 2008).

Because it is simple to apply and explain the findings, the location quotient (LQ) is a common tool for identifying export industries. Fundamentally, the LQ measure analyzes "the extent to which total export employment is distributed across multiple industries, and whether the economic base is getting more diversified or more widely distributed among industries over time" (Galambos and Schreiber 1978, 20). For each industry, location quotients are calculated to see if the local economy has a higher proportion of that industry than the national economy. As a result, the location quotient can be used to assess which industries are exporting their goods and services in relative terms, as well as the extent to which they are "driving" the local economy.

LQ is a simple but widely used technique for identifying the economic base's towns or regions. It is a measure of a town's or region's industry concentration in comparison to a larger reference area, which is usually the entire country. It compares an industry's regional employment share to its national employment share (Robert et al., 2006). Particularly, based on Robert et al. (2006), the LQ for various sectors of the economy could be computed using the formula given below as follows:

$$LQ =$$

Where

LQ= Location Quotient

e_i = Regional employment in the i^{th} industry

e = Total Local Employment

E_i = National Employment in the i^{th} industry

E = Total National Employment

If $LQ = 1$, the industry's proportion of regional employment is equal to the industry's share of national employment, meaning that the region is self-sufficient. When $LQ > 1$, the industry generates more items / products than are consumed in the region. The export industry, goods and services investing jobs into the region, also promoting regional economic growth and strength.

On the other hand, when $LQ < 1$, it indicates that the industry's share of regional employment is lower than its part of national employment, implying that the deficiency is imported from elsewhere. LQ is a metric that evaluates industry concentration and can be used to determine whether a region is self-sufficient, importer, or exporter. The LQ indicates how important the sector is to the local economy. From the standpoint of economic growth, industries that provide basic sector employment are more appealing since they bring in capital from outside the city and help to establish supporting employment in non-basic sectors (Isard, 1960; Hustedde et al, 1993; Robert et al., 2006; Edwards, 2007).

Despite how simple LQ approaches are to use, they have limits. For example, the more data is aggregated, the more specifics are obscured, and LQ varies depending on the extent of industry aggregation. Furthermore, it does not assist in explaining economic change unless it is used in conjunction with other analytical tools (Isard, 1960 and Dinc, 2002). Despite its flaws, it is frequently used in regional and urban studies around the world. For instance, Huang (1977) used

in the study of an economic base, industrial specialization, and diversification of Taiwan. The other research, by Kaizhong (1998), focuses on the fundamental characteristics and trends of Beijing's economic basis.

2.1.6 Export Base Theory

The export-base model is highly one of the most prominent in local or regional economic research. Although it has been heavily condemned for theoretical shortcomings (Lewis, 2005), it remains one of the most globally acknowledged economic models for regional growth used mostly by economic development consultants and regional economic policy analysts. The core principle of the export-base theory is that export activity drives regional economic growth through export sales. The export-based theory of growth is based on the idea that in order to grow, a local economy must increase its monetary inflow, and the only effective way to increase monetary inflow is to increase exports (Blair, 1995).

According to export base theory, a country's or community's economy can be divided into two sectors: an export or basic sector and a non-basic sector (Andrews, 1970). In regional science, export-base theory is a long-standing, simple, and widely used technique to explain how a local economy grows through export sales. The central/significant focus of this theory is that overall economic activities are categorized into two types: basic activity and non-basic activity (Andrews, 1956). The sector of the economy that generates income for the local economy through trade is recognized as the "basic sector," whereas the sector that engages in the local production and consumption of goods and services is identified as the "non-basic sector" (the "non-basic sector").

According to theory, the non-basic sector is driven by the basic sector since the basic sector's income provides an opportunity for production and consequently consumption in the local economy. Because of its importance as a driver, export employment is seen as "essential. Non-basic employment is defined as flexible work that fulfills the needs of the local market (Tiebout, 1962). As a result, non-basic economic activity is assumed to be dependent on or driven by basic economic activity (Ebai, 1995). External demand for a region's exportable goods and services generates cash, which in turn increase demand for non-exportable goods and services locally (Krikelas, 1991).

The export-base theory hypothesizes that in order for such a local economy to develop, it must improve its monetary inflow, and the only way to do so is to increase exports (Blair, 1995). The concept has previously been used in comparative static studies to examine the consequences of a shift in the local economy generated by export sales on job creation. The "multiplication" of these effects is quantified.

This theory has been deployed in comparative static analysis to examine the effects of a change in the local economy induced by export sales on income and employment in the past. These effects are measured using "multipliers. "The model's multipliers are used to 'predict' changes in income or employment as a result of changes in area exports. According to Tiebout (1962), export markets, are the primary drivers of the regional economy. If employment in this market increases or decreases, employment in the regional market is expected to follow suit. When a plant closes, local retailers suffer as laid-off manufacturing workers have less money to spend. Export employment is considered "fundamental" due to its main mover role. Employment which serves the local market is considered adaptive and is titled "non-basic".

Recently, however, structural econometric and time-series approaches have been applied to the export-base model (Kraybill and Dorfman, et al 1990), merging it with Granger's concept of countermeasure (1983, 1986). Sector - based interactions seem to be possible with the model provided in this research. Furthermore, the time-series method seeks to properly estimate the long-run equilibrium linkages across a region's economic sectors, which improves estimation efficiency since there are no stagnant time-series data.

The majority of the scientific research study in this issue has been focused on evaluating the economic base theory itself. In most cases, the time period shown in these investigations was influenced by data availability or other circumstances. As just a result, short-run versions of economic foundation theory have received lower investigation than long-run models. As a result, inside this literature, short-run interpretations of economic foundation theory have not been addressed as hypothesis testing.

2.1.7 Export Employment Multiplier (EEM)

Walter Isard (1960 & 1990) defined the export employment multiplier (EEM) as the ratio of "total employment in both basic and service activities divided by total basic employment." The

employment multiplier (EEM) is a quantitative term that encompasses how local export employment influences overall employment in a given region. The export employment multiplier's significance arises from its ability to forecast the consequences of changes in local export employment on the general economy. This indicator gives for policymakers and municipality administrator to a broad view of how se increase or reduce export employment affects the wider economy.

Although this calculation can be performed with a single year's terabytes of data, Galambos and Schreiber (1978) notify against using it given the limited scope. Instead of those who recommend investigators to compare the export employment multiplier over time to get a more complete overview of the data. Besides analyzing the EEM in this manner, policymakers can make judgments about data that are not really significant of real economic activity. Despite the utility and variety of measurements provided by the EBA, the technique does not provide a foundation for making comparisons regional economic trends to national trends. This limitation can be overcome clearly by supplementing the economic base and shift-share technique.

2.1.8 Shift Share Analysis (SSA)

SSA (shift share analysis) is a descriptive technique for studying regional or urban economic change over time, such as expansion or decrease (Dinc, 2002; Robert, et al., 2006).It also provides useful information on the performance of local industry growth and competitiveness in a locality when comparing to a wider reference area, or when comparing the regional economy to the national or country economy. The technique is used to discover stable economies in the regional economy comparison to national industries by decomposing fluctuations in employ trendy towns or regions. It also aids in determining whether a certain local economy has experienced a quicker or slower pace of employment growth than the wider economy (Chan, 2011).

Using shift share analysis, it is feasible to identify industries having gained or lost additional employment over time. Shift-share analysis enables for the investigation of changes in the number of jobs in terms of structural change rather than just total employment in a given region. Because it emphasizes not only the role of regional change for region-specific industries, but also the regional shift or competitive component as a size of the region's relative performance for particular industries, moreover shift share analysis is widely used in region by geographers,

regional scientists, economists, and planners (Dinc, 2009; Robert et al., 2008). Because of this practical issue, it is essential to evaluate the effects of industrial reshaping and to provide guidelines for industrial targeting (Dinc, 2010). For a variety of reasons, the urban economies and the rate of employment in industries may change over time. The LQ, as previously stated, does not help in deciding why and how the change is occurred.

Shift share analysis on the other hand, divides the possible reasons of the town's economic growth and change into national, industrial, and town-specific or local trends. In this regard the traditional shift share analysis decomposes employment change in a region over time into three contributing components (Roberts, et al.2006 and Edwards, 2007).

The shift-share analysis (SSA) is a reliable and well-known economic development model that supplements the economic base analysis (EBA). The SSA is "intended to decompose disparities in the value of a given measurement as observed locally and nationally in order to analyze a region's economic development in terms of the trends of its industrial structure" (Buck 1970). A shift-share analysis, in its most basic form, contrasts local employment changes to national employment trends over a given time period. Similarly, shift-share analysis can be carried out using a series of different economic parameters; even so, employment data is the most frequently used.

Country and region employment patterns also provided the regional and national employment data that was used in this study's analysis. According to shift-share analysis, there are three basic components: national growth, industrial mix, and competitive share. The sum of these three components equals the total economic change inside the region. According to Dinc (2005) Shift-share analysis can illustrate the overall economic change due to the rise of the national economy, the regional industrial mix, and the competitiveness of local industries (regional industries). By interpreting the shift-share analysis results, it is possible to examine the benefits of the regional area and also find the growth, or potential growth industries, befitting of further investigation.

1. National growth effect

This is the percentage of regional employment growth that may be attributable to national economic growth. It is rooted in the concept that if the larger economy is growing, it is reasonable to expect this growth to have a beneficial impact on employment growth in a specific

location (Dinc, 2002). National share = (base year [beginning year] employment in each industrial sector of the locality) \times (the national average rate of growth for all sectors).

2. Industry mix effect

It shows the influence of particular national industry trends on regional employment changes. It reflects the fact that some industries expand faster or slower than others on a national scale, and these differences are reflected in the local industry. A positive industry mix, according to the calculation, indicates that employment in the area increased faster than the national average, while a negative industry mix indicates the opposite (Robert, et al., 2006).

Industrial mix effect = (base year employment in local industrial sector X) \times (the national average growth rate for sector X – the national average growth rate for all sectors)

3. Competitive effect

It is based on the idea that, for the same industrial groups, the region may not always follow the national trends in the same way. This is due to the fact that the location may have a competitive advantage in terms of natural resources, labor, and other factors. A high share component indicates that the locality increased its share of employment in that industry, whereas a negative competitive component share indicates the inverse.

To calculate the competitive effect, this below formula is necessary:

Competitive effect = (base year employment in local industrial sector X) \times (the local growth rate for sector X – the national average growth rate for sector X)

Based on Robert et al. (2006) and Quintero (2007), the formula for the three shift share components i.e. National growth effect, Industry mix effect and Competitive effect, have been calculate as follows:

$$\begin{aligned}
 NG &= Rei \left(\frac{NEj}{NEi} - 1 \right) \\
 IM &= Rei \left(\frac{Nej}{Nei} \right) - \left(\frac{NEj}{NEi} - \right) \\
 CE &= Rei \left(\frac{Rej}{Rei} \right) - \left(\frac{Nej}{Nei} - \right)
 \end{aligned}$$

Where,

NG=National Growth Effect

IM =Industry Mix Effect

CE= Competitive Share Effect

Rei is regional employment in a given industry at the beginning of the period

Rej is regional employment in a given industry at the end of the period

Nei is national employment in a given industry at the beginning of the period

Nej is national employment in a given industry at the end of the period

NEi is total national employment at the beginning of the period

NEj is total national employment at the end of the period

Total Employment Change (TEC) = NG+IM+CS

The first step in creating a shift share analysis conceptual framework table is to determine the variables and components that will be used to perform the calculations. For two years, total national employment figures, total national industry employment estimates, and local industry employment data were identified as the four employment variables. Galambos and Schreiber (2009) recommend using current employment data compared to employment data no older than seven years prior because shift-share measurements require two years of employment data. National growth, competitive share, industrial mix, and total economic change are among the components identified in the conceptual framework table.

This study employs employment data from 2014 and 2018, as suggested by Galambos and Schreiber (1978). The process of establishing the national growth, industrial mix, and competitive share components can begin when all relevant local and national employment information have been compiled using the conceptual framework table. "When the three parts are combined together, the total change in employment" can be calculated, and the shift and share analysis may be completed (Galambos and Schreiber 2010)

Shift share analysis of urban industrial employment multiplier modeling
Components of shift share analysis (SSA):
(R_{ei}) Regional employment in a given industry at the beginning of a period
(R_{ei}^*) Regional employment in a given industry at the end of a period
$((N_{ei})$ National employment in a given industry at the beginning of the period
(R_{ei}^*) National employment in a given industry at the end of the period
(N_{Et}^*) Total national employment at the beginning of a period
(N_{e}^*) Total national employment at the end of the period
(NG) National Growth (IM) Industrial Mix (CS) Competitive Effect
(NG) Total Economic Change

2.2 Review of Related Literature

The interdisciplinary nature of economic base literature is something that should be acknowledged. Not only economics publications, but also journals studied by geographers, urban planners, and others interested in the urban and regional growth process are included in the academic literature of the economic base paradigm. Unfortunately, there was little, if any, connectivity among the many disciplines throughout much of the period until 1960. Contributions by economists, in particular, were virtually ignored in planning literature until the late 1950s (Lane, 1966; and Krikelas, 1991).

Though not usually explicitly stated, a large portion of the literature on economic base or export-base theory focuses around the question of whether this theory applies best in the short term, long run, or both. The question of the applicability of export-base theory in short-run regional analysis against its usage in long-run regional growth analysis, according to McNulty (1977), is one of the subsidiary difficulties raised by the theory on which little effort has been made to handle on an empirical level.

Some related study conducted by different researcher in different world. However in Ethiopia there are limited studies about economic base and shift share analysis and employment multiplier modeling.

Specifically, in 1950s debate between Charles Tiebout (1956) and Douglass North (1955, 1956) centered on the short-run versus long run practical application of the economic base model. Whereas, the Tiebout did agree with Hildebrand and Mace (1950) that the model was best suited for short-run economic analysis or economic assessment, North tried to claim that it was also suitable for long-run economic studies of regional economic growth (Krikelas, 1991). Further to that, Tiebout argued that, in the short run, other sectors of the local economy, such as manufacturing concentrated, industry, and agriculture, may be just as important, but not more important, than exports in defining the entire regional economy.

Later, Tiebout agreed with North, stating that "by modifying only one assumption, the above analysis can be useful in explaining long-run income levels: that is, instead of predicting the future the outlook for next year, what is the outlook for the end of the next decade. "The assumption that needs to be changed is about the forces that influence local investment." Tiebout (1962) presented a rigorous formulation of the concept of export-base multiplier in his work titled the Community economic base Investigation, allowing for differences in the short-run and long-run impact of the changes in export earnings. As a rough guideline, he stated that his short-run analysis could be apply to a period of up to two years, while his long-run analysis could be apply to a period of two to twenty-five years (McNulty, 1977).

Most of the little empirical work that has been done in this area is directed toward testing the economic base theory itself. The time frame chosen in these studies has for the most part been dictated by the availability of data, or other things. Thus, the short-run and long-run versions of economic base theory have not been treated as competing hypotheses in literature.

While Hildebrand and Mace (1950) and Sasaki (1963) used a easy two- of general or localized employment on export employment to estimate the local multiplier, Weiss and Gooding (1968) and McNulty (1977) used a more than one regression method and taken into consideration provider employment to be a feature of three separate categories of export employment, the ensuing multipliers being referred to as differential local multipliers.

On the other hand, Moody and Puffer (1970) obtained quite different results on the same question. Two other studies that tested for the time dimension of the basic and non-basic relationship at about the same time used polynomial distributed breakup techniques.

One, Luttrell and Gray (1970) of their study of Central Missouri Valley (CMV) used first variations of quarterly employment information in an Almon version with regulations for each endpoint, and a third-degree polynomial with three lags. Two, Moriarty (1976) used first-variations of annual employment facts for the stratified with the aid of using length and geographical region. Also becoming an Almon version of a three-degree polynomial, three lags and with the maximum remote lag factor restrained to zero, Moriarty's end changed into that the overall multiplier (summed over three periods) changed into substantially extra than cohesion in all towns, indicating that the boom of general employment changed into structured upon the growth of overall production employment in big towns over time.

Other time-series methods were later applied to the question of the interval structure of the basic and non-basic relationship. Cook (1979), for example, applied a transfer function to quarterly employment data in two Washington counties and, according to him; it was "a useful tool in forecasting relative to distributed lag regression analysis and ordinary least squares in forecasting performance."

Following Poirier (1976) and Suits, et al. (1978), Henry and Nyankori (1981) used a connection function (the slope of which measures the change in non-basic employment in response to basic employment changes over various time periods) along with distributed lags, and their empirical results led them to conclude that a short-run relationship did exist between changes in basic and non-basic employment in the Greenville-Spartanburg SMSA. They found a statistically significant short-term response by non-basic employment to basic employment changes, which they felt most strongly by the end of the first quarter. This was in contrast to the findings of McNulty (1977), and Spreen-Mulkey et.al (1980), who found little evidence of a statistically significant short-term relationship between basic and non-basic economic activities, but in support of Tiebout's conclusion that "the concept of the export base, or even the fuller concept of regional income determination which includes other autonomous variables, is a short-run concept."

2.3 Empirical Literature Review

An empirical literature review is more commonly called a systematic literature review and it examines past empirical studies to answer a particular research question. In Ethiopia standard there is not known scientific research about shift share analysis: however in the world deferent researcher studies about location quotient and shift share analysis; some of them are (Chiang, 2012, Marquez et al., 2009,) Shift-share analysis is a traditional tool for interregional comparison, measuring and evaluating sectorial performance. A wide variety of applications have appeared since introduced the methodology. Its widespread use is explained by its simplicity, modest data requirements, and the fact that the results are relatively easy to assess and interpret. Also Shift-share analysis decomposes the change of employment (or income) in a particular region into three components: the national share component (NC), the regional mix share component (RC), and the industry mix component (IM).

“Based on the findings of the previous researchers show that in south Sulawesi province there nine economic categories which have basic sector namely agriculture, forestry, and fishery: water supply, waste management, waste and recycling; construction, wholesale and retail: car and motorcycle repairment; information and communication: Real Estate; Government administration, defense and social security compulsory: Educational Service: Health service and social activity. The result of Shift Share shows that the slowest sector in South Sulawesi province is mining and quarrying sector. On the other hand, the other sixty sectors are developing sector””.

On the other hand the location quotient (LQ) method is generally used to analyze clustered location/base activities and identify leading sectors in regional economies (Putri et al., 2016) the government (particularly local government. The concept of location quotient measures the ratio between a sector in GRDP of a particular region and the total value of the same sector in GRDP of the higher administration area. Suppose the calculated value of LQ is higher than 1. In that case, it indicates that the sectoral contribution at a specific region more dominant than the gift of a similar sector at the provincial level. It also means that there are production surpluses of associated sectors that occurred in such regency.

“However, suppose the LQ value is lower than 1. In that case, it means that the contribution of a particular sector in the region is less dominant than a similar sector’s gift at the

provincial level (Rahayu et al., 2018). Therefore, regarding regional economic development, the results of the LQ can be an appropriate consideration taken by local governments in prioritizing leading sectors that have the potential to be more developed. Therefore, based on location quotient the finding of research results was suggested that the manufacturing and mining, and quarrying sectors were the base sectors of Teluk Bintuni's economy. However, the result of shift-Share analysis highlighted construction, education services, procurement of electricity and gas, and public administration, defense, and compulsory social security as competitive and progressive sectors during the same period””

CHAPTER THREE

3. Research Methodology

This chapter describes the methodology used to collect and analyze the data needed to describe the researcher to answer the research questions, which included discussions led by the researcher on how to assess the Economic base and shift share analysis of urban industrial employment multiplier in the Amhara region, using data from in times of 2014 to 2018.

3.1 Description of the study area

The Amhara Region is located in northwestern and north -central part of Ethiopia, with a land area of 170,000 square kilometers. It is situated between 8°45' and 13°45' north latitude and 36° 20' and 40° 20' east longitude. In relative location Amhara region is bordered to the north by the Tigray Region, to the east by Afar, to the south by Oromia, to the southwest by Benishangul-Gumuz, and to the west by Sudan. According to Ethiopia's Central Statistical Agency (CSA) figures from 2007, the Amhara region's total population is 20, 136,000 people. Rural residents will make up 88 percent of the population, while urban dwellers would make up 12 percent. The capital of the Amhara Regional State is Bahir-Dar. There are 11 zones and 167 woredas in Amhara Regional State (districts). There are 3,429 kebeles in total (the smallest administrative units). The decision-making power has been devolved to the woredas, who are now in charge of all development initiatives in their respective districts.

Much of the highland plateaus above 1,500 meters, with steep landforms, gorges, and valleys, as well as millions of settlements for Amhara communities surrounded by subsistence farming and grazing fields, is found in the historic Amhara region. The world-famous Blue Nile River and its source, Lake Tana, are located in this region, as are ancient landmarks such as Gondar Palace and the Lalibela rock-hewn chapel.

For millennia, the land in Amhara has been cultivated with no changes or advancements in farming techniques. The consequent environmental degradation has aided in the trend of a deteriorating climate marked by recurrent droughts, crop losses, and a resulting food scarcity. Drought-prone and chronically food-insecure woredas account for 58% of the region's 167 woredas ,central statistical authority (CSA 2008)

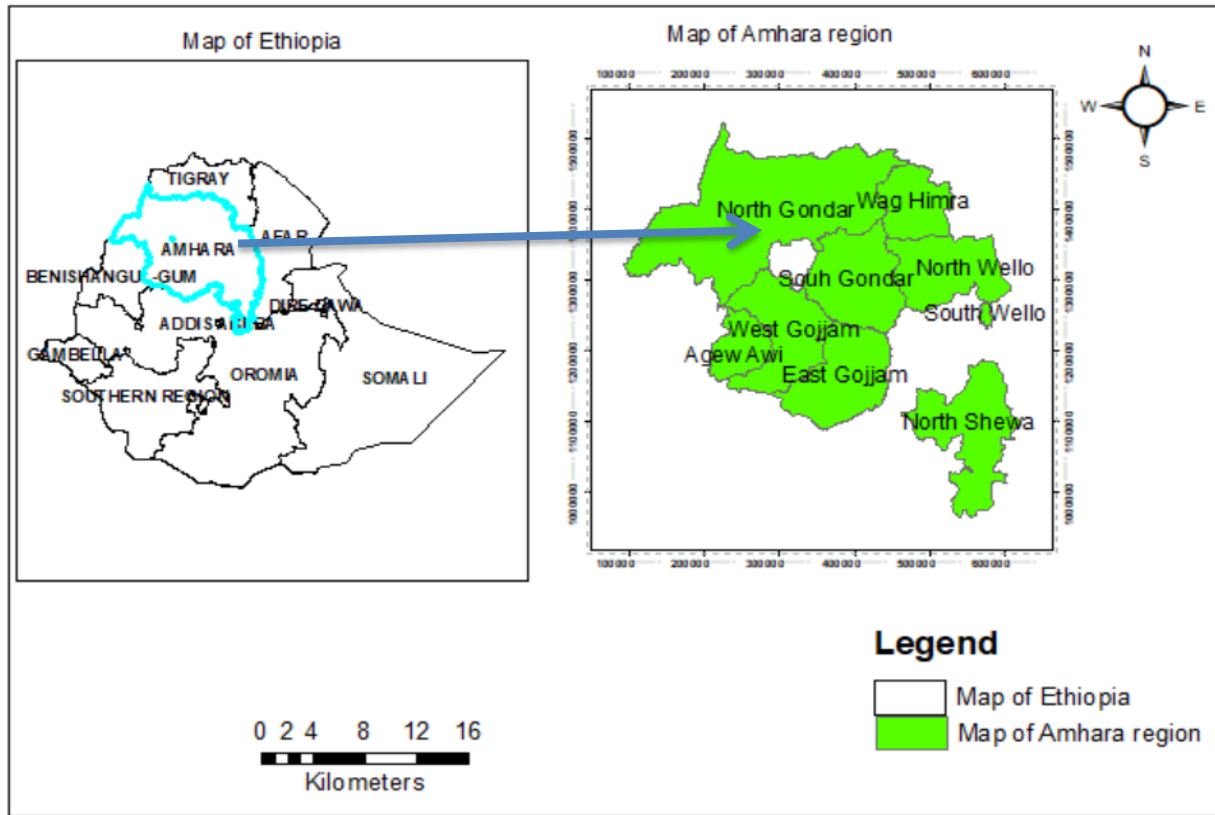


Figure 3.1: Map of the study area

Source: Ethio GIS arc Map

3.1.1 Climate and topography of Amhara Region

The Amhara region is separated into two segments in terms of topography: highlands and lowlands. The highlands span the northern and eastern regions of the region and are more than 1,500 meters above sea level. Mountain ranges encircle these peaks on all sides. Mount Ras Dejen, Ethiopia's highest peak, stands at 4,620 meters. Mount Guna, at 4,620 feet [4,204 meters], and Mount Choke, at 4,484 feet [4,845 meters], are all in the same region.

The lower part of the region, which is 500 to 1,500 meters above sea level, mostly covers the western and eastern parts. In the region, there is 31 percent lowland, 44 percent highland, and 25 percent highland lands with various climate zones. In most regions of the region, the average annual temperature ranges from 150 to 210 degrees Celsius. The region is responsible for up to

80% of the country's rainfall. The winter months have the most rainfall, which lasts from mid-June to early September (Amhara region metrological agency 2013).

3.1.2 Socio-economic condition of the study area

Agriculture employs 85 percent of the inhabitants in the Amhara National Regional State. The majority of the people in the study region work in primary and secondary economic activity, such as farming and trading. The rural population is primarily involved in agricultural production and commercial activities such as crop trade (for example, 'Teff,' wheat, maize, and other grains), whereas the urban population is primarily comprised of civil servants, merchants, and others. Large basins such as Lake Tana and the Nile River contribute greatly to irrigation agriculture in the region. A total of 450,000 hectares of the region's land resources are suited for agriculture and irrigation, particularly for the production of fruit and flowers.

According to a study taken by the Amhara region economy and industry office, there are registered major industries and over 200 informal sector operators. In the town, there are service providers, retailers, wholesalers, and transportation companies, as well as tourism and urban agriculture businesses (Office of Transport Sector and Business Sector, 2021).

3.1.3 Demography of the study area

According to Ethiopian central statistical Agency (CSA) 2007 census the Amhara region has total populations of 17,221,976. There were 8,641,580 men and 8,580,396 women; urban residents accounted for 2,112,595 people, or 12.27 percent of the total population. This region has an estimated population density of 108.2 persons per square kilometer, with an estimated area of 154,708.96 km² (59,733.46 sq. mi). There were 3,983,768 households tallied across the region, resulting in an average of 4.3 individuals per home, with urban households having 3.3 and rural households having 4.5. As of 2017, the estimated population is 21,134,988.

Whereas, in mid-2008 the estimation total population of Amhara region is 27 million, according to the CSA. Only 12% of these 2,408,000 people live in cities. In comparison of people living in cities is lower than the national average. A demographic distribution analysis at the woreda level for the 105 Weredas in the Amhara region reveals an unequal population distribution. Orthodox Christians account for 81.5 percent of the population, Muslims for 18.1 percent, and Protestants for 0.14 percent.

3.2 Research Approach and Design

The researcher used both quantitative and qualitative research methods to study the current economic circumstance and the economy of the Amhara region, using shift-share analysis and location questions to identify and examine the regional economy's status. For the sake of this research gap, the researcher has placed a greater emphasis on the quantitative research approach.

According to Babbie, Earl (2010), Quantitative (“quant”) research is used to quantify the problem by way of generating numerical data that can be transformed into useable statistics. As well as quantitative research approach emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. The basic reason of the researcher used quantitative were the central statistical data is measurable, numerical and functioned by formula, for this reason the researcher used quantitative research methods.

The research design refers to the researcher's overall approach to integrating the various components of the study in a cohesive and logical manner in order to address the research problem and identify the gap. Quantitative research is the process of applying statistical, computational, or mathematical approaches to collect observable data in order to answer a research issue. The advantages of qualitative research are that it is an open-ended approach that looks at ideas, thoughts, qualities, and descriptions based on human experiences and observations. Within qualitative research, creativity becomes a desirable attribute, and qualitative research can generate industry-specific insights. In qualitative research, smaller sample sizes are employed, which might save money, the drawback of qualitative research is that the quality of the data collected is largely subjective, and qualitative research is not statistically representative. As a result, the researcher used both quantitative and qualitative research to identify the research gap and answer the research problem. These approaches are also used to explain and understand the nature of the problem under study using data gathered from primary and secondary sources.

3.3 Data type and Sources

There are two types of data sources such as primary and secondary. Primary Data that has been generated by the researcher himself or herself and. Those data which are collected afresh and for the first time and thus happen to be original in character and known as Primary data. Also the primary data can be collected through surveys, interviews, questionnaires’ specially designed for

understanding and solving the research problem at hand (Mesly, 2015). Secondary data implies second-hand information which is already collected and recorded by any person other than the user for a purpose. Secondary source the researcher obtains the data that has already been collected by other sources, such as data disseminated in a scientific journal) (Mesly, 2015). It is the readily available form of data collected from various sources like censuses, government publications, census, and organization, data generated by large government institutions, books, journal articles, and websites and so on.

In addition to those, Secondary data would arise from a variety of sources, such as published and unpublished documents, which narrate and explained about which are written by various research reports are prepared by research scholars, universities, and economists: the researcher uses economic base theory, employment multiplier model, shift shift-analysis, as well as other sources of published information, statistics, historical documents, dissertations, and other sources of published information. This implies that the majority of the theoretical aspects of this study were based on the documents listed.

However, for the purpose of this study and to address the research objectives, the researcher used secondary data sources. The major of the research data was collected from CSA (central statistical Authority) and reviewing of secondary data was used to explore and analyze economic base and shift-share analysis in the study area region. And also the secondary data were collected or gathered from central statistical authority (CSA) data in times of 2014 and 2018 based on the data availability; Two sets of data were selected, one for urban employment data in Amhara region and the other for national urban employment of Ethiopia .Therefore bureau of central statistical authority were the main sources of the research data. The data collected on total urban employment has categorized into two main sectors, the major urban industry sector twenty-one and seventy-eight sub-sectors. Also the researcher used Ethiopian and Amhara region urban industrial employment data. As a result, using the location quotient employment multiplier, and shift shift-share analysis methods to determine the expected total employment change in the region, as well as the economic base projection method to determine how total economic activity in the Amhara region is expected to change as a result of to identify the basic and non-basic industry sector of the region economy.

A location quotient (LQ) is an analytical statistic model that measures a region's industrial specialization relative to a larger geographic unit (usually the nation) (Feser, E, and J.2008).

LQ is a simple but widely used technique for identifying the economic base's towns or regions. It is a measure of a town's or region's industry concentration in comparison to a larger reference area, which is usually the entire country. It compares an industry's regional employment share to its national employment share (Robert et al., 2006). Particularly, based on Robert et al. (2006), the LQ for various sectors of the economy could be computed using the formula given below as follows:

$$LQ =$$

Where

LQ= Location Quotient

e_i = Regional employment in the i^{th} industry

e = Total Local Employment

E_i = National Employment in the i^{th} industry

E = Total National Employment

SSA (shift share analysis) is a descriptive technique for studying regional or urban economic change over time, such as expansion or decrease (Dinc, 2002; Robert, et al., 2006). It also provides useful information on the performance of local industry growth and competitiveness in a locality when comparing to a wider reference area, or when comparing the regional economy to the national or country economy.

Based on Robert et al. (2006) and Quintero (2007), the formula for the three shift share components i.e. National growth effect, Industry mix effect and Competitive effect, have been calculate as follows:

$$NG = Re_i \left(\frac{NE_j}{NE_i} - 1 \right)$$

$$IM = Re_i \left(\frac{Ne_j}{Ne_i} \right) - \left(\frac{NE_j}{NE_i} \right)$$

$$CE = Re_i \left(\frac{Re_j}{Re_i} \right) - \left(\frac{Ne_j}{Ne_i} \right)$$

Where,

NG=National Growth Effect

IM =Industry Mix Effect

CE= Competitive Share Effect

Rei is regional employment in a given industry at the beginning of the period

Rej is regional employment in a given industry at the end of the period

Nei is national employment in a given industry at the beginning of the period

Nej is national employment in a given industry at the end of the period

NEi is total national employment at the beginning of the period

NEj is total national employment at the end of the period

Total Employment Change (TEC) = NG+IM+CS

3.4. Data analysis

The researcher was to employ qualitative and descriptive methodologies in this study; qualitative data comprises of words, pictures, and sounds, and is frequently unstructured in nature, according to (Robkitchin, 2000). However, the researcher used a table, functional formula to analyze the massive CSA information data and to interpret each outcome and results. And they require a different set of techniques to examine from qualitative data. On the other hand, description refers to the interpretation of data results in any study that employs a data report or graphical illustration, whether qualitative or quantitative data. It is concerned with the representation of data in a way that can be easily understood. In order to analyze qualitative data, a description could be a spoken or written summary of the data or an interpretation. The researcher used to illustrate speared sheet software, tables, to interpret and describe the research findings. The researcher used a table to calculate and analyze the data using the location quotient and shift-share analysis formula in order to examine the CSA data.

CHAPTER FOUR

4. Result and Discussion

This chapter presents the analysis of data and discussion based on the findings of the study to assess the economy of Amhara region through economic base and shift share analysis techniques. The data are analyzed based on the specific objectives and hypothesis of the study in line with realistic findings of previous related study. The research data was collected from CSA.

4.1 Location quotient calculation and interpretation

A location quotient (LQ) is an analytical statistic model that measures a region's industrial specialization relative to a larger geographic unit (usually the nation) (Feser, E, and J.2008). LQ is a simple but widely used technique for identifying the economic base's towns or regions. It is a measure of a town's or region's industry concentration in comparison to a larger reference area, which is usually the entire country. Therefore the urban economic structure data used from CSA in (2014 and 2018).

Table 1. Major urban industrial employment location quotients of Amhara Region for (2014 & 2018)

Major Industrial division	2014		2018		2014	2018
	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$
Total	6,789,992	1,437,447	7,518,855	1,522,913		
Agriculture, Forestry & Fishing	587,756	163,386	542,151	214,858	1.26	0.191
Crop, animal production, hunting	557,906	156,948	516,067	208,922	6.1	1.02
Forestry And Logging	24,229	4,167	24,480	5,809	1.01	0.6
Fishing and Aquaculture	5,621	2,270	1,604	127	1.3	0.03
Mining and Quarrying	48,120	9,818	26,946	8,869	0.7	0.8
Mining of metal	6,014	486	6,873	952	0.3	0.03
Other mining & quarrying	31,100	7,365	17,237	7,917	0.8	0.91

Source: Computed by the researcher based on CSA data in 2014 and 2018

Abbreviations used: LQ= location quotient E = Total National Employment, E_i =National Employment in the i th industry, e = Total Local Employment, e_i = Regional employment in the i th industry

As shows in Table 1. The location quotient result of forestry, agriculture and fishing (11-14) in 2014&2018 years indicates that the region has a greater share of in an industry than the national, as the location quotient results of those sectors in 2014 is 1.26. However, location quotient results for forestry, fishing, and aquaculture is less than one (<1). As a result the sub-sectors in Agriculture industry i in the region have a lower share of employment than the benchmark region and the region falls below the level of self-sufficiency and the produce of these sub-sectors wants to be imported to meet local demand for that particular industry sector’s goods and services.

Let us now turn our consideration to some specific location quotients and how to interpret them, as shown in table 1. For example, the Agriculture sub-sector of crop, animal production in the Amhara region has a location quotient of 6.1 in 2014 and 1.02 in 2018. Agriculture's location quotient is calculated as

$$LQ = \left(\frac{e_i}{e}\right) / \left(\frac{E_i}{E}\right) = \text{the LQ of Agriculture in time of 2014} = \left(\frac{156,948}{1,437,447}\right) / \left(\frac{587,756}{6,789,992}\right) = 1.26$$

And, at the same sector in 2018 $LQ = \left(\frac{e_i}{e}\right) / \left(\frac{E_i}{E}\right) = \text{the LQ of Agriculture} = \left(\frac{214,858}{1,522,913}\right) / \left(\frac{542,151}{7,518,855}\right) = 0.91$. This calculation indication that in agriculture sector Amhara region is more significant in 2014 than the national in 2018. For the reason that the location quotient result of agriculture in 2014 is 1.26, whereas in 2018 location quotient of agriculture is 0.91. Therefore, in 2014 the agriculture sector is more strength than in 2018; this means the location quotient is decrease 1.26 to 0.91.

Based on table 1.1 information the location quotient calculation results of mining and quarrying are show in time of 2014 and 2018 respectively $LQ = \left(\frac{9,818}{1,437,447}\right) / \left(\frac{48,120}{6,789,992}\right)$ LQ of mining and quarrying is 0.7 and $LQ = \left(\frac{e_i}{e}\right) / \left(\frac{E_i}{E}\right) = LQ = \left(\frac{8,869}{1,522,913}\right) / \left(\frac{17,237}{7,518,855}\right) = 0.8$ Using the two-digit CSA employment system , it becomes apparent that Amhara region is indeed Mining and quarrying sector 0.7&0.8 and sub-sector such as, mining of metal ores is 0.3 & 0.03 and the mining

&quarrying is 0.8 & 0.91. At the time, the Amhara region lacked strength in the mining and quarrying sectors, and there was no significant change in location quotient.

Its results are 0.7 and 0.8, respectively, indicating that there is no significant change between 2014 and 2018, and the economy remains stable. According to table 1, the Amhara region has a lower share of employment than the benchmark region, implying that the region falls short of self-sufficiency and must import to meet local demand for that particular industry sector's goods and services. All employment is considered non-basic. Because the information in the preceding table indicates that all mining and quarrying location quotient results are less than one (1).

Table 2 Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial division	2014		2018		2014	2018
Major industrial division	National Employment $\frac{E_i}{E}$	Amhara Region Employment $\frac{e_i}{e}$	National Employment $\frac{E_i}{E}$	Amhara Region Employment $\frac{e_i}{e}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$
Manufacturing	952,875	165,229	924,836	172,654		
Manufacture of food products	218,822	27,022	262,606	40,062	0.7	0.8
Manufacture of beverage	140,337	31,348	117,331	38,817	1.2	1.7
Manufacture of tobacco product	4,641	3,320	1,856	1,275	4.1	3.65
Manufacture of textiles	178,480	40,750	120,050	24,823	1.3	1.1
Manufacture of Wearing Apparel	56,221	9,406	79,350	8,888	0.94	0.6
Manufacture of Leather products	23,242	1,918	25,360	3,381	0.48	0.7
Manufacture of Wood Products	54,433	7,552	57,812	10,460	0.78	0.06
Printing And Reproduction of Recorded Media	11,110	2,717	13,710	2,195	1.4	0.8
Manufacture of Chemicals Product	23,215	3,821	22,154	1,233	0.95	0.02
Manufacture of Rubber and Plastics Products	14,241	292	14,071	1,625	0.11	0.6
Manufacture of other Non-Metallic Mineral Products	43,656	6,384	33,562	8,988	0.8	1.44
Manufacture of Basic Metals	32,762	2,923	30,945	3,381	0.5	0.55
Manufacture of Fabricated Metal	36,532	7,669	29,522	5,866	1.2	1
Manufacture of comp Computer	4,505	697	4,501	2,388	0.89	2
Manufacture of electrical, equipment	11,875	2,073	8,146	2,249	1	0.014
Manufacture of Machinery And Equipment	16,347	2,038	4,295	611	0.72	0.7
Manufacture of Motor Vehicles and Trailers	9,855	2,004	6,468	1,440	0.12	0.88
Manufacture of other Transport Equipment	5,531	1,549	3,908	265	1.6	0.35
Manufacture of Furniture	17,008	3,580	33,064	4,026	1.2	1.1
Other Manufacturing	14,468	3,802	13,057	3,906	15	0.15
Repair And Installation of Machinery and Equipment	27,530	4,252	33,909	6,510	0.9	1.04
Electricity, Gas, Steam And Air Conditioning Supply	15,182	2,248	26,100	5,610		
Electricity, Gas, Steam and Air Conditioning Supply	15,182	2,248	26,100	5,610	1	1

Source: Computed by the researcher based on CSA data in 2014 and 2018

According to table 2, the location quotient results for the manufacturing sub-sector such as manufacturing of products, manufacturing of wearing, manufacturing of leather, manufacturing of wood products, manufacturing of chemical, rubber and plastic, basic metal, machinery and equipment, manufacturing of motor, trials, and vehicles are less than one (1). As a result, the Amhara region has a lower share of employment than the benchmark region, and the region falls short of self-sufficiency and must import to meet local demand for those specific industry sectors' goods and services. As a matter of fact, all of these jobs are considered non-basic.

Let, we see one specific industrial location quotient calculation

$$LQ = \left(\frac{e^i}{e}\right) / \left(\frac{E^i}{E}\right) = \text{the LQ manufacture of food products } \left(\frac{40,062}{172,654}\right) / \left(\frac{262,606}{924,836}\right) = 0.8 \quad \text{in in}$$

the same way results fall below one (< 1). in 2014, $LQ = \left(\frac{e^i}{e}\right) / \left(\frac{E^i}{E}\right)$: therefore the LQ of

$$\text{manufacture of food products } \left(\frac{27,022}{165,229}\right) / \left(\frac{218,822}{952,875}\right) = 0.7 \text{ in table 2 for the manufacture sub-}$$

sectors the region has smaller share of employment than the country or the benchmark.

Whereas, manufacturing of beverages, manufacturing of tobacco products, and manufacturing of furniture have higher location quotient results, this means the result is (> 1) in time of both 2014 and 2018. This indicates that the Amhara region has a higher share of employment (or earnings, etc.) in these industries than the benchmark region. This indicates that at least a portion of a region's employment in these industrial sectors is engaged in basic activities. Moreover, it indicates that these manufacturing sub-sectors in the Amhara region produce more goods and services than can be consumed locally, and thus the region exports this excess output. The higher the LQ, the more specialized the region is in this industrial sector.

In this case, the regional industry i is mainly composed of both basic and non-basic jobs. While we generally make the assumption that all excess production is exported, there are some exceptions where the entire output can be considered a basic activity. The region's share of employment in industry i or Amhara region is equal to that of the benchmark region in the manufacture of fabricated metal products. This clearly shows that the Amhara region is completely self-sufficient and does not export or import goods or services from this industry. All of these fabricated metal product jobs are considered non-basic.

The location quotients calculation is shown below:

$LQ = \left(\frac{e^i}{e}\right) / \left(\frac{E^i}{E}\right) = 1$ then, in 2014 the LQ manufacture of fabricated metals $\left(\frac{5,866}{172,654}\right) / \left(\frac{29,522}{924,836}\right) = 1$ although in time of 2018, $\left(\frac{e^i}{e}\right) / \left(\frac{E^i}{E}\right)$ the LQ of manufacture of food products $\left(\frac{71,669}{165,229}\right) / \left(\frac{36,532}{952,875}\right) = 1$ therefore, the two time change years in 2014 & 2018 as manufacture of fabricated metals except machinery the Amhara region employment in industry equal share with the benchmark region.

Based on table 2 in time of both 2014 and 2018, electricity, gas, steam and air conditioning supply the location quotient calculation results is equal to one (=1). As shown below:

In 2014, $LQ = \left(\frac{e^i}{e}\right) / \left(\frac{E^i}{E}\right) = 1$ the LQ electricity, gas, steam and air conditioning $\left(\frac{22,48}{22,48}\right) / \left(\frac{15,185}{15,185}\right) = 1$. In the same way in 2018:

$LQ = \left(\frac{e^i}{e}\right) / \left(\frac{E^i}{E}\right) = 1$ the LQ electricity, gas, steam and air conditioning $\left(\frac{2,610}{5,610}\right) / \left(\frac{26,100}{26,100}\right) = 1$

This shows based on those industry sub-sector Amhara region are equal to that of the benchmark region for the same sub-sectors. According to this finding the Amhara region is completely self-sufficient and on exports or imports the goods or services of this industry. Therefore, all employment in this sub-sector is considered non-basic. Moreover, within electricity, gases, and air conditioning Amhara region does not show employment change over the five years of data returns (2014 and 2018) the region industrial employment shows that there is no changes from 2014 up to 2018 it continue a constant manner.

Table 3 Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial Division	2014		2018		2014	2018
Major industrial division	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$
Water Supply; sewerage, waste management	50,570	11,043	73,247	12,726	0.9	0.86
Waste collection, and disposal activities	11,129	1,544	33,272	9,015	0.63	0.15
Sewerage	1,536	111	7,269	1,618	0.3	1.2
Disposal materials recovery	11,129	1,544	26,771	1,112	0.33	0.23
Remediation activities and other waste management Services	3,767	1,083	5,935	815	1.4	0.79

Source: Computed by the researcher based on CSA data in 2014 and 2018

Based on Table 3 Waste collection, Disposal activities, & Materials recovery the location quotient results is less than one (<1). As shown in the following calculation of LQ:

$$LQ = \left(\frac{ei}{e}\right) / \left(\frac{Ei}{E}\right) = \text{the LQ waste collection, } \left(\frac{9,015}{12,726}\right) / \left(\frac{33,272}{73,247}\right) = 0.15$$

$$\text{And on the same way } LQ = \left(\frac{ei}{e}\right) / \left(\frac{Ei}{E}\right) = \text{the LQ waste collection, } \left(\frac{1,544}{11,043}\right) / \left(\frac{11,129}{50,570}\right) = 0.63$$

Accordingly the sub-sector sewerage, remediation activities and other waste management the location quotient results show less than one. Therefore, based on these sub-industrial sectors the region industry has a smaller share of employment than the benchmark region and the region falls below the level of self-sufficiency and needs to import to meet local demand for this particular industry sector's goods and services. All employment is considered non-basic. The goal of the researcher is to divide a region's economy into basic and non-basic activities, so these sub-sectors are non-basic sector of the region economy.

Table 4 .Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial Division	2014		2018		2014	2018
Major industrial division	National Employment $\frac{E_i}{E}$	Amhara Region Employment $\frac{e_i}{e}$	National Employment $\frac{E_i}{E}$	Amhara Region Employment $\frac{e_i}{e}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$
Construction	569,148	118,711	562,012	124,114		
Construction of Buildings	323,369	73,796	299,394	66,220	1	1
Civil Engineering	89,887	18,104	98,113	21,276	0.96	0.98
Specialized Construction activities	155,892	26,811	164,505	36,619	0.81	0.32
Repair of Motor Vehicles and motorcycles	1,381,759	296,535	1,588,679	297,026	1	0.78
Wholesale Trade, Except of Motor	133,906	20,599	165,023	18,714	0.7	0.51
Retail Trade except of Motor vehicle	1,200,602	270,433	1,371,933	269,374	1.08	0.88

Source: Computed by the researcher based on CSA data in 2014 and 2018

Based on the Table 4 presented information and the data interpretation of construction of buildings in Amhara region share of employment in industry is equal to that of the benchmark region. It is supposed that the region is self-sufficient and neither exports nor imports the goods or services of this industry. All employment is considered non-basic. On the other hand, civil engineering and specialized construction activities the region has share employment industry is less than one. This indicates that the region falls below the level of self-sufficiency and needs to import to encounter local demand for that specific industry sector's goods and services. All these construction sub-sector is considered non-basic activities in the region's economy.

Table 5. Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial Division	2014		2018		2014	2018
	National Employment $\frac{E_i}{E}$	Amhara region Employment $\frac{e_i}{e}$	National Employment $\frac{E_i}{E}$	Amhara Region Employment $\frac{e_i}{e}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$
Transportation and Storage	323,969	60,802	470,337	86,800		
Land transport and Transport via Pipelines	244,350	46,407	361,219	78,727	1.01	1.19
Water Transport	2,126	412	1,130	125	0.92	0.5
Air Transport	8,742	377	8,803	140	0.23	0.085
Warehousing and Support activities for transportation	65,076	12,629	92,615	6,777	1.03	0.37
Postal and courier activities	3,675	976	6,067	1,031	1.4	9.2

Source: Computed by the researcher based on CSA data in 2014 and 2018

As show in Table 5 presented information the Amhara region has a greater share of employment on land transport, transport via pipelines and Postal and Courier Activities in the industry than the benchmark region. Because the location quotient results of land transport and transport via pipelines Postal and Courier Activities industry shows greater than one (>1). At least part of a region employment in industrial sector is engaged in basic activities. Us shown in the location quotient results:

On the other hand, by water transport and air transport, the Amhara region showed a smaller share of employment than the benchmark region and, therefore, the region falls below the level of self-sufficiency and the region needs to import to meet local demand for that particular industrial sector's goods and services. All employment in this sub-sector is considered non-basic. For the reason that, the location quotient of these industries are less than one (<1).

Table 6. Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial Division	2014		2018		2014	2018
	National Employment $\frac{ei}{e}$	Amhara Region Employment $\frac{ei}{e}$	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$
Accommodation and food service activities	353,468	74,780	422,057	81,518		
Accommodation	43,456	8,441	33,395	4,737	0.91	0.6
Food and Beverage service activities	310,013	66,339	388,662	76,780	1	1.02
Information and Communication	65,236	8,848	92,732	14,241	0.64	0.79
Publishing activity	12,033	1,669	13,683	440	0.65	0.16
Motion picture, Video, Television	7,599	1,211	5,011	761	0.76	0.76
Programming & broadcasting activities	3,812	423	3,233	683	0.5	1.08
Telecommunications	18,751	2,097	29,218	6,084	0.52	1.07
Computer programming	8,894	1,421	11,739	1,257	0.76	0.7
Information service activities	14,146	2,027	29,848	5,017	0.675	0.92

Source: Computed by the researcher based on CSA data in 2014 and 2018

As show in Table 6 presented data the region has a greater share of employment (or earnings) in the industry than the national for food and beverage activities. As shown in the Table 6 the location quotient result of food and beverage is greater than one. While, based on the accommodation sector the Amhara region has shares less employment and it needs imported activities.

Whereas, based on all information and communication sub-sectors the regions industry sector has a smaller share of employment than the benchmark region and the region falls below the level of self-sufficiency and it needs to import to meet local demand for that particular industry sector's goods and services. The location quotient result of all information and communication sub-sectors is less than one. These are Information service activities, computer programming, consultancy, and related activities motion picture, video, and television, sound recording, and publishing activities. Based on Table 6 shows all these information and communication sub-sectors employment is considered a non-basic sector for the Amhara region.

Table 7 .Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial Division	2014		2018		2014	2018
	National Employment $\frac{Ei}{E}$	Amhara region Employment $\frac{ei}{e}$	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$
Financial and Insurance activities	161,904	26,298	230,374	33,175		
Financial Service activities, except insurance and Pension funding	136,581	21,856	179,420	26,903	0.98	1.05
Insurance, reinsurance and pension funding	3,288	174	5,366	992	0.33	0.7
Activities auxiliary to financial and insurance, activities	22,035	4,268	45,588	5,280	1.1	0.8
Real estate	2,309	102	4,713	1,527	0.21	2.3
Real Estate activities	2,309	102	4,713	1,527	0.27	0.21

Source: Computed by the researcher based on CSA data in 2014 and 2018

Based on Table 7 information on financial service activities, except insurance and pension funding in 2014 the location quotient results is 0.98 and in 2018 it shows the location quotient results in greater change and the result is 1.05. By way of the location quotient method formula:

$$LQ = \left(\frac{ei}{e}\right) / \left(\frac{Ei}{E}\right) = \text{in 2014 the financial service activities } LQ = \left(\frac{161,904}{136,581}\right) / \left(\frac{21,856}{26,298}\right) = 0.95 \quad \text{and}$$

$$\text{whereas, in 2018 } LQ = \left(\frac{ei}{e}\right) / \left(\frac{Ei}{E}\right) = \text{the financial service activities } LQ = \left(\frac{179,420}{230,374}\right) / \left(\frac{26,903}{33,175}\right) = 1.05$$

.Therefore accordingly financial service activities Amhara region shows industrial employment change. Moreover, the region shows strength industry export from the time of 2014 up to 2018.

The other financial sub-sectors such as insurance, reinsurance, pension funding activities auxiliary to financial service their location quotient results show that less than one (<1). By these sub-sectors, the Amhara Region has a smaller share of the industry sector than the benchmark region. And real estate activities sub-sector is another non-basic activity of the regional economy.

Table 8. Major urban industrial employment Location quotient of Amhara region (2014 and 2018)

CS A	Major Industrial Division	2014		2018		2014	2018
		National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$
55	Professional, scientific and technical activities	97,649	19,023	171,390	20,808		
551	Legal and accounting activities	49,499	9,229	87,014	10,828	1.2	1.02
552	Activities of head offices; management consultancy activities	14,055	3,788	17,186	2,128	1.4	1.01
553	Architectural engineering activities	1,959	310	6,120	707	0.8	0.92
554	Scientific research and development	7,080	753	15,803	1,147	0.54	0.168
555	Advertising And Market Research	7,702	1,271	14,114	1,465	0.83	0.85
556	Other Professional, Scientific activities	10,218	2,201	22,077	3,287	1.15	1.2
557	Veterinary Activities	7,135	1,472	9,077	1,248	1.05	1.15

Source: Computed by the researcher based on CSA data in 2014 and 2018

Based on Table 8 legal and accounting activities, activities of head offices, other professional scientific and technical activities, and veterinary activities are the basic sub-sector of the Amhara region economy. As shown in the above table the location quotient results of these sub-sectors are greater than one (>1). So, based on these sectors the region has a greater share of employment (or earnings) in the industry than the benchmark region. At least part of a region's employment in the industrial sector of the local economy is engaged in basic activities. Whereas, on architectural engineering, scientific research and development, and advertising and market research all these sub-sectors of the industry are show the location quotient results indicate less than one (<1). As shown below: the arcthitectrual engineering of =0.8 and in 2018 the arcthitectrual engineering = 0.92, therefore based on the above sector two pints in time of 2014&2018 the Amhara region achieved smaller share of employment than the benchmark region and the region falls below the level of self-sufficiency and needs to import or employ more people to meet local demand for that particular industry sector's goods and services. According to the result these sub-sectors are non-basic sectors of the region.

Accordingly, these architectural engineering sectors Amhara region is not strength and it need more investments in these sectors. Means based on those sectors the region needs other investments and additional job employment to develop the employment opportunity of those sectors.

Table 9. Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial division	2014		2018		2014	2018
Major industrial division	National Employment $\frac{Ei}{E}$	Amhara region Employment $\frac{ei}{e}$	National Employment $\frac{Ei}{E}$	Amhara Employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$
Administrative and Support service activities	102,093	20,375	181,112	18,416		
Rental and leasing events	8,547	1,371	9,884	380	0.83	0.1
Employment activities	19,387	5,533	36,622	4,451	1.4	1.2
Travel agency, trip operator, reservation Service	5,444	627	8,272	860	0.5	1.02
Security and Investigation activities	14,660	828	19,070	349	0.27	0.18
Services to Buildings	15,169	4,847	37,581	4,445	1.6	1.2
Office administrative, office Support	38,886	7,796	69,683	7,931	1	1.13
Public administration, defense; compulsory social Security	286,891	64,745	346,377	84,228		
Public administration and defense	286,891	64,745	346,377	84,228	1	1
Education	437,469	96,079	565,421	125,927		
Education	437,469	96,079	565,421	125,927	1	1

Source: Computed by the researcher based on CSA data in 2014 and 2018

Based on Table 9 information by the following sub-sectors such as rental and leasing activities, traveling agency, tour operator, security and investigation Amhara region has a smaller share of employment than the benchmark region the region Table 9 results show the region falls below the level of self-sufficiency and needs to import to meet local demand for that particular industry sector's goods and services. Because the location quotient results of the above table identify this sub sector result is less than one.

On the other hand, by employment activities service to building, landscape activities office of administrative support, the location quotient results show above one. Therefore based on these sub-sectors the Amhara region has a greater share of employment (or earnings) in the employment industry than the benchmark region. At least part of a region's employment in the industrial sector is engaged in basic activities.

While, on public administration, defense, and on the education sub-sector, the Amhara region's share of employment in the industry is equal to that of the benchmark region. It is assumed that the region is completely self-sufficient and neither exports nor imports the goods or services of this industry. All employment is considered non-basic. Because based on the principle of the location quotient method if the location quotient result is equal to one that sub-sector is grouped under non-basic activities.

Abbreviations used: = Regional employment in the *i*th industry *e* = Total Local Employment *Ei* = National Employment in the *i*th industry, *E* = Total National Employment , *n_i*=Non-basic employment , *bi*=basic Employment.

Source: Xinhao Wang & Rainer vom Hofe (2007)

Table 10 . Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial Division	2014		2018			
	National Employment $\frac{Ei}{E}$	Amhara Region Employment $\frac{ei}{e}$	National Employment $\frac{Ei}{E}$	Amhara region Employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} \cdot \frac{Ei}{E}$	$LQ = \frac{ei}{e} \cdot \frac{Ei}{Ei}$
uman health and Social work Activities	195,339	31,299	246,191	40,726		
uman health Activities	178,258	29,700	221,691	34,402	0.47	0.93
esidential care Activities	10,678	1,422	17,728	2,913	0.4	0.98
orts, Entertainment and ecreation	48,859	8,020	56,351	14,582		
reative, arts and ertainment activities	4,974	295	3,258	87	0.35	0.08
ibraries, museums and her cultural activities	8,322	1,199	12,836	4,332	0.87	1.3
ambling and betting	3,684	757	2,125	264	0.075	0.48
ports activities musements and refreshment activities	31,879	5,769	38,133	9,899	1.12	1.1
ther service activities	475,242	118,246	454,169	86,293		
ctivities of membership	101,000	20,184	95,484	13,239	0.8	1.77

Repair of Computers And Personal And Household	34,105	8,032	39,279	8,611	0.84	1.13
Other Personal Service Activities	340,138	90,029	319,406	64,443	1.06	1.05

Source: Computed by the researcher based on CSA data in 2014 and 2018

Based on Table 10 human health activities and residential care activities location quotient results are show less than one .As shown on the above Table 10 all these human health activities sub-sector is non-basic economic activities. Based on these industries sectors Amhara region has a smaller share of employment than the benchmark region and the region falls below the level of self-sufficiency and it needs to import to meet local demand for that particular industry sector’s goods and services. Accordingly these industry sectors the region is weak and not competitive.

At the same way , in creative and entertainment ,libraries, museum and gambling sub-sectors the Amhara region has a smaller share of employment than the benchmark region and the region falls below the level of self-sufficiency and it needs to import to meet local demand for that particular industry sector’s goods and services. Because as shown the table 1.9 the location quotient results of these sub-sector indicates less than one (<1). Whereas in sport activities and amusement and recreation activist sub-sectors the Amhara region share has a greater share of employment (or earnings) in industry than the benchmark region. Because, the location quotient calculation results of these sub-sector is less than one (>1). At least part of a region’s employment in industrial sector is engaged in basic activities. And also from other sub-sectors the Amhara region has industry has a smaller share of employment than the benchmark region except other personal service activities. The region falls below the level of self-sufficiency and needs to import to meet local demand for those particular industry sectors of goods and service.

Abbreviations used: = Regional employment in the ith industry e = Total Local Employment E_i = National Employment in the ith industry, E = Total National Employment , n_i =Non-basic employment , b_i =basic Employment.

Source: Xinhao Wang & Rainer vom Hofe (2007)

Table 11. Major urban industrial employment location quotient of Amhara region (2014 and 2018)

Major Industrial Division	2014		2018		2014	2018
	National Employment $\frac{E_i}{E}$	Amhara Region Employment $\frac{e_i}{e}$	National Employment $\frac{E_i}{E}$	Amhara Region Employment $\frac{e_i}{e}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$	$LQ = \frac{e_i}{e} / \frac{E_i}{E}$
Activities of households as employers; undifferentiated goods- and services	614,866	137,398	459,273	66,813		
Activities of households as employers of domestic personnel	343,162	69,100	401,495	55,872	0.9	0.95
Indistinguishable merchandises- and services-producing activities of private households	271,704	68,298	57,778	10,941	1.11	1.33
Activities of extraterritorial organizations and bodies description	19,287	4,472	74,388	12,167	1.1	1.13
Activities of extraterritorial organizations & bodies	19,287	4,472	74,388	12,167	1.11	1.12

Source: Computed by the researcher based on CSA data in 2014 and 2018

As shows in Table 11 activities of households as employers of domestic personnel sub-sector Amhara region has a smaller share of employment than the national the and the region falls below the level of self-sufficiency and needs to import to meet local demand for those particular industry sectors of goods and services. As shown the Table 11 the location quotient calculation results of households as employers of domestic personnel sub-sector show less than one (<1). This shows based on these sub-sector Amhara regions have employment is considered a non-basic sector.

On the other hand, undifferentiated goods- and services-producing activities of private households for own use; activities of extraterritorial organizations and bodies description, activities of extraterritorial organizations and bodies are the basic sub-sectors of the regional

economy. As shown in the above Table 11 the location quotient calculation results of these sub-sector show that less one (<1). Show below:

$LQ = \frac{e^i}{e} / \frac{E^i}{E}$ in 2014 the undifferentiated goods and service producing activities

of private households for own use $LQ = \frac{68,298}{137,398} / \frac{271,704}{614,866} = 1.1$ and in times of 2018

$LQ = \frac{e^i}{e} / \frac{E^i}{E} = LQ = \frac{10,941}{66,813} / \frac{57,778}{459,273} = 1.33$ and when we see the other sub-sector

location quotient calculation result $LQ = \frac{e^i}{e} / \frac{E^i}{E}$ in 2014 the activities of extraterritorial

organizations and bodies description $LQ = \frac{4,472}{137,398} / \frac{19,287}{614,866} = 1.1$ and in 2018 $LQ =$

$\frac{e^i}{e} / \frac{E^i}{E} = \frac{1,167}{66,813} / \frac{74,388}{459,273} = 1.13$. Within these industry sectors Amhara region is more

strength than the national and based on these sectors the region is more competitive than the Ethiopia. This shows the location quotient result of undifferentiated goods- and services-producing activities of private households for own use, activities of extraterritorial organizations and bodies description sub-sector is greater than one (>1). And as shown in this calculation the Amhara region has a greater share of employment (or earnings) in the industry than the benchmark region. At least part of a region's employment in the industrial sector is engaged in basic activities. It is also assumed that for the region, the industry produces more goods and services than can be consumed locally, and therefore exports this excess production.

4.2 Discussion

This section presents discussion of results on three objectives along with their establish area of the findings identified through the process of the data analysis. The present findings of the study as per research objective and research data were discussed integrated and synthesized in line with the research findings and in this section the researcher present the detailed research objectives.

4.2.1 Basic and Non-Basic Industry Sectors

Basic and non-basic industries are the two broad industry categories. The Basic Sector is a group of local firms that are entirely dependent on external factors such as export and other non-local firms 'export activities'. The Non-Basic Sector is a group of firms that depend on local business conditions and factors like products consumed locally. Basic industries are critical to economic development because they bring in revenues from outside customers and support the non-basic business (according to Weebly, 1887-1953). Economic strength affects employment, government budgets, private sector investments and urban planning. For example, a country with only non-basic industries is likely to feel the effects of an economic downturn, such as reduced employment and population.

Basic industries bring in money from the outside while; a no basic industry involves services within the community. An example of a basic industry would be a car factory, while an example of a no basic industry would be a local hospital. Basic industries consist of small and large businesses that sell primarily to external customers. Non-basic industries consist of primarily small businesses that sell to local customers, including basic and non-basic businesses. Non-basic activities are those activities directed mainly toward serving the local market. The main idea behind this classification is that basic activities are said to generate (cause) additional non-basic activities (Robert Murray Haig 1887-1953).

Therefore to identify the basic and non-basic industries sector of the Amhara region economy the present researcher used the 2018 CSA data. Because to identify basic and non-basic industry sector the recent data is more appropriate.

Abbreviations used: = Regional employment in the i th industry e = Total Local Employment E_i = National Employment in the i th industry, E = Total National Employment , n_i =Non-basic employment , b_i =basic Employment.

Source: Xinhao Wang & Rainer vom Hofe (2007)

Table 12. Basic and non-basic industry sector calculation of Amhara region

CSA	major industrial division	2018		2018	basic employment b_i	non-basic employment n_i
Code s		National employment $\frac{Ei}{E}$	Amhara region employment $\frac{ei}{e}$	$LQ = \frac{ei}{e} / \frac{Ei}{E}$	$b_i = \left(\frac{1-LQ}{LQ}\right)ei$	$n_i = b_i \times ei$
	total	7,518,855	1,522,913			
11-14	Agriculture, forestry & fishing	542,151	214,858	0.191	214,858	
12	Crop, animal production, hunting	516,067	208,922	1.02	208,922	855851021.3
13	Forestry and logging	24,480	5,809	0.6	5,809	
14	Fishing and aquaculture	1,604	127	0.03	127	
15-17	Mining and quarrying	26,946	8,869	0.8	8,869	
	Mining of metal ores	6,873	952	0.03	952	
17	Other mining & quarrying	17,237	7,917	0.91	7,917	
31-33	Manufacturing	924,836	172,654			
311	Manufacture of food products	262,606	40,062	0.8	-10015.5	-401240961
314	Manufacture of beverage	117,331	38,817	1.7	15983.47	620430377.
315	Manufacture of tobacco product	1,856	1,275	3.65	925.6849	1180248.28
316	Manufacture of textiles	120,050	24,823	1.1	2256.636	56016484.4
317	Manufacture of wearing apparel	79,350	8,888	0.6	-5925.33	-52664362
318	Manufacture of leather products	25,360	3,381	0.7	-1449	-4899069
319	Manufacture of wood products	57,812	10,460	0.06	-163873	-
320	Printing and reproduction of recorded media	13,710	2,195	0.8	-548.75	-1204506.25
321	Manufacture of chemicals product	22,154	1,233	0.02	-60417	-74494161
322	Manufacture of rubber and plastics products	14,071	1,625	0.6	-1083.33	-1760416.6
323	Manufacture of other non-metallic mineral products	33,562	8,988	1.44	2746.333	24684044
324	Manufacture of basic metals	30,945	3,381	0.55	-2766.27	-9352768

325	Manufacture of fabricated metal	29,522	5,866	1	0	0
326	Manufacture of computer	4501	2388	2	1194	2851272
327	Manufacture of electrical, equipment	8,146	2,249	0.014	-158394	-356227784
328	Manufacture of machinery & equipment	4,295	611	0.7	-261.857	-159994.7
329	Manufacture of motor vehicles and trailers	6,468	1,440	0.88	-196.364	-282763.63
330	Manufacture of other transport equipment	3,908	265	0.35	-492.143	-
331	Manufacture of furniture	33,064	4,026	1.1	366	1473516
n/a	Other manufacturing	13,057	3,906	0.15	-22134	-86455404
332	Repair and installation of machinery and equipment	33,909	6,510	1.04	250.3846	1630003.846
42	electricity, gas, steam and air conditioning supply	26,100	5,610			
421	Electricity, gas, steam and air conditioning supply	26,100	5,610	1	0	0
422	Water supply; sewerage, waste management	73,247	12,726			
423	Waste collection, and disposal activities	33,272	9,015	0.15	-51085	-460531275
424	Sewerage	7,269	1,618	1.2	269.6667	436320.6667
425	Disposal & materials recovery	26,771	1,112	0.23	-3722.78	-4139734.2
426	Remediation activities and other waste management services	5,935	815	0.79	-216.646	-176566.13
44-45	Construction	562,012	124,114			
441	Construction of buildings	299,394	66,220	1		
442	Civil engineering	98,113	21,276	0.98	-434.204	-9238126
443	Specialized construction activities	164,505	36,619	0.32	-77815.4	-
48-49	Repair of motor vehicles and motorcycles	1,588,679	297,026	0.78	-83776.6	-
481	Wholesale trade, except of motor	165,023	18,714	0.51	-17980.1	-336479921
482	Retail trade except of motor vehicle & motorcycle	1,371,933	269,374	0.88	-36732.8	-9894866165
49-49	Transportation and storage	470,337	86,800			
491	Land transport and transport via pipelines	361,219	78,727	1.19	12569.86	989587143.
492	Water transport	1,130	125	0.5	-125	-15625
493	Air transport	8,803	140	0.085	-1507.06	-210988.2

494	Warehousing and support activities for transportation	92,615	6,777	0.37	-11539.2	-78201268.3
495	Postal and courier activities	6,067	1,031	9.2	918.9348	947421.760
51-54	Accommodation and food service activities	422,057	81,518			
511	Accommodation	33,395	4,737	0.6	-3158	-14959446
512	Food and beverage service activities	388,662	76,780	1.02	1505.49	115591537.
52-58	Information and communication	92,732	14,241	0.79	-3785.58	-53910477.2
521	Publishing activity	13,683	440	0.16	-2310	-1016400
522	Motion picture, video, television and ,sound	5,011	761	0.76	-240.316	-182880.31
523	Programming and broadcasting activities	3,233	683	1.08	50.59259	34554.7407
524	Telecommunications	29,218	6,084	1.07	398.0187	2421545.72
525	Computer programming	11,739	1,257	0.7	-538.714	-677163.8
526	Information service activities	29,848	5,017	0.92	-436.261	-2188720.7
53-	Financial and insurance activities	230,374	33,175			
531	Financial service activities, except insurance and pension funding	179,420	26,903	1.05	1281.095	34465305.19
532	Insurance, reinsurance and pension funding	5,366	992	0.7	-425.143	-421741.71
533	Activities auxiliary to financial and insurance, activities	45,588	5,280	0.8	-1320	-6969600
54-	Real estate activities	4,713	1,527	2.3	863.087	1317933.78
541	Real estate activities	4,713	1,527	0.21	-5744.43	-8771742.4
542	Legal and accounting activities	87,014	10,828	1.02	212.3137	2298933.02
543	Activities of head offices; Management consultancy activities	17,186	2,128	1.01	21.06931	44835.4815
544	Architectural engineering activities	6,120	707	0.92	-61.4783	-43465.1
545	Scientific research and development	15,803	1,147	0.168	-5680.38	-6515396.1
546	Advertising and market research	14,114	1,465	0.85	-258.529	-378745.58
547	Other professional, scientific and	22,077	3,287	1.2	547.8333	1800728.16
548	Veterinary activities	9,077	1,248	1.15	162.7826	203152.695
55-	Administrative and support service activities	181,112	18,416			
551	Rental and leasing activities	9,884	380	0.1	-3420	-1299600
552	Employment activities	36,622	4,451	1.2	741.8333	3301900.16
553	Travel agency, tour operator, Reservation service	8,272	860	1.02	16.86275	14501.96078

554	Security and investigation activities	19,070	349	0.18	-1589.89	-554871.22
555	Services to buildings	37,581	4,445	1.2	740.8333	3293004.16
556	Office of administrative	69,683	7,931	1.13	912.4159	7236370.73
56-	Public administration, defense social security	346,377	84,228			84,228
561	Public administration and defense	346,377	84,228	1		84,228
	Education	565,421	125,927			
563	Education	565,421	125,927	1	0	0
81-	Human health and social work activities	246,191	40,726			
811	Human health activities	221,691	34,402	0.93	-2589.4	-89080464
812	residential care activities	17,728	2,913	0.98	-59.449	173174.877
813	Social work activities without accommodation	6,772	3,412	3.07	2300.599	7849644.97
92-	Arts, entertainment and recreation	56,351	14,582			
921	Creative, arts and entertainment activities	3,258	87	0.08	-1000.5	-87043.5
922	Libraries, museums and other cultural	12,836	4,332	1.3	999.6923	4330667.07
923	Gambling and betting activities	2,125	264	0.48	-286	-75504
924	Amusements and recreation activities	38,133	9,899	1.1	899.9091	8908200.09
93-	Other service activities	454,169	86,293			
931	activities of membership	95,484	13,239	1.77	5759.339	76247888.8
932	Repair of computers and personal and home	39,279	8,611	1.13	990.646	8530452.85
933	Other personal service activities	319,406	64,443	1.05	3068.714	197757154.
96-	Activities of households as employers; undifferentiated goods- and services	459,273	66,813			
961	Activities of homes as employers of domestic personnel	401,495	55,872	0.95	-2940.63	-164298967
962	Undistinguishable merchandises- and services-producing activities of private households for own use	57,778	10,941	1.33	2714.684	29701359.95
97	Activities of extraterritorial organizations and bodies description	74,388	12,167	1.13	1399.743	17030677.5
99	Activities of extraterritorial organizations& bodies	74,388	12,167	1.12	1303.607	15860988.11
total					213,554	-1586988

Source: Computed by the researcher based on CSA data in 2014 and 2018

Based on the Table 12 the basic employment of manufacture of food products b_i for Amhara Region is calculated as:

$$b_i = \left(\frac{1-LQ}{LQ}\right)ei$$

Therefore, $b_i = \left(\frac{1-0.8}{0.8}\right) 40,062 = -100,015.5$. This means all the above table basic employment that can be calculated by this formula.

Similarly, the location quotient can then be used to calculate basic or excesses employment for an industry as: $b_i = \left(\frac{1-LQ}{LQ}\right)ei$

Where,

$$b_i = \text{area basic employment in industry } i$$

For instance, Amhara region basic employment in manufacturing of furniture (CSA331) is calculated as $b_{\text{manufacture furniture}} = \left(\frac{1-1.1}{1.1}\right) 4,026 = -336$

Therefore, out of the total 4,026 employed in manufacture of furniture, 336 persons work to product export. Using the location quotient to derive export employment for location quotient smaller than 1.0 result in negative employment figures. This can easily be shown by evaluate the term $1/LQi$, which is larger than 1.0 for LQs < 1.0. For the example the civil engineering has location quotient of less than 1.0. Using the basic employment calculation result in:

$$b_{\text{civil engineering}} = \left(\frac{1-0.98}{0.98}\right) 21,276 = -434.2$$

As a result of this negative employment does not really mean anything in this interpretation, but one could be interpret the negative employment figure as the number of worker needed in industry i (e.g. , example civil engineering) it become not self- sufficient. In example of study area of Amhara region have left out all basic employment calculation for industries with location quotient of less than 1.0.

All calculations can easily be carried out using spreadsheet software. However, attention must be paid to those sectors that are clearly (intuitively) either basic or non-basic. By its definition, or based on the principle of basic and non-basic employments Agriculture, Mining, public administration and defense and security we classify federal and state governments as entirely basic sector. Understanding the region's economy prior to classifying what industry sectors

might be either completely basic or non-basic helps to avoid incorrect assumptions. Altogether, based on the method, 40900 employees of the total workforce from 172,654 employees in Amhara Region are classified as basic, while the remaining -100,015.5 employees serve in non-basic activities for Amhara Region. Based on the results of findings basic and non-basic employments the researcher identify, public administration, defense; compulsory and public administration and defense social security are non-basic employment.

“According to the previous researcher finding, James Paul Quintero (2007), the basic (export) oriented sectors of the region economy are forestry, fishing, hunting, and agriculture, support, wholesale trade, finance and insurance, professional, scientific, and technical services management of companies and enterprises administration and support, waste management and remediation services , educational services, arts, entertainment, and recreation. However, the other basic sector calculation results are negative that all sectors are non-basic sectors of the region economy””.

However, according to the present research finding agriculture, mining and quarrying, manufacture of computer , manufacture of furniture, repair and installation machinery, sewerage, land transport, programing and broadcasting activities, office administration, service to building, management and consultancy, veterinary activities, real estate activities financial service activities, sports activities, social work, activities of extraterritorial organization, private household own use, those are the basic or (export) oriented industry sector for Amhara region. Whereas, as shown Table 12 the basic employment calculation results are negative, those sectors are non-basic or not export oriented for Amhara region.

The implication of this finding is accordingly those basic sectors/export oriented sectors Amhara region is the robust or strongest than the benchmark region or the national; however in the results of non-basic/ non-fundamental sectors Amhara region is show weak. Therefore this study include evaluating and reformulating development strategies, programs and considering sectoral interconnection for further development

4.3 Economic base and Employment multiplier modeling

The economic base model builds on the notion of an economic dichotomy. Every economy can be divided into two sectors: a basic sector which depends largely on conditions external to a

study region and a non-basic sector which depends widely on conditions within the region. In a hypothetical framework consisting only of a basic sector and a non-basic sector, we assume that the basic sector is the driving force of the regional economy. Thus, increases in export activities will lead to economic development. From that, we can directly infer that the increases in basic activities ultimately lead to increases in non-basic activities and, therefore, to an overall increase of the region's economic activities.

An employment multiplier is one of the measures used to determine the impact a particular industry will have upon a municipality when it arrives or departs. In its simplest terms, the employment multiplier measures the amount of direct, indirect and induced jobs created (or lost) in the area or in the region.

In addition to those, the employment multiplier (EM) is defined as the ratio of total employment (e_i) over basic employment (b_i) for a study region: therefore we can calculate the employment multiplier based on the given formula.

$$EM = \frac{e}{b} = \frac{\text{Total employment}}{\text{basic employment}}$$

Where,

$$e = \sum_i e_i, \text{ and, } b_i = \sum_i b_i$$

All it requires to calculate the employment multiplier is to estimate aggregate basic employment (b). This can be done using the assumption, location quotient, method. For Ethiopia or national, Amhara Region, using the location quotient method we have estimated total basic employment (b) as 40,900 (see Table 12). The employment multiplier (EM) for Amhara Region for the year of 2018 can be calculated as:

$$EM = \frac{e}{b} = \frac{1,522,913}{213,554} = 7.131$$

We can read the multiplier as follows: an increase in basic employment due to an increase in export activities of 1 person will lead to a total increase in regional employment of 7.131 persons. Although the multiplier is a single number, e.g., 7.131, it must be understood that it represents the ratio of total over basic employment.

After identifying which industries in Amhara region were exports oriented, the export employment multiplier was calculated to determine the cumulative effect on the total local employment. As previously discussed in the literature review and methodology chapter, the EEM is used to estimate potential changes to the total local employment resulting from an increase or decrease in export employment. Although the export employment multiplier in Table 12 only represents a single year's employment calculation, it is intended to give local officials an approximation of the impact of changes in the economic structure.

Using the EM results calculated in Table 12 the total export employment for Amhara region was almost larger than the total local employment levels. Given that, the EM for Amhara region in 2018 was 7.131. Based on these results, this study can assume that if the number of export employment jobs were to increase by 100, then the total local employment would correspondingly increase by about 7.131. Similarly, if the number of export employment jobs were to decrease by 100, then the total local employment would likely suffer from the loss of approximately 7.131 jobs. Although the EM is only a rough estimate of the impact of export industries, the results from this analysis can be strengthened by conducting a series of export employment multiplier analyses and averaging the results.

4.4 Comparisons of Amhara region economic changes vis-a-vis the changes of the national economy for two points in time (2014 and 2018)

4.4.1 Shift-Share Analysis

Shift-share analysis comprises regional economic changes (e.g., growth or decline) for a selected time period to economic changes of a selected benchmark region. Shift-share analysis is a widely used economic base approach that assesses past observed growth or decline change of an industry region between two points in time. It is a more dynamic approach as it uses data for two points in time. Generally, shift-share analysis can be done for any two points in time data are available. But the study focuses on understanding economic change trends; more recent data should be used. Time periods of five to ten years are commonly used for most analyses. Important to note is that the outcome of the shift-share analysis can vary substantially by using a five-year period versus a ten-year period. The underlying idea here is that regional industry growth or decline may have several causes; some may be purely regional and some may reflect to a large extent state-or national economic trends. More specifically, shift-share analysis breaks

down a regional industry sector's change (e.g., growth or decline) into three individual components: national growth share (ns_i), industry mix share (im_s), and regional growth share (rs_i), and use this information to shed light into what made the regional economy grow differently from the reference region.

The first component associates regional economic growth in industry i to the general economic growth of the benchmark region—the national growth share (ngi). The assumption is that overall observed economic growth in a benchmark region will inevitably be reflected in regional economic growth. For instance, given that Amhara region is located in National an overall employment increase in National for all industries combined is likely to positively influence employment growth in Amhara region. In the case of using employment, the national growth share (ngi) calculates the expected employment growth that would have occurred in Amhara region industry i if this industry sector's employment would have grown at exactly the same rate as combined employment in National. More formal, this can be written as: ~

$$ngi = e_i^t \cdot G_i^{t \rightarrow t+n}$$

Where,

ngi - The national growth share in industry i ;

e_i^t . - Regional employment in industry i in the year t ;

$G_i^{t \rightarrow t+n}$ -Average growth rate for employment in the benchmark region for the time interval; $t \rightarrow t + n$

t — Beginning year of the time period;

n — Number of years included in the time interval.

A second component captures economic change attributable directly to the so-called regional industry mix (imi). The aim of this component is to measure whether or not certain industries in the reference region grew faster or slower compared to overall regional growth of the reference region and to translate this observed difference in (employment) growth onto the corresponding industry sector in the study region. Outcome of this decomposition is to identify whether or not the study region specializes in industries that experience faster or slower than average growth in the reference region. For, Amhara region, industries with positive mix components thus will indicate regional specialization in industries that are growing at a faster rate than overall

economic growth in the national or Ethiopia and vice versa. This observation is of importance as you might expect that a regional industry mix of state-wide fast growing industries will attribute more to regional growth than a regional industry mix of slow growing industries. The regional industry mix can be expressed as:

$$Imi = e_i^t \cdot (G_i^{t \rightarrow t+n} - G_i^{t \rightarrow t+n})$$

Where, Imi - The regional industry mix share in industry i ;

$G_i^{t \rightarrow t+n}$ - Growth rate for employment in industry i in the benchmark region for the time interval $t \rightarrow t + n$

The third component accounts for the difference in growth between the study and the reference regions that can be credited solely to regional factors— regional growth share (rgi). Some industries grow faster/slower in the study region than those in the benchmark region. In any case the regional growth share attributes the regional growth or decline to purely regional factors and as such indicates regional economic strengths or weaknesses.

The regional growth share evaluates a regional industry's competitive situation within the larger economy of the reference region due to regional comparative advantages such as industrial clustering, infrastructure and resource availability, or non-unionized labor markets. The formal definition of the regional growth share is:

$$rgi = e_i^t \cdot (g_i^{t \rightarrow t+n} - G_i^{t \rightarrow t+n})$$

Where, rgi – is the regional growth share in industry i ;

$g_i^{t \rightarrow t+n}$ = Growth rate for employment in industry i in the study region for the time interval $t \rightarrow t + n$

The outcome of adding these three components of growth together, see below, is the total growth (tgi), which in turn is equivalent to the actual growth or decline of industry i in the study region, e.g. $g_i^{t \rightarrow t+n}$ $tgi = ngi + imi + rgi$

$$\begin{aligned} &= e_i^t \cdot (G_i^{t \rightarrow t+n}) + (G_i^{t \rightarrow t+n} - G_i^{t \rightarrow t+n}) + e_i^t \cdot (g_i^{t \rightarrow t+n} - G_i^{t \rightarrow t+n}) \\ &= e_i^t \cdot (G_i^{t \rightarrow t+n} + G_i^{t \rightarrow t+n} - G_i^{t \rightarrow t+n}) + g_i^{t \rightarrow t+n} - G_i^{t \rightarrow t+n} \\ &= e_i^t \cdot G_i^{t \rightarrow t+n} \end{aligned}$$

Employment data for Amhara region and national or Ethiopia were chosen for 2014 and 2018. Total urban employment is broken down into two and three-digit CSA sectors. The first analytical step is to calculate absolute and percent employment changes for Amhara region and National or Ethiopia for the five-year period between 2014 and 2018.

Table 13. Urban Employment of National & Amhara region in times 2014&2018

Employment category	National Employment 2014 E_i^t	National Employment 2014 E_i^{t+n}	Amhara region Employment 2104 e_i^t	Amhara region Employment 2018 e_i^{t+n}
Agriculture, Forestry & Fishing	587,756	7,518,855	1,437,447	1,522,913
Mining and Quarrying	48,120	26,946	9,818	8,869
Manufacturing	952,875	924,836	165,229	172,654
Utilities of Electricity	15,182	26,100	2,248	5,610
Water Supply and Management	50,570	73,247	11,043	12,726
Construction	569,148	562,012	118,711	124,114
Wholesale And Retail Trade;	1,381,759	1,588,679	296,535	297,026
Transportation and Storage	323,969	470,337	60,802	86,800
Accommodation and Food Service Activities	353,468	422,057	74,780	81,518
Information and Communication	65,236	92,732	8,848	14,241
Financial And Insurance Activities	161,904	230,374	26,298	33,175
Real Estate Activities	2,309	4,713	102	1,527
Professional, Scientific And Technical Activities	97,649	171,390	19,023	20,808
Administrative And Support Service Activities	102,093	181,112	20,375	18,416
Public Administration And Defense; Social Security	286,891	346,377	64,745	84,228
Education	437,469	565,421	96,079	125,927
Human Health and Social Work Activities	195,339	246,191	31,299	40,726
Arts, Entertainment And Recreation	48,859	56,351	8,020	14,582
Other Service Activities	475,242	454,169	118,246	86,293
Activities of Households As Employers; Undifferentiated Goods- and Services	614,866	459,273	4,472	12,167
Activities Of Extraterritorial Organizations And Bodies description	19,287	74,388	4,472	12,167
Total employment	6,789,991	14,495,560	2,578,592	2,776,487

Source: computed by the researcher based on CSA data in 2014 and 2018

The growth rates listed in Table 13 basically provide all the information necessary for breaking down total growth (tgi) into its three components. Absolute changes are calculated by subtracting employment in the later year from employment in the earlier year, or:

$$\Delta e_i^{t \rightarrow t+n} = e_i^{t+n} - e_i^t$$

Where, $\Delta e_i^{t \rightarrow t+n}$ _Absolute change in regional employment in industry i from $t \rightarrow t + n$

e_i^t –Regional employment in industry i in year t

e_i^{t+n} - Regional employment in industry i in year t + n

The table formula abbreviation used: ngi -The national growth share in industry i;

e_i^t - Regional employment in industry i in the year t;

$G_i^{t \rightarrow t+n}$ -Average growth rate for employment in the benchmark region for the time interval; $t \rightarrow t + n$

t — Beginning year of the time period,

n — Number of years included in the time interval.

Table 14. Absolute and percentage employment change National and Amhara region in 2014& 2018

Industrial Division	National		Amhara region	
	Absolute change in Employment $\Delta E_i^{t \rightarrow t+n}$	Growth rate $G_i^{t \rightarrow t+n}$ %	Absolute change in Employment $\Delta e_i^{t \rightarrow t+n}$ %	Growth rate $g_i^{t \rightarrow t+n}$ %
Agriculture, Forestry & Fishing	6,931,099	1179.25	85,466	5.9457
Mining and Quarrying	-21,174		-949	-9.6659
Manufacturing	-28,039	-2.9426	7,425	4.4938
Water Supply and Management	22,677	44.8428	1,683	15.24
Construction	-7,136	-1.2538	5,403	4.5514
Wholesale And Retail Trade;	206,920	14.9751	491	0.1656
Transportation and Storage	146,368	45.1796	25,998	42.758
Accommodation and food Service activities	68,589	19.4046	6,738	9.0104
Information and Communication	27,496	42.1485	5,393	60.952
Financial And Insurance Activities	68,470	42.2905	6,877	26.15
Real Estate Activities	2,404	104.114	1,425	1397.1
Professional, Scientific And Technical Activities	73,741	75.5164	1,785	9.3834
Administrative & Support Service activities	79,019	77.399	-1,959	-9.6147
Public Administration & Defense; Social Security	59,486	20.7347	19,483	30.092
Education	127,952	29.2482	29,848	31.066
Human Health and Social Work Activities	50,852	26.0327	9,427	30.119
Arts, Entertainment And Recreation	7,492	15.3339	6,562	81.82
Other Service Activities	-21,073	-4.4342	-31,953	-27.022
Activities of households as employers; undifferentiated Goods- and Services	-155,593	-25.305	7,695	172.07
Activities of extraterritorial Organizations	55,101	285.69	7,695	172.07
Total area employment	7,705,569	115.008	197,895	0.4493%

Referenced with Table 13

Source: Computed by the researcher based on CSA data in 2014 and 2018

Analogously, state-wide absolute employment changes are derived as:

$$\Delta E_i^{t \rightarrow t+n} = E_i^{t+n} - E_i^t$$

Where, ΔE_i^t — absolute change in state employment in industry i from $t \rightarrow t + n$

E_i^t — state employment in industry i in the earlier year t

E_i^{t+n} _ State employment in industry i in the later year $t + n$

For instance, the absolute employment change of 7, 425 persons in manufacturing (CSA) in Amhara region is calculated as:

$$\Delta e_i^{2014 \rightarrow 2018} = e_i^{2018} - e_i^{2014} = 1,522,913 - 1,437,447 = 7,425$$

The average growth rate $G_i^{t \rightarrow t+n}$ for employment in national or Ethiopia is

$$G_i^{2014 \rightarrow 2018} = \frac{14,495,560 - 6,789,991}{6,789,991} \cdot 1.13 = 113.48\% .$$

This indicating the total employment in the national or Ethiopia grew by 113.48% between 2014 and 2018.

The growth rate ($G_i^{t \rightarrow t+n}$) in national manufacturing is: $G_{manufacturing}^{2014-2018} = \frac{924,836 - 952,875}{952,875} = -0.29$

The growth rate ($g_i^{t \rightarrow t+n}$) for employment in the study region by industry i

$$g_i^{t \rightarrow t+n} = \frac{(e_i^{t+n} - e_i^t)}{e_i^t}$$

The growth rate ($g_i^{t \rightarrow t+n}$) for employment in Amhara region in manufacturing

$$g_{Manufacturing}^{2014-2108} = \frac{172,654 - 165,229}{165,229} = 0.00449 = 0.4493\% .$$

This showing that the Amhara region employment in manufacturing sector grew by 0.4493%.

The decomposition of total growth (tgi) into its three components, namely national growth share (ngi), regional industry mix (imi), and regional growth share (rgi), is established below as a three-step procedure. While this task can easily be performed in one single table using spreadsheet software, for demonstration purposes we show each individual component calculation individually in a separate table.

4.4.2 National growth share, regional industry mix and regional growth share calculations

4.4.1 National Growth Share Calculations

This national growth share is important to identify the percentage of change—either one growth or decline—in regional employment in industry I (tgi) can be explained through the observed

trend in overall growth (or decline) of the benchmark region. In the case Amhara region it explains how much each industry sector might have grown (or declined) over the observed time distance because of an observable positive or negative growth trend in Ethiopia or national. More specifically, overall employment in Ethiopia grew from 2104 to 2108 by 0.4493%. From this we might expect a positive spill-over on employment growth by industry in Amhara region for this specific time period. The national growth shares (ngi) are calculated by multiplying regional employment in industry i by the overall growth rate for the benchmark region, or: $ngi=e_i^t \cdot G_i^{t \rightarrow t+n}$. As shown below Table the national share of manufacturing

($ng_{manufacturing=}$) is calculated as: $= ng_{manufacturing=} 165,229 \times -2.9426 = -486$

Manufacturing employment in Ethiopia or national would have decreased by -486 persons for the time period from 2014 to 2018 if it would have followed the overall employment growth in Amhara region of 0.4493% for this five-year period.

Table 15. National growth share calculation of urban employment industry in Amhara region

Industrial Division	National growth share ngi	Amhara region Employment 2014 e_i^t .	Employment growth rate in National $G_i^{t \rightarrow t+n}$
Agriculture, Forestry & Fishing	645844.93 =	1,437,447	× 0.4493
Mining and Quarrying		9,818	
Manufacturing	74237.3897 =	165,229	× 0.4493
Utilities of Electricity	1010.0264 =	2,248	× 0.4493
Water Supply and Management	4961.6199 =	11,043	× 0.4493
Construction	53336.8523 =	118,711	× 0.4493
Wholesale And Retail Trade;	133233.1755=	296,535	× 0.4493
Transportation and Storage	27318.3386=	60,802	× 0.4493
Accommodation and Food Service Activities	33598.654=	74,780	× 0.4493
Information and Communication	3975.4064=	8,848	× 0.4493
Financial And Insurance Activities	11815.6914=	26,298	× 0.4493
Real Estate Activities	45.8286=	102	× 0.4493
Scientific and Technical activities	8547.03=	19,023	× 0.4493
Administrative and Support Service Activities	9154.4875=	20,375	× 0.4493
Public Administration and defense;	29089.9285=	64,745	× 0.4493
Education	43168.2947=	96,079	× 0.4493
Human Health and Social Work Activities	14062.6407=	31,299	× 0.4493
Arts, Entertainment And Recreation	3603.386=	8,020	× 0.4493
Other Service activities	53127.9278=	118,246	× 0.4493
Activities of Homes As Employers;	2009.2696=	4,472	× 0.4493
Activities Of Extraterritorial Organizations And Bodies description	2009.2696=	4,472	× 0.4493

4.4.2 Industrial Mix Share Calculations

As a matter of fact, the average growth rate for employment in the benchmark region ($G_i^{t \rightarrow t+n}$) is only a summary measure. Individual industries usually do not exactly mirror this overall growth rate. Some industries grow faster, some grow slower, and others even show opposite trends, e.g., decline even though total employment in the benchmark region increases. For the manufacturing industry in national or Ethiopia, we have observed a marginal decrease of 0.029% (e.g., 26 jobs) for the period from 2014 to 2018. With an overall employment growth in Ethiopia of 113.48% this means that manufacturing industries did not follow the overall economic growth. The industrial mix component food (imi) is calculated by multiplying the study region employment by the difference in growth:

$$imi = (e_i^t) \cdot (G_i^{t \rightarrow t+n} - G_i^{t \rightarrow t+n})$$

For manufacturing in Amhara region, the industry mix share is

$im_{manufacturing} = 165,229 \times (-0.29 - 2.9426) = -534119$. Assuming an identical industry mix in Amhara region to that in Ethiopia manufacturing would have lost 534119 jobs for the five years from 2014 to 2018. As Table 16 indicates, the industrial mix shares results of manufacturing, water supply and management, arts entertainment and recreation and other service activities are negative, on the other hand as shown below Table 16 the other industry sectors industrial mix share results show positive. We further see that Amhara region urban employment industries (31-33, 422, 92, and 93) would have lost a total of these industry total result jobs, if there is structural difference between the Ethiopia and Amhara region.

Table 16. Regional industry mix share calculation of urban employment industry in Amhara region

Industrial Division	Regional industry mix share im	Amhara region employment 2014 (e_i^t)	Employment growth rate ($G_i^{t \rightarrow t+n}$)	Average employment growth rate in National ($G^{t \rightarrow t+n}$)
Agriculture, Forestry & Fishing	169609	= 1,437,447		1179.25 -0.29
Mining and Quarrying		9,818		-0.29
Manufacturing	-438286.45	165,229		-2.9426 -0.29
Utilities of Electricity	101458.53	= 2,248		44.8428 -0.29
Water Supply and Management	-10643.243	11,043		-1.2538 -0.29
Construction	1812135.3	118,71	X	14.9751 -0.29
Wholesale And Retail Trade;	13483328	296,535		45.1796 -0.29
Transportation and Storage	1197471.1	60,802		19.4046 -0.29
Accommodation and Food Service Activities	3173551	74,780		42.1485 -0.29
Information and Communication	376752.26	= 8,848	X	42.2905 -0.29
Financial And Insurance Activities	2745616.4	26,298		104.114 -0.29
Real Estate Activities	7732.2528	102		75.5164 -0.29
Professional, Scientific And Technical Activities	1477877.8	= 19,023		77.399 -0.29
Administrative And Support Service Activities	428378.26	= 20,375		20.7347 -0.29
Public Administration And Defense; Social Security	1912450.8	64,745		29.2482 -0.29
Education	2529058.7	= 96,079	X	26.0327 -0.29
Human Health and Social Work Activities	489012.45	31,299		15.3339 -0.29
Arts, Entertainment And	-33236.484	8,020		-4.4342 -0.29
Other Service Activities	-2957923.7	118,246		-25.305 -0.29
Activities of Households As Employers; Undifferentiated Goods- and Services	1278902.6	= 4,472	X	285.69 -0.29
Activities Of Extraterritorial Organizations And Bodies description	1278902.6	= 4,472		-4.56 -0.29

Source: Computed by the researcher based on CSA data in 2014 and 2018

4.4.3 Regional Growth Share Calculations

This share component measures to what extent the growth/decline of a specific industry is different from its state-wide counterpart. Employment in the manufacturing industry in Amhara region grew by 0.4493%. The difference in growth in manufacturing employment between the Ethiopia and the Amhara region is translated directly into the regional growth share component

using the formula: $rg_{manufacturing} = e_{Mfg}^{2104} \cdot (g_{Mfg}^{2014 \rightarrow 2108} - G_{Mfg}^{2014 \rightarrow 2018})$ and result in

$$rG_{manufacturing} = 1,437,447 \times (0.4493(-0.29)) = -187295$$

While manufacturing industries lost statewide employment in Amhara region, on the other hand in the national shows a strong competitive position as indicated by a large positive regional growth share component of 236 jobs.

Table 17. Regional growth share calculation of urban employment industry in Amhara region

	Regional growth share rg	Amhara region employment in 2014 (e_i^t)		Amhara region employment growth rate ($G_i^{t \rightarrow t+n}$)	Employment growth rate in National ($G_i^{t \rightarrow t+n}$)
Agriculture, Forestry & Fishing	1686562746	1,437,447	X	5.9457	- 1179.25
Mining and Quarrying	0	9,818		-9.6659	-
Manufacturing	73010.5752		X	4.4938	- -2.9426
Water Supply and Management	0	165,229		15.24	- 44.8428
Construction	959187.391	2,248		4.5514	- -1.2538
Wholesale And Retail Trade;	-33291.756	11,043		0.1656	- 14.9751
Transportation and Storage	-26741.7288	118,711	X	42.758	- 45.1796
Accommodation and Food Service	1233905.88	296,535		9.0104	- 19.4046
Information and Communication	5575895.87	60,807		60.952	- 42.1485
Financial And Insurance Activities	-981374.681	74,780		26.15	- 42.2905
Real Estate Activities	96689493.1	8,848	X	1397.1	- 104.114
Professional, Scientific And Technical Activities	-585144.784	26,298		9.3834	- 75.5164
Administrative And Support	-2288286.28	102	X	-9.6147	- 77.399
Public Administration	954.4446	19,023		30.092	- 20.7347
Education	34580.0094	20,375	X	31.066	- 29.2482
Human Health and Social Work	83258.3625	64,745		30.119	- 26.0327
Arts, Entertainment And	4304642.54	96,079		81.82	- 15.3339
Other Service Activities	-2170213.24	31,299		-27.022	- -4.4342
Activities of households as Employers; undifferentiated Goods- and Services	6177640.13	8,020	X	172.07	- -25.305
Activities of extraterritorial organizations And bodies description	-911232.4	118,246	X	172.07	- 285.69

Source: computed by the researcher based on CSA data in 2014 and 2018

Consequently, regional growth share is the most important calculation because it is the only component that can be directly affected by local policy makers. Calculating the regional growth share component consistently can help determine whether or not the local economy is capturing its share of that industry as compared to the national economy. If the result of the regional growth share (RGS) is positive, then the local economy is capturing its market share of that

industry. If the result of the regional growth share is negative, then the local economy is not capturing its full market share of that industry and policy makers should look to improve the situation, especially if the industry has been identified as an important exporter through export base analysis.

Table 17 is the most important table of the four addressing the regional growth share because it alerts researchers to negative trends in the local economy. According to the table, there are a total of six industries that are losing their regional growth share in the local economy as compared to the nation. Activities of extraterritorial organizations and bodies' description, other service activities, professional, scientific and technical, financial and insurance activities, transportation and storage show the greatest amount of loss at jobs. Again, although the reasons for the decline in this industry are beyond the scope of the EBA and SSA, policy makers should be urged to investigate further.

This finding show that based on the regional growth share calculation mining and quarrying(0), water supply and management(0), wholesaler and retailer(-33291.756), transportation(-26741.7288), financial and insurance(-981374.681), scientific and technical activities(-585144.784) , administrative and support(-2288286.28), other services(-2170213.24), activities of houses as Employers; indistinguishable Goods- and Services(-911232.4) industry sectors are decline in Amhara region of a specific industry different from its state-wide counterpart. This means, accordingly those industry sectors Amhara region is not show competitive effect rather than the national or the benchmark region.

However,agriculture,forestry&fishing(1686562746),manufacturing(73010.5752),construction(959187.391),accommodation and food service (1233905, information and communication(5575895.87), public administration(954.4446),education(34580.0094),human health and social work(83258.3625), arts, entertainment(4304642.54), activities of households as employers; indistinguishable merchandises- and services(6177640.13) real estate activities (96689493.1,) based on regional growth share calculation Amhara region employment is grow or increase the competitive than the benchmark region.

Table 18. Results of Shift-share Analysis, 2014-2018, National/Ethiopia versus, Amhara region

Industrial Division	National growth share (<i>ngi</i>)	Regional industry mix share (<i>im</i>)	Regional growth share (<i>rg</i>)
Agriculture, Forestry & Fishing	645844.9371	1.70E+09	- 1686562746
Mining and Quarrying			
Manufacturing	74237.3897	-438286.45	73010.5752
Utilities of Electricity	1010.0264	101458.53	0
Water Supply and Management	4961.6199	-10643.243	959187.391
Construction	53336.8523	1812135.3	-33291.756
Wholesale And Retail Trade;	133233.1755	13483328	-26741.7288
Transportation and Storage	27318.3386	1197471.1	-1233905.88
Accommodation and Food Service Activities	33598.654	3173551	5575895.87
Information and Communication	3975.4064	376752.26	-981374.681
Financial And Insurance activities	11815.6914	2745616.4	96689493.1
Real Estate Activities	45.8286	7732.2528	-585144.784
Professional, Scientific and technical Activities	8547.0339	1477877.8	-2288286.28
Administrative And Support service Activities	9154.4875	428378.26	954.4446
Public Administration and defense; Social Security	29089.9285	1912450.8	34580.0094
Education	43168.2947	2529058.7	83258.3625
Human health and social work	14062.6407	489012.45	4304642.54
Arts, entertainment and recreation	3603.386	-33236.484	-2170213.24
Other Service Activities	53127.9278	-2957923.7	6177640.13
Homes as employers; undistinguishable goods- and services	2009.2696	1278902.6	-911232.4
Activities of extraterritorial organizations and bodies description	2009.2696	1278902.6	

Source: computed by the researcher based on CSA data in 2014 and 2018

In general between 2014 and 2018 Amhara region economy had grown with an absolute change; indicating that economic performance worked progressively during the period. The real growth in the Amhara region economy- may was positively affected by the development that occurred at the national level (positive values of *ngi*).

Furthermore, this finding confirmed that the result highlights the nine top sectors in terms of high competitiveness level (*Ci* or regional industry growth share), namely manufacturing industry, water supply and management, Accommodation and food service ,financial and insurance activates, administrative and support activates, public administration and defense, education, human health , and other services. The agriculture, forestry, and fishery sector, construction, wholesaler and retailer, transportation, information, real estate, scientific and technical activates,

arts and household employers, on the other hand, appears as a sector with the lowest competitiveness. Also, the agriculture is the sector with the highest proportional shift in regional industry mix share(im) during the period, followed by public administration, defense, compulsory social security, wholesalers and retail, human health, real estate, scientific, information and communication, accommodation, construction transportation and warehousing, and financial services and insurance.

Manufacturing in Amhara region increased its performance when compared with Ethiopia as indicated by a positive regional share component of 73010.5752 jobs. In general, Amhara region manufacturing industries gained in high competitiveness (e.g., regional growth share of 73010.5752), took advantage of an overall aggregate employment change in Ethiopia (e.g., national growth share of 74237.3897), but was not spared by a state-wide employment drop in manufacturing industries (e.g., industry mix component of -438286.45). The overall Ethiopia - wide employment loss in manufacturing amounts to -28,039 jobs (see Table 14 national absolute change).

Based on shift share findings manufacturing, water supply and management, accommodation and food service, financial and insurance service, administrative and support service, public administration and defense, education, human health and social work activates, are the results of the regional growth share is positive, then the local or the regional economy is capturing its market share of those industry. However, based on the results of negative regional growth industry Amhara region is not capturing its full market share of those industries and then the policy maker should look to improve the export base analysis.

“According to the previous researchers finding the three top sectors in terms of high competitiveness level regional growth share (Ci), namely manufacturing industry, mining and quarrying, and construction. The agriculture, forestry, and fishery sector, on the other hand, appears as a sector with the lowest competitiveness. Also, the building is the sector with the highest proportional shift regional industry mix share (Mi) during the period, followed by public administration, defense, compulsory social security, wholesalers and retail, automobile and motorcycle repairs, transportation and warehousing, and financial services and insurance. This finding also confirms the conclusion of the previous study conducted by Rauf et al. (2019), summarizing that the manufacturing industry sectors, mining and quarrying, and construction were

competitive in the Teluk Bintuni. Based on the finding of the previous and the present researcher, some sectors results are similar and some sectors finding results are different””

4.2.2 The major industrial sectors which have the competitive edge of the Amhara region economy

The regional competitive result or regional growth share is the most important of the three indicators, as it explains how plentiful of the change in a given industry is due to some unique competitive advantage that the region possesses, because the growth cannot be described by national trends in that industry or the economy as entire. This effect is calculated by taking the total regional growth and subtracting the national growth and industrial mix effects. Note that this effect can be higher than actual job growth if national and/or industry mix effects are negative while regional growth is positive. This is because the regional competitiveness effect accounts for jobs “saved” from declining national trends as well as new jobs created.

Therefore based on regional industry share calculation and based on the findings of the thesis the major Competitive edge industrial sectors of Amhara region economy are: manufacturing (73010.5), water supply and management (959187.391), accommodation and food services activities (5575895), financial and insurance activates (96689493), administrative and support activities (954.4) public administration (34580.0094), education (83258.36), human health (4304642.54) are the strongest competitive edge (advantage) for the Amhara region economy. Whereas, as shown Table 18 the other industry sectors are shows less competitive edge for the region.

CHAPTER FIVE

5. Conclusions and Recommendations

This chapter briefly summarizes the findings of each chapter. Based on the findings of the thesis the researcher forwards the following conclusion about economic base and shift share analysis of urban industrial employment and employment multiplier modeling. Moreover, this chapter offers recommendations on the practicality and usefulness of economic base and shift-share analysis.

5.1 Conclusions and summery

Economic base analysis is the preferred method to understand a local economy among urban and regional planning specialists as well as economic development consultants. It is a simple yet valuable tool for gaining an understanding of the economic structure of communities. It can provide relevant information on a locality's economic status over time periods and other localities in terms of employment circumstances and trends. Economic base evaluation adopts that the local economic system can be divided into two most important sectors: fundamental and non-fundamental. The fundamental sector is made up of these local corporations that produce items and offerings offered to purchasers outdoor the community/region. Economic base evaluation assumes that the incomes of a fundamental organization are established through totally on export markets.

Moreover, economic base evaluation is grounded on the basis that fundamental industries form the economic base of a locality, and all different industries flourish with the aid of using servicing this sector. Through its non-regional marketplace income and ensuing injection of new money into the regional economic system, the primary area is a vital contributor to and motive force of local economic increase and progress. Changes with inside the composition or overall performance of the primary area normally affect the non-primary area and general trends in the local economic system. Economic base evaluation has proven that the local economic system is most powerful whilst it develops the ones financial sectors that convey new cash or injection into the local economic system.

On the other hand, Shift-share analysis (SSA) in Amhara region provides interesting insights of employment changes in numerous sectors which provides better investment planning for

economic development of the region. In general, the employment multiplier growth is positive and has a lower percentage change compared to the rate at the national level. This provides insights about the lower growth rate of the national and the need for better policy options. It affords beneficial data approximately the characteristics of increase and competitiveness of local industries in a locality in comparison to a larger reference area. The evaluation also can be achieved with similar industries in other localities. Furthermore, the SSA approach is used to five times for decomposing adjustments in employment in localities, figuring out competitive industries in the local economy as compared to those of a larger economy (a nation or a region). The SSA helps to regulate/govern whether or not a specific local economy has certified a quicker or slower boom charge in employment than the larger economy. In comparison to the overall economy, jobs in a local economy could be concentrated in specific industries more than others, depends on the local economy's industrial structure. As a result, a town with a variety of fast-growing industries could have a high rate of job growth. Similarly, a community with a number of economically depressed areas would see a high rate of job loss. More particular, the SSA enables us to examine changes in the number of jobs in a community in particular of structural changes, rather than simply a change in total employment.

As a result, the researcher states the following conclusion based on the thesis findings: The first is the result of the location quotient for forestry, agriculture, and fishing (11-14) in the years 2014&2018, which shows that the region has a higher share of employment (or earnings, etc.) in an industry than the benchmark region because the location quotient for those sectors in 2014 is 1.26. However, the location quotient results for forestry, fishing, and aquaculture in 2018 are less than one (1); as a result, the sub-sectors of the fishing and aquaculture industry in the region have a lower share of employment than the benchmark region, the region falls below the level of self-sufficiency, and these sub-sectors must be imported to meet local demand for that industry sector's goods and services. In terms of the research aims and findings, the location quotient is less than one, indicating that all of these sectors are non-basic to the Amhara region economy and that the region needs greater investment based on them. While, the location quotient calculation results of the industry is greater than one these sector is basic sector for Amhara region. Therefore regarding to these sectors Amhara region is stronger than the bench mark region or the national.

Using the employment multiplier (EM) results calculated in Table 12 the total export employment for Amhara region (213,554) was larger than the total local employment levels(-1586988). More over the findings shows that the Amhara region basic employment calculation result is greater than the non-basic employment results. Accordingly to the findings the employment multiplier (EM) results of Amhara region in 2018 was 7.131. Based on these results, this study can hypothesize that if the number of export employment jobs were to increase by 100, then the total local employment would correspondingly increase by about 7.131 similarly, if the number of export employment jobs were to decrease by 100, and then the total local employment would likely suffer from the loss of approximately 7.131 jobs. Although the EM is only a rough estimate of the impact of export industries, the results from this analysis can be strengthened by conducting a series of export employment multiplier analyses and averaging the results.

On the other hand, based on shift share analysis (SSA) manufacturing employment in Ethiopia or national was decreased by -486 persons for the time period from 2014 to 2018, whereas, this finding show that the Amhara region manufacturing sector grew by 0.4493% and it is a positive spill-over on employment growth by industry in Amhara region for this specific time period.

Accordingly shift share analysis manufacturing industry in the national or Ethiopia, we have observed a marginal decrease of 0.029% (e.g., 26 jobs) for the period from 2014to 2018. According to industry mix share calculation in Ethiopia manufacturing industry was lost -534119 jobs for the five year from 2014 to 2018. As Table 16 indicates, the industrial mix shares results of manufacturing (-438286), water supply (-10643), arts entertainment (-33236) and other service activities (-2957923) are negative, therefore according to these industry sectors Amhara region does not competitive. Although as shown below Table 16 the other industry sectors industrial mix share results show positive such as Agriculture(169609),utilities of electricity(101458), construction(1,812,135),wholesaler(134833),transportation (1197471), accommodation (376752), activates of households(1278902) . We further see that Amhara region urban employment industries (31-33, 422, 92, and 93) would have lost a total of these industry total result jobs, there is structural difference between the Ethiopia and Amhara region.

5.2 Recommendations

Based on the specific objectives of the thesis findings and the data acquired from central statistical authority (CSA) for the two points in times of (2014 and 2018) the researcher has analyzed the problem and has come up with findings that acquire the following recommendation and forward in as follows:

- Identification of investment priorities with these potential industries and implementation of a comprehensive regional development policy, and public private partnership would definitely enhance the future economic structure development of Amhara region.
- Encourage and support of research urban economic structure and support to the development of additional investment of urban industrial sectors.
- Urban economic structure is not recognized as an official of regional planner and policy maker. So, formulate urban economic structure research program.
- The policy maker, urban municipality administrator should be developing this project or research.
- Economic base and shift share analysis models are limited in Ethiopia and in my study area of Amhara region. Therefore the researcher, planner would certainly encourage the coming economic development of Amhara region.
- Therefore it will be better the policy makers, urban planner, and urban socio economists are develop the trend of economic base and shift share analysis.
- Shift share-analysis has different benefits like urban planner, policy maker, municipal administrator, etc. benefits. So, the surrounding urban planners, policy maker, regional economic development experts, even the surrounding communities must be encourage and support it.
- Furthermore, policy makers should be urged to investigate further.
- Encourage and support of research in economic base and shift share analysis in the acquisition and dissemination of information on basic and non-basic sector of the region economy
- In addition to these the researcher it will be better develop research and project about economic base analysis and shift share analysis. Because, the research develop about this

the researcher would have identify which industrial sector is basic and non-basic sector of the region economy.

- The regional government should be developing additional investments for the region to develop the basic sector of the region economy and to increase the employments or jobs in each urban industry.

References

- Blair, P. (1995). Local economic development: analysis and practice.
- Brühlhart, M. Trager, R. (2005). An account of geographic concentration patterns in Europe, regional science and urban economics, Vol. 35, 2005, S. 597-624.
- Carter, H. (1995). The study of urban geography (4th ed.), London: Arnold.
- CSA, (2016). Central statistical agency report on the urban employment and unemployment survey, Ethiopia and Amhara region
- CSA, (2014 and 2018). G.C. Ethiopia central statistical authority. Urban employment unemployment surveys
- Dinc, M. (2002). Regional and local economic analysis tools: World Bank institute, the World Bank.
- Edwards, M. (2007). Regional and urban economics and economic development: theory and methods.
- Feser, E. (2000): On the ellison-glaeser geographic concentration index, department of urban & regional planning, 2000, published on the internet:
- Fratesi, U. (2008). Issues in the measurement of localization, environment and planning a, vol. 40, 2008, pp. 733-758.
- Hildebrand, George H. & Arthur Mace. (1940, 1950). The Employment Multiplier in an
Houston, David. (1967). The shift and share analysis of regional growth
- Hausmann R, Rodrik D (.2003). Economic development as self-discovery. 72(2):603–633
- Isard, W. 1961. Methods of regional analysis: an introduction to regional science. Geographical review 51 (4): 593-594. Journal of Political Economy
- Keynes, J. M. (1936). The general theory of employment, interest and money. macmillan:: cambridge university press.
- Kiser, D. (1992). A location quotient and shift-share analysis of regional economies in Texas. Applied research project.
- Klosterman, E. Richard K. Brail, & Earl G. Bossard. (1993). Spreadsheet models for urban and regional analysis.
- Krikelas, Andrew C. (1991). Industry structure and regional growth: a vector auto regression forecasting model of wisconsin regional economy." PhD dissertation, university of wisconsin, madison

- Lane, T. (1966). The urban base multiplier: An evaluation of the state of the art. *Land Economics* 42 (3): 339-347.
- Le Sage, James, and David Reed, (1989) .The dynamic relationship between export, local and total area employment," regional science and urban economics
- Linnemann, J. (1985). An economic base study and shift and shares analysis of Travis County, Texas. San Marcos: Texas State University-San Marcos Press.
- McNulty, J. (1977). A test of the time dimension in economic base analysis." *land economics*
- Mesly. (2015). Research methods on geography and environmental studies
- Mulligan, Gordon, and Lay James Gibson. (1984). Regression estimates of economic base multipliers for small communities.-*Economic Geography*.
- North, Douglass C. (1955). Location theory and regional economic growth.
- Parr, John. (1999). Regional economic development: An export stages framework. *Land Economics* 75 (1): 94-114.
- Poirier, Dale. (1976). *Econometrics of structural change*. New York: North-Holland,
- Quinetero, J. (2007). Regional economic development: an economic base study and shift share analysis of hays county, Texas, applied research project, master thesis of public administration, Texas University
- Regional over view. (2006). Amhara region" focus on Ethiopia (accessed 11 February 2009).
- Robert M H. (1887-1953). Developed economic base analysis in 1928 in his work on the *Regional Plan of New York*.
- Robert, & Isard, D. (2006). *Regional economic development: analysis and planning strategy* (2nd ed.) berlin:
- Solomon M. (2008). The economic bases of Ethiopian urban centers, *journal of Ethiopian studies*, June- December 2008. Roberts, 2006.
- Solomon, m. (2008). Economic base of ethiopian urban centers.
- Sserman, M. (1977). The Location quotient approach for estimating regional Economic Impacts." *Journal of the American Institute of Planners* 43: 33-41.
- Stewart, Charles. (1959). Economic base dynamics. *Land Economics* 35 (4): 327-336.
- Tiebout, C.(1962). *The Community Economic Base Study*, Committee for Economic Development, New York, NY.
- Tiebout, C. (1956). Exports and Regional Economic Growth. *Journal of Political Economy*, "the Community Economic Base Study."

Tiebout, Charles M. (1956): Exports and Regional Economic Growth.” Journal of Political Economy

Xinhao W & Rainer V. (2007). Research Methods in Urban and Regional Planning. Beijing: Tsinghua University Press.

APPENDIX A
Addis Ababa University

College of Social Sciences School of Graduate Studies

**Department Of Geography and Environmental Studies (Specialization in
Urban and Regional Development Planning)**

**The researcher Data used urban industrial employment data of two points in time (2014
and 2018) and the data collected from central statistical authority (CSA).**

Major industrial division	National total Employment	Amhara region total Employment	National total Employment	Amhara region total
Total	6,789,992	1,437,447	7,518,85	1,522,913
Agriculture, Forestry &Fishing	587,756	163,386	542,151	214,858
Crop, animal production, hunting &related activates	557,906	156,948	516,067	208,922
Forestry And Logging	24,229	4,167	24,480	5,809
Fishing and Aquaculture	5,621	2,270	1,604	127
Mining and Quarrying	48,120	9,818	26,946	8,869
Mining of metal ores	6,014	486	6,873	952
Other mining &quarrying	31,100	7,365	17,237	7,917
Manufacturing	952,875	165,229	924,836	172,654
Manufacture of food products	218,822	27,022	262,606	40,062
Manufacture of beverage	140,337	31,348	117,331	38,817
Manufacture of tobacco product	4,641	3,320	1,856	1,275
Manufacture of Textiles	178,480	40,750	120,050	24,823
Manufacture of Wearing Apparel	56,221	9,406	79,350	8,888
Manufacture Of Leather And Related Products	23,242	1,918	25,360	3,381
Manufacture of Wood Products	54,433	7,552	57,812	10,460
Printing And Reproduction of Recorded Media	11,110	2,717	13,710	2,195
Manufacture of Chemicals And Chemical Products	23,215	3,821	22,154	1,233
Manufacture of Rubber And Plastics Products	14,241	292	14,071	1,625
Manufacture of Other Non-Metallic Mineral Products	43,656	6,384	33,562	8,988
Manufacture of Basic Metals	32,762	2,923	30,945	3,381

Manufacture of Fabricated Metal Products, Except Machinery And Equipment	36,532	7,669	29,522	5,866
Manufacture of Computer, Electronic And Optical Products	4,505	697	4,501	2,388
Manufacture of Electrical Equipment	11,875	2,073	8,146	2,249
Manufacture of Machinery And Equipment Not Elsewhere Classified	16,347	2,038	4,295	611
Manufacture of Motor Vehicles, Trailers And Semi-Trailers	9,855	2,004	6,468	1,440
Manufacture of other Transport Equipment	5,531	1,549	3,908	265
Manufacture of Furniture	17,008	3,580	33,064	4,026
Other Manufacturing	14,468	3,802	13,057	3,906
Repair And Installation Of Machinery And Equipment	27,530	4,252	33,909	6,510
Electricity, Gas, Steam And Air Conditioning Supply	15,182	2,248	26,100	5,610
Electricity, Gas, Steam And Air Conditioning Supply	15,182	2,248	26,100	5,610
Water Supply; Sewerage, Waste Management And Remediation Activities	50,570	11,043	73,247	12,726
Waste Collection, Treatment And Disposal Activities; Materials Recovery	11,129	1,544	33,272	9,015
SEWERAGE	1,536	111	7,269	1,618
Waste Collection, Treatment And Disposal Activities; Materials Recovery	11,129	1,544	26,771	1,112
Remediation Activities And Other Waste Management Services	3,767	1,083	5,935	815
CONSTRUCTION	569,148	118,711	562,012	124,114
Construction Of Buildings	323,369	73,796	299,394	66,220
Civil engineering	89,887	18,104	98,113	21,276
Specialized Construction Activities	155,892	26,811	164,505	36,619
Wholesale and Retail Trade; Repair Of Motor vehicles And motorcycles	1,381,759	296,535	1,588,679	297,026
Wholesale And Retail Trade And Repair Of Motor Vehicles And Motorcycles	47,251	5,503	51,723	8,938
Wholesale Trade, Except Of Motor Vehicles And Motorcycles	133,906	20,599	165,023	18,714
Retail Trade, Except Of Motor Vehicles And Motorcycles	1,200,602	270,433	1,371,933	269,374
Transportation and Storage	323,969	60,802	470,337	86,800
Land Transport And Transport Via Pipelines	244,350	46,407	361,219	78,727
Water Transport	2,126	412	1,130	125

Air Transport	8,742	377	8,803	140
Warehousing And Support Activities For Transportation	65,076	12,629	92,615	6,777
Postal And Courier Activities	3,675	976	6,067	1,031
Accommodation And Food Service Activities	353,468	74,780	422,057	81,518
Accommodation	43,456	8,441	33,395	4,737
Food And Beverage Service Activities	310,013	66,339	388,662	76,780
Information And Communication	65,236	8,848	92,732	14,241
Publishing Activities	12,033	1,669	13,683	440
Motion Picture, Video And Television ,Sound Recording and Music Publishing Activities	7,599	1,211	5,011	761
Programming And Broadcasting Activities	3,812	423	3,233	683
Telecommunications	18,751	2,097	29,218	6,084
Computer Programming, Consultancy And Related Activities	8,894	1,421	11,739	1,257
Information Service Activities	14,146	2,027	29,848	5,017
Financial and Insurance activities	161,904	26,298	230,374	33,175
Financial Service Activities, Except Insurance And Pension Funding	136,581	21,856	179,420	26,903
Insurance, Reinsurance And Pension Funding	3,288	174	5,366	992
Activities Auxiliary To Financial Service And Insurance Activities	22,035	4,268	45,588	5,280
Real Estate Activities	2,309	102	4,713	1,527
Real Estate Activities	2,309	102	4,713	1,527
Professional, Scientific And Technical Activities	97,649	19,023	171,390	20,808
Legal And Accounting Activities	49,499	9,229	87,014	10,828
Activities of Head Offices; Management Consultancy activities	14,055	3,788	17,186	2,128
Architectural and Engineering Activities; Technical Testing analysis	1,959	310	6,120	707
Scientific Research and Development	7,080	753	15,803	1,147
Advertising And Market Research	7,702	1,271	14,114	1,465
Other Professional, Scientific And Technical Activities	10,218	2,201	22,077	3,287
Veterinary Activities	7,135	1,472	9,077	1,248
Administrative And Support Service Activities	102,093	20,375	181,112	18,416
Rental and Leasing Activities	8,547	1,371	9,884	380
Employment Activities	19,387	5,533	36,622	4,451
Travel Agency, Tour Operator, Reservation Service	5,444	627	8,272	860
Security and Investigation activities	14,660	828	19,070	349
Services To Buildings And Landscape Activities	15,169	4,847	37,581	4,445
Office Administrative, Office Support and Other Business Activities	38,886	7,796	69,683	7,931

Public Administration And Defense; Compulsory Social Security	286,891	64,745	346,377	84,228
Public Administration And Defense; Compulsory Social Security	286,891	64,745	346,377	84,228
EDUCATION	437,469	96,079	565,421	125,927
Education	437,469	96,079	565,421	125,927
Human Health And Social Work Activities	195,339	31,299	246,191	40,726
Human Health Activities	178,258	29,700	221,691	34,402
Residential Care Activities	10,678	1,422	17,728	2,913
Social work activities without accommodation	6,403	177	6,772	3,412
Arts, Entertainment And Recreation	48,859	8,020	56,351	14,582
Creative, Arts And Entertainment Activities	4,974	295	3,258	87
Libraries, Archives, Museums And Other Cultural Activities	8,322	1,199	12,836	4,332
Gambling And Betting Activities	3,684	757	2,125	264
Sports Activities And Amusement And Recreation Activities	31,879	5,769	38,133	9,899
Other Service Activities	475,242	118,246	454,169	86,293
Activities Of Membership	101,000	20,184	95,484	13,239
Repair of Computers And Personal And Household	34,105	8,032	39,279	8,611
Other Personal Service Activities	340,138	90,029	319,406	64,443
Activities Of Households As Employers; Undifferentiated Goods- And Services	614,866	137,398	459,273	66,813
Activities of Households As Employers Of Domestic Personnel	343,162	69,100	401,495	55,872
Undifferentiated Goods- And Services- Producing Activities of Private Households for Own Use	271,704	68,298	57,778	10,941
Activities Of Extraterritorial Organizations And Bodies description	19,287	4,472	74,388	12,167
Activities Of Extraterritorial Organizations And Bodies	19,287	4,472	74,388	12,167