An-Najah National University
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Analysis of Spatial Inequality Patterns in the West Bank Governorates: Case Study of Tulkarem Governorate and its Localities

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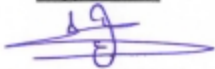
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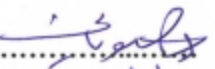This Thesis was defended successfully on31/01/2016 and approved by:
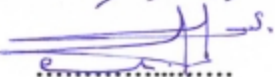
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3- Dr. Feda Yaseen / Internal Examiner	....

Dedication

الاهداء

الى من أتوق دائما لرؤاهم والحديث اليهم

لمن وجدت الحنان والمحبة وكل ما هو جميل في هذه الدنيا

الذين علموني الصدق والإخلاص والوفاء

الى من أفتقدهم ...الى روح أمي وأبي

الى من أمدني بالصبر والعزيمة

الى من تحمل سهري وكابد ضيق خلقي

ته من حريته بسبب بحثي وانشغالي عنه

الى من ساندني ماديا ومعنويا

الى من علمني دائما لكي اكون دائما بالمكان الصحيح

هم رمز العطاء ...من ضحوا من أجل الآخرين لكي تسود معاني الحرية والعدالة

الى من هم أكرم منا جميعا الشهداء والأسرى

أهدي عملي المتواضع

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الإقرار

انا الموقع أدناه، مقدم الرسالة التي تحمل العنوان:

تحليل انماط التفاوت المكاني في محافظات الضفة الغربية:
حالة دراسية محافظة طولكرم وتجمعاتها

Analysis of Spatial Inequality Patterns in the West Bank Governorates: Case Study of Tulkarem Governorate and its Localities

أقر بأن ما اشتملت عليه هذه الرسالة إنما هو نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه حيثما ورد، وأن هذه الرسالة ككل أو جزء منها لم يقدم من قبل لنيل أية درجة علمية أو بحث علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

Declaration

This work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree qualification.

Student's name:	نعيم فايز حسن اشتيوي	اسم الطالب:
Signature:		التوقيع:
Date:	31/01/2016	التاريخ:

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Dr. Emad Dawaas**

Abstract

The idea of this research stemmed from the concept of spatial justice and spatial equity on the basis of which all people have the right to be treated equally regardless of their religion, race and place of living. The absence of spatial justice (spatial inequality) can led to segregation and conflict between the different segments of society. This research aims in the first place to investigate the issue of spatial inequality within the Palestinian context. The researcher raised and answered one major question: To what extent can the Palestinian communities be described as spatially unequal?

To answer the research question, the West Bank was selected as a case study. The research problem was explored on two spatial scales: the regional scale covering all governorates in the West Bank, and the local scale covering all communities in Tulkarm Governorate. In approaching this problem, a set of sectors was selected in order to examine the extent of the spatial inequality in these sectors. The sectors were selected carefully to cover all aspects of life: political, economic, cultural, educational, health, social, public services and telecommunication and transportation.

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As to the methodology used in the research, two types of tools were used in the data collection; the first questionnaire was administered to experts from all defined sectors, and the second was statistical records from corresponding institutions and organizations at the national and local levels. The experts' opinions were used to calculate the final weights of each sector, while the statistical data sets were used in the GIS to spatially represent the components of each selected sector.

In both cases (the national and the local levels), the results showed significant inequality within each sector and between the sectors themselves. For instance, the most significant spatial inequality in the political sector was found in Nablus and Jerusalem governorates. Pertaining to the overall evaluation, Nablus and Ramallah showed the highest levels of spatial inequality in the West Bank. A similar methodology and analysis approach was followed in analyzing the spatial inequality, taking Tulkarm communities as a case on the local level. The results showed that Akkaba village was the most disadvantaged locality in the governorate.

Finally, the study concluded with a list of recommendations that mainly focused on policies in the economic and political sectors, the worst sectors. Concerning the political sector, the study suggested increase of the financial support to the towns located in Area C and near the Wall until the geopolitical situation has improved.

Chapter One

1.1 Introduction:

As our world is becoming more globalized and our societies are increasingly becoming more democratized and civilized, new concepts and principles in the planning discipline, as well as other disciplines, are evolving, aiming at bridging the gap between different groups of people who share the same space. Among these terms and concepts is *Inequality* which, in general, means an unfair situation in which some people have more rights or better opportunities than other people (Mayhew, 2009). By connecting this term with space, urban planning scholars introduced *Spatial Inequality* as a new principle in planning discipline. *Spatial Inequality* has a number of definitions depending on the field of research and scope of studies. One of these definitions is distribution of qualities/resources and services like welfare in bias or unequal amounts; it occurs as a result of greed, religion, race or culture (*Combes, 2008*). Another definition of *Spatial Inequality*,suggested by Young (2000), is the unequal distribution of goods or services depending on the area or location.

The spatial pattern of inequality and differences leads to the segregation of certain segments of the population and reclassification of people economically, socially, and politically. As a result, the order of rich and poor, for instance, reflects itself and appears in neighborhoods (downtown, suburbs), cities, regions and countries *(Langlois et al., 2001).*

This study deals with the idea that inequality is spatially deleterious when resources, services and opportunities are unevenly distributed across governorates (national level) and localities (local level). At the national level, this study is intended to identify the differences between the governorates in the West Bank (Bethlehem, Hebron, Jenin, Jericho, Jerusalem, Nablus, Ramallah, Qalqilya, Salfit, Tulkarem and Tubas) in the qualities and quantities of main services. These services include health, education, economy, politics (security), telecommunication, transportation and infrastructure which will be called inequality sectors. At the local level, the study takes Tulkarm Governorate as a case study for analysis of spatial inequality among the Palestinian localities.

In order to show the spatial differences, the data collected will be quantified in indicators that have a sense of life, by defining a set of rules for gathering and organizing the data sets which could be used for policy and decision-making (Delft, 1997).

The spatial variation in these sectors will be displayed through Geographic Information Systems (GIS). GIS has been widely used as effective tool for monitoring spatial inequalities, identifying deprived areas, setting priorities, and evaluating distribution of resources*(Webster, 1993, Burrough, 1986 in: Huxhold, 1991, Ghose et al., 2002)*. These tasks will be achieved using three main functions of GIS: data organization, spatial analysis and visualization.

The purpose of this study is to show and measure the spatial variation in each defined component, which will help planners, and decision makers in their interrelated efforts to plan for spatial distribution of resources. Identifying those components might help professionals in:

- Defining related problems,

- Suggesting solutions and countermeasures for the differences between inhabitants in all aspect of life (economic, political, health, education, social and infrastructure), and

- Achieving spatial justice and equality which means equal distribution of the main services and facilities of the living conditions.

1.2   Definition of Problem:

Inequality and differences have a significant effect on the stability of the social and peaceful interaction between people in the same localities (poor and rich neighborhoods), between localities, between governorates, and between countries. For example, the inequality in income and differences among groups is likely to exacerbate the salience of group identity, limit social cohesion, impede institutional development, spur conflict and unequal provision of public goods across groups (Young, 1990).

In Palestine –as in other places in the world, there is high potential for spatial inequalities in all aspect of life, especially in the economic and

geopolitical sector. Palestine inherited a historical legacy of political situation: Ottoman Era, British Mandate, Jordanian Rule and the Israeli Occupation. These political conditions divided the country into three geopolitical entities: (1) Palestine occupied in 1948 (Israel), (2) The Gaza Strip, and (3) The West Bank. The political legacy, furthermore, has changed the demographic structure of Palestine and significantly affected the economic situation   in the country.

More than 50% of the Palestinians deported to other parts within the country and to the neighboring countries and were replaced by Israeli settlers in the occupied territories. This geopolitical situation created a complicated reality. Some features of this complexity are the Israeli settlements on the Palestinians' lands, the demolition of some Palestinian communities, and the Separation Wall built in the West Bank. These conditions have contributed to a significant potential for spatial inequality in the West Bank governorates and their communities, the focus of this research.

The geopolitical sector, resulting mainly from presence of the Israeli occupation, has affected all aspects of Palestinians' life. For instance, Area C plays a major   negative role in the economic sphere because the Israelis prohibit any kind of development activities in this area. In addition, infrastructure projects and public service facilities are conditioned by the approval of the Israeli occupation authorities in the West Bank. Furthermore, more than 70% of the water resources are controlled by

Israeli occupation. These actions have affected agricultural projects, and resulted in urban restrictions, thus raising housing density, one of the social components that plays a negative role in the Palestinian daily life.

The records of the Palestinian Central Bureau of Statistics (PCBS) show significant differences between localities and governorates in all aspects of life as shown Table 1.1 below. The table shows the differences in the rates of poverty and the household expenditure per year between Jenin and Tulkarm governorates.

Table 1.1: Comparison Between Jenin and Tulkarm in Economic Aspects

	Jenin	*Tulkarm*
Poverty ratio	*24.8*	*10.9*
Average Monthly Household Expenditure and Consumption in Dinar (JD)	769.7	868.4

*Source: (PCBS, West Bank Northern Governorates Statistical Yearbook, 2011 **page59 &60)***

Evidence is also available on the inequality in the political filed. Table 1.3 shows the differences between Tulkarm and Jericho governorates in terms of area C that is one of the most important factors restricting the Palestinian development process.

Table 1.2: Spatial Inequality in Area C

	Tulkarm	Jericho
Area C	0.3959	0.88

Source: (*PCBS, MoLG, Maps of West Bank, Data Center (Area C, the Wall, contour*

As to the local level, the services are unevenly distributed within Tulkarm governorate which is the case study at the local level. The records

show much better basic services provided to Anabta when compared to the services provided to An Nazla ash Sharqiya as shown in Table 1.4) below.

Table 1.3: Differences Between Communities in Infrastructure eSrvices

ID	Community	Public Network of Water	Availability of Sewage System	Road Area Capita
16	'Anabta	0.992	0.583	0.2424
30	An Nazla ash Sharqiya	0.516	0	0.0226

Source: (*PCBS,* Census Final Results – Summary: Population, Buildings, Housing, Establishments in Tulkarm Governorate, December,2007 pages 68, 70, 72.

The aforementioned statistics indicate that spatial inequality in the West Bank is a serious topic that deserves further research and investigation. The statistics, however, don't give a scientific evidence on spatial equality because one district might have deficiencies in a given sector but the same district might be better in other sectors.

This creates the need to deeply investigate spatial inequality taking into account all sectors to give overall evaluation and draw a comprehensive conclusion on the issue. The main question the research will answer is: To what extent do the Palestinian governorates and localities suffer from spatial inequality?

1.3   Significance of the study:

Within an urban context, spatial inequality leads to social exclusion, social polarization and segregation. To reduce the gap between the advantaged and disadvantaged (deprived) communities, policy makers have to introduce area-based policies and to fight and compensate for disparities. To shed light on spatial inequality in all aspect of life, there is a need to classify fields of life in sectors and components. The limiting factor for the selected components is the data availability. For instance, the Gross Domestic Value (GDV), which has a significant effect on the economic life, was not available.

Spatial indicators can help monitor inequalities, target deprived areas, set priorities, and reallocate resources. In addition, the use of spatial analysis offers a unique opportunity to integrate GIS into policymaking in Palestine. The study has also a number of important contributions including the methodology that helps planners and decision makers to set the priorities of projects in order to reduce the differences between areas. It also guides planners and decision makers in their strategic plans, master plans, and regional plans. The thesis will be a step forward toward adopting the scientific approach in the planning process.

1.4   Study Objectives:

The main goal of this research is to investigate the patterns of spatial inequality among all governorates in the West Bank and localities of

Tulkarm Governorate. This goal will be achieved through the following objectives:

- Identifying the main sectors that affect spatial inequality in the West Bank at governorate and community levels.

- Prioritizing potential development actions in the governorates and localities by utilizing GIS capabilities in collecting, organizing, analyzing and visualizing the results.

- Determining spatial variation among different sectors to offer recommendations to decision makers and planners to overcome the negative effects, which may result from the overlapping between those sectors.

- Offering an opportunity for all official departments involved in urban planning by generating spatial indicators, which will help reduce the differences in all aspects of life.

1.5   Research Question and Hypotheses

This research investigated the extent of the West Bank governorates' and localities' suffering from spatial inequality in different aspects of life. To that end, the researcher by tested the main hypothesis stating that there are significant differences in all aspects of life among the West Bank governorates on one hand, and among the communities within Tulkarm Governorate, on the other hand.

For the purpose of examining the hypothesis, every sector has a number of indicators (components) through which the sector's qualities can be quantified, treated and visualized. Some of these sectors and their components were defined according to the PCBS year books and the spatial inequality literature. Some of them are discussed in the following chapter. The sectors and their corresponding indicators are classified as follows:

Table 1.4: Indicators Used to Test   Research Hypothesis

	Fields (Sectors)	Indicators (components)	Data sources
1	Economic	Gross value added, employment numbers, cultivated area, householder's expenditure, number of agricultural holdings, number of live stocks, annual pumping of water quantity for cultivation.	PCBS$_1$, Chamber of Commerce, OSS$_2$
2	Political	Settlement area, Area C, number of settlers, number of settlements, area confiscated for the Wall, people behind the Wall, closed establishments because of the Wall, access time transportation for the people behind the Wall	PCBS, Ministry of Local Government The Apartheid Wall Department
3	Health	Number of hospitals, number of health centers class 1,2,3, health insurance, house density, beds per 1,000 inhabitants.	PCBS, Ministry of Health, Municipalities
4	Education	Number of students, number of schools, number of teachers per students, class density, number of students in higher education institutions (BA, M.A. and Ph.D.	PCBS
5	Infrastructure Services	Electricity network, water network, waste water network, waste collection services, road network length or area.	PCBS, Paltel, Municipalities
6	Social	Divorces registered, house density, criminal offenses, number of deaths, disabilities/difficulties, road traffic accidents, poverty and unemployment	PCBS
7	Cultural	Number of cultural Institutions, number of mosques and number of home library	PCBS
8	Telecoms and Transportation	Computer use, availability of internet at home, phone lines, paved road network, own a mobile phone, vehicles number and mail service centers and p.o. boxes	PCBS

PCBS$_1$: Palestinian Central Bureau of Statistic
OSS2 : one stop shop (Office and operating multi-service employment)

1.6 Study Area:

The West Bank is a part of historical Palestine, with an area of 5,655 km^2 and population of 2,719,112 people. Of these, 27% are Palestinian refugees who were deported from their land in 1948 (PCBS, *Year Book 2013*). Since the occupation of the West Bank in 1967, the Israeli occupation authorities have established 144 settlements, and made them home to 563, 564 Israeli settlers (PCBS, *Year Book 2013*).

As shown in Figure 1.1, the WB is administratively divided into 11 governorates, the focus of this research. According to Oslo Agreement signed in 1993, the West Bank has been divided into three geopolitical zones: 1. Area A, in terms of administrative and security issues, under control of the Palestinian Authority (PA); 2 Area B: The PA is in charge administrative issues while the Israeli occupation is in charge of security. Areas designated as A &B cover 40% of the whole area of the West Bank; 3. Area C's administrative and security issues are under the Israeli control. Area C covers 60% of the whole area of the West Bank.

National Level: West Bank Governorates

The study area at this level is the West Bank including its eleven governorates: Jerusalem, Nablus, Tulkarem, Qualqilia, Jenin, Tubas, Salfit, Ramallah, Jericho, Bethlehem and Hebron.
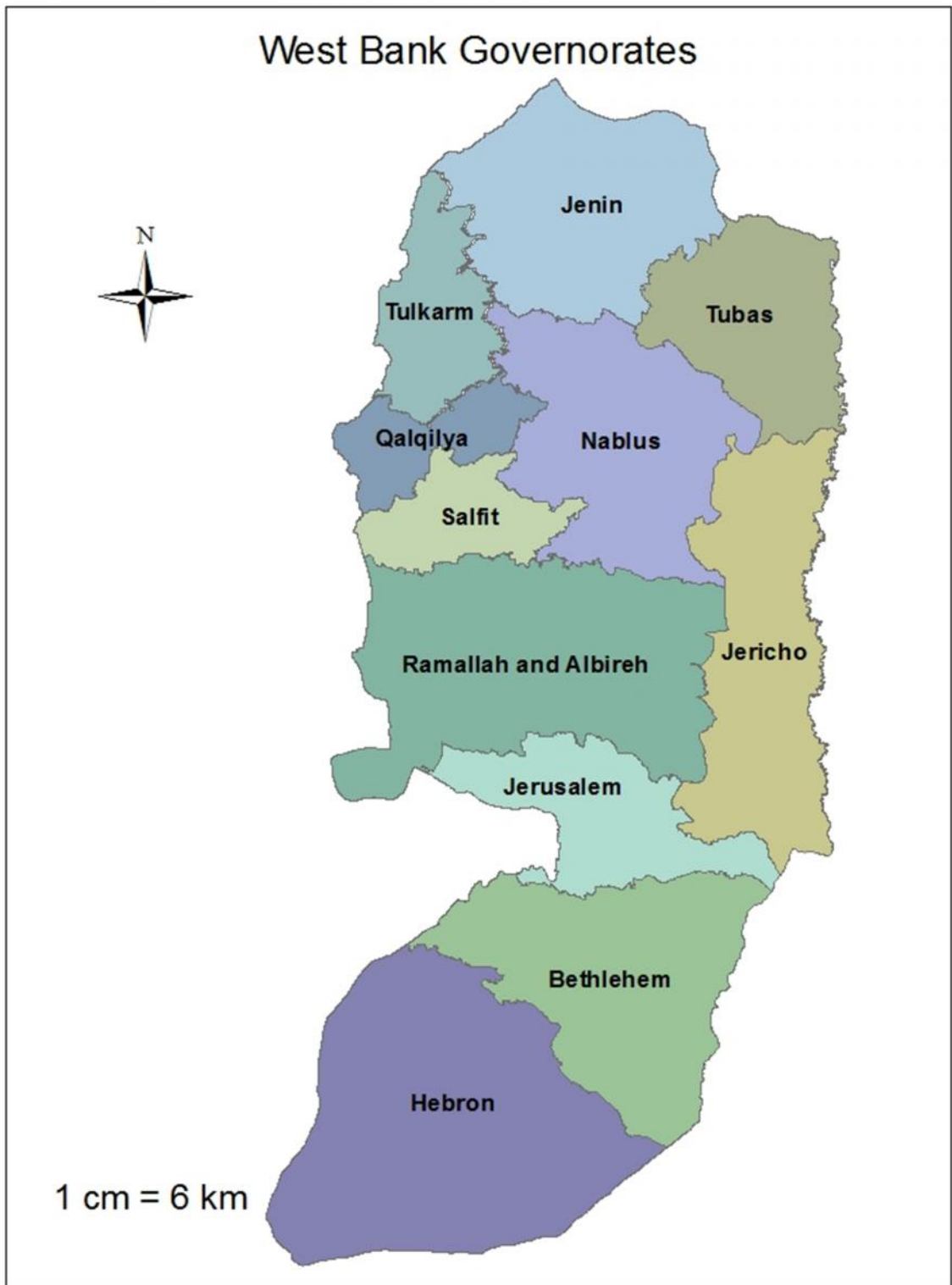
Figure 1.1: Governorates of the West Bank

Source: Ministry of Local Governorate (MOLG)

Local Level: Localities of Tulkarm Governorate

Tulkarm Governorate is located in the eastern part of the coastal plain of historical Palestine and to the west of Nablus city. The governorate occupies 246 km^2 and is home to 175,494 people (PCBS, *Year Book 2013*). Tulkarm Governorate was selected as a case at the local level due to the data availability and accessibility

The number of communities in Tulkarm is 43 community. Of these, 34 communities were selected for this study because they had municipal/village councils and their data were available for different sectors.
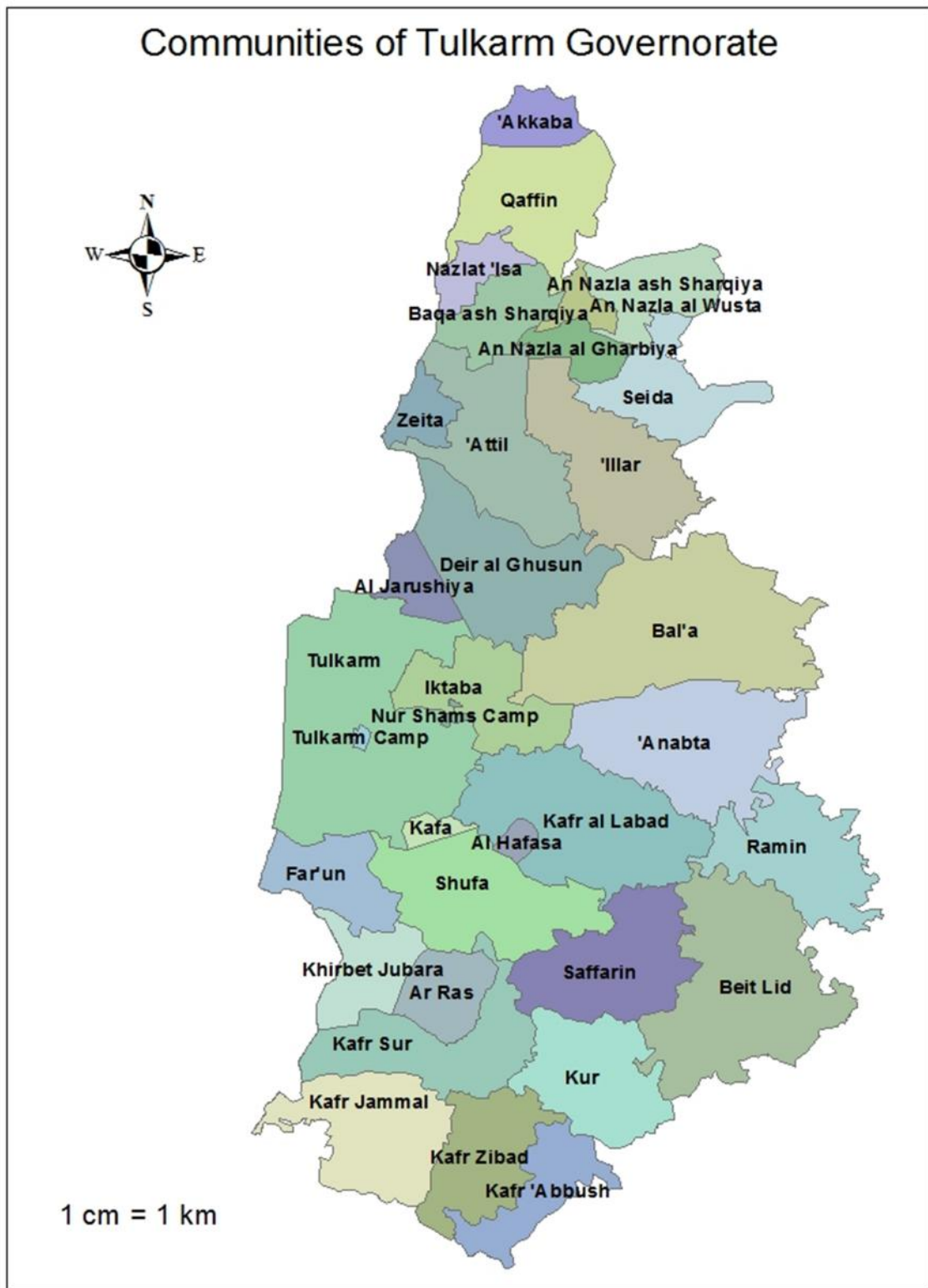
Figure 1.2: Communities of Tulkarm Governorate

Source: MOLG

1.7   Thesis Structure

This thesis consists of five chapters. The first chapter includes definitions of inequality and the significance of the study, the study objectives, the main research question, the hypothesis and the study area, the sub- titles and contents. The second chapter first provides a review of previous studies at both local and international levels. Then, the chapter moves to discussion of the methodologies used for measuring spatial inequality, using GIS.

Chapter three was devoted to description of the methodology based on scientific approach applied to get the results, using GIS.

Chapter four addresses the differences between all governorates of the West Bank in all fields of life. These differences are presented in the form of maps, figures and tables. These maps showed the less and the most fortunate areas at the component, sector and final levels.

Finally, Chapter five was devoted to the conclusions, drawn from the results, and the recommendations based on them and the general observations over the whole process.

Chapter Two

Literature Review

2.1 Introduction:

Spatial Inequality (SI) is a serious issue for both urban planners and decision makers as it focuses on revealing the differences and the spatial unevenness among citizens in all aspects of life. In addition to the discussion of the concept of SI, the chapter introduces definitions of terms and expressions related to the concepts of justice, equity, goods and services, distribution and correlation with the spatial trends. This chapter also reviews and discusses scholars' views and previous relevant local and international studies. The chapter specifically provides academic definitions of equality and inequality, the components representing aspects of life, spatial dimension of inequality and unevenness between the areas. The chapter concludes with a look at the similarities between this study and previous studies in terms of selection of the sector components, methodology and tools analysis.

2.2 Equality, spatial inequality and sectors justice:

2.2.1 Definition of Equality:

The idea of this research is based on the theory of justice, and differences in terms of spatial inequality, and on how this is linked to what people need from nature. This theory states that people who live in the

same conditions should receive the same treatment (Smith, 1994). However, in reality, when development starts, problems of conflict, exploitation, marginalization arise.

2.2.2 Definition of Inequality:

Generally speaking, inequality refers to an unfair situation in which people have more rights or opportunities than others (Mayhew, 2009). When talking about space, this brings about a new term: spatial inequality. This expression has several definitions. One definition is "distributing services, resources or other things unfairly due to factors, like greed, race, religion, power,….etc (*Combes, 2008*). Another definition is the unfair distribution of goods and services according to location (*Young, 2000).* These two definitions lead us to the general concept of spatial *justice*, which means equality according to peoples' condition needs in all aspects of life.

2.2.2.1 Social justice:

All people have the same rights and duties in the fields of education, health, security, labor, public services and in the way of market regulation and sharing payment of taxes. These rights are expected to secure equality of wealth, and to lead to social development, irrespective of ethnic origin, gender, possessions, race and religion (Rawls, 1971).

2.2.2.2 Economic justice:

Economic justice is about the principles which guide people in designing out economic institutions. These institutions are about how each individual earns a living, enters into contracts, exchanges goods and services, in comparison with others . All of these must be in accordance with the economic system (Kelso and Adler,1958). Kelso and Adler divide economic justice into three main interdependent principles : participative, distributive and social justice.

In this case study the three principles of economic justice are violated by the Israeli military occupation forces. In Area C, these principles are violated the most. For instance, some governorates are affected by Area C more than others. It's well known that any development projects are restricted in this area. Area C covers 89% of Jerusalem and 32.7% of Jenin. This means that 89% of Jerusalem area is deprived of any development without the permission of Israeli military occupation forces . In term of exploitation and the effect of the Separation Wall, people cannot have access to their lands behind the Wall. Equally worse is the Israeli occupation practices, discrimination in allocation of water sources between Jewish settlements and the Palestinian towns and villages. Israel used up 86% of the aquifers' water while the Palestinians received only 14% (B'Tselem, 2014). Also Palestinian average water consumption was 135 liter per capita per day while Israeli settlers in the West Bank used 900 liters each per day (PCBS, 2014).

2.2.2.3 Health Justice

The International Covenant on Economic, Social and Cultural Rights (1976) stipulates that physical and mental health shall be enjoyed by all persons and communities. Good health is essential for human happiness, comfort, satisfaction and of course all mundane activities of life. Without good health, people cannot practice political, social and economic rights activities. Therefore, health is a precondition for economic development, political participation and collective security (Jennifer, 2010).

2.2.2.4 Political Justice:

All individuals have the right to play a role in the political life of their country, without any restrictions, as long as their political activities do not violate / contradict the laws enforced (Paul,1974). Moreover, the local communities have the right to decide their future and to participate through parties in all kinds of activities, including political debates . Such freedom guarantees self-development and enables people to respect the rights of others, thus avoiding future conflicts or violation of human rights (John, 1963).

2.2.2.5 Public Services (Infrastructure):

All nations agree on the concept of distributive justice in term of access to public services. This notion has been adopted as a public policy (Smith, 2001). The earlier notion of goods distribution equally was considered the principle of social justice (Young, 1990). However, this

meaning was modified in term of institutional contexts and was placed within a larger vision of procedural justice, related to how people do things, rather than what they have. This concept explains the institutional distribution of all public services among all population where they are in equal framework.

2.2.2.6 Telecommunication and Transportation Justice:

Telecommunication and transportation must be made available in society as it is as necessary as food, clothing and shelter. Individuals have the right to receive and send (exchange) information in a democratic society (Global Communication, 1993)

2.2.2.7 Education Justice:

Education should be available and free for all people in the elementary schools. Furthermore, higher and technical education should be available and be equally provided to all people who deserve it. According to Article 26 of the Universal Declaration of Human Rights (1948), education "shall be the basic ideology of any development, peaceful relationship and tolerance among racial, ethnic and religion groups."

2.2.2.8 Cultural Justice:

Culture represents all belief, artifacts, traditions, stories, knowledge and values developed and transmitted to successive generations.

All groups with different cultures, who live in the same society, have the same rights to access resources and information. This consideration of cultural justice makes the authority act justly without discrimination between groups towards multicultural population within multicultural societies. Justice between cultures meets at least one of four criteria, namely, equality, need, merit and eligibility (Madox, 2008).

2.2.3 Definition of Spatial Inequality:

Special inequality is about in equal amounts or inequalities of resources and services according to the area of location (Young, 1990). Some communities possess a wider range of services and resources than others. The causes of spatial inequality are many : race, culture or religion (Langlois et al., 2001).

Spatial distribution takes place in urban planning which adds a new field of analysis such as geographic discipline. It tries to examine spatial factors which create the phenomenon of inequality in the country. Actions against the problem of unequal distribution are usually addressed with area-based policies that target those deprived or segregated areas. Social justice is concerned with the question of who gets, what, where and how, and more precisely who should get what, where, and how (Smith 1977 in: Pacione, 2001).

2.2.4 Indicators of Spatial Inequality:

As discussed above, it is obvious that inequality is a qualitative term that should be transformed into a quantitative one in order to be measured and controlled. It is usually done by generating representative indicators. These indicators have three functions: to simplify, to quantify, and to communicate (Delft, 1997). Innes (1990) argues that an indicator focuses and renders intentionally selected areas of the reality. She puts it in this way: "An indicator is simply a set of rules for gathering and organizing data so they can be assigned meaning."

Spatial analysis GIS is one of the most commonly used techniques in the field of urban planning. It is used to quantify the qualitative matters –or, in other words, to generate indicators. According to Innes (1990), GIS-based indicators should be easily understood and transparent to planners and decision makers and should be related to the local policy context as shown in Figure 2.1
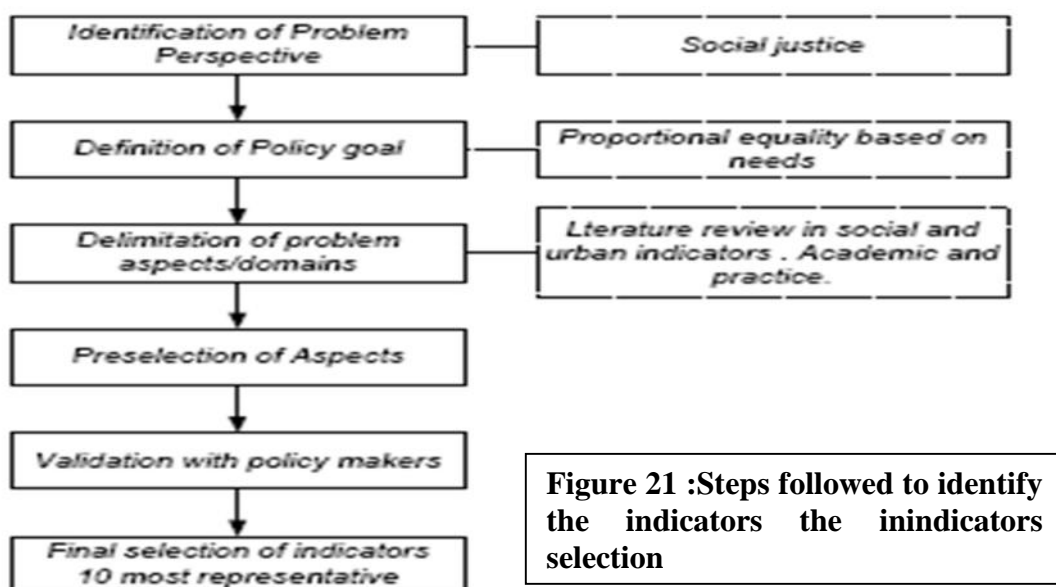
Figure 21 :Steps followed to identify the indicators the inindicators selection

Source: Javier Martinez(2003), *Monitoring Intra-Urban Inequality with GIS-Based Indicators*

It is very important to classify the aspects of life because this leads to facilitation of ordering, analyzing and visualizing the indicators. Two axes are distinguished by the following domains: (un) equal conditions of quality of life (social environment and physical environment) and (un)equal distributions of opportunities/ (un)equal access to social infrastructure, physical infrastructure and virtual infrastructures (nets, ICT).

2.2.5 Studies of Spatial Inequality at International Level:

Efrat (1986) studied occupied Palestine in 50 years for the sake of analyzing the factors affecting spatial inequality for citizens. Efrat sought to identify which development projects had a priority. The researcher considered differences between localities, communities and regions in the spheres of services, income, technology, water resources, climate, communication system, culture, infrastructure and others.

After defining eleven criteria (hypotheses) in comparative methods between regions, the researcher classified them into five levels: topography, landscape of place, climate condition in different parts of the country, border line, history of settlements, distances from economic centers, culture, education, health, communications resources (questions and responses to measure the reliability of habitation). The researcher suggested the following political hypothesis: The safety area must be far from the hot border lines: the distance from bordline must be   10 km.

In this study, Erfat used quantitative statistics and GIS to evaluate the criteria and to trace the maps. This comparative method was used between regions, localities and communities in order to classify the results in comparative levels. The areas were less safe near the Lebanese, Gaza, Hebron and Egyptian borders. This area was marked with dark color, and it represented 10% of the study area.

However, the criterion of safety in this study is different from Efrat's study. The Israeli settlements and the Separation Wall are a threat to the Palestinian existence. Efrat believes that the farther communities from high density concentrations are, the more disadvantages they are economically and educationally Economic and educational opportunities are more available in cities.

Pertaining to main employment centers, Efrat found that the main towns (main employment centers) tend to sprawl towards the southern coastal plain and the north. He also found that 70% of the territory (study area Occupied Palestine 1948) was in a reasonable distance from the main employment centers. Under the consideration of communities and towns with high density explain, the idea is that all services and economic activities are centralized in the main towns.

Another concept of disparities and clustering may arise from the distribution of the communities with a limited size of inhabitants. Therefore, the labels of north, south or coastal area are used.

The question is why the communities near the coastal plain are richer than those in the south? Such methodology of clustering which is applied in GIS analysis reclassifies spatial data in five ranks. The final purpose determining whether the territories are advantageous or disadvantageous for habitation is to delimit the priorities of development. This study can help in that it can determine the best and the worst governorates in the West Bank and eventually in the Tulkarm area.

Martinez (2000) conducted a spatial analysis of Rosario, Argentina. Rosario, Argentina is another case study about spatial analysis.

He studied spatial inequalities and their effect on urban area in developing countries. The study raised a key question about how GIS would use intra-urban indicators to spot inequality in developing areas such as Rosario.

Rosario has varied levels of housing needs with different access to physical and social infrastructure. Policy makers found that over-crowdedness, level of education, unemployment, tap water and access to primary schools were aspects of inequality. Following the analysis, the best off and the worst off areas were identified. The researcher divided the study area into five sectors and applied them to all the indicators with weighted overlay. Eventually, he drew a chart for every indicator and a final chart representing the best off and the best off areas.

The following chart represents the weight of indicators, but the matrix used to calculate them was not explained.

Table 2.1: Weight of Indicators at City and District Levels

| | Conditions / Quality of life | | | | | | Distribution of opportunities / accessibility | | | | | |
| | Physical environment | | | Socio-economic environment | | | Physical infrastructure | | Social infrastructure | | | ICT infra-structure |
	Overcrowding	Inadequate housing	Expressed housing deprivation	Education level	Unemployment	Health coverage	Tap Water in the House	Sewage connections	Access to primary schools	Access to health centres	Access to day care centres "Crecer"	Access to Internet
Rosario	6%	11%	3%	51%	34%	60%	95%	66%	283 m	1148 m	1101 m	12%

Source: Martinez,(2000) Monitoring Intra-Urban Inequality with GIS-Based indicators

To identify the effect of ratio of the indicators on inequality, the researcher employed the gap analysis. After comparing 10% of the worst off and the best off groups regarding education, over crowdedness, unemployment, lack of running water and lack of access to school, the ratio effect indicators were identified. He considered the highest 10% as the ratio effect of the respective indicators. For instance, the worst off block groups represented 13% to 50% more than the best off area.

The following map has the full picture. The best-off (most) areas are shown in white and the worst off (less-fortunate) areas in dark. The differences between the sectors of Rosario appeared in light to dark colors, in all indicators of analysis. Therefore, every indicator has one map.

Figure 2.2: Rosario Final Map with the Sectors in Ascending. Order (best to worst) After the Overlay of Indicators Maps

Source: Martinez,(2000) Monitoring Intra-Urban Inequality with GIS-Based Indicators

Danlin Yu and Yehua Dennis Wei (1978) studied the era of economic reforms China in1949. Under the socialist rule, this era was controlled by Mao Zedong. To lessen regional inequality, this ruler undertook profound reforms which were influenced by the "Inverted-U theory and the "ladder-step theory." His policy of reforms focused on the coastal area, believing that this would accelerate national development and eventually regional inequality would be reduced. The policy of

decentralization and rural industrialization managed to increase projects in the coastal areas, but this sparked an argument whether it led to reduction of regional inequality or not (Fan, 1995; Wei, 2000). Some scholars argued that this policy didn't succeed in handling regional inequality as it masked geographical disparities and clustering. Because of this, it appeared that there was a need to use analysis methods to get better understanding of changing patterns of regional inequality in China (Wei, 2000, 2002).

The study extended its scope to 2000, using the GIS analysis to spot the changes in regional inequality between 1980 to 1990.

In order to measure temporal change (1978-2000), the researcher used the economic indicator GDP (Gross Domestic Product) per capita through various methods. Among these methods were the coefficient of variation (CV) (Wei, 2000) and GIS analysis. The researcher also used Moran's Index, Moran's Scatter plot (Anselin, 1996), regression analysis and the weight of matrix which is based on spatial contiguity. In this study, we are interested in explaining the methods used that are related somehow to ours. To this end, the researcher discussed the coefficient of variation and GIS analysis. In order to give spatial sense to the weight of the economic factor (GDP), the researcher used the location quotient (LQ) of GDP per capita. This analysis was applied for each province to depict changing fortunes of the provinces. Then, he classified the provinces into six groups based on their geographical locations and changing patterns of LQs. He also used cluster analysis and other classifications by scholars

working in China (e.g.,Wei and Ma,1996). These analyses were visualized in figures. The provinces' inequality is crystal clear .(See the differences between the figures.)
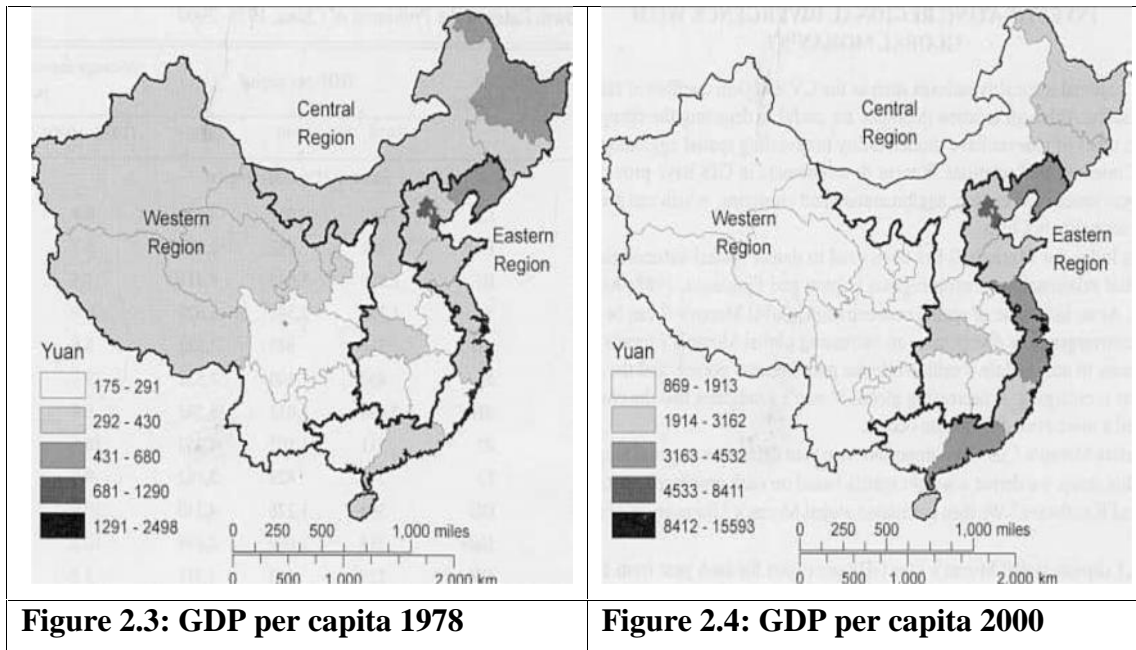
| Figure 2.3: GDP per capita 1978 | Figure 2.4: GDP per capita 2000 |

The result of analysis reveals a big gap between the coastal provinces which had the highest GDP per capita and the poorest provinces in the internal areas. This gap increased dramatically between 1978-1990 and between 1990-2000). However, after counting the average data of GDP of these two periods. (1978-1990) and (1990-2000), the researcher came up with two maps to draw some comparisons regarding spatial changes and economic factors. He found out that the development policy, without spatial analysis, cannot reduce the disparities among provinces.

In addition to the analysis, using the statistic quantitative and comparative, the researcher used the GIS analysis. He used natural breaks in ArcGIS as the classification method to divide the 30 provinces/ municipalities into five classes according to their GDP per capita.

In our case, studying the spatial inequality in the West Bank governorates and in Tulkarm communities has something in common with the spatial inequality in the Analysis of Post-Mao China. This similarity appeared in the following idea : the GIS analysis, in which the ArcGIS tools were used to reclassify the 30 provinces into five ranks and the economic component (GDP per capita) to depict the regional inequality. However, the researcher didn't employ the other tools used by the author namely, the location quotient (LQ), the variation coefficient (VC) and the global Moran because the data and the scope of study are different.

All other researchers used the spatial analysis for their specified areas. Elisha used the descriptive statistical accumulative to obtain the weight for every square and for every indicator. Then, he showed the results of analysis in maps for every hypothesis (indicator) which he formulated. After that, through the weighted overlay, he made the final map. Martinez, furthermore, used intra-urban inequality with GIS-based indicators in the city, and the weight was calculated by matrix weight. He used the weighted overlay tool of the spatial analysis GIS to obtain the final map. Besides, in another study, conducted by Danlin Yu and Yehua Dennis Wei, on the regional inequality in China, the researchers used many tools and indexes in their analysis of GIS, Coefficient of Variation (CV), Location Quotient (LQ), Global Moran (GM) with Matrix weight, regression statistical analysis and Moran's scatter plot. In their paper, the researchers treated the temporal variations and regional inequality in 30 Chinese provinces, using analytical and descriptive methodology; they

discussed the effects of China policy (Mao Zeitong) and his plans on reduction of poverty and elimination of regional inequality. The author specified economic indicator as the hypothesis to be tested and interpreted through the tools and indices mentioned before. The essential idea in all analysis was to reveal the temporal variation of the economic factor in the provinces and find out if the policies implied achieved egalitarianism between regions and provinces.

2.2.6 Studies at National Level in Palestine:

One study in the field of public services in Nablus city was done by Khalil Qaisi. In his research, Qaisi addressed the public transport accessibility and services gap in Nablus city in 2015.

Public transport is considered a social service which all commuters can use (Lei and Church, 2010). The author sought to assess the accessibility of intra-city transportation, using a number of indicators.

The main problem was to allocate the regions that had a lack of public transportation. To that end, the author used the cost and the distances or barriers preventing access to a service as factors which impacted the efficiency of the transport system. This methodology was based mainly on the quantitative and analytical methods, using collected data and a field survey of public transportation frequency as well as travel time field data. ArcInfo v.10.0 Geographic Information System (GIS) Software was used in analyzing and displaying the results. Network

analysis functions were used to measure spatial coverage of public transport service based on the actual walking distance of the pedestrian road network. To shed light on spatial inequality, GIS and other tools were used in order to identify the poor quarters in the city and encourage people to use public transportation. The components, used to measure accessibility, were spatial coverage (statistical quarter), temporal coverage (travel time) and cost.

Spatial Coverage Component is the walking distance to public transportation stop measured with time unit of 5 minutes or 400 m ((Levinson, 1992). The temporal coverage component for Local Index of Public Transport Availability (LIPTA) is derived from weighted composite average frequency for each statistical quarter. This depends on the average number of trips for each vehicle, which works on a specific fixed route per day. The area around the bus stop or around the bus way is covered by ArcInfo v.10.0 GIS analysis; it determines the service area for each public transportation station, and calculates percentage population being served by public transportation service for each statistical quarter through overlay and proximity analysis. At the end of the calculation, the weight of every spatial quarter is determined. Then the result would be visualized by a map, using ArcInfo v.10.0 GIS, and a comparison between statistical quarters. This spatial classification was adopted in the statistical report of the PCBS in 2007and in the geo-reference process. Then the public transport fixed route and the building area with the residence's number for every quarter

were adopted. After that, the number of permitted vehicles for each public transport fixed route with its capacity was represented in tables .

Employing the GIS, the researcher drew two maps, one for the service area and the other for the normal circular area around the public transport stops and the fixed routes that joined them. In this way, the uncovered area with public transport services area was revealed. This methodology helped visualizing the two areas, one for the covered areas and the other for the uncovered area representing the target of this study.

The LIPTA was used to evaluate the weight of the quarter. The overlapping between both spatial and temporal maps resulted in the final map as shown in Figure 2.11. The results were classified in 5 ranks, and were employed to categorize levels of public transport availability.
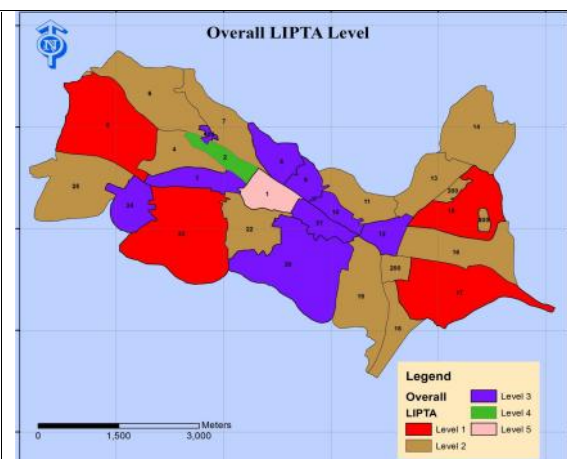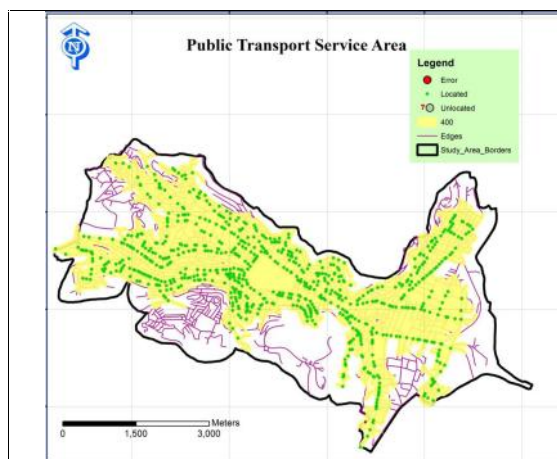
Figure 2.5: Buildup Area Covered with Public Transport Services	**Figure 2.6: Final Map Overall LIPTA Level**
Source Qaisi, (2015) GIS-Model to Compute People Being Served.	**Source: Qaisi, (2015) GIS-Model to Compute People Being Served.**

This map shows spatial inequality in the study area of Nablus in the field of social infrastructure of public transportation. This map indicates the priorities of development towards target places in the city .

2.2.7 Overview and Interpretation of Aforementioned Studies:

The methodology in this study cross and meets with other previous studies. GIS analysis in the spatial inequality was used as all papers. Another similarity is the process of using measurable indicators, which represent the quality of life. In Martinez's Monitoring Intra-Urban Inequality with GIS-Based Indicators infrastructure, health, ICT accessibility, education and housing density were used. The matrix weight was also used to get the ratio effect of every component in the final map which showed the worst off and the best off area in Rosario city .

The areas of strength and weakness in this study and   *Martinez's study:*

1.   Way of weight calculation. I used the proportional effect in reality as it visualizes the differences between all governorates and Tulkarem communities . In contrast, Martinez used the matrix method to get the weight of sector.

2.   I used a questionnaire to get the utilized effect weight of every component and sector while Martinez used the gap analysis

3.   Type of indicators and classification of indicators. Martinez presupposed many indicators and represented them as one sector. In

this study, I proposed a number of sectors which represent all fields of life and every sector has several components according to the data classified in the statistical reports of PCBS.

In my opinion, the strength of my research is in using multi- sectors and components through which the spatial inequality pattern in all aspects of life can be defined. Another advantage is the tools of analysis used: questionnaire and bar variation.

Differences between my study and *Efrat, study on 1948 Occupied Palestine.* First, Efrat used the accumulative way to calculate the effect ratio of indicators which he presupposed. Second, he treated the economic and educational factors from the perspective of accessibility: the criteria of distance for inhabitants to reach the educational and employment centers. The researcher used the criteria of the crowded towns (communities which had more than 20,000 habitants).

Third, he considered the safety factor as the distance from the hot border lines, while in our case we supposed several political indicators (components) which represent the political sector.

The areas of weakness in this research is in considering the distance as an accessibility indicator to measure the advantages of economy, education, and security. The distances between communities in the occupied areas of 1948 are very close and the transportations means are available, thus the SI misses the accuracy.

Differences and points of strength and weakness between this study and Danlin Yu and Yehua Dennis Wei's study (Analyzing Regional Inequality in Post-Mao China)

- Yu and Dennis used one indicator (GDP per capita) as an economic factor to measure regional inequality. In this study, I used multi-indicators in the economic sector.

- In their study, Yu and Dennis analyzed the temporal variation of the economy between 1978-2000s in the Chinese provinces in order to compare the regional inequality between them and to check if the implemented policies had achieved equality between the regions and the provinces. In this study,, the scope of analysis was to monitor the differences between the governorates of the West Bank and the communities of Tulkarem governorate between 2011-2013. However, the data was not available to make observation of the temporal development of spatial inequality.

- In their study, the researchers used the index of global Moran's (I) to obtain the weight of the indicator, while in this study the proportional weight was used for every component. And the questionnaire was administered to get the effect weight of the components and the sectors.

- Yu and Dennis several used many indices to measure the temporal variation in the economic field. They also used the coefficient of

variation to depict changing patterns of regional inequality in China, from 1978 to 2000 and to identify the changing clusters of regional development in China. In this study, the main objective was to visualize the spatial inequality, according to the proposed hypothesis, and to determine the priorities of developments according to the results of the questionnaire.

The strength of Wei's research was in the tools used to identify the regional inequality and the temporal variations. These tools were Moran's indicator, coefficient of variation, scatter plot, regression analysis and GIS.

Differences between this study and Khalil Qaisi's study in public transport accessibility and service gap in Nablus City(2015).

The spatial inequality in public transport services in Nablus city in statistical quarters was revealed through the weight of every quarter, which was found through quantitative and analytical methods. Through the statistical tools of SPSS, the author analyzed the data collected about the components in terms of the spatial coverage (the actual walking distance of the pedestrian road network) and temporal coverage (time travel). The GIS tools (buffer and overlay) were used to identify the area which was not covered by public transport and the spatial inequality between areas. These areas, classified in four levels, were in a descending orde from the worst to the best.

- This study differed in the way of the weight calculation for components' effects. It depended on the proportional value for the given data and the results of the questionnaire. The author, in his study of public transport depended on equations function used in science and statistical analysis to measure accessibility.

- The weighed overlay tool in Arc GIS was the procedure used to review the spatial inequality between the governorates and communities in this study . However, in the case of public transport the author used GIS to visualize spatial inequality between the areas that had already data calculated and adopted through quantitative and analytical methods.

Furthermore, this study took into consideration all these methods and the concept of spatial equality and justice. These methods helped to investigate the disparity between localities and governorates in all fields of life. Every aforementioned case had its particularity in the way of data collection, data manipulation, result analysis and visualization. The type of data and the objectives have the main limitations over the procedure followed. To analyse the results, I made use of Efrat's and J.Martines's methods of components selection and classification. I also applied the same GIS methods of analysis, used by Qaisi, in the way of using the components weight. In this, I proposed the governorates as a regional level and Tulkarm communities as a local level. This order helped in finding out the differences between the target areas (governorates, and communities) in

all aspects of life: political, economic, health, educational,, social, infrastructural and communication. Tulkarm Governorate was taken as a case study to find the spatial inequality between its communities. However, I didn't consider all localities in all governorates because of study limitations. These limitations are related to data collection, time and cost for every locality in all governorates. The results could be achieved through GIS analysis after data collection, quantification, by classification and weighting by spatial analysis and visualization by GIS.

Chapter Three

Methodology

3.1   Introduction:

Methodology employed in this research takes into account the methods applied in the aforementioned studies. All aspects of analysis, selection of indicators, and effects of weights on social life were considered to map the spatial inequality patterns. The objectives of this research determined the tools of analysis to get findings and draw the right conclusions. GIS, a questionnaire and a bar diagram were used as effective instruments in analysis of processed data. Data collection was one of the main challenges due to the risk of absence of detailed data about all components and sectors. A questionnaire was developed and administered to a number of experts in different fields of the sectors under investigation in this study and in spatial inequality in particular.

Chapter four is devoted to the discussion of research design concepts and phases/steps The chapter also introduces all equations and mathematical concepts used to calculate the ratio of each sector and component. Finally, the chapter introduces the method the researcher used to calculate the weights of the factors and criteria of the listed fields.

3.2   Conceptual Framework:

The methodology, applied in the West Bank, used the GIS in order to analyze, reclassify, weigh and represent data by charts. Additionally, the

comparative approach was also used. After processing and analysis of data, the results were compared and shown in charts and bars. These maps and bars explained spatial inequality and illustrate the major components that had higher effect on the spatial inequality. To make this study possible, I benefitted from Martinez's case study of Monitoring Intra-Urban Inequality with GIS-Based Indicators in Rosario, Argentina (2000) and from Efrat's case study of Occupied Palestine 1948 (1986).
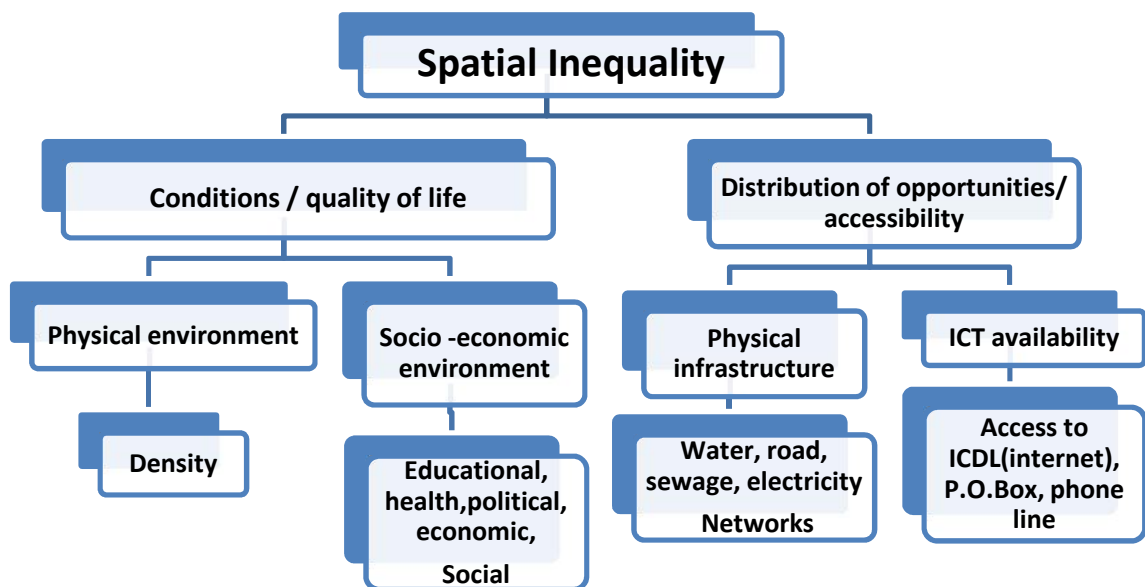
Figure 3.1: Conceptual Framework

Practically, the following steps were followed respectively:

- Every factor (component) was considered as a hypothesis in order to make the analysis more meaningful. Each component was quantified according to the available data. In that sense, the researcher took the indicators from different resources as mentioned in Table 1.5;

- The data was managed in Excel in order to calculate the indicator of each factor (e.g. educational, health, political, economic, social);

- The table produced in step two was transferred to GIS in order to connect it with the spatial components (governorate and community);

- Every hypothesis was represented in a chart with a reclassifying order (in five ranks) in the GIS spatial analysis tools. In this stage, the results would show the differences between all localities and governorates in the respective fields to make the comparison possible.

- To obtain the final raster surface, all raster surfaces representing different components were merged, using the weighted overlay from the GIS spatial analyst toolbox. Through this procedure, I determined to what extent a given factor would affect the differences between the spatial units under exploration, and then gave it a weight ratio. The final map showed the worst and the best area and the levels in-between.

The results were visualized in a map for each component to test the corresponding hypothesis. This was done for all hypotheses (components) and sectors. Maps were then combined through the weighted overlay in order to produce the final map for all sectors. This map revealed the best and the worst governorates and localities in the study area .

At the end, the methodology produced the following results:

- A GIS model : a document that can be used as a reference in the study area and a guide to conduct further research in the rest of the West Bank and the same area.

- Charts with the best and the worst localities in all aspects of life as the hypotheses proposed (health, educational, political, economic, access aspects).

- An aggregate (combined) chart which represents the differences between all localities and governorates in all fields of life.

- Priorities development chart for policy makers and planners.

- A Reference report

3.3 Methodology Work Flow:

The main steps followed are represented in the Work Flow in Figure 3.2. In order to achieve the aforementioned objectives, the methodology consisted of three main steps: (1) data collection; (2) component quantification; (3) GIS data preparation and manipulation.

3.3.2 Flow Chart

Flow Chart

Stage one   Work Flow Trajectories

GIS analysis of West Bank governorates and Tulkarm

Data collection (Components) For every

Statistics (50 population)

Join Excel Data to GIS attributes

Data inserted to GIS layers of West Bank governorates and Communities Of Tulkarm

Stage tow
Data Interpretation

Data interpretation with Excel

Ratio effect of components over respective sector

Ratio effect of all sectors

Attributes should be transferred spatially

Feature spatial value for every component 5reclassified in 5 ranks

Stage three
GIS converts data to spatially value

Water networ

Sewage network

Electricity network

Waste collection

Weighted Overly

Stage four

Infrastructure map

Political map

Weighted Overlay

GIS overlay respecting

One map for all sectors

Figure3.2: Work Methodology Flow

3.3.1. Data collection:

The approach of data collection applied took into consideration the classification of sectors and their components. The components' data express the sectors that represent aspects of life. The availability of data was the determinant of adoption or not. To that end, some data were taken from the Palestinian Central Bureau of Statistics (PCBS). Other data were taken from a variety of sources from different periods because not all PCBS data were available and classified in sequential regular times. For instance, in the economic sector, the component of agricultural holdings data was taken from PCBS's Yearbook 2013, while the livestock data was taken from PCBS's Yearbook 2011 Therefore, the data were collected from different periods . Some of the data, like the number of births and deaths in Tulkarm Refugee Camp, and Kafa were not available but hey were likely to exist in the civil affairs office of Tulkarm city. Because of this, these data were estimated depending on localities with same population. Another similar problem was the ADSL; it had to do with data about telecommunication field in some localities. These data were unavailable in the Palestinian Telecommunication Company (PALTEL). Another problem with data collection was that not all components of the same sector for the West Bank governorates and Tulkarm communities were available in the official institutions.

The data were collected and classified by Excel in order to be presented as proportions. The data were classified as sectors and, each

sector was classified as components (indicators). Those components were treated in different ways in every governorate. For example, the political components were showed in Table1 (PCBS, 2013) (PCBS, 2011).The process of data collection is showed in Figure 3.3
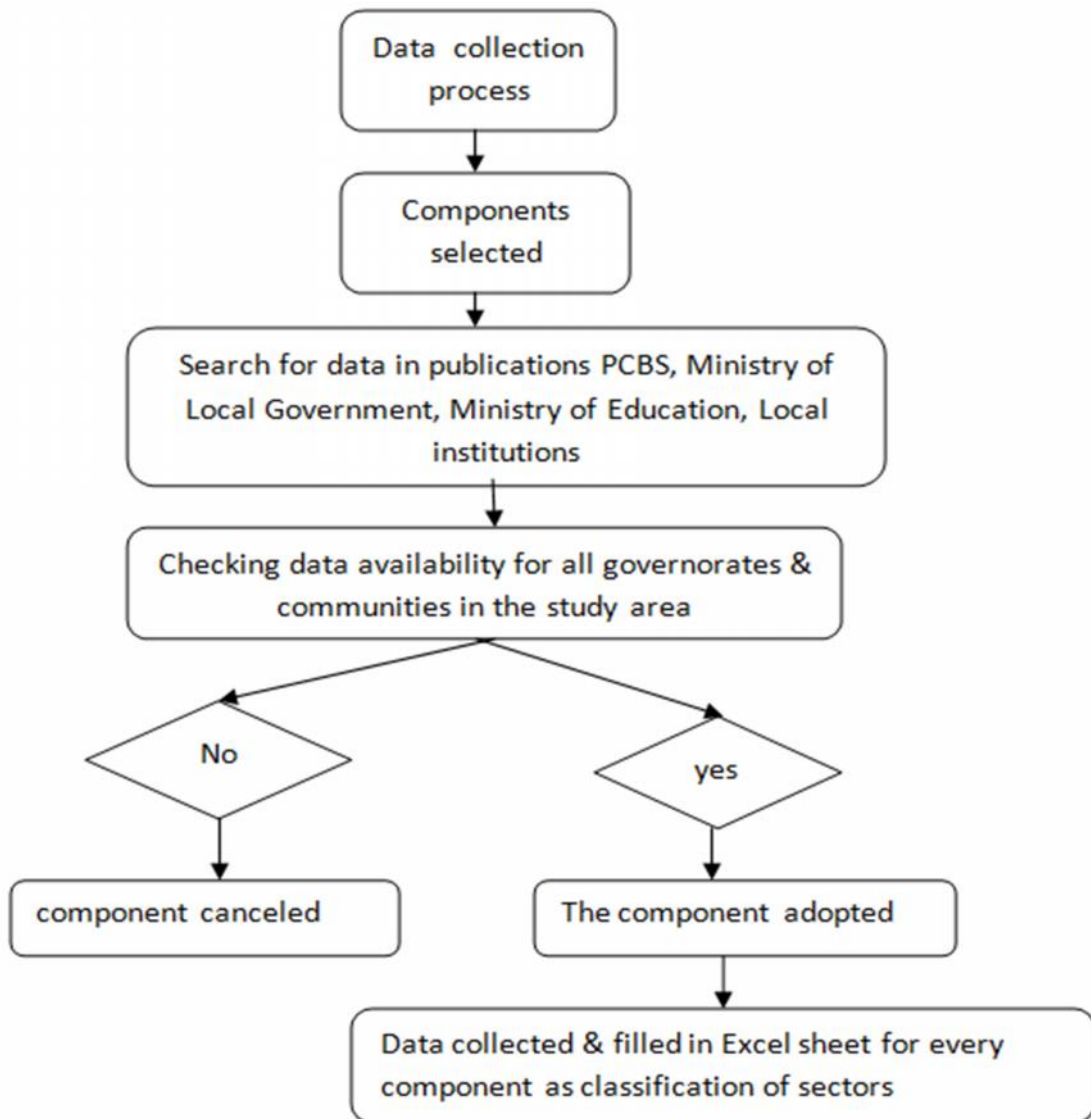
Figure3.3: Process of data collection

This process of data collection was implemented for all components classification of sectors. The data were classified as showed in Figure 3.4
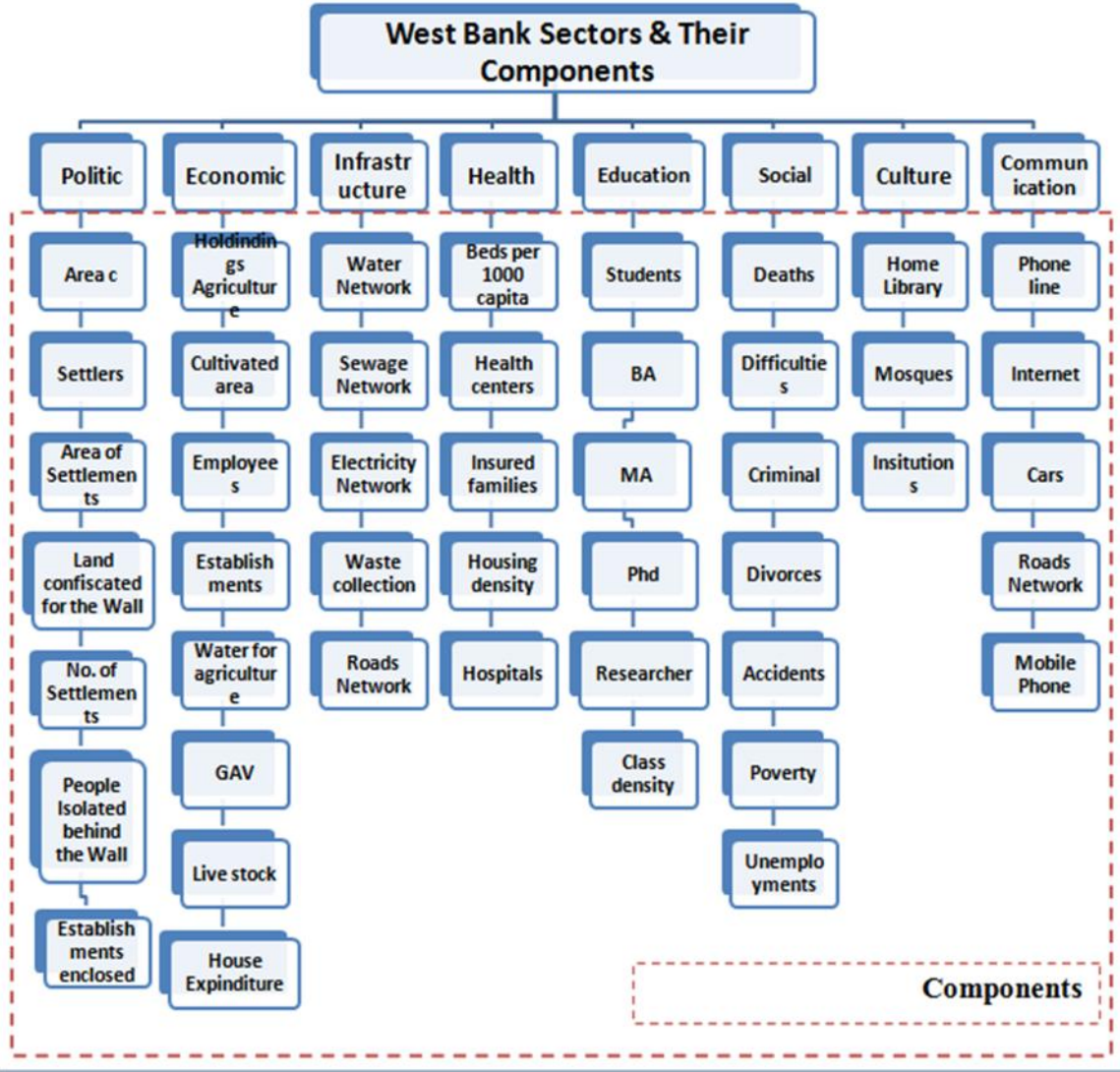
Figure 3.4: Classification of components for all sectors.

The data collected are showed in Appendix 1.

3.3.2 Sectors' Components Quantification:

All data were processed and organized in tables in the same order of the data collection. The data were treated as a proportional value. The proportion of each component was calculated in a function that belongs to the same category.

* Area C proportion was calculated in a function of the area of the governorate.

$$\text{Area C } proportion = \frac{\text{Area C in governorate}}{\text{Governorate area}}$$

This method was approved by the PCBS team who confirmed that the method is applied to find the proportion effect of the economic indicators and others. Besides, there is a pure mathematical way. Through this method, the weight effect of every component was identified, showing the differences between all governorates and, communities in all aspects of life in the West Bank.

For some data which had no consort, like people to people (settlers' population), or land to land, the proportion was calculated as a proportion of the total in all governorates. The number of livestock is an example.

$$\text{Proportion of Livestock} = \frac{\text{Number of livestocks in governorate}}{\text{Total number of livestocks in the West Bank}}$$

Livestock is the sum of sheep, cows and goats.

The proportion of the agriculture holdings is calculated in function to the total number of the agriculture holdings in the West Bank. The same thing is true in the case of the employees. The proportion of the employees is calculated in function to the total number of employees. This approach was used because the number of people that had the ability to work was not available. Also, the proportion in function to the population would be very small, so it could be negligible.

Based on the aforementioned methods of proportion, the components of all sectors were quantified as follows:

Political sector:

1-   Area C

$$Proportion\ of\ Area\ C = \frac{Area\ C\ in\ governorate}{Governorate\ area}$$

2-   Residents behind the Wall

Proportion of residents behind the Wall
$$= \frac{Number\ of\ residents\ behind\ the\ Wall}{Population\ of\ governorate}$$

3-   Settlers

$$Proportion\ of\ settlers = \frac{Number\ of\ settlers}{Palestinian\ population\ of\ the\ governorate}$$

4-   Number of settlements

Proportion of number of settlements
$$= \frac{number\ of\ settlements}{number\ of\ localities\ of\ the\ governorate}$$

5-   Settlements area

$$Proportion\ area\ of\ settlements\ of = \frac{Area\ of\ settlements}{Governorate\ area}$$

6-   Establishments closed because of the Wall

Proportion of establishments closed
$$= \frac{Number\ of\ establishments\ closed}{Total\ number\ of\ establishments\ in\ governorate}$$

7-   Land confiscated for the Wall

$$Land\ area\ confiscated\ for\ the\ Wall = \frac{Area\ confiscated\ for\ the\ Wall\ in\ governorate}{Governorate\ area}$$

Economic sector:

1- Number of agricultural holdings

$$\text{Proportion of agricultural holdings}$$
$$= \frac{Number\ of\ agricultural\ holdings\ in\ governorate}{Total\ number\ of\ agricultural\ holdings\ in\ the\ West\ Bank}$$

Note: Total number of agricultural holdings in the West Bank was 85,885.

2- Cultivated land area

$$\text{Cultivated land area} = \frac{Cultivated\ land\ area\ in\ governorate}{Governorate\ area}$$

3- Number of employees

$$\text{Proportion of employees}$$
$$= \frac{Number\ of\ employees\ in\ governorate}{Total\ number\ of\ employees\ in\ the\ West\ Bank}$$

Note: Total number of employees in the West Bank was 262,825

4- Number of establishments

An establishment is an enterprise or part of an enterprise in which one group of goods and services is produced (with the possibility of having secondary activities).

$$\text{Proportion of establishments}$$
$$= \frac{Number\ of\ establisments\ in\ the\ governorate}{Total\ number\ of\ establishments\ in\ the\ West\ Bank}$$

Note: Total number of establishments in the West Bank was 91,203.

5-   Water pumped for agricultural use

Proportion of water pumped for agricultural use

$$= \frac{\text{Water pumped for agriculture use in governorate}}{Sum\ of\ \text{water pumped for agricultural use in the West Bank}}$$

6-   Gross Added Value (GAV)

Gross Value Added (GVA) is a productivity metric that measures the difference between output and intermediate consumption. Gross value added provides a dollar value for the amount of goods and services that have been produced, less than the cost of all inputs and raw materials that are directly attributable to that production (PCBS).

Proportion of GAV

$$= \frac{\text{Establishments for every governorate}}{\text{Total number establishments for all governorates}}$$

$\times$ Total GAD for all governorates

7-   Livestock of cows, sheep and goats

$$Proportion\ of\ livestock = \frac{Number\ of\ livestock\ in\ governorate}{Total\ number\ of\ livestocks\ in\ the\ West\ Bank}$$

8-   Household expenditures

Proportion of household expenditures

$$= \frac{\text{Household expenditures in governorate}}{\text{Sum of household expenditures in the West Bank}}$$

Social sector:

1- Unemployment

$$\text{Proportion of unemployed} = \frac{\text{Number of unemployed the governorate}}{\text{Sum of unemployed in the West Bank}}$$

2- Traffic road accidents

$$\text{Proportion of traffic road accidents} = \frac{\text{Number of traffic accidents in governorate}}{\text{Sum of traffic accidents in the West Bank}}$$

Note: Total number of traffic accidents in the West Bank was 8,037

3- Poverty

Poverty is given as a ratio from PCBS *Yearbook 2013*.

4- Disabilities and difficulties

$$\text{Proportion of disabilities and difficulties} = \frac{\text{Disabilities and difficulties in governorate}}{\text{Population of governorate}}$$

5- Deaths

$$\text{Proportion of deaths} = \frac{\text{Number of deaths in governorate}}{\text{Sum of the deaths in the West Bank}}$$

Note: Total number of deaths in the West Bank was 3,356**.**

Death proportion is calculated as a median data for the years 2010, 2011, and 2012

6- Divorce cases

$$\text{Proportion of divorces} = \frac{\text{Number of divorces in governorate}}{\text{Number of marriages in governorate}}$$

The number of divorces is calculated as a median for the years 2010, 2011, and 2012.

7- Criminal offences

$$\text{Proportion of criminal offences} = \frac{\text{Number of criminal offences in governorate}}{\text{Sum of criminal offences in the West Bank}}$$

Note: Total number of criminal offences in the West Bank was 16,402.

Infrastructure Sector:

1- Sewage network

$$\text{Proportion of sewage network} = \frac{\text{Number of communities which had sewage network}}{\text{Number of communities in governorate}}$$

2- Water network

$$\text{Proportion of water network} = \frac{\text{Number of communities which had water network services}}{\text{Number of communities in governorate}}$$

3- Waste collection

$$\text{Proportion of waste collection} = \frac{\text{Number of localities which had waste collection services}}{\text{Number of communities in governorate}}$$

4- Electricity network

$$\text{Proportion of electricity network} = \frac{\text{Number of localities which had electricity network}}{\text{Number of communities in the governorate}}$$

5- Paved road area

$$\text{Proportion of paved roads} = \frac{\text{Area of paved roads in governorate}}{\text{Area of governorate}}$$

$$\text{Paved roads area} = \frac{\text{Median width of roads (Regional + Main + Local)} \times \text{length of roads network}}{\text{Governorate area}}$$

Median roads width = 6 m

Education Sector:

1- Class Density

$$\text{Proportion of class density} = \frac{\text{Average number of students in class in governorate}}{\text{General rate of students in the class in the West Bank}}$$

2- Research projects

Conducted studies are theses and dissertations which need 10 years of studying at higher education institutions after school

$$\text{Proportion of conducted studies} = \frac{\text{Number of conducted studies} \times 10 \text{ in governorate}}{\text{Population of governorate}}$$

3- Ph.D.

$$\text{Proportion of Phds} = \frac{\text{Number of PhDs} \times 10 \text{(time of studying after school)} \text{ in governorate}}{\text{Governorate population}}$$

4- M.A./M.Sc.

$$\text{Proportion of M. A. s} = \frac{\text{Number of M. As} \times 7 \text{(time of studying after school) in governorate}}{\text{Governorate population}}$$

5-   B.A. / B.SC.

$$\text{Proportion of B. A.} B.SC. = \frac{Number\ of\ \text{B. A.} \times 4(\text{time of studying after school}) in\ \text{governorate}}{Governorate\ \text{population}}$$

6-   Number of students

$$\text{Proportion of students} = \frac{\text{Number of students in governorate}}{\text{Governorate population}}$$

Cultural sector:

1-   Number of cultural institutions

$$\text{Proportion of cultural institutions} = \frac{\text{Number of cultural institutions} \times 550(\text{default number capacity}) \text{ in governorate}}{\text{Governorate population}}$$

Note: Weight of cultural institutions take into account that every one accommodates $500 \div 600$ guests (Cultural institution: per 550 capita)

2-   Number of mosques

$$\text{Proportion of mosques} = \frac{Number\ of\ \text{mosques} \times 500(\text{ default number }) in\ \text{governorate}}{Governorate\ \text{population}}$$

Note: Weight of mosques is considered the average regarding their capacity of worshippers 500 (500 capita per mosque).

3-   Number of home libraries

$$\text{Proportion of home libraries} = \frac{Number\ of\ \text{home libraries } in\ governorate}{\text{Number of households in governorate}}$$

Telecommunications and Transportation Sectors:

1- Road network area

$$\text{Proportion of paved road area} = \frac{\text{Paved road area in governorate}}{\text{Area of governorate}}$$

Types of roads : (Local, Regional and Main)

Median roads = 6 m

$$\text{Paved road area} = \frac{\text{Median width of roads} \times \text{Length of roads network}}{\text{Governorate area}}$$

2- Internet availability

The proportion of internet availability is given as a ratio from the PCBS *Yearbook 2012*.

3- Mail services centers

$$\text{Proportion of mail services centers} = \frac{\text{Number of mail services centers in the governorate}}{\text{Number of localities}}$$

4- Vehicles

$$\text{Proportion of vehicles} = \frac{\text{Number of vehicles in governorate}}{\text{Total number of vehicles in the West Bank}}$$

5- Mobile phone availability

The proportion of mobile phone availability is given as a ratio from the PCBS *Year Book 2012*.

6- Telephone line numbers

The proportion of telephone line availability is given as a ratio from the PCBS *Yearbook 2012*.

7- Computer

The proportion of computers is given as a ratio from PCBS *Yearbook 2012*.

Health Sector:

1- Number of hospitals

Hospitals, according to the classification of the Ministry of Health, are four classes because they offer all types of health services .

The proportion of number of hospitals is calculated as class hospital per 1,000 capita of the population

$$\text{Proportion of health centers} = \frac{\text{Number of hospitals} \times 4 \times 1,000}{\text{Poulation of govrnorate}}$$

2- Health centers

The proportion of health centers is calculated as one center per 1,000 capita

$$\text{Proportion of health centers} = \frac{\text{Number of health centers} \times 1,000}{\text{Poulation of govrnorate}}$$

3- Health insurance

$$\text{Health insurance} = \frac{\text{Number of health} - \text{insured families}}{\text{population}}$$

Note: Every health insurance policy is used for one family.

4- Housing density

Housing density is given as a ratio from PCBS

The same procedures were followed in quantifying the sectors' components at the localities' levels in Tulkarm Governorate:

Political Sector:

1- Land area isolated behind the Wall

$$\text{Proportion of land isolated behind the Wall} = \frac{\text{Area of lands isolated behind the Wall.}}{\text{Total area of locality land}}$$

2- People isolated behind the Wall

$$\text{Proportion of people isolated} = \frac{\text{People isolated behind the Wall in locality.}}{\text{Population of locality}}$$

3- Access time that the people behind the Wall are free to move through the Wall.

$$\text{Proportion of time access} = \frac{\text{Hours that isolated people have permission to pass weekly}}{\text{Number of hours per week (168 h)}}$$

4- Demolition orders

$$\text{Proportion of demolition orders} = \frac{\text{Number of demolition orders in locality}}{\text{Total number of demolition orders in governorate}}$$

5-   Land area confiscated for political reasons (Separation Wall construction)

$$\text{Proportion of land confiscated for the Wall} = \frac{\text{Area confiscated for the Wall in locality}.}{\text{Area of land in locality}}$$

6-   Area C

$$\text{Proportion of Area C} = \frac{\text{Area C in locality}}{\text{Locality area}}$$

7-   Establishments closed because of the Wall

$$\text{Proportion of closed establishments} = \frac{\text{Number of establishments closed in locality}}{\text{Total number of establishments in locality}}$$

Economic sector

1-   Cultivated land area

$$\text{Proportion of cultivated land area} = \frac{\text{Cultivated land area in community}.}{\text{Community area}}$$

2-   Agricultural holdings

$$\text{Agricultural holdings} = \frac{\text{Number of agricultural holdings in locality}}{\text{Total number of agricultural holdings in governorate}}$$

3-   Proportion of olive oil presses

$$= 0.05 \times Number\ of\ \text{olive presses}$$

Note: Olive oil contributes 0.05 to the whole economic situation in Palestine (PCBS).

4- Employees

$$\text{Proportion of employees} = \frac{\text{Number of employees in locality}}{\text{Population of locality}}$$

5- Number of establishments

Proportion of establishments

$$= \frac{\text{Number of establishments in locality}}{\text{Total number of establishments in governorate}}$$

6- Buildings

$$\text{Proportion of buildings} = \frac{\text{Number of buildings in locality}}{\text{Total number of buildings in governorate}}$$

7- Raised Poultry

Proportion of raised poultry

Proportion of raised poultry

$$= \frac{\text{Number of raised poultry in locality}}{\text{Total number of raised poultry in governorate}}$$

Education Sector:

1- Students

$$\text{Proportion of students} = \frac{\text{Number of students in locality}}{\text{Population of the governorate}}$$

2- B.A./B.SC. degree holders (B.A./B.SC.)

Proportion of degree holders

$$= \frac{\text{Number of bachelor degree holders} \times 4 \text{ in locality}}{\text{Population of governorate}}$$

Note: Weight of B.A./B.SC. degree holders is calculated as the number of B.A./B.SC (years of studying for graduation after school)

3- M.A./M.SC. degree holders

Proportion of master s degree holders

$$= \frac{\text{Number of master s degree holders} \times 7 \text{ in locality}}{\text{Population of governorate}}$$

Note: Weight of master's degree holders is calculated as the number of M.A./M.SC. holders Years of studying for graduation after school).

4- Ph.D. holders

$$\text{Proportion of Ph.D.} = \frac{\text{Number of Ph.d. holders} \times 10 \text{ in locality}}{\text{Total number of Ph.d. holders in governorate}}$$

Note: The weight of Ph.D. is calculated as the number of Ph.D. holders *10 (Years of studying for graduation after school).

5- Teachers (employees) per student

$$\text{Proportion of teachers per Student} = \frac{\text{Number of teachers in locality}}{\text{Number of students in locality}}$$

6- Class density

$$\text{Proportion of density} = \frac{\text{Number of classes in locality}}{\text{Number of students in locality}}$$

Note: The per capita share of classes is inverse the concept of class density.

Health Sector:

1- Health insurance

Note: Health insurance was calculated according to the number of householders that had health insurance per household in the locality.

Proportion of health insurance
$$= \frac{\text{Number of families that have health insurance}}{\text{Number of health insurance in locality}}$$

2- Outpatient Clinics

The clinics were calculated on the basis of number of clinics per 1,000 capita in the community.

3- Dental clinics

Note: A dental clinic is considered a health center if it offers medical services to every 1,000 capita. Therefore, the proportion was calculated as follows:

$$\text{Proportion of dental clinics} = \frac{\text{Number of dental clinics} \times 1,000}{\text{Population of locality}}$$

4- Health centers

Note: A health center is classified as an official health center with degrees of 1, 2, and 3, depending on the service type provided to patients. Therefore, the ratio is calculated as follows:

$$\text{Proportion of health centers} = \frac{\text{Number of centers} * 1,000 \text{ capita}}{\text{Population of locality}}$$

5- Pharmacies

Pharmacies are calculated as one pharmacy per 1,000 capita

$$\text{Pharmacy ratio} = \frac{\text{number of pharmacy} \times 1000}{\text{Population of locality}}$$

6- Hospitals

Note: Hospitals are calculated as one hospital per 1,000 capita

$$\text{Hospital ratio} = \frac{\text{Number of hospitals} \times 1,000}{\text{Population of locality}}$$

Infrastructure:

1- Water network

Public utilities network includes electricity, water, sewage, solid waste collection. The number of households which had public utility services was calculated as follows:

$$\text{Proportion of water networks} = \frac{\text{Public water network availability}}{\text{Number of households in locality}}$$

2- Sewage network

$$\text{Proportion of sewage networks} = \frac{\text{Public sewage network availability}}{\text{Number of households in locality}}$$

3- Electricity network

$$\text{Proportion of electricity networks} = \frac{\text{Public electricity network availability}}{\text{Number of households in locality}}$$

4- Area of paved roads

$$\text{Proportion of area of paved roads} = \frac{\text{Area of paved roads in locality}}{\text{Area of locality land}}$$

Social Sector:

1- Divorce cases

$$\text{Proportion of divorces } = \frac{\text{Number of divorce cases in locality}}{\text{Number of marriages in locality}}$$

2- Household size more than eight capita (PCBS)

$$\text{Households sizes } = \frac{\text{Number of households}(+8)\text{ in locality}}{\text{Total number of households in locality}}$$

3- Disabilities and difficulties

$$\text{Proportion of disabilities and difficulties}$$
$$= \frac{\text{Number of difficulties and disabilities in locality}}{\text{Population of locality}}$$

4- Illiterates

$$\text{Proportion of illiterates } = \frac{\text{Number of illiterates in locality}}{\text{Population of locality}}$$

5- Deaths

$$\text{Proportion of deaths } = \frac{\text{Number of deaths per year in locality}}{\text{Number of births per year in locality}}$$

Transportation and Telecommunication Sectors:

1- Private cars

$$\text{Proportion of private cars } = \frac{\text{Number of private cars in locality}}{\text{Total number of private cars in governorate}}$$

2- ADS lines (Internet)

The proportion was calculated on the basis of number of household that had ADS lines.

$$\text{Proportion of ADS Lines} \ = \ \frac{\overset{65}{\text{Number of ADS Lines in community}}}{\text{Number of households in locality}}$$

3- Telephones (Fixed Lines)

$$\text{Proportion phone lines} \ = \ \frac{\text{Number of household users of telephone}}{\text{Number of households in locality}}$$

4- Road networks (area)

$$\text{Area of roads} \ = \ \frac{\text{Length of roads} \ * \ 6 \ (\text{median of roads width})}{\text{Area of locality land}}$$

All interpreted and calculated data, as mentioned before, are shown in tables. The processed data enable GIS to deal with logical ratios and make the comparison and analysis possible. Thus, the collected data have become as proportional values (results of data or processed data).

Data for all components and sectors are presented and visualized in the Appendix1.

3.3.3 GIS Data Preparation and Manipulation

In GIS analysis, the data were transferred into raster data in order to get the feature map classified in nine ranks. These ranks, light to dark, are according to the level of service for a specific component in a given sector. This feature map was reclassified in 5 ranks. In all output sector maps, the components are in a descending order from light to dark. The dark represents the worst spatial value.
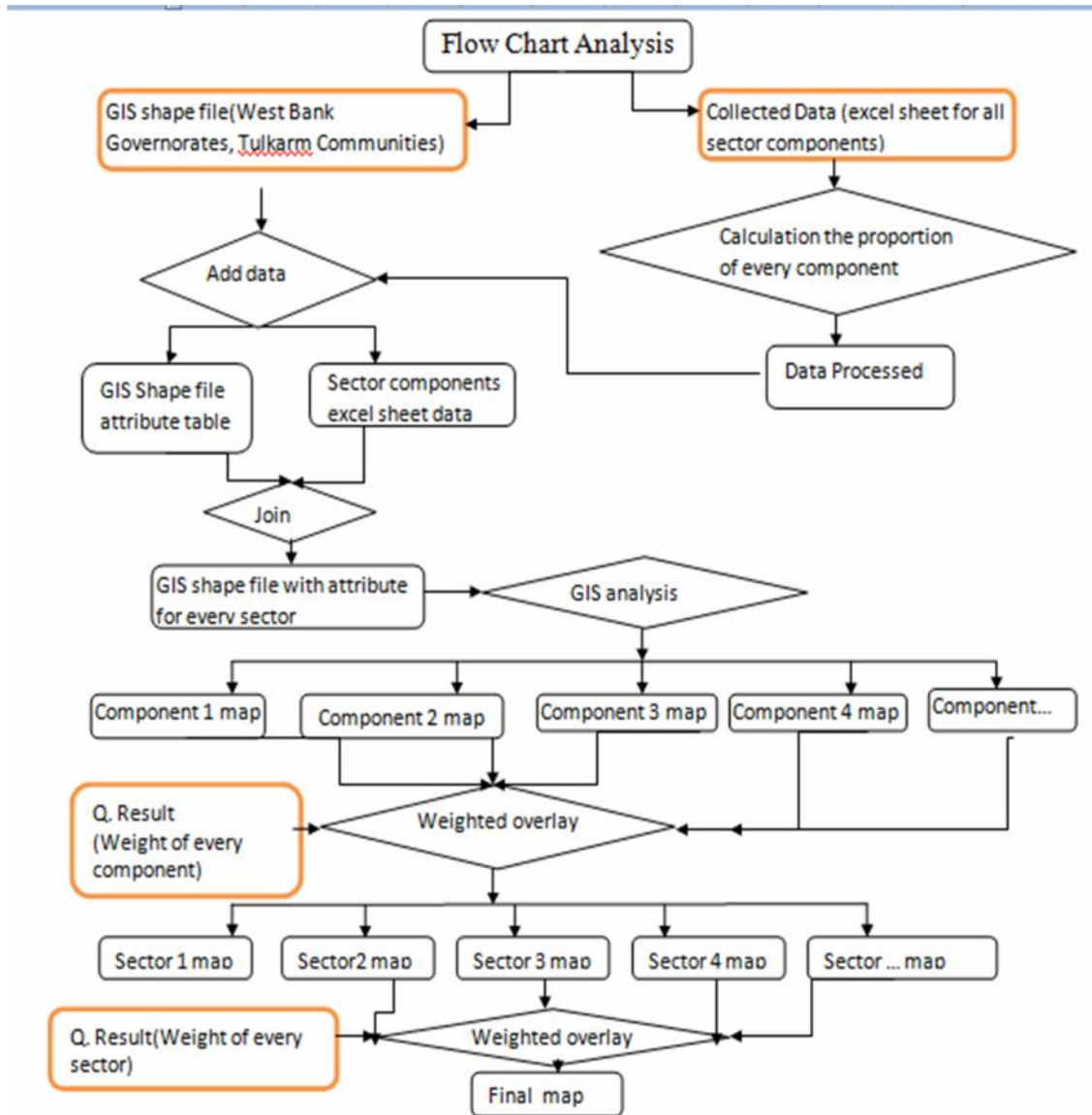
Figure 3.5: Flow Chart Analysis

Data preparation and GIS analysis fall into three phases as illustrated in the methodology scheme above:

1-   Pre-GIS data preparation

The data collected from many sources were filled in excel sheet. Every sector's components had1 the order of the GIS attributes object: governorate or community. To that end, a common field ID was made

between the excel data and the GIS attributes. For instance, the ID number for Bethlehem was 1 in both excel data and in the shape file of GIS map of the West Bank governorate. This common ID number was applied to all sector components at both levels: governorates and communities.

## 2-	Data inserted in GIS map

The excel data for every component were transferred as a proportion, as mentioned before, and were organized as a table ordered with an ID and a governorate name.

Every GIS layer was named as a component field. For example, the political sector of the West Bank to which the Excel processed data was added appeared on the list of GIS layers.

## 3-	Joint data

To combine the data with the GIS attributes table, we used the joint order of the table of contents to relate the excel data to GIS layer attribute table of the West Bank governorates or Tulkarm communities.

The data was then transferred as a data raster through environment orders (the cell size) to enable the GIS software to quantify the data into spatial value with the gradient colors. The difference was represented in ranks, and polygon colored gradients, dark to light, as a higher and maximum value.

Spatial analysis of every component means that the component has one map through which the differences between governorates or communities would be depicted as the value for every polygon.

This map takes the order number of polygons (11 governorates of the West Bank). It appears as a feature map. In order to capture the sense of the best off and worst off places, the feature map was reclassified in a five-rank map. Thus, all components of the sector had maps matching the number of components. Reclassifying them in five ranks enabled the common range value to have the same colors and a descending order from the best places with light colors to the worst places with dark colors.

The Excel processed data, as a model of calculation (discussed before), are in ratios. The data were added to the respective layers of the West Bank governorates in GIS software. The common order was taken into consideration between the layer attributes of the West Bank governorates and Excel data. The data of all components for each sector were analyzed, quantified and visualized. All maps are in chapter four and in Appendix 2.

As we discussed earlier, there were no references to the weight of components on the related sector. For instance, how much can the cultivated land area affect the economic sector or how much can Area C can affect the political sector? Priorities and conditions of social life differ from one country to another. The results of the study questionnaire were necessary to delimit the ratio effect of all components on the related sector.

3.3.4 Weighing System:

The major challenge in this study was how to quantify the weight effect of every component on its sector and on the overall evaluation of the spatial inequality. This challenge was due to the fact that the conditions and priorities of life are different from one person to another. For instance, education and health are two major concerns for some people. In Palestine, the political situation (occupation) plays a major role in people's lives and has a heavy toll on all aspects of life. Therefore, priorities automatically are to resist and minimize the negative effects of this sector on governorates or communities.

As a result, I developed two questionnaires, one for the West Bank governorates and another for Tulkarem communities. These questionnaires were administered to measure the weight of each component and its related sector as well as the weight effect of every sector on the whole situation of life (final map). One example of the political sector and its components, as shown in the questionnaire, is in Appendix 3:

The political sector was divided into seven components. In your opinion, what is the ratio effect of each of these items on the political sector?

Table 3.1: Effect of components   on the political sector

Item	Component	%
1	Area of land confiscated for the Wall	Ratio effect
2	Area of settlements	
3	Number of Settlers	
4	Area C	
5	Number of people isolated behind the Wall	
6	Establishments closed because of the Wall Number of stores and economic	
7	Number of settlements	
Sum total		**100%**

The sample of 50 experts who participated in the study were carefully selected from several ministries and institutions. Of these, four were lecturers in urban and regional planning at An-Najah National University. (See Table 9, Appendix3)

The same steps were followed for Tulkarm governorate case study. However, the components of the sectors were different in some cases due to data limitation. Therefore, another questionnaire with some modifications was developed and administered to experts from Tulkarm. For more detailed data, see Appendix 2.

In order to identify the socially worst off (deprived) places (governorates, and communities) in the West Bank or Tulkarem, in all aspect of life, we took into consideration the effect of every sector (political, economic, education, health, social, infrastructure and telecommunication & transportation) on the social life. Using the weighted overlay order, another GIS analysis was made. The researcher sought to find out to what extent every sector affected social life. It was found that

there was no standard reference available to tell us how much the economic sector (for example) could affect social life. Another part of the questionnaire was administered to find out the weight of each sector and the following question was asked to the experts:

The following sectors represent all aspects of social life. In your opinion, what is the ratio effect of each of these items out of100% on spatial inequality between all governorates in the West Bank?

Table 3.2: Evaluation of the ratio effect of sectors on the final map

Item	Sector	%
1	Political	Ratio effect
2	Economic	
3	Education	
4	Health	
5	Social	
6	Infrastructure	
7	Telecommunication & transportation	
Sum total		**100%**

Using the maps of all sectors and the results of the questionnaire, the researcher drew one map. That is, he treated the sectors as indicators to perform one map through the weighted overlay order. The ratio effect of every sector was done through the questionnaire.

The final map of the West Bank and the Tulkarem communities, as a case study, is shown in chapter four.

In the final step, in order to make one map for every sector, the researcher used the results of the questionnaire as a ratio effect of every

component on the related sector. This effect was visualized in maps: Area C, areas of settlements, number of settlers, people isolated behind the Wall, land area confiscated by the Wall map. Through the combination between the sectors' maps, taking into consideration the effect weight of every sector, the final map was drawn and the final conclusion was made.

Chapter Four

Results

4.1   Introduction:

This chapter introduces the results of the collected data and their analysis. The results are summarized in tables and maps (for every component). Also, taking into consideration the findings of the questionnaire, the sector weight results from the combination between the components maps and their weight effect. There is a comment on the final map for every sector, highlighting the best and worst places (governorates, communities). There is also explanation of the reason, through observations of the components maps, in terms of which component had effect on the sector map.

Also, the chapter has a figure on variation based on the processed data. This figure enables us to take a general outlook at all component bars and the bar which had variation (between the lowest and the highest vertices) to find out the components that had affected the most spatial inequality of each sector. This has been done at the national and local levels. The chapter concludes with a discussion of the final map for all sectors together and an explanation of the sectors   which had affected spatial inequality in the final map more than others. This comment is done for both levels (national and local).

4.2 Results at National Level (West Bank governorates):

The results are presented as processed data while the maps for all components (indicators) and the sector map, are combined (weighted overlay) from the indicators maps with the results of the questionnaire.

4.2.1 Results of the Political Sector

The components' weights obtained from the questionnaire are illustrated in Figure 4.1 below. As the figure shows, Area C had a high effect (21%) on the political sector followed by the area of settlements (19%), and the least effect was that of the residents behind the Wall (8%).
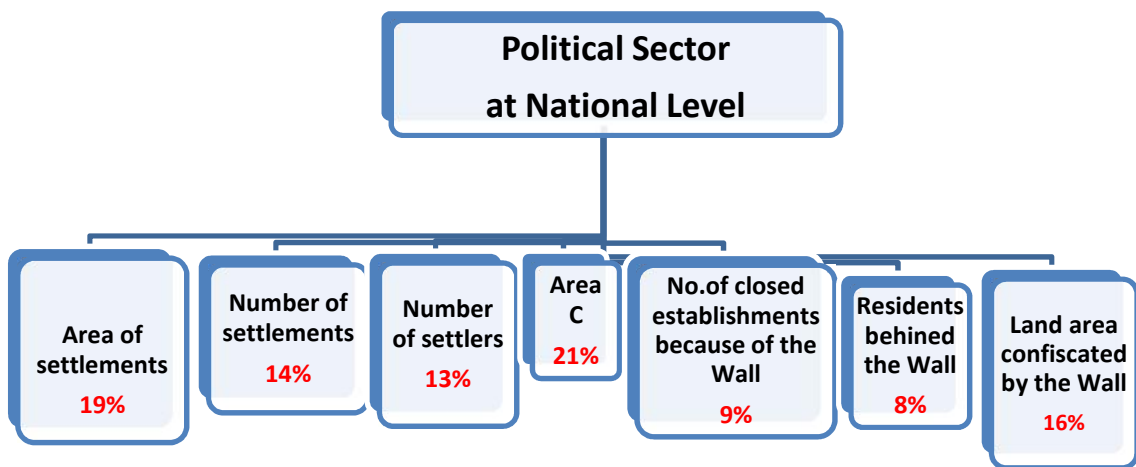
Figure 4.1: Political components and their ratio effect on the political sector map

The results of this analysis are presented in seven maps, the same number of components of the political sector. The sector map is composed of the components map, taking into account the weight effect of each, thus building the sector map.

As the results show, the best and the worst governorates were selected on the basis of the highest and lowest values in the processed data table. Each table contains processed data of components related to the sector. These processed data for every component are represented as a map. This map is called component map. The lowest, moderate and highest values are classified under the clustering and disparities concept. All values for one component are closed together and they took the same class. These values have the same color in the map, which means they have the same feature. For instance, Jerusalem and Jericho have the same dark color in Area C map .That means both of them are affected in the same degree and are located in class 5. The darkness represents the worst area while the lightness represents the best area. This classification coincides with the values in the processed data. However, it is worth mentioning that the highest values are considered the worst values in the political sector, while they are the lowest values in the economic sector. In all the tables the best values are colored blue while the worst values are colored red. Sometimes the abnormal value is classified alone under the concept of disparity.

Table 4.1: Results of Political Components at Governorate Level

ID	Governorate	Area C	Residents behind the Wall	Number of settlers No.	Number of Settlements	Area of settlements	Area of the Wall	Closed establishments
1	Bethlehem	0.067	0.001	0.342	0.289	0.019	0.006	0.041
2	Hebron	0.459	0.000	0.028	0.207	0.010	0.000	0.001
3	Jenin	0.327	0.003	0.008	0.063	0.008	0.099	0.025
4	Jericho	0.881	0.000	0.116	1.133	0.029	0.000	0.000
5	Jerusalem	0.894	0.000	0.699	0.591	0.101	0.023	0.106
6	Nablus	0.413	0.000	0.040	0.172	0.016	0.000	0.000
7	Qalqilya	0.697	0.042	0.333	0.206	0.049	0.301	0.184
8	Ramallah	0.631	0.000	0.337	0.320	0.031	0.000	0.003
9	Salfit	0.729	0.000	0.544	0.600	0.068	0.030	0.060
10	Tubas	0.796	0.000	0.026	0.333	0.014	0.000	0.000
11	Tulkarem	0.396	0.002	0.016	0.086	0.008	0.162	0.157

Component Maps of Political Sector at Governorate Level
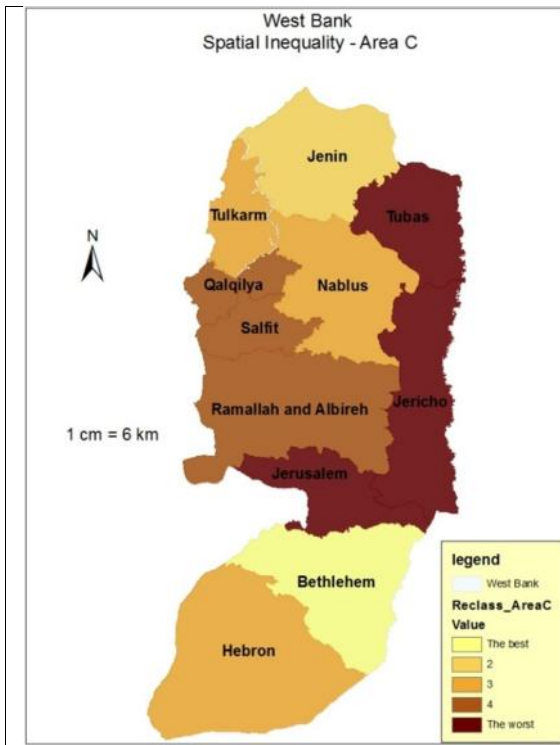
Figure 4.2: Area C
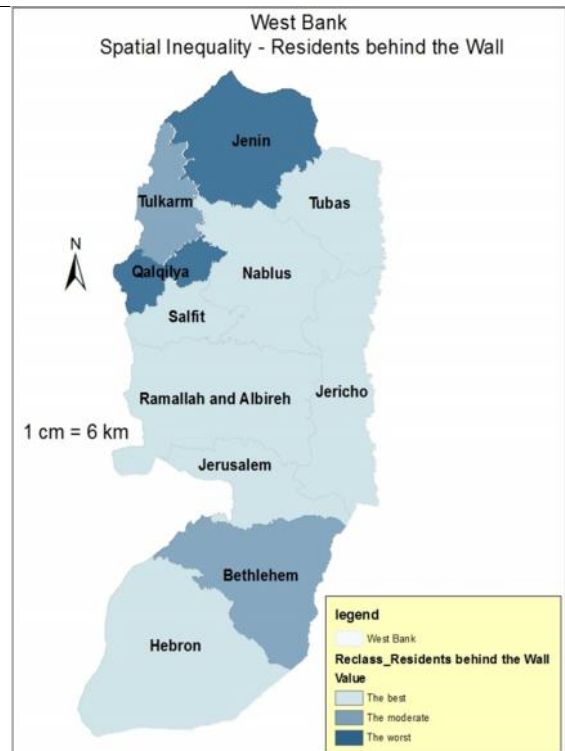
Figure 4.3: Residents behind the Wall
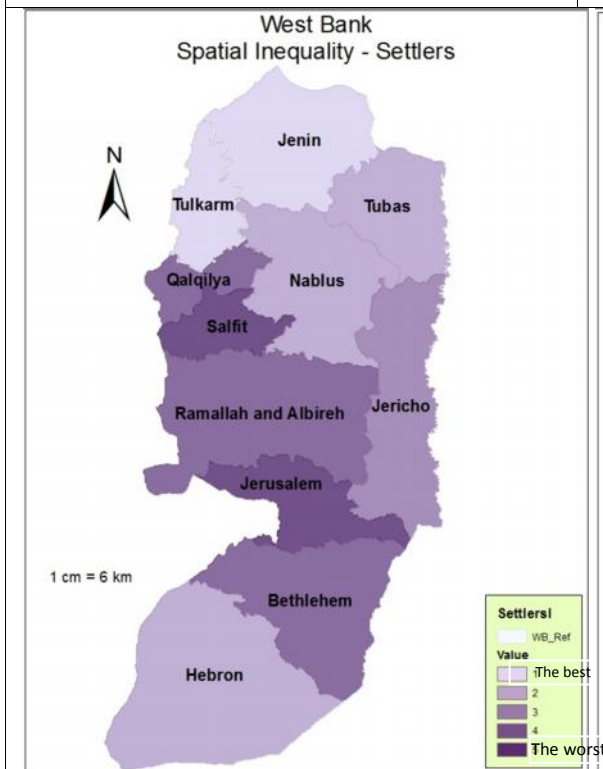
Figure 4.4: Number of settlers
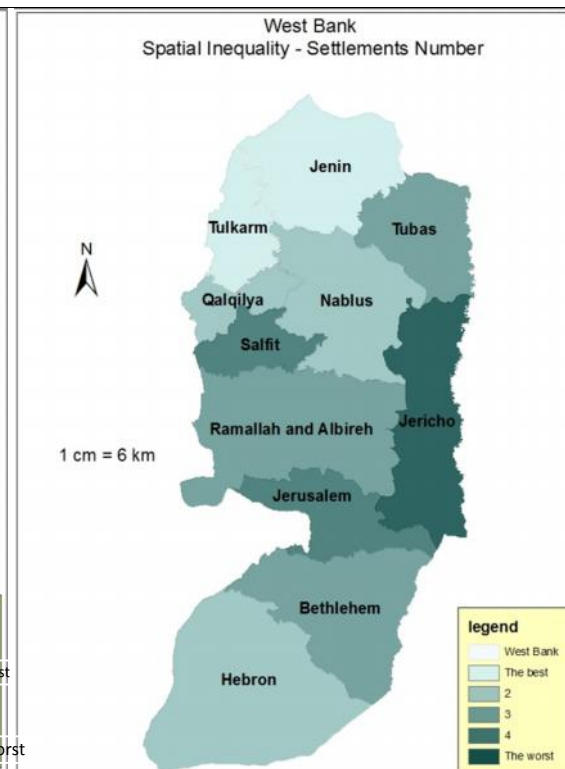
Figure 4.5: Number of settlements
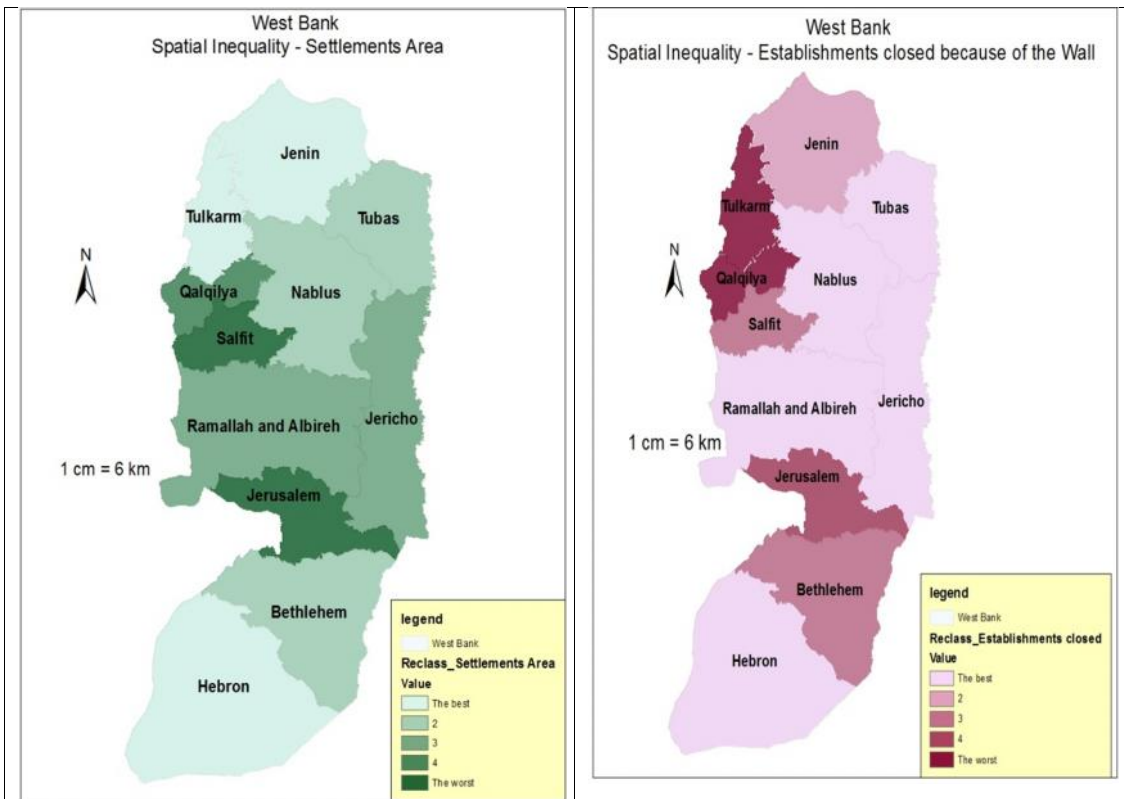
Figure 4.6: Settlements area

Figure 4.7: Establishments closed because of the Wall
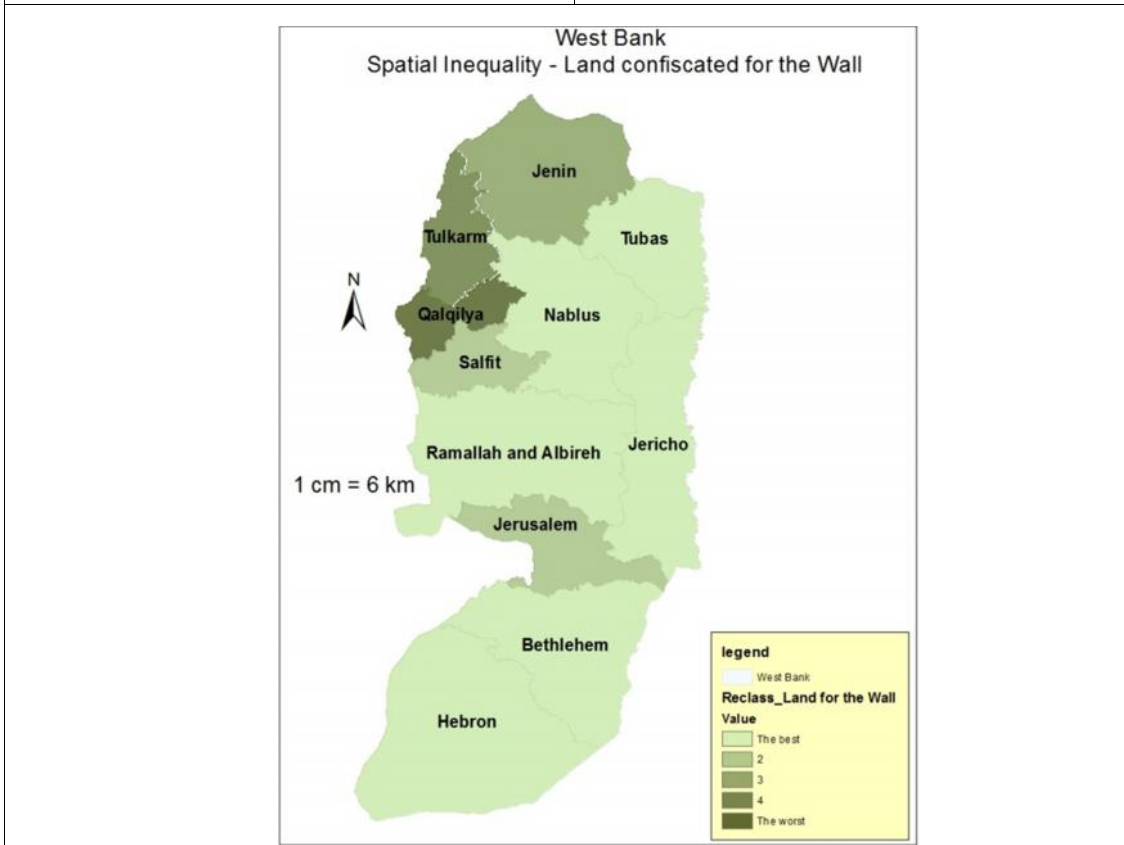
Figure 4.8: Land area confiscated for the Wall map

To build the final map of the political sector, there was a need to know the weight of every component. This is showed in Figure 4.1. The results show that t Area C had 21% effect on the political sector; the effect on the residences isolated behind the Wall was 8%.
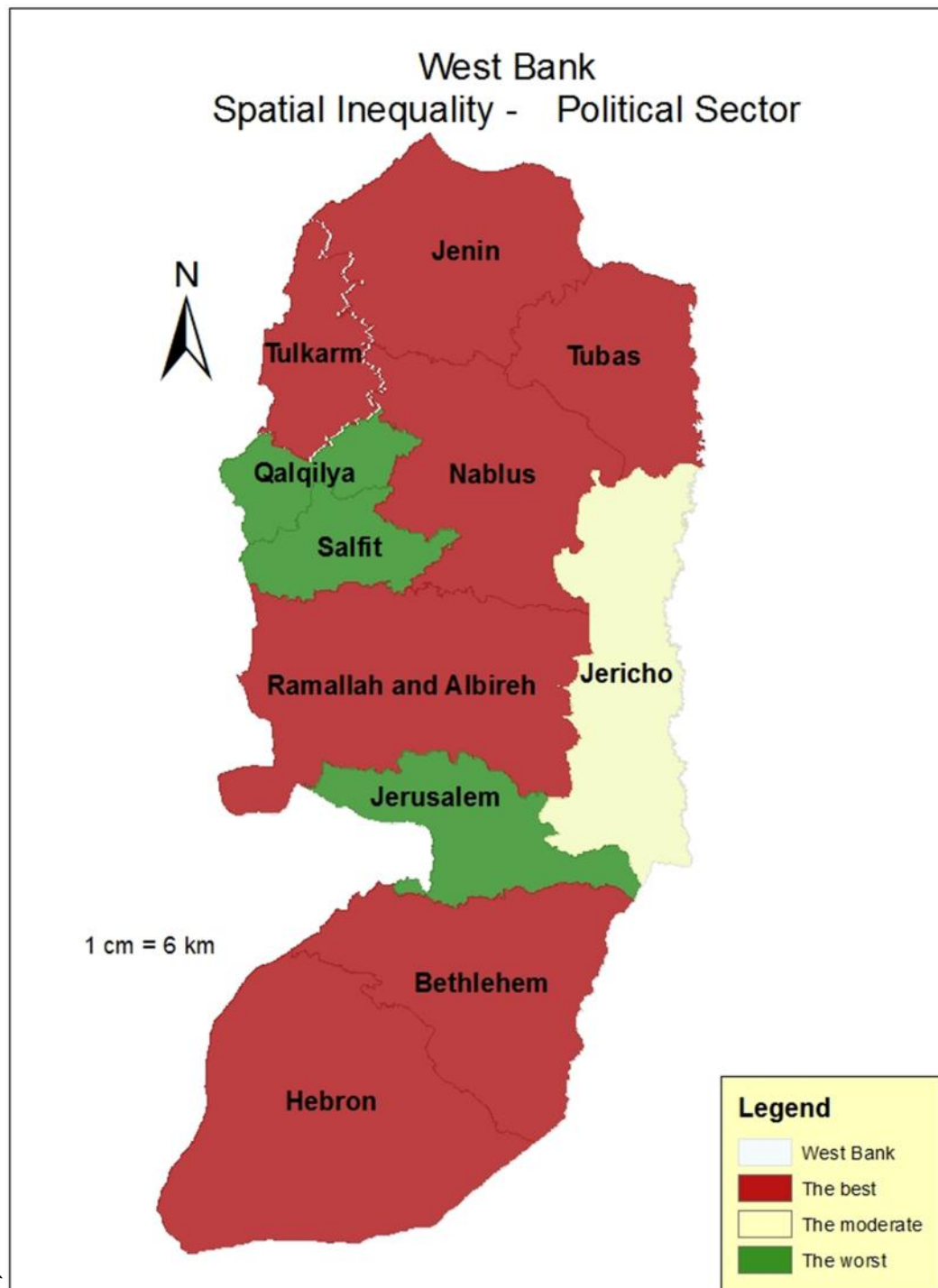
Figure 4.9: Political Sector Map

As the final map of the political sector shows, the worst off governorates were Jerusalem, Qalqilya and Salfit. This result can be explained through the study of components map. Jerusalem was the worst place because its Area C amounted to 89.4% and number and area of settlements and number of settlers were substantially high. Qalqilya was among the worst off due to the size of land confiscated for the Wall, area of settlements, number of establishments closed because of the Wall and number of residents behind the Wall. Salfit toowas among the worst off governorate because its Area C was 73% and because of the number of settlements and number of settlers. On the other hand, the highest component's effect on the sector map was Area C (21%) and settlements area (19%). All these governorates suffer from the negative effect of the Wall (area confiscated for the Wall, and number of establishments closed because of the Wall).

Figure 4.10 shows three observations about the variation of the components; the first observation indicates a clear variation of low and high values. For example, the highest values mean the worst and the lowest values mean the best. The second observation is about the lowest and the highest proportion values for every component. For example, Bethlehem had the lowest proportion of Area C while Jerusalem and Jericho had the highest. The third observation is the accumulation of high values of the components. This indicates the best and the worst governorates. However, there are exceptions such as the absence of negative effects of some components. This made the high bar of the accumulative components not

the worst. This is clear in this figure. Although Jericho had a higher column than Salfit and Qalqilya, it didn not suffer from the Wall (area confiscated for the Wall, people isolated behind the Wall and closed establishments because of the Wall).

As the figure shows, one can conclude that the best governorate was Nablus because it did not suffer from the effect of the Wall. The accumulative column was one of the shortest.
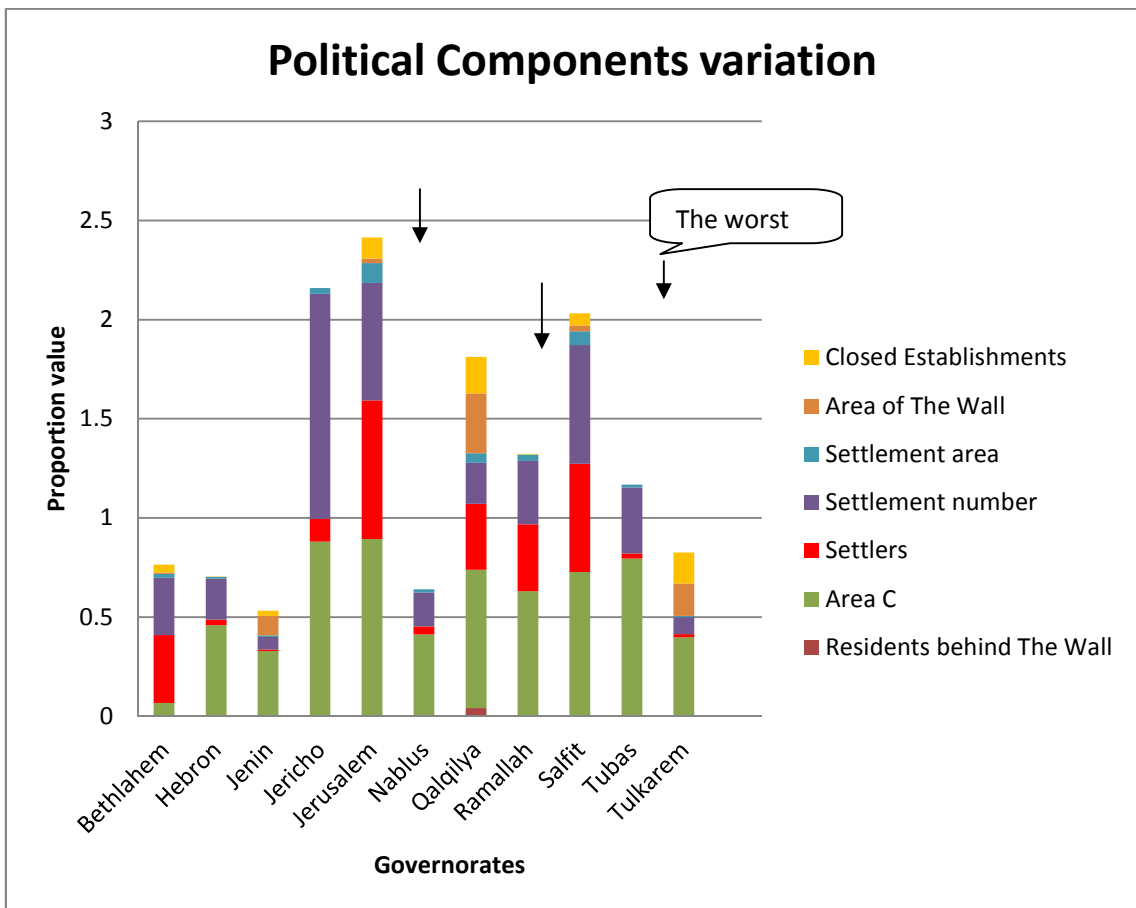
Figure 4.10: Variation among political components

Table 4.1 reveals that Jerusalem was the most affected governorate by Area C 89% followed by Salfit (74%). The map of settlements' area shows that the most affected governorates were Jerusalem (10.07%) and

Salfit (6.82%) . The map of residents behind the Wall shows that the most affected governorate by the Wall was Qalqilya (4.2%) . Highest proportion of its land area was confiscated for the Wall construction. The map of settlers also shows that Jerusalem was the most affected governorate (70%), followed by Salfit (54.38%) (dark color). The map of closed establishments shows that the most affected governorate was Qalqilya (18.4%). The map of number of settlements shows Salfit as the second place among the worst off governorates. The number of Jewish settlements represented 60% of the total number of the governorate's communities. The map of land, confiscated for the Wall, shows that the most affected governorate was Qalqilya (30%.)

Jericho was the moderate governorate because Area C formed 88% of its total area, and the number of settlements was more than the number of the governorate communities (100.7%) . Jericho was not affected by the Wall (It had no people isolated behind the Wall, area confiscated for the Wall and establishments closed).

The rest of the governorates were less affected than the aforementioned governorates.

4.2.2 Results of the Economic Sector

The component's weights obtained from the study results are illustrated in Figure 4.10 below. It is obvious from the figure that the cultivated land area and water pumped for agricultural use had a high impact on the economic sector (17%), and the least effect was that of livestock (8%).
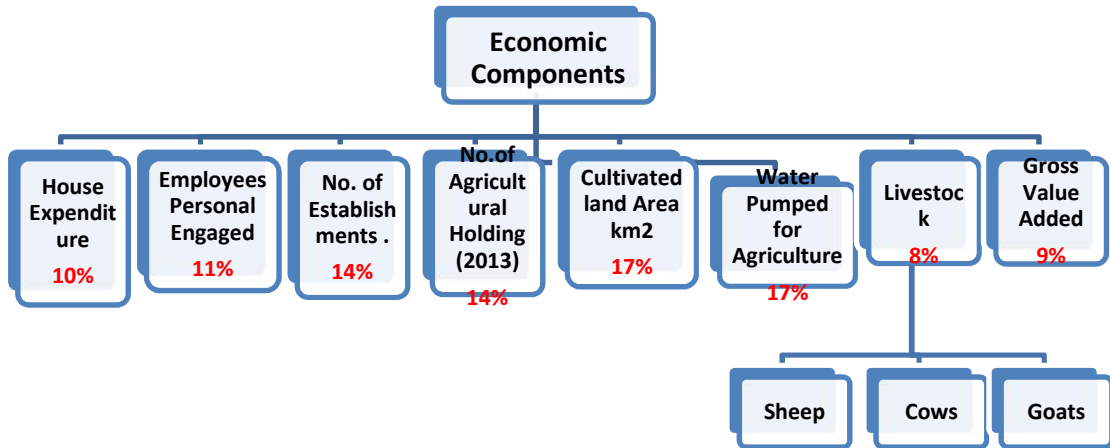
Figure 4.11: Economic Components and Their Ratio Effect on Political Sector

The economic sector has eight components. Each component affects the sector map with a weight (Figure 4.10). These components were weighted overlay, through GIS, to build the sector map.

Table 4.2: Results of Economic Components at Governorate Level

ID	Governorate	Agricultural Holdings	House Expenditure	Water Pumped for Agriculture use	GAV for Services Activities	Employee Proportion	Cultivated Land Area	Average Livestock	Establishments
1	Bethlehem	0.078	0.076	0.000	0.076	0.087	0.051	0.061	0.035
2	Hebron	0.219	0.078	0.000	0.213	0.191	0.158	0.251	0.029
3	Jenin	0.155	0.074	0.009	0.121	0.094	0.318	0.115	0.038
4	Jericho	0.018	0.065	0.118	0.014	0.016	0.057	0.066	0.026
5	Jerusalem	0.032	0.141	0.000	0.103	0.119	0.038	0.059	0.024
6	Nablus	0.150	0.104	0.025	0.161	0.161	0.204	0.119	0.041
7	Qalqilya	0.052	0.095	0.096	0.043	0.034	0.333	0.026	0.038
8	Ramallah	0.121	0.106	0.000	0.138	0.206	0.101	0.057	0.039
9	Salfit	0.052	0.095	0.000	0.025	0.021	0.227	0.015	0.035
10	Tubas	0.032	0.085	0.033	0.034	0.006	0.153	0.067	0.052
11	Tulkarem	0.089	0.084	0.162	0.072	0.059	0.348	0.027	0.038

The final map of the economic sector is constructed from the maps of the components. These maps are represented in Appendix 2 because it is unnecessary to repeat the same process in visualizing the maps of the components.

Economic Sector Map:
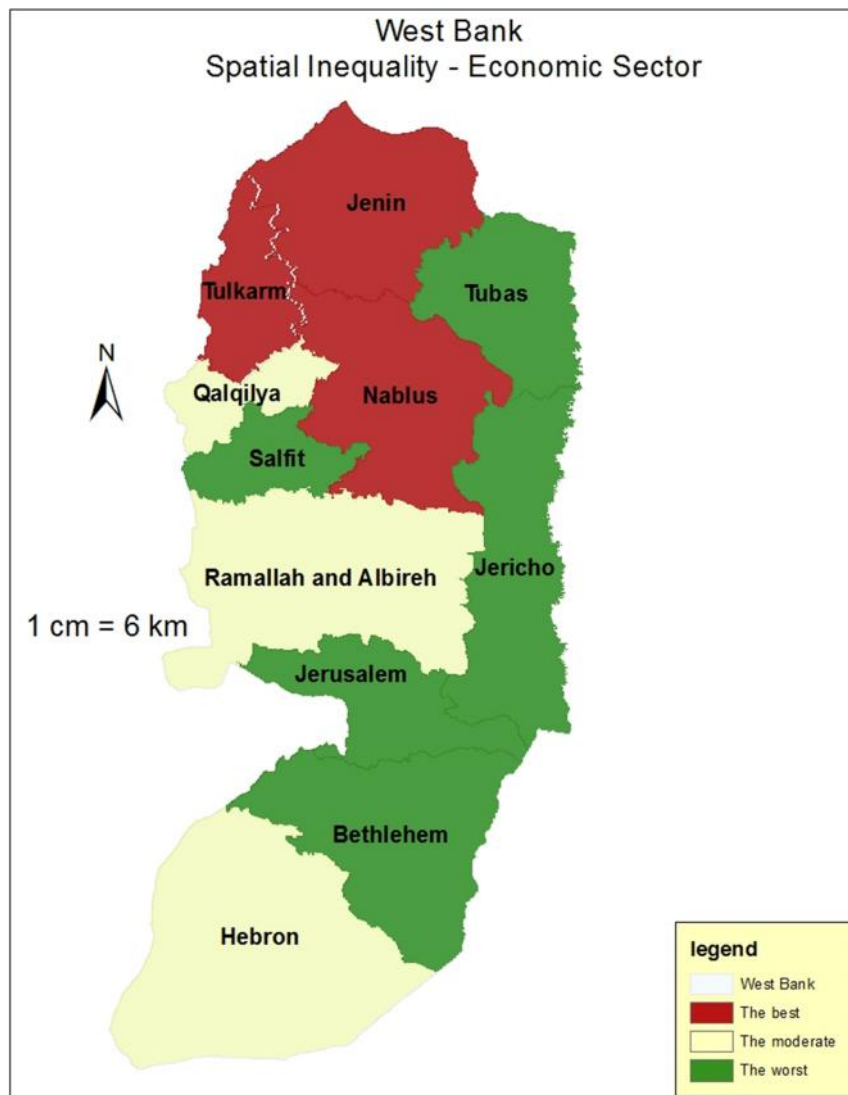
Figure 4.12: Economic Sector Map

This map of the economic sector has resulted from the weighted overlay (ArcGIS tools) of all economic components maps. In order to draw the sector map, it was taken into consideration the weight effect of every

component (see Figure 4.10). After data analysis, it was found that both components of water pumped for agriculture use and cultivated land area had a significant effect (17%) on the sector map. The livestock had the lowest effect (8%). According to the final map, Jericho, Tubas, Salfit, Jerusalem and Bethlehem were the worst off governorates. However, the figure and table of results reveal that the Jericho was the worst off of all because it had the lowest ratios of agricultural holdings (0.179), house expenditure (0.0646), lowest establishments (0.026) and the lowest value of Gross Added Value. Furthermore, Jericho came in the second place; it had the lowest proportion of cultivated land area and   proportion of employees (0.0156). This result could be attributed somehow to the political situation. Eighty eight percent of Jericho is in Area C and the settlements outnumber governorate's communities. Despite the plenty of water for agriculture use in this governorate, Jericho ranked last in the economic sector.

The best governorates were Nablus, Jenin and Tulkarem. This result, however, might be far from reality because most of components have agriculture aspects while many other components have a big effect on the economic situation. The data, however, is not available. For example, the Gross Domestic Product was lacking . This factor explains why Hebron and Ramallah lagged behind the best governorates. Salfit, Ramallah, Jerusalem, Bethlehem and Hebron were the worst off as they had the lowest proportion (0.00) of water pumped for agriculture use. The best governorates with the highest proportion of cultivated land area were Tulkarm (0.3476), Jenin (0.3325), and Qalqilya (0.3180).

Figure 4.13, on the economic variation, shows that the big variation was prominent in the cultivated land area, the water pumped for agriculture use, the employees and in the Gross Added Value (ADV). These values have affected significantly the unevenness between governorates in the economic sector. On the other hand, the low variation in the establishments or house expenses made the effect of those components insignificant on the economic spatial inequality. The overall outlook at each column shows that the highest values were Nablus, Jenin and Tulkarm. Although Hebron had the highest accumulative components values, it did not have water for agriculture use. On the other hand, Jericho had the lowest accumulative values, the lowest of agriculture holdings, the lowest of GAV and was one of the lowest of employees.
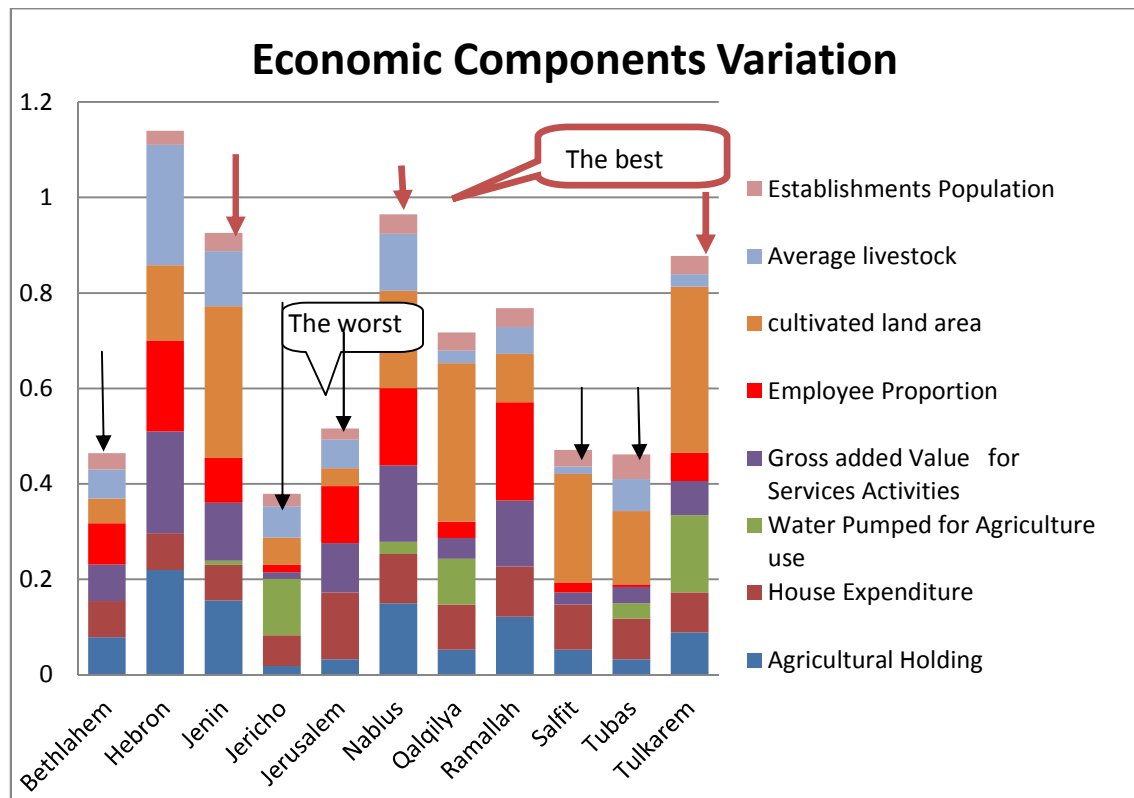
Figure 4.13: Economic Components Variation

4.2.3 Results of Social Sector

The components weights obtained from data analysis are illustrated in figure 4.14 below. As the figure shows, unemployment had a high effect on the social sector (27%) followed by poverty (21%), and the least effect was that of disabilities/difficulties and road traffic accidents (9%).
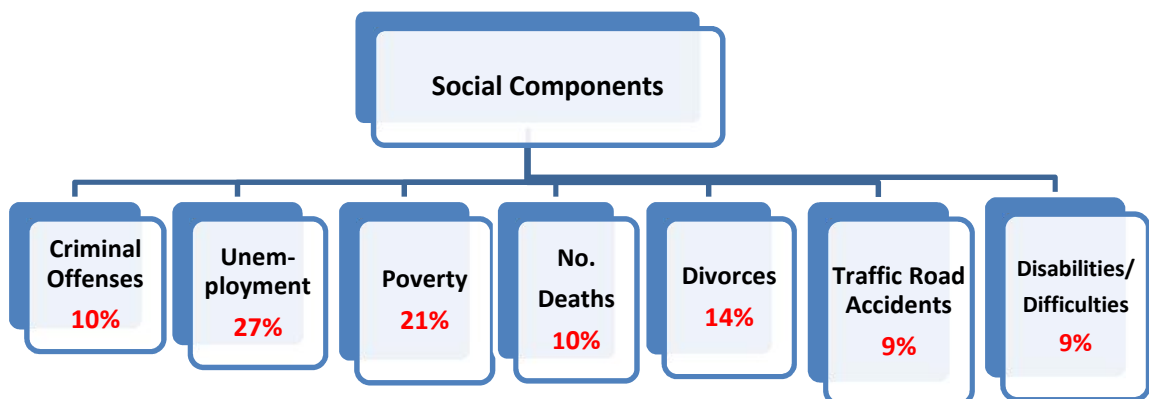
Figure 4.14: Social Components and Their Ratio Effect on Social Sector

The final map, the overall sector map, is composed of seven component maps which represent the social sector. The sector map was performed through the weighted overlay of GIS analysis, taking into consideration the effect of the weight of each component.

Table 4.3: Results of Social Components at Governorate Level

ID	Governorate	Disabilities / Difficulties	Divorces Marriages	Criminal offenses	Deaths	Traffic Road Accidents	Poverty	Unemployment
1	Bethlehem	0.043	0.134	0.067	0.085	0.103	0.213	0.192
2	Hebron	0.037	0.110	0.175	0.214	0.148	0.325	0.21
3	Jenin	0.050	0.149	0.125	0.142	0.106	0.248	0.19
4	Jericho	0.038	0.284	0.039	0.025	0.029	0.264	0.133
5	Jerusalem	0.014	0.231	0.051	0.043	0.039	0.080	0.131
6	Nablus	0.048	0.192	0.155	0.176	0.214	0.113	0.156
7	Qalqilya	0.056	0.183	0.085	0.046	0.031	0.084	0.164
8	Ramallah	0.036	0.206	0.147	0.125	0.233	0.117	0.164
9	Salfit	0.058	0.134	0.049	0.033	0.023	0.084	0.189
10	Tubas	0.039	0.124	0.058	0.023	0.019	0.199	0.20
11	Tulkarem	0.060	0.197	0.072	0.096	0.054	0.109	0.205

The lowest values were the best and blue colored, while the highest values were the worst and red colored .

Note: Component maps of the social sector are in Appendix 2

Data analysis revealed that the unemployment proportion affected social life (27%), followed by the poverty proportion (21%). These results coincided with the high crime rate in Hebron (0.175). The governorate had the highest proportion of poverty and unemployment. Also the proportion value itself played a big role in forming the final map of the social sector. Table 4.3 shows that poverty and unemployment had bigger values than the proportion values of the deaths, disabilities/difficulties, traffic road accidents, and crimes.

Social Sector Map:
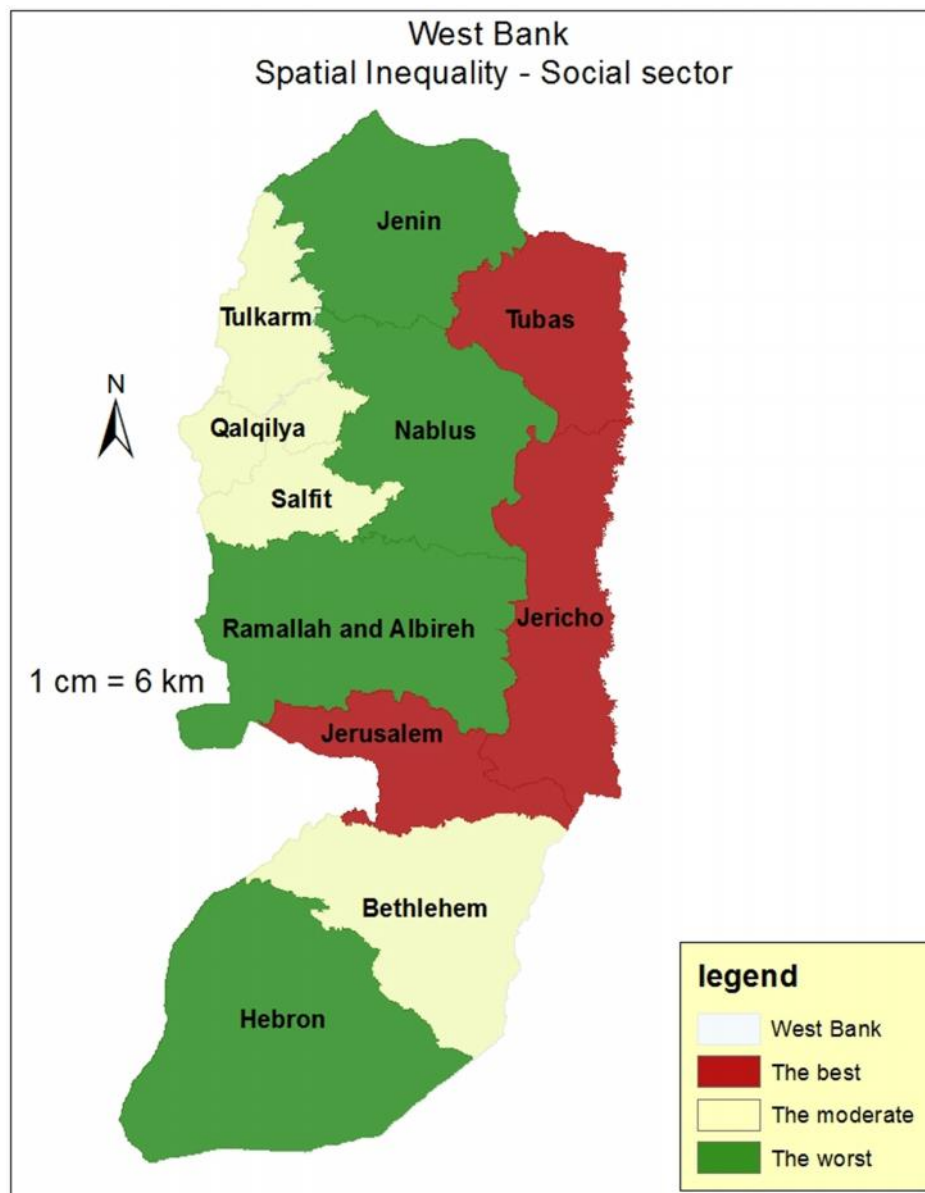
Figure 4.15: Social Sector Map for the West Bank Governorates

The worst places affected by the social sector were Hebron, Tulkarm
and Jenin governorates. This could be attributed to the highest proportion
of unemployment in Hebron (21%), Tulkarm (20.5%) and Jenin (19%).
The map of deaths shows that the worst governorates were Hebron
(0.2137). The map of poverty shows that the worst governorates were

Hebron (0.325), Jericho (0.264) and Jenin (0.248). The worst governorates had the highest proportion of poverty. The map of disabilities & difficulties reveals that the worst off governorate was Tulkarem (0.060). The crime rate map reveals that the worst governorates was Hebron (0.175). The best governorates in the social sector were Jerusalem and Jericho, due to the lowest proportions of unemployment (13.1%) and (13.3%) respectively Jerusalem had the lowest proportion of poverty while Jericho had the lowest proportion of crimes.

The unemployment component had the highest effect on the social sector. However, there were no significant differences between the governorates, It played lowest role in the spatial inequality in the final map.
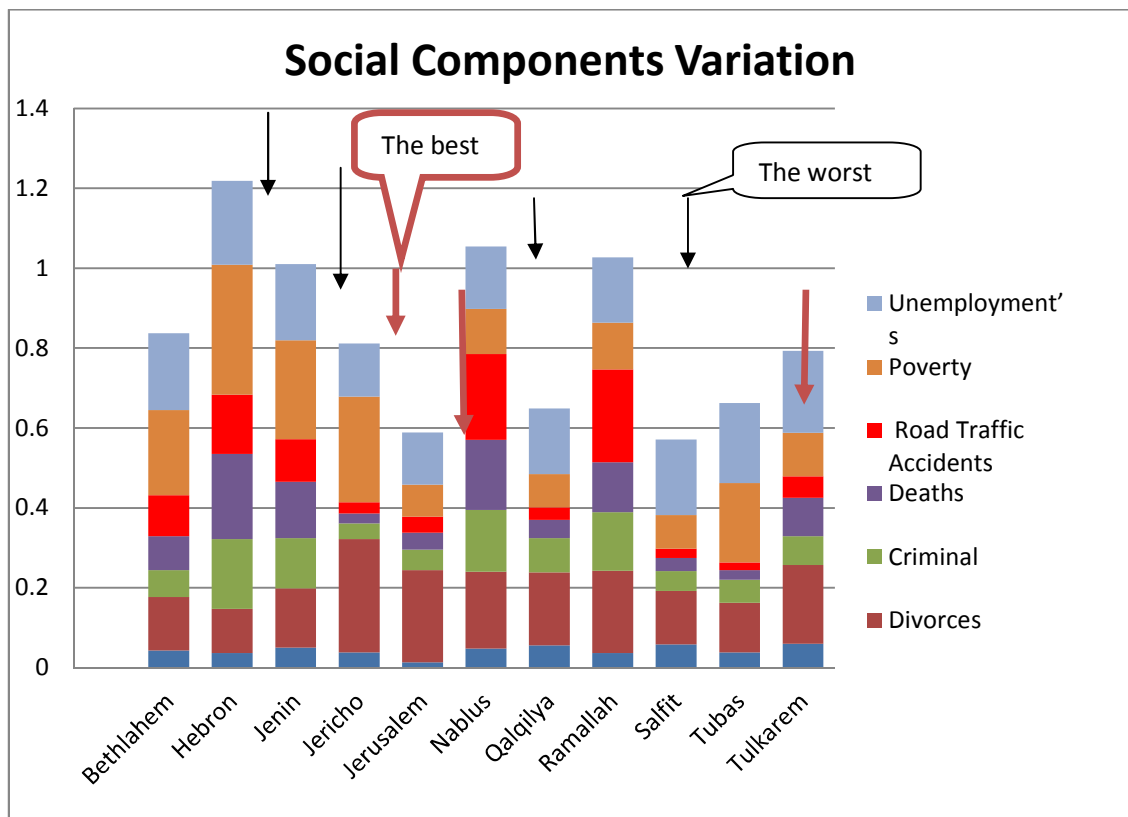
Figure 4.16: Social Components Variation

Figure 4.3 shows that there was a big gap in deaths, traffic road accidents and poverty between the lowest and the highest values. This means it had a high effect on drawing spatial inequality. If we looked at the diagram, we would find that disabilities and difficulties, crimes and divorces had low variation between governorates. This shows that these components had less effect on spatial inequality.

4.2.4 Results of Infrastructure Sector:

The components weights obtained from data analysis are illustrated in Figure 4.29 below. As the figure shows, the availability of water network had a high effect on the infrastructure sector (23%), followed by sewage and electricity (20%). The least effect came from solid waste collection (18%).
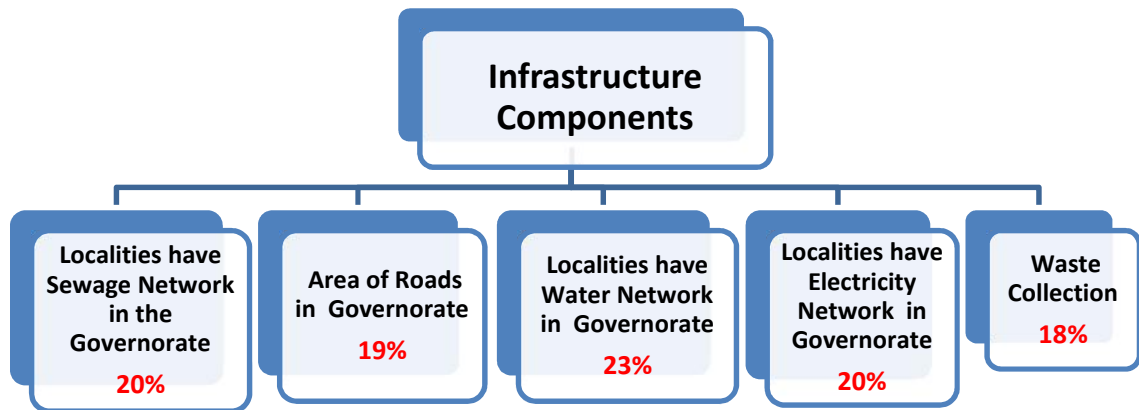
Figure 4.17: Infrastructure Components and Their Ratio Effect on Infrastructure Sector

The results of this analysis are five maps, representing the number of components of the infrastructure sector. The sector map is composed, through the weighted overlay, of the map components, taking into account the weight of each, thus allowing the building of the map.

Table 4.4: Results of Infrastructure Components at Governorate Level

ID	Governorate	Water Network proportion	Waste collection	Sewage Network proportion	Electricity Network proportion	Area of Paved Roads-proportion
1	Bethlehem	**0.000**	0.111	**0.800**	0.044	0.045
2	Hebron	**0.413**	**0.359**	0.935	0.119	0.046
3	Jenin	0.275	0.113	**0.963**	0.013	0.042
4	Jericho	0.133	0.200	0.933	0.067	0.037
5	Jerusalem	0.023	0.068	**0.523**	0.023	0.058
6	Nablus	0.281	0.047	**0.797**	**0.000**	0.042
7	Qalqilya	0.088	0.088	0.824	0.059	0.058
8	Ramallah	**0.013**	**0.027**	0.880	0.013	**0.060**
9	Salfit	0.050	0.100	0.950	0.050	**0.068**
10	Tubas	**0.524**	**0.429**	**1.000**	**0.286**	**0.019**
11	Tulkarem	0.057	0.086	**0.800**	**0.000**	0.052

The water network proportion represents the ratio of negative value, which means an unavailable value of water network. For example, 0.5238 of Tubas communities means they did not have water networks. In other words, the higher value was the worst. The same applies to the unavailability of waste, sewage and electricity networks. For instance, Tubas and Hebron were the worst governorates in the field of waste collection component due to the highest proportions (0.428 and 0.358) respectively. In the case of areas of paved roads, the highest value was the best value. As the table show, Ramallah and Salfit were the best areas owing to their highest values.

Infrastructure Sector Map:

Figure 4.16 shows that the water network component had the highest effect, and affected the infrastructure sector (23%), but in general the effects of all components were close to each other.
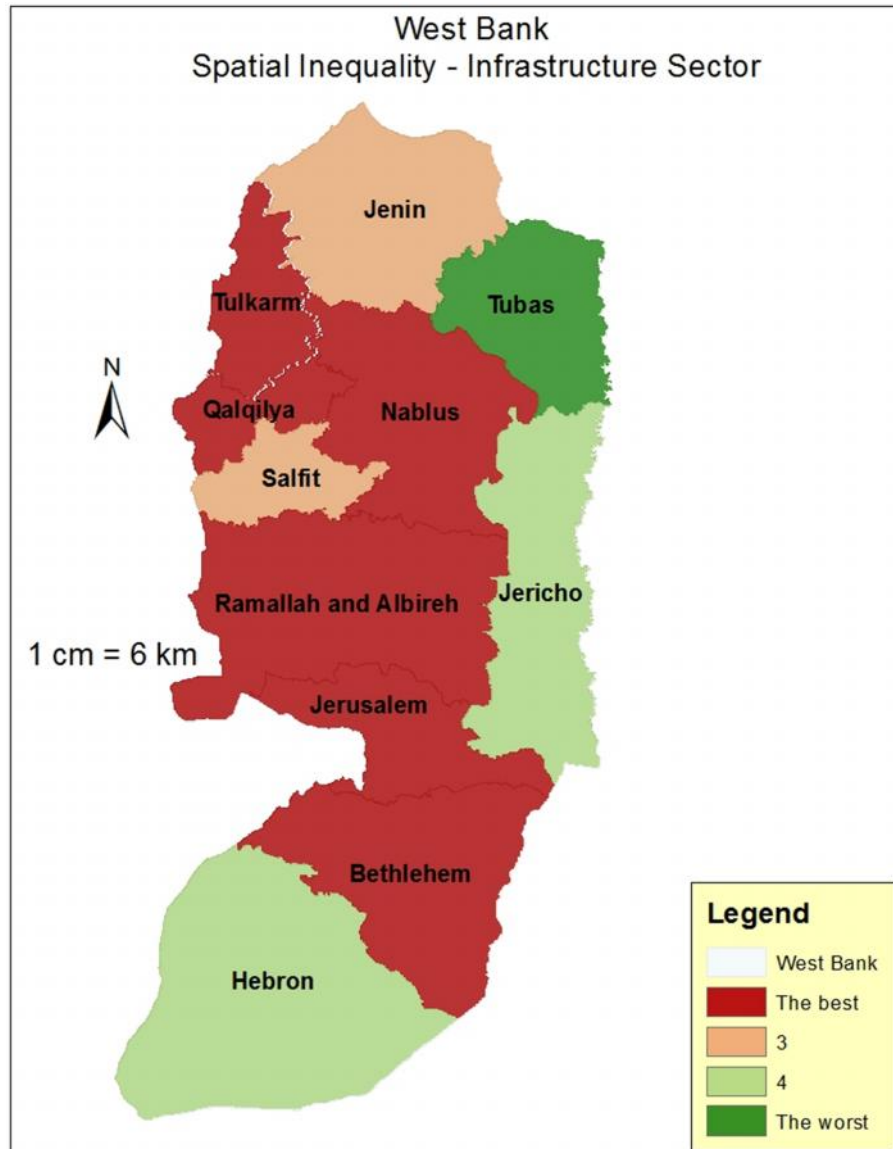
Figure 4.18: Infrastructure Sector Map for the West Bank Governorates

The maps of the components revealed big differences between the governorates. This is crystal clear in the electricity network and sewage network maps. Tubas had a darker color than the other governorates. Table

4.4 and Figure 4.19 show a big imbalance in the proportions of electricity. Most governorates had the same ratio (low/ unavailable), save Tubas. This means that the electricity component was significant in forming spatial inequality. The bar of sewage network revealed that the variation of sewage network, limited to high percentage outside Jerusalem, was much more than the paved roads, water network and solid waste collection. As the data show, the values were close to each other and thus there was no significant effect on spatial inequality.
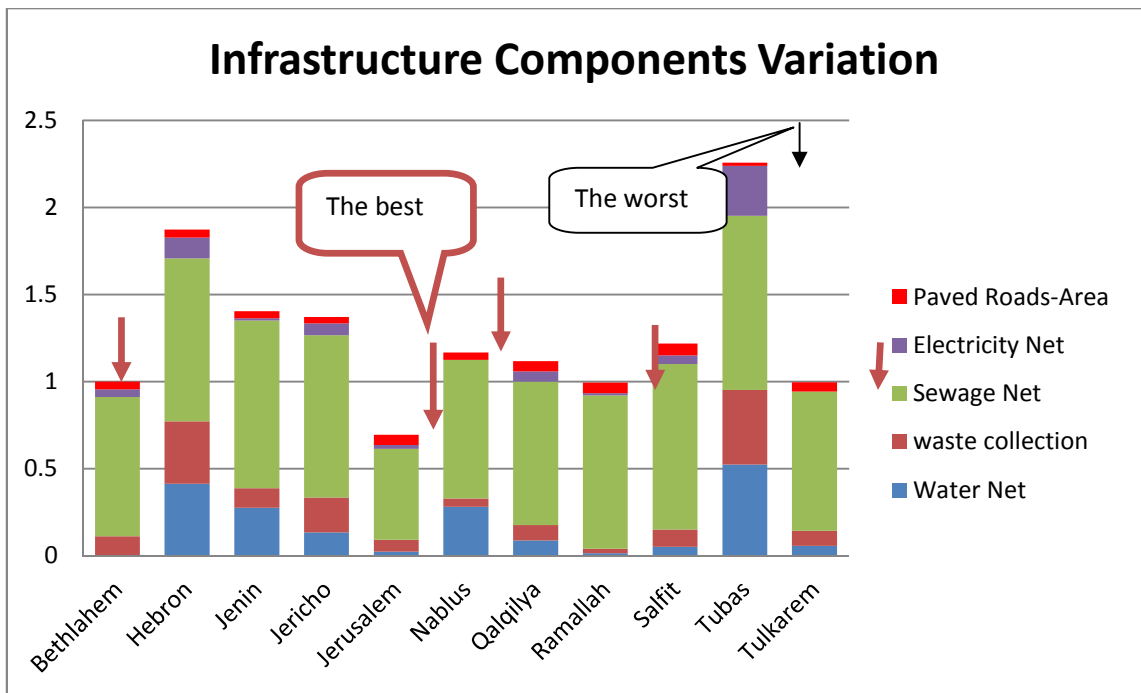
Figure 4.19 : Infrastructure Components Variation

Figure 4.4 shows the components which affected the disparities between the governorates, more than others; they were electricity networks, solid waste collection and water networks. These components played a bigger role, in spatial inequality, than the sewages networks and paved road networks.

From another perspective, the results of data analysis revealed that the water network had the most important effect on the infrastructure sector (23%). None of localities in Tubas had sewage networks (100%). Tubas governorate suffered from the absence of other infrastructure services. For example, 52.4% of localities did not have water networks, 42.8% of them did have not have an authority to collect solid waste and 28.6% did not have electricity networks. These proportions represent the highest values of unavailability of the main infrastructure services.

The map also shows that the best served governorates that had the lowest proportion of unavailability of infrastructure services. These governorates were Tulkarm, Nablus, Ramallah, Jerusalem and Bethlehem.

4.2.5 Results of the Education Sector

Figure 4.16 below shows the components of the education sector as well as the effect of weight of each one on the final map of the sector. The proportion of bachelor's degree had a high effect on the education sector (21%). The school students had a 20% effect while the master's degree holders had the least effect (13%).
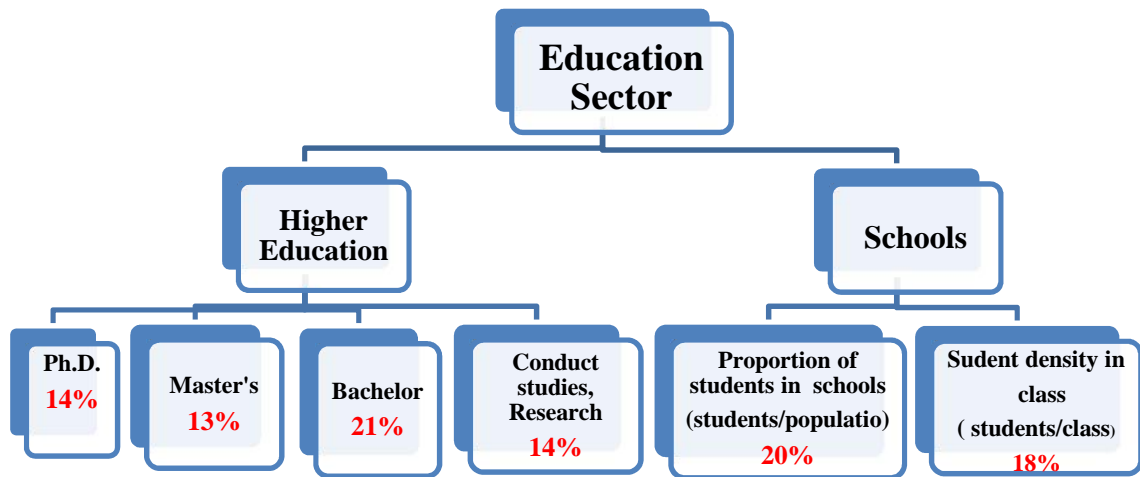
Figure (4.20): Education Components and Their Ratio Effect on Education Sector

The data analysis shows that there were six component maps based on which the sector map was drawn. The figure illustrates the effect of weight of every component on the sector map. Based on the effect of weight and through the weighted overlay (GIS), the sector map was built.

Table 4.5: Results of Education Components at Governorate Level

ID	Governorate	M.A./ M.SC.	Ph.D.	Conduct Studies	Class density	BA/B.SC.	Students
1	Bethlahem	0.029	**0.013**	0.024	0.848	0.161	0.254
2	Hebron	**0.009**	**0.004**	0.015	**0.970**	**0.124**	**0.273**
3	Jenin	**0.017**	0.007	0.036	0.851	0.146	0.259
4	Jericho	**0.015**	**0.004**	**0.000**	0.894	**0.106**	0.246
5	Jerusalem	0.021	0.008	0.048	**0.819**	0.145	**0.105**
6	Nablus	**0.029**	0.013	0.033	0.916	0.183	0.266
7	Qalqilya	0.018	0.005	**0.012**	0.878	0.151	0.264
8	Ramallah	**0.053**	**0.019**	**0.081**	0.851	0.183	0.248
9	Salfit	0.029	0.009	**0.054**	**0.841**	**0.201**	0.242
10	Tubas	**0.017**	**0.005**	0.033	**0.947**	0.150	0.249
11	Tulkarem	0.026	0.008	**0.015**	0.911	**0.202**	0.260

In the case of the education sector, all high values were the best. Exception was the class density component.

Education Sector:

The findings of the study revealed the B.A./B.SC. effect(bachelor degree) was 21%. The students' proportion was 20% and class density was 18%. All these three components played a big role in the shaping of the education sector. The variation in the low value of class density was the best, while the high value was the best for the other components.

Education Sector Map:

The education sector map shows that the worst off governorates were Tubas, Jericho and Hebron. Tubas was one of the worst off governorates in the class density map with highest density (dark color). Tubas ranked second among the worst places in master's degree holders, Ph.D. holders and in proportion of students proportion. Likewise, Jericho was one of the worst off governorates in the number of Ph.D., M.A./M.SC. holders and B.A./B.SC. holders, and research projects. Hebron was the worst off in Ph.D, M.A., B.A. holders and in class density.
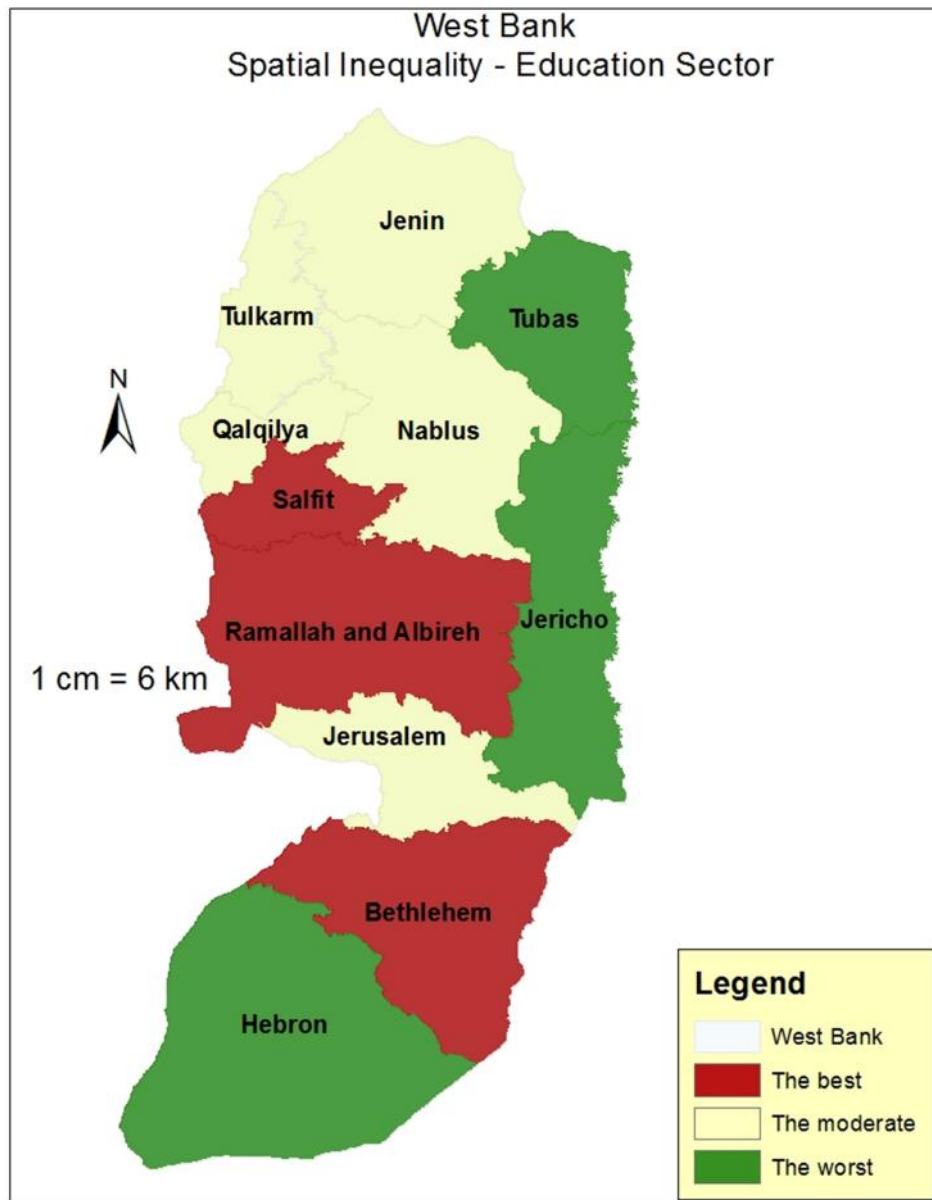
Figure 4.21: Education Sector Map for the West Bank Governorates

The best governorates were Ramallah, Salfit and Bethlehem. Ramallah and Salfit were the best off governorates in the research projects map. Ramallah was the best off in the M.A./M.SC map; Ramallah and Bethlehem were the best in the Ph. D map.

In order to find out which component affected the differences more than the others, there was a need to see the figure on variation. Research

projects, class density and M.A./M.SC. played a big role in the final map of education. The similarity in the length bar of the students, Ph.D. and B.A/B.SC. indicates that all governorates had the same conditions. Although the bar of Ph.D. component had a small variation, the differences between the governorates in this field were insignificant. Also the students bar had less variation than the M.A. bar which means it had less effect on the education sector map.

Figure 4.22: Education Components Variation

4.2.6 Results of Cultural Sector:

The components' weights, obtained from the data analysis, are illustrated in Figure 4.18 below. As the figure shows, the number of cultural institutions had a high effect on the cultural sector (36%), and the least effect was that of the home library (31%).

Figure 4.23: Culture components and Their Ratio Effect on Cultural Sector

The cultural sector had three components. Every component affected the sector map (final map) with certain weight (See Figure 4.23). These components were weighted overlay through GIS to build the sector map.

Table 4.6: Results of Cultural Components at Governorate Level

ID	Governorate	Cultural Institutions	Mosques	Home Library
1	Bethlehem	0.138	0.366	0.197
2	Hebron	0.162	0.419	0.156
3	Jenin	0.124	0.370	0.1667
4	Jericho	0.029	0.456	0.151
5	Jerusalem	0.109	0.130	0.062
6	Nablus	0.187	0.309	0.215
7	Qalqilya	0.0146	0.427	0.263
8	Ramallah	0.084	0.274	0.263
9	Salfit	0.032	0.466	0.226
10	Tubas	0.027	0.340	0.164
11	Tulkarm	0.095	0.428	0.218

After data analysis, it was found that Jerusalem was the worst off governorate due to having the lowest two values in the field of mosques and home library components. That could be attributed to the Israeli ocupation forces and Israel's policy to Judaize the city. On the other hand,

the table shows that Salfit was the best off governorate because it had the best two values.

Cultural Sector Map:
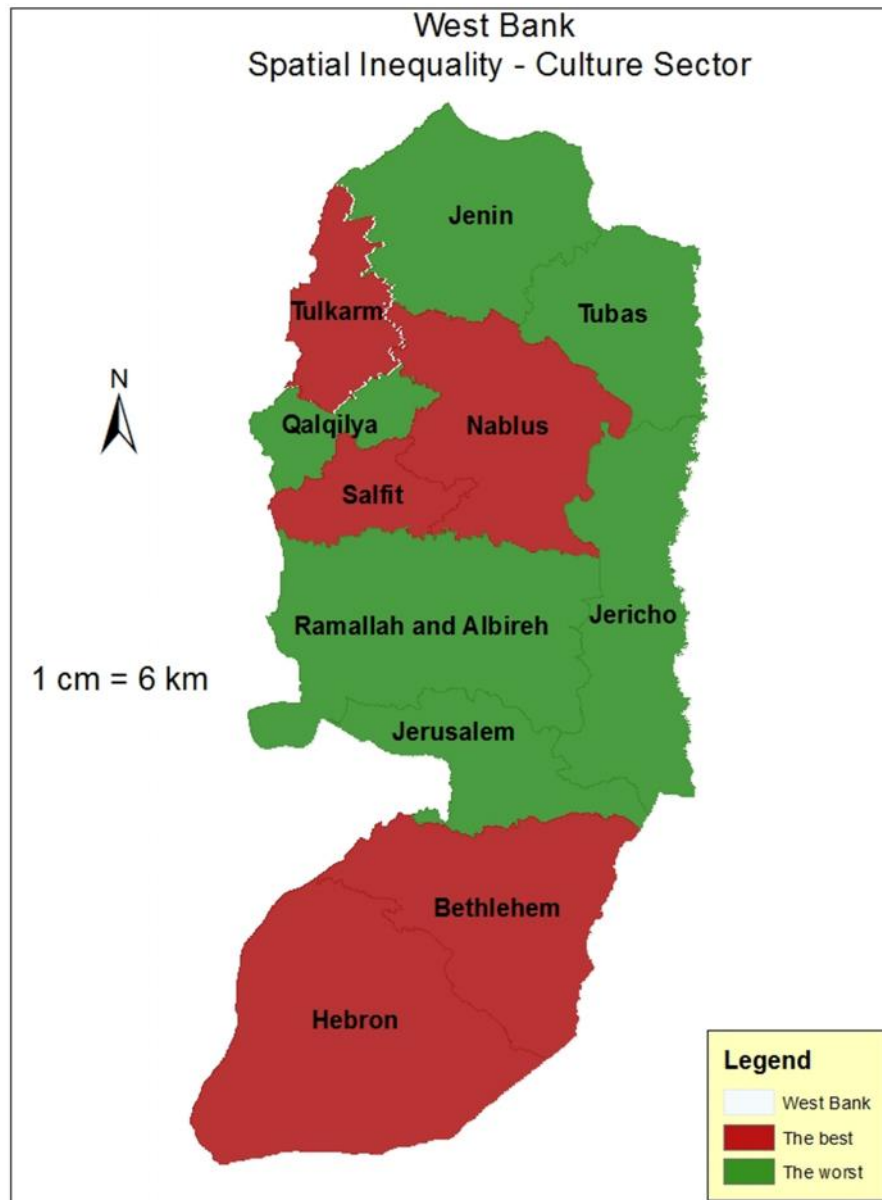
Figure 4.24: Culture Map for the West Bank Governorates

The cultural sector map resulted from the weighted overlay of all components, taking into consideration the effect of every component (See Figure 4.23). There was no great diversity in the map as it shows only two

areas: the best and the worst. The most probable reason that accounts for this homogeneity is the limited number of components in this sector. The effect of weight of the components were also close to each other.
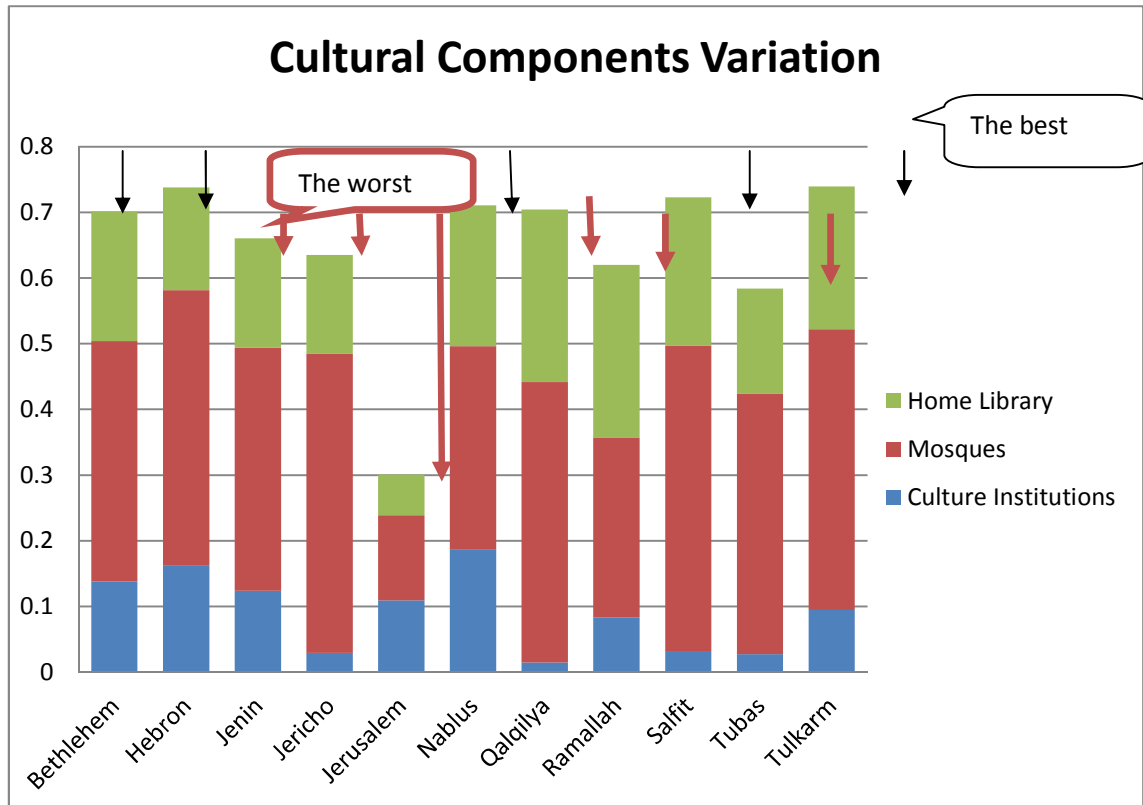
Figure 4.25: Cultural Components Variation

The cultural institutions varied up and downward more than mosques and home library as shown in the figure above. The gap is significant to affect the inequality of cultural sector. The figure shows that home libraries had less differences between governorates, which means they had a little impact on spatial inequality. But when comparing the high bars of the figure with the final cultural map, we find that Jerusalem had the lowest value. It is also considered one of the worst areas, a fact that is confirmed by the length of components' columns in the figure. The worst

governorates had the lowest length of accumulative columns of the components in the figure.

4.2.7 Results of Telecommunication and Transportation Sectors

The components' weights, obtained from data analysis, are illustrated in Figure 4.20 below. As the figure shows the availability of internet at home had a high effect on the telecommunication sector (19%) followed by owning a mobile phone (18%), and the least effect was that of mail services centers (7%).
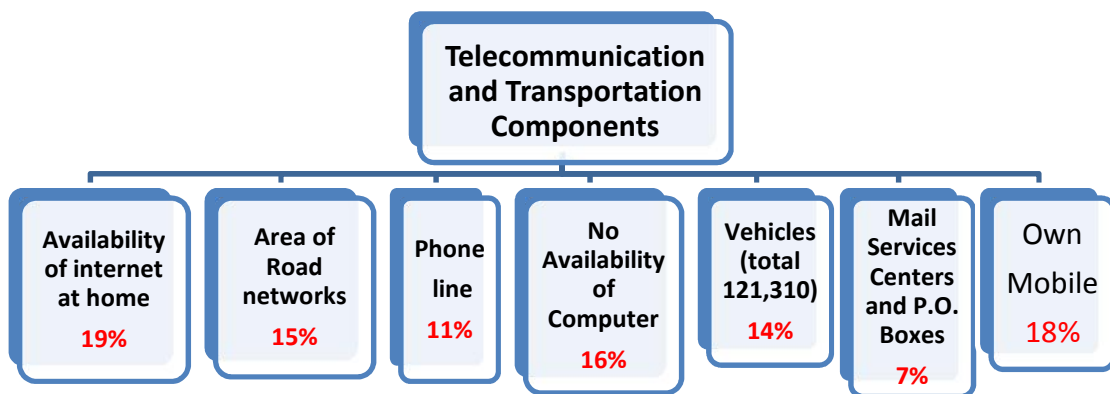
Figure 4.26: Telecommunication and Transportation Components and Their Ratio Effect.

The results of this data analysis are seven maps, representing the number of components of the political sector. The final map, the overall sector map, has the component maps, taking into account the weight of each.

Table 4.7: Results of Telecommunication and Transportation Components at Governorates Level

ID	Governorate	Own a Mobile Phone	Vehicles	Road Network Length	Mail Centers and P.O. B	Proportion of Phone lines	Availability of internet at home	Computer Use
1	Bethlehem	0.800	0.096	0.109	0.356	0.476	0.549	0.592
2	Hebron	0.767	0.176	0.189	0.294	0.353	0.442	0.555
3	Jenin	0.740	0.105	0.121	0.514	0.419	0.403	0.593
4	Jericho	0.901	0.017	0.078	0.200	0.401	0.196	0.354
5	Jerusalem	0.789	0.003	0.045	0.159	0.375	0.632	0.621
6	Nablus	0.787	0.168	0.111	0.891	0.526	0.591	0.689
7	Qalqilya	0.728	0.032	0.031	0.677	0.415	0.512	0.598
8	Ramallah	0.804	0.330	0.186	0.920	0.583	0.579	0.601
9	Salfit	0.789	0.002	0.045	0.850	0.439	0.495	0.560
10	Tubas	0.709	0.001	0.029	0.667	0.331	0.256	0.436
11	Tulkarem	0.743	0.071	0.062	0.857	0.531	0.565	0.618

Note: The highest values are the best (blue) and the lowest are the worst (red).

Telecommunication and Transportation Sectors Map:

The final map of telecommunication and transportation sectors is composed of the related components. The ratio effect of every component was taken from data analysis. The overlapping of the components map led to draw the sector as shown in Figure 4.27. This map illustrates four areas ranked in a descending order : from the best off to the worst off along with two moderate areas.
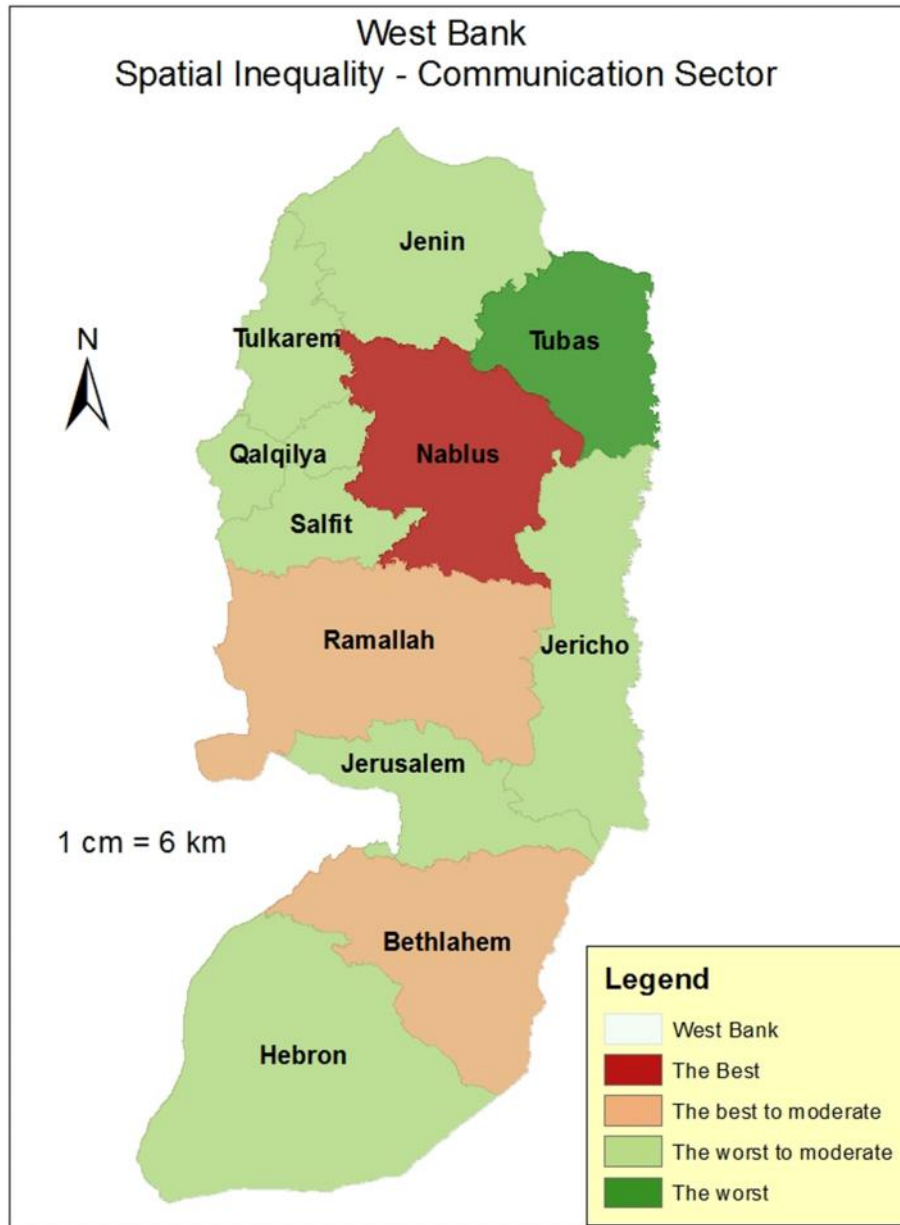
Figure 4.27: Telecommunication and Transportation Sectors Map for the West Bank Governorates

Figure 4.21 shows that Tubas was the worst off governorate because it had the lowest values in most components, the lowest proportion values of availability of the internet at home (0.256), as opposed to the best (0.63). It also had the lowest proportion of mobile ownership (0.709) as opposed to the best (0.901). The lowest proportion of phone lines was 0.3314, whereas the best was 0.583. Jericho came in the second place in terms of

poor telecoms services. In contrast, it was found that Nablus was the best governorate in the telecommunications and transportation sectors.

As to the variation in the telecommunication and transportation components, the bar chart below shows that the internet bar, computer use, vehicles and road networks had a big impact on spatial inequality, which makes them significant variables. The mobile bar ownership appeared with less diversity, which means that mobile ownership had less effect on spatial inequality.
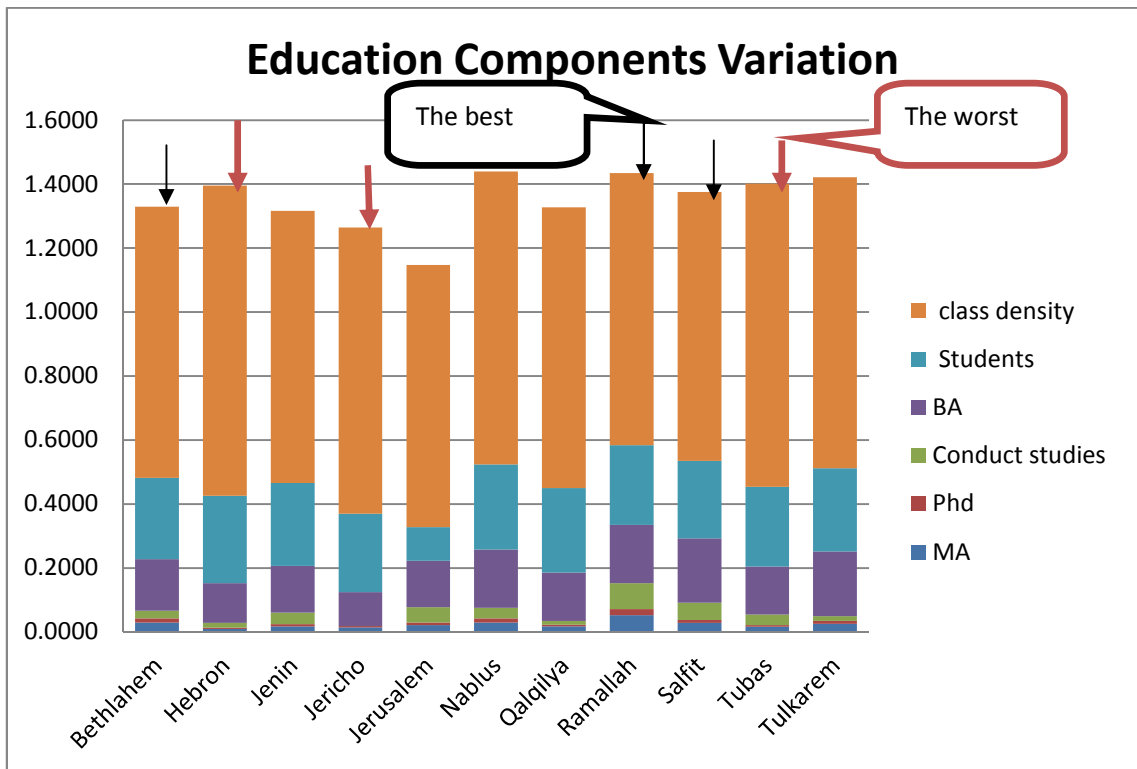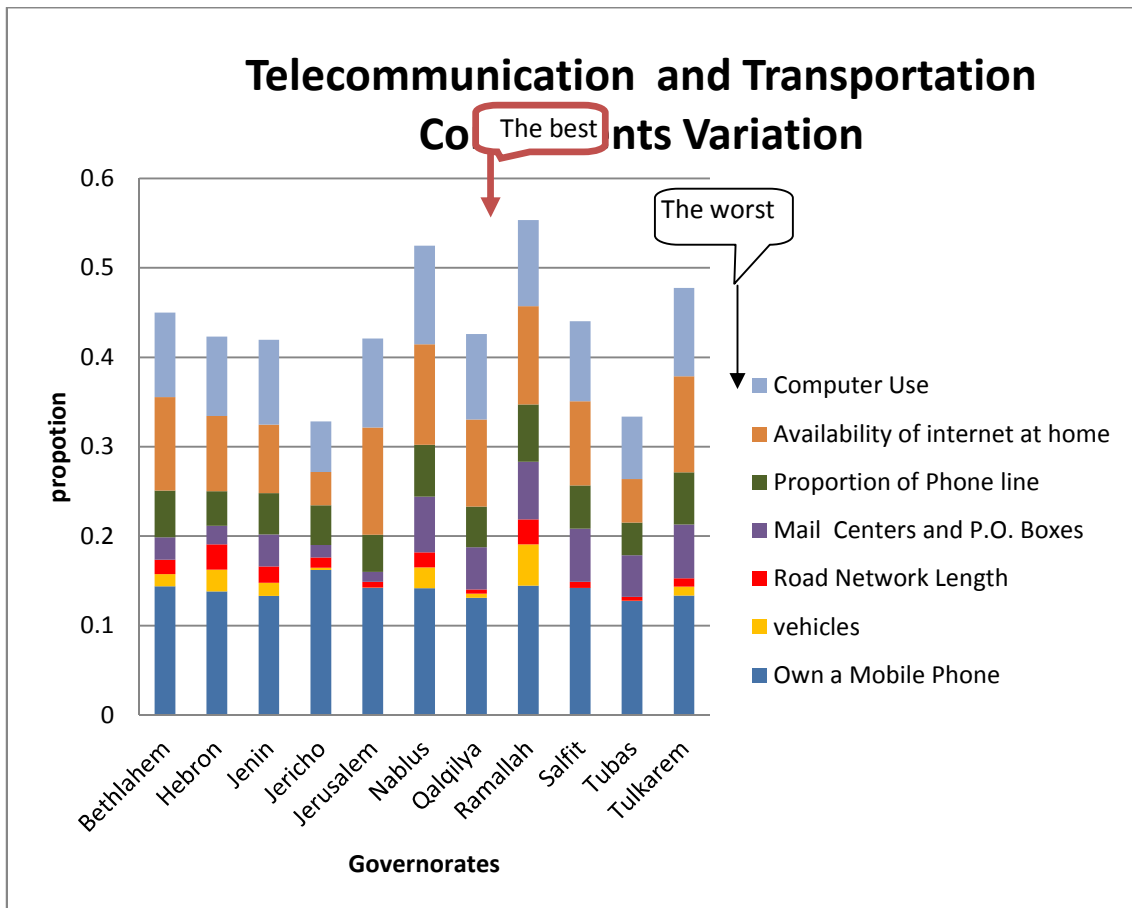

Figure 4.28: Telecommunication and Transportation Components Variation

4.2.8 Results of Health Sector:

The components' weights, obtained from data analysis, are illustrated in Figure 4.29 below. The figure shows that the beds per 1,000 inhabitants had a high effect on the health sector (23%), followed by health insurance (20%), and the least effect was that of the housing density (16%).
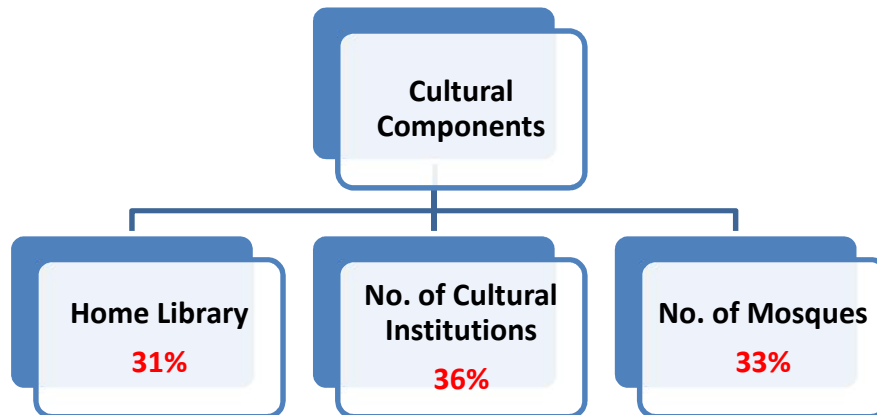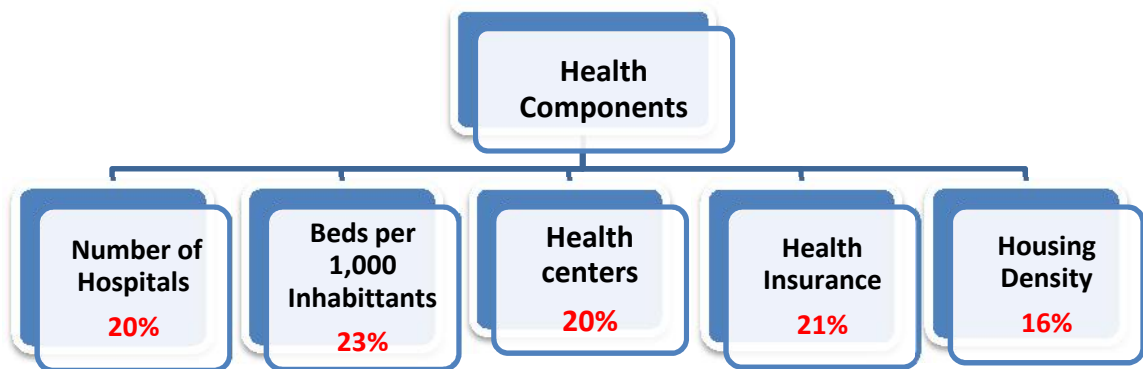

Figure 4.29: Health Components and Their Ratio Effect on the Sector.

The health sector has five components. Every component affected the sector map (final map) with weight resulting from data analysis (Figure 4.29). These components were weighted overlay through GIS to draw the sector map.

Table 4.8: Results of Health Components at Governorates Level

ID	Governorate	Beds per 1,000 Inhabitants	Housing Density+3	Hospitals Proportion	Health of Centers Proportion	Health Insured Families
1	Bethlehem	**3.00**	0.0570	0.157	0.185	0.333
2	Hebron	0.900	0.1010	**0.176**	0.226	0.371
3	Jenin	**0.600**	0.0630	0.059	0.233	0.375
4	Jericho	1.200	**0.18807**	**0.020**	**0.364**	**0.460**
5	Jerusalem	1.700	0.053	0.157	**0.099**	**0.323**
6	Nablus	1.500	0.086	0.118	0.170	0.355
7	Qalqilya	1.400	0.135	0.059	0.323	0.411
8	Ramallah	1.200	**0.047**	0.157	0.225	0.430
9	Salfit	0.800	0.053	**0.020**	**0.414**	**0.450**
10	Tubas	**0.000**	0.082	**0.020**	0.198	**0.300**
11	Tulkarem	0.900	**0.145**	0.059	0.222	0.410

The proportion of the highest components are considered the best. However, the housing density component was an exception.

Health Sector Map:
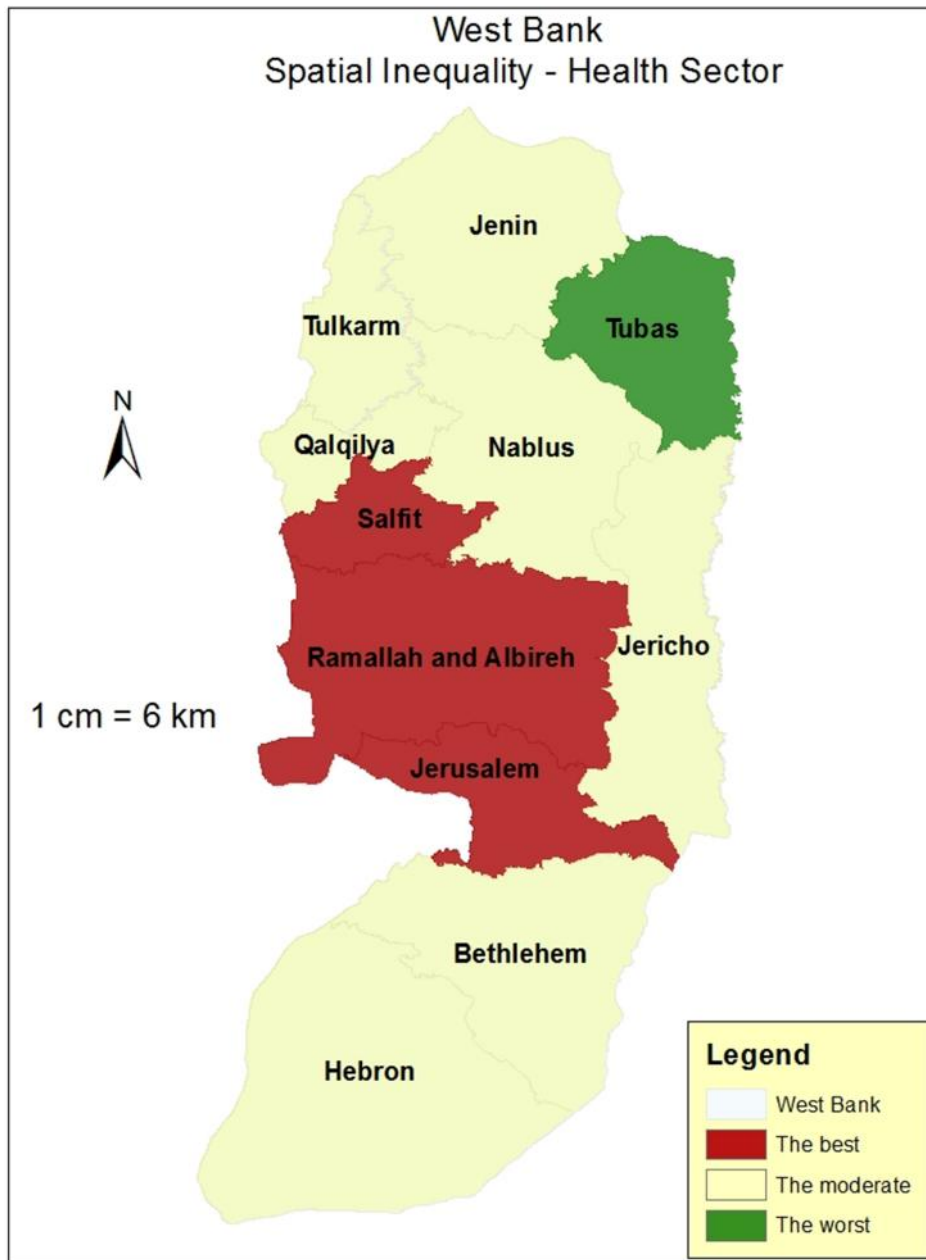
Figure 4.30: Health Sector Map for the West Bank Governorates

As the map shows, Tubas Governorate was the most negatively affected in health sector . Tubas did not have any hospitals when this study was conducted. However, in 2015, one hospital was established, but it was still under construction. Therefore, it was considered as having one hospital, but without any beds in service. In the light of this, Tubas had the

lowest ratio of beds: one bed per 1,000 inhabitants. It also had the lowest number of hospitals in the West Bank. Tubas ranked second among governorates in the lowest proportion of health insurance after Jerusalem. It is important to take into account the effect of weight of every component on the sector map (See Figure 4.29). The component of beds per 1,000 inhabitants had the highest effect (23%) while housing density had the lowest effect (16 %).

From another point of view, the results of the components variation among, the governorates in the figure, enable us to notice the gap between the highest and lowest values. This shows which component had the most significant effect on spatial inequality. This figure shows clearly that the number of beds per 1,000 inhabitants bar varies up and down more than the others**.** Furthermore, the bar of health centers was less significant. The other bars were not significant in spatial inequality. As the figure shows, Tubas had the lowest value of beds per 1,000 inhabitants and the lowest proportion of hospitals and health centers. This recurrence of lowest values for many components supports the result of GIS analysis in the health map which states that Tubas is the worst governorate in the health sector.
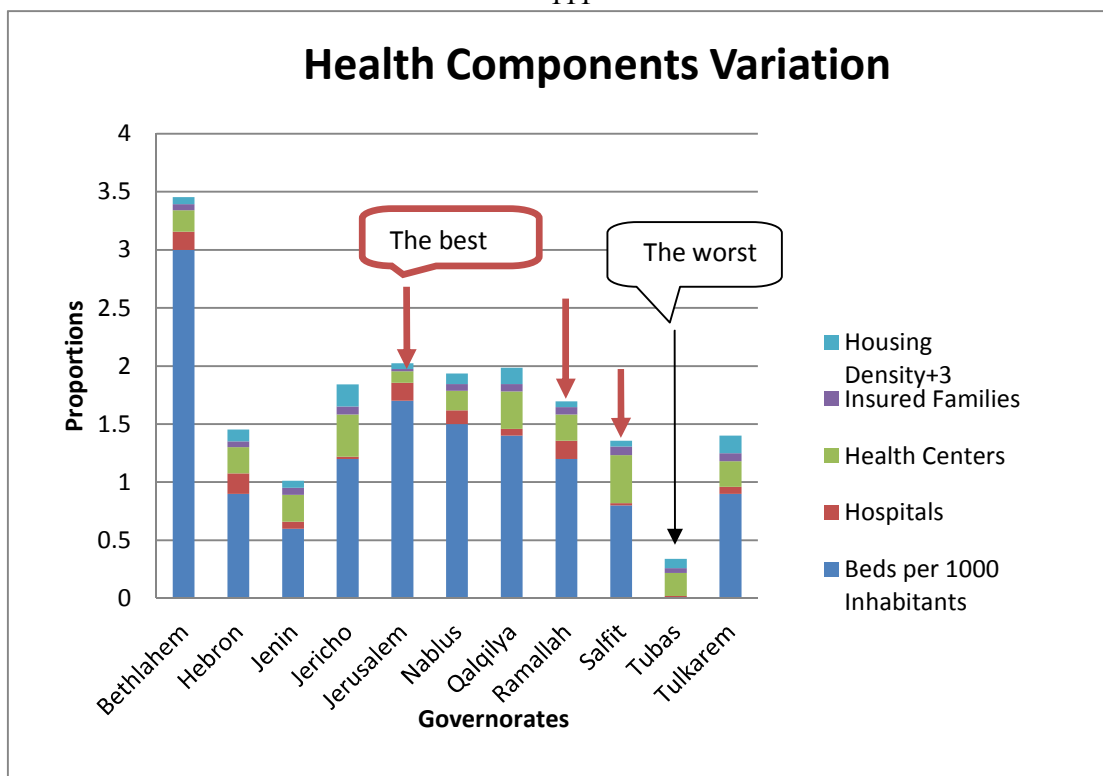
Figure 4.31 Health Components Variation

4.2.9 Final Map for All Sectors:

All sectors' maps, which resulted from their components, were composed together in another analysis (weighted overlay), taking into consideration the results of data analysis for all sectors as shown in Table 4.9.

Table 4.9: Results for All Sectors and Their Ratio Effect for the West Bank Governorates.

	Telecommunication Sector	Cultural Sector	Infrastructure Sector	Social Sector	Health Sector	Education Sector	Economic Sector	Political Sector
Average of questionnaire	8.4	7.7	11.4	10.24	10.46	14.22	21.52	16.1
Average	8	8	11	10	11	14	22	16

Final Map:
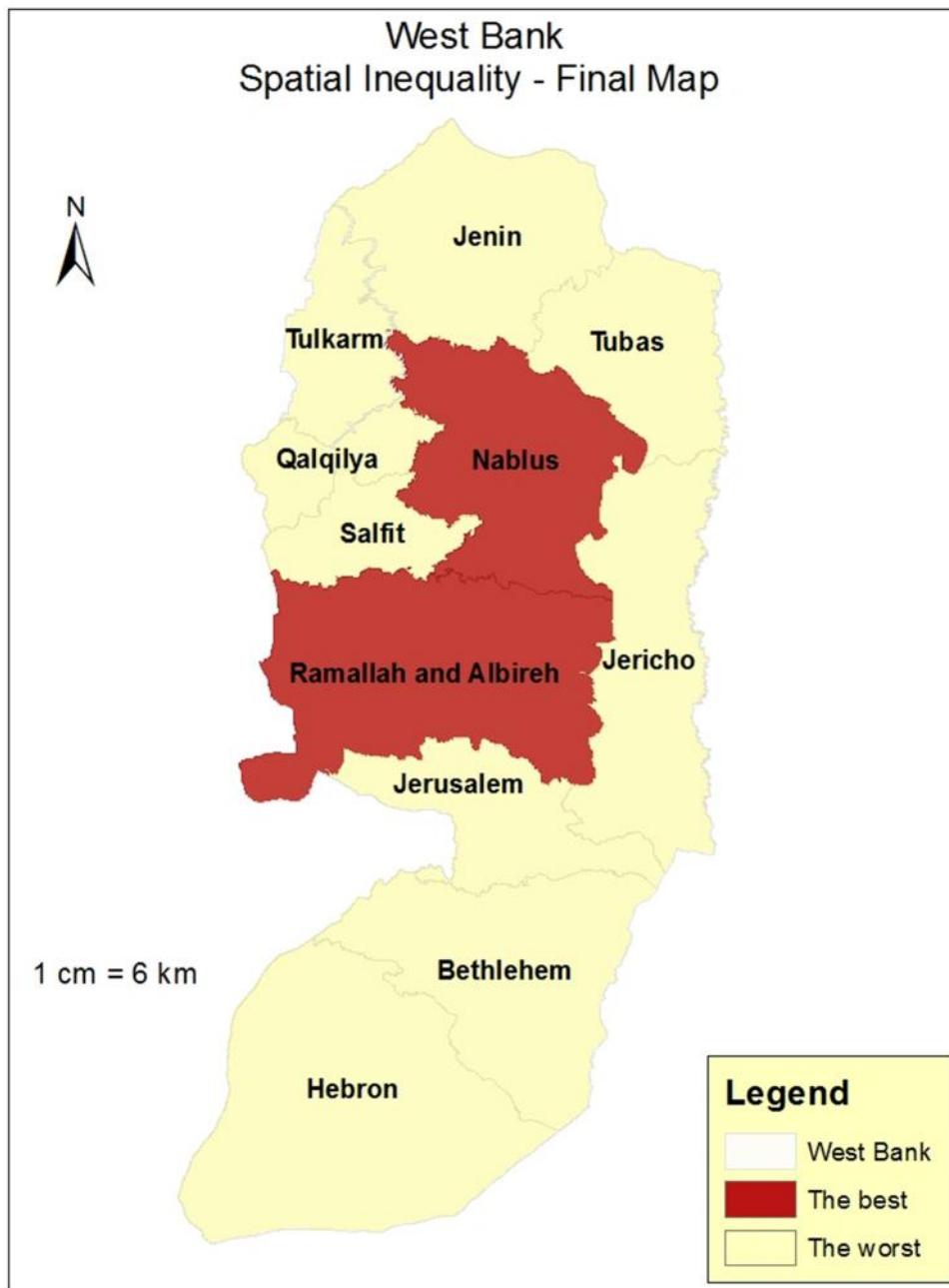
Figure 4.32: Final Map for All Sectors for the West Bank Governorates

The final map for all sectors revealed two areas. The red area, which includes Ramallah and Al- Bireh and Nablus, represents the best off governorates while the yellow area represents the worst part of the study area and it includes the rest of the governorates (Tulkarem, Qalqilya, Salfit,

Hebron, Jerusalem, Bethlehem, Jenin, Tubas and Jericho). This final map is the accumulative output of the individual sector maps. Therefore, an overall view at sectors' maps is helpful to explain the differences between the best and the worst governorates. Accordingly, Nablus was the best off five times in the political, economic, infrastructure, cultural and telecommunication and transportation sectors but it was the worst in the social sector. Ramallah was also one of the best off governorates four times in the political, infrastructure, education and health sectors, but it was classified as the worst in the social sector. This was among the lowest affected sectors. On the other hand, the weight effect of the political and economic sectors in the final map was the highest after data analysis. Therefore, if the governorate was the best in these sectors, it would have the chance to be among the best in the final map.

All the worst governorates had the worst off sectors recently. Although all the nine governorates were classified as the worst off, not all were in the same level or in the same field. For instance, Tubas was among the worst governorates in five sectors: infrastructure, education, culture, telecommunication, transportation and health. This indicates that Tubas headed the worst off area. Hebron was one of the worst governorates in the social sector and the telecommunication and transportation sector. Jenin was the worst governorate in two sectors: social, and cultural. Jericho was one of the worst sectors in the economic, cultural, educational and telecommunication and transportation fields. Jerusalem was one of the worst in the political, economic and cultural sectors. Qalqilya and Salfit

were the worst in the political sector. Tulkarm was classified as moderate to worse in telecommunications, transportation and social sectors. Bethlehem was among the worst off governorates in the economic sector.

4.3   Results at the Local Level (Tulkarm Communities (case study)

The same approach at the regional level will be applied at the local level. Each component will be shown as the results of data (processed data) in maps. The sector map was built from the components maps and through the weighted overlay (GIS). The final map of all sectors was drawn, taking into account the effect of weight.

4.3.1 Results of Political Sector

The components' weights, obtained from data analysis, are illustrated in Figure 4.33 below. The figure shows that Area C had a high effect on the political sector (26%), followed by the area of land confiscated for the wall (17%), and the least effect was on the people isolated behind the Wall (9%).
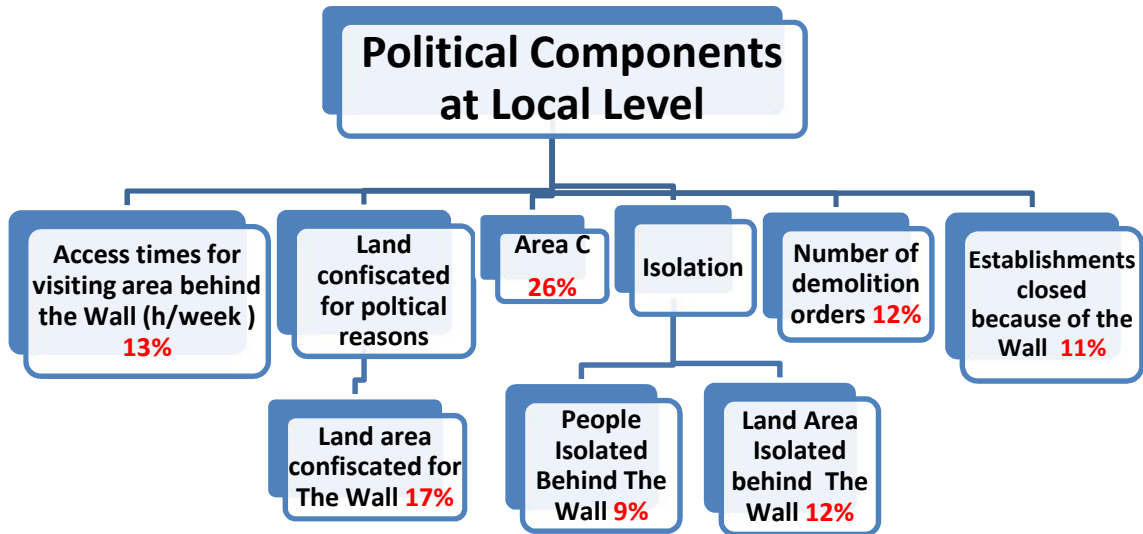
Figure 4.33: Political Components and Their Ratio Effect on the Political Sector

The results of data analysis are seven maps which represent the number of components of the political sector. The final map is the overall sector map. It's composed of the components maps. In the building of the sector map, it was taken into account the weight of each component.

Table 4.10: Results of Political Components at Local level

ID	Community Name	People Behind the Wall	Land Confiscated for the Wall	Closed Commercial Centers	Demolition Orders	Area C	Land Isolated Behind the Wall	Access times visit (h /week)
1	Kafr 'Abbush	0.000	-	0.000	0.000	0	0.000	1
2	Kafr Jammal	0.000	0.111	0.000	0.000	0.003	0.003	1
3	Kafr Zibad	0.000	0.148	0.000	0.000	0	0.002	1
4	Kur	0.000	-	0.000	0.000	0	0.000	1
5	Kafr Sur	0.000	0.010	0.000	0.000	0	0.003	0.06548
6	Ar Ras	0.000	0.077	0.000	0.125	0	**0.036**	1
7	Beit Lid	0.000	0.006	0.000	0.012	0	0.000	1
8	Saffarin	0.000	-	0.000	0.000	0	0.000	1
9	Khirbet Jubara	**1.0**	0.231	0.000	0.111	**1.0**	0.000	1
10	Shufa	0.000	0.009	0.000	0.043	0.609	0.000	1
11	Far'un	0.000	0.194	0.000	0.062	0.468	0.004	**0.00893**
12	Ramin	0.000	0.002	0.000	0.000	0	0.000	1
13	Al Hafasa	0.000	0.211	0.000	0.259	0.491	0.000	1
14	Kafa	0.000	-	0.000	0.000	**0.84**	0.000	1
15	Kafr al Labad	0.000	0.014	0.000	0.000	0	0.000	1
16	'Anabta	0.000	-	0.000	0.000	0.000	0.000	1
17	Tulkarm Camp	0.000	-	0.000	0.000	0.000	0.000	1
18	Tulkarm	0.000	0.027	**0.027**	0.006	0.236	0.000	**0.0625**
19	Nur Shams Camp	0.000	-	0.000	0.000	0.360	0.000	1
20	Iktaba	0.000	-	0.000	0.006	0.299	0.000	1
21	Bal'a	0.000	-	0.000	0.000	0.000	0.000	1
22	Al Jarushiya	0.000	0.120	0.000	0.033	0.326	0.000	1
23	Deir al Ghusun	0.000	0.036	0.000	0.000	0.041	0.001	0.10714

ID	Community Name	People Behind the Wall	Land Confiscated for the Wall	Closed Commercial Centers	Demolition Orders	Area C	Land Isolated Behind the Wall	Access times visit (h /week)
24	'Attil	0.000	0.005	0.000	0.001	0.225	0.000	0.08929
25	'Illar	0.000	0.005	0.000	0.000	0.036	0.000	1
26	Seida	0.000	-	0.000	0.000	0.000	0.000	1
27	Zeita	0.000	0.070	0.000	0.004	0.317	0.000	0.02679
28	An Nazla al Gharbiya	0.000	0.082	0.000	0.013	0.324	0.001	1
29	Baqa ash Sharqiya	0.000	0.051	0.000	0.050	0.179	0.000	1
30	An Nazla ash Sharqiya	**0.056**	-	0.000	0.000	0.003	0.000	0.25
31	Nazlat 'Isa	0.000	0.131	**1**	**0.148**	0.395	0.001	0.02679
32	An Nazla al Wusta	0.000	0.141	0.000	0.054	**0.680**	0.001	1
33	Qaffin	0.000	0.078	0.000	0.004	0.262	0.002	**0.05357**
34	'Akkaba	0.000	0.043	0.000	**0.146**	**0.722**	0.012	**0.02679**

Component Maps of Political Sector for Tulkarm Communities
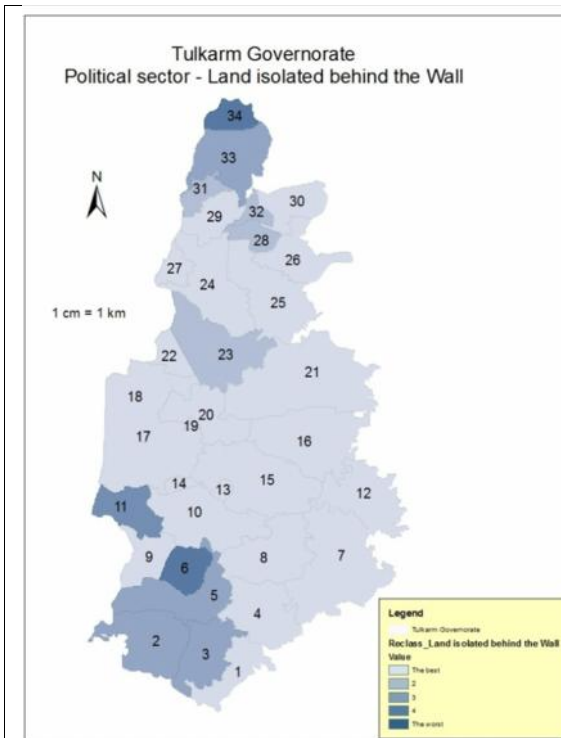
Figure4.34: Area Isolated Behind the Wall
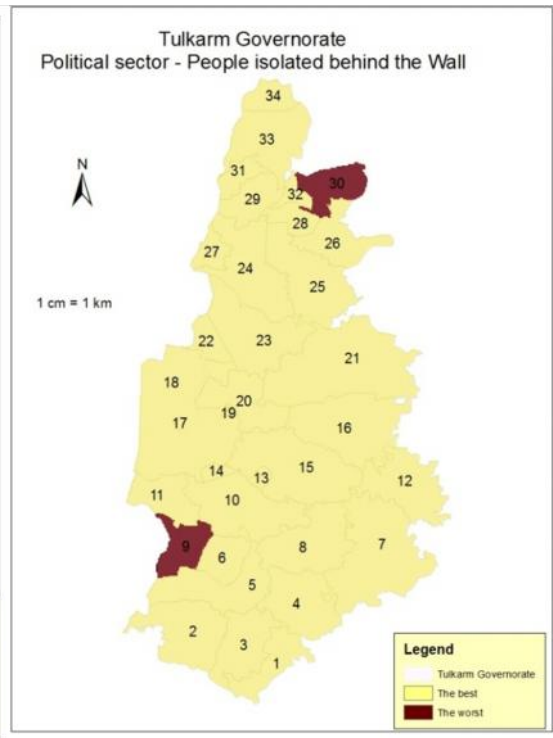
Figure4.35: People Isolated Behind the Wall
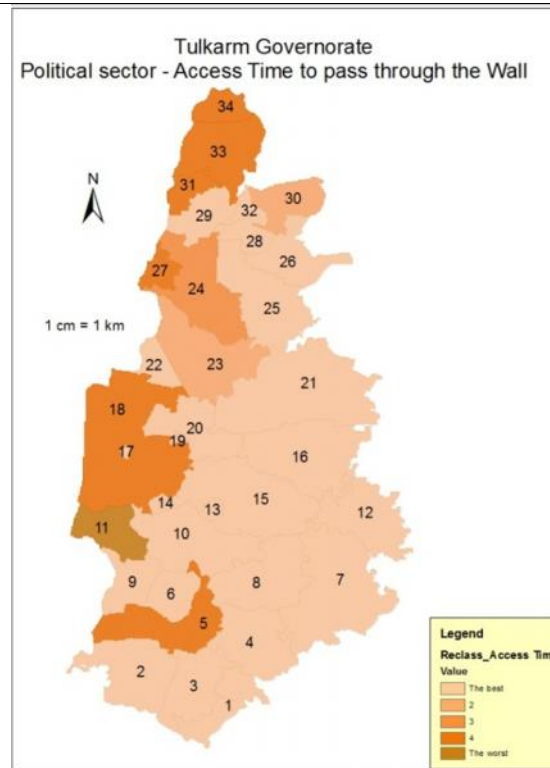
Figure 4.36: Access Time Transporting through the Wall
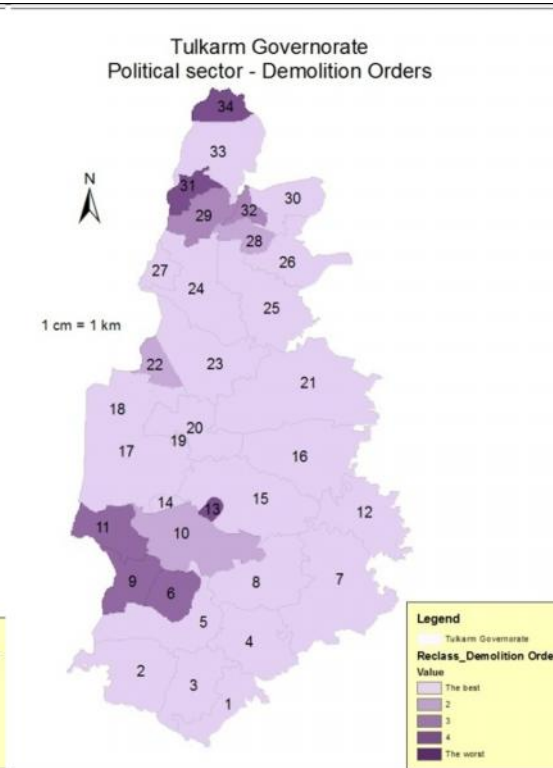
Figure 4.37: Demolition Orders
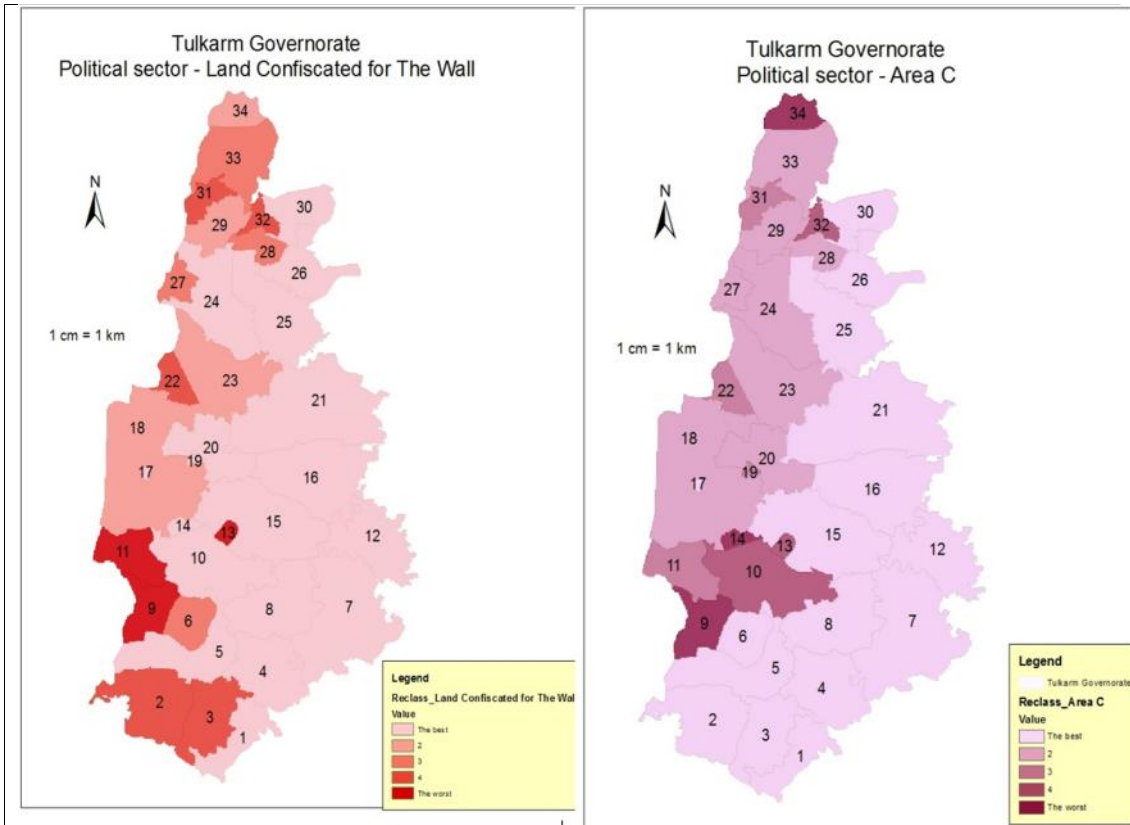
Figure 4.38: Land Confiscated for the Wall

Figure 4.39: Area C
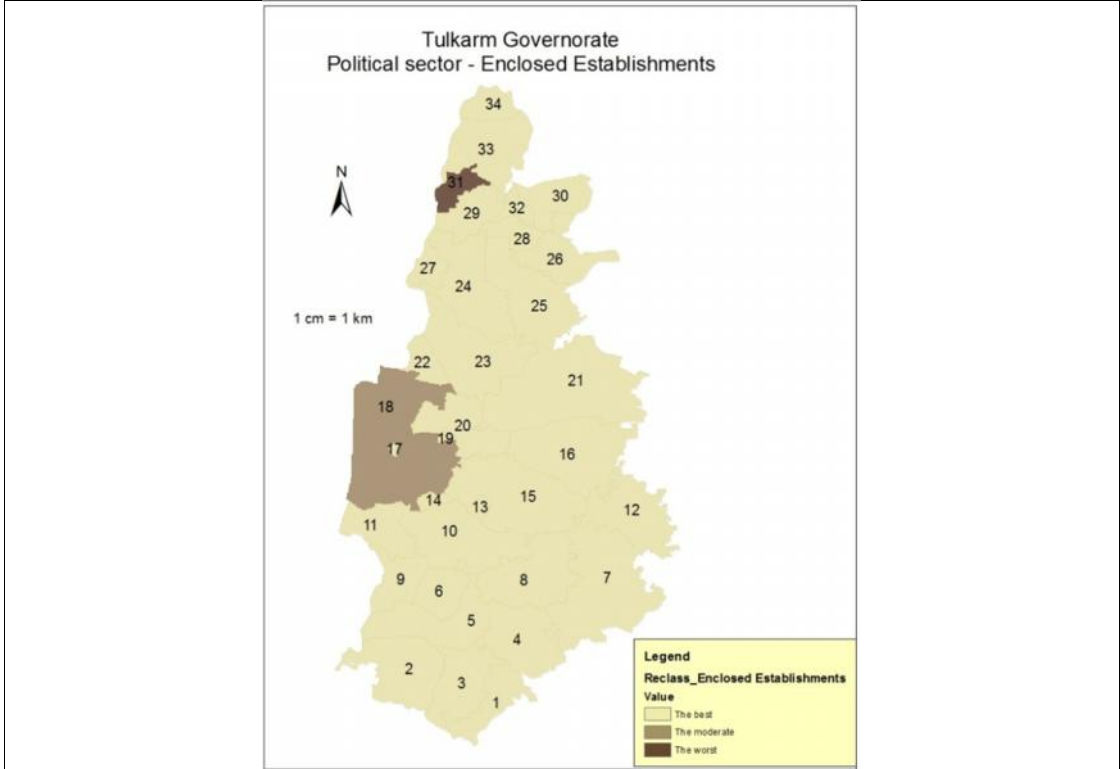
Figure 4.40: Establishments Closed Because of the Wall

Political Sector Map:

The final map is composed of seven components and is called a sector map drawn through GIS analysis weighted overlay. The final output resulted from a combination of all political components weighed according to the experts' inputs.
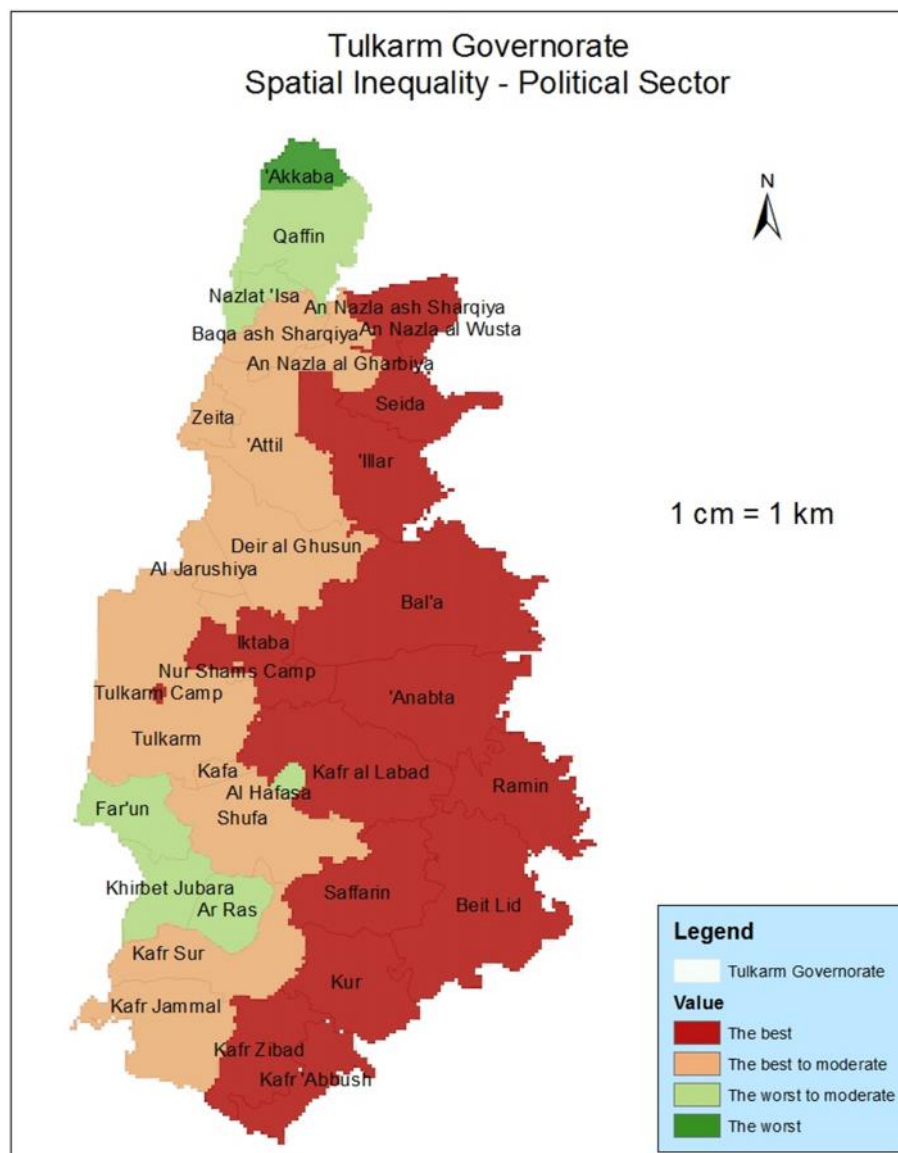
Figure 4.41: Political Sector Map for Tulkarem Communities

The final map of the political sector, after GIS analysis, shows that Akkaba was the worst off community in the governorate. Far'un, Khirbet

Jubara, Er -Rass, Al- Haffasi, Qaffin and Nazlat Esa ranked second. These results are due to the fact that Akkaba (34) had the lowest time access to pass through the gates of the Wall. The people of the community, who are isolated behind the Wall, had limited time 0.027 (h/week) to cross through the Wall. Akkaba came in the second place in terms of Area C (72%), and demolition orders were 0.146. It also had the highest proportion of land isolated behind the Wall (0.012). If we took the results of the study, we would find the component of land area, confiscated for the Wall, represented 17%, the highest effect on the political sector. In this context, 72% of Akkaba area was confiscated for colonial reasons (among which was the Wall). It was found that the best off communities did not have common boundaries with the occupied territories of 1948. This proves the negative effect of the Wall on the political sector.

The results of the study showed that Area C represented the first component (26%) to affect spatial inequality in the political field. The area of land confiscated for the Wall came in the second place. The variation of the length of each column of the components, as shown in Figure 4.9, highlights the diversity between the communities in the related component. In addition, the existence of these components in most communities made the differences more significant than the component that existed in small communities like Khirbet Jubara and Nazlat Isa. Although they had the highest column (accumulative components length), they were not the worst. This was because the people behind the Wall in Khirbet Jubara did not have impact in terms of this trait. Also the closed commercial centers in

Nazlat Isa did not make this community the worst place. These two components affected only the two communities. The worst was Akkaba (according to sector map).According to Figure 4.9, the land isolated behind the Wall and Area C were the components that affected the unevenness between the communities more others.
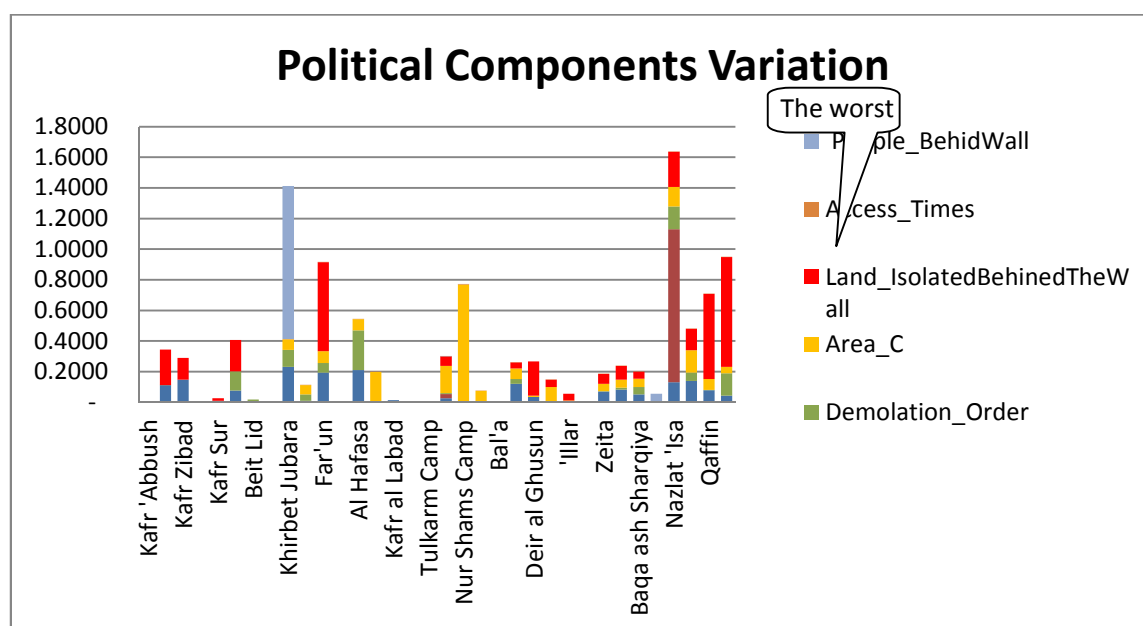
Figure 4.42: Political Components Variation

4.3.2 Economic Sector for Tulkarm Governorate

The components' weights are illustrated in Figure 4.43. According to the figure, the laborers in Israel proper and the employees had a high effect on the economic sector (15%), followed by agricultural holdings (14%), and the least effect was that of olive oil presses (8%).
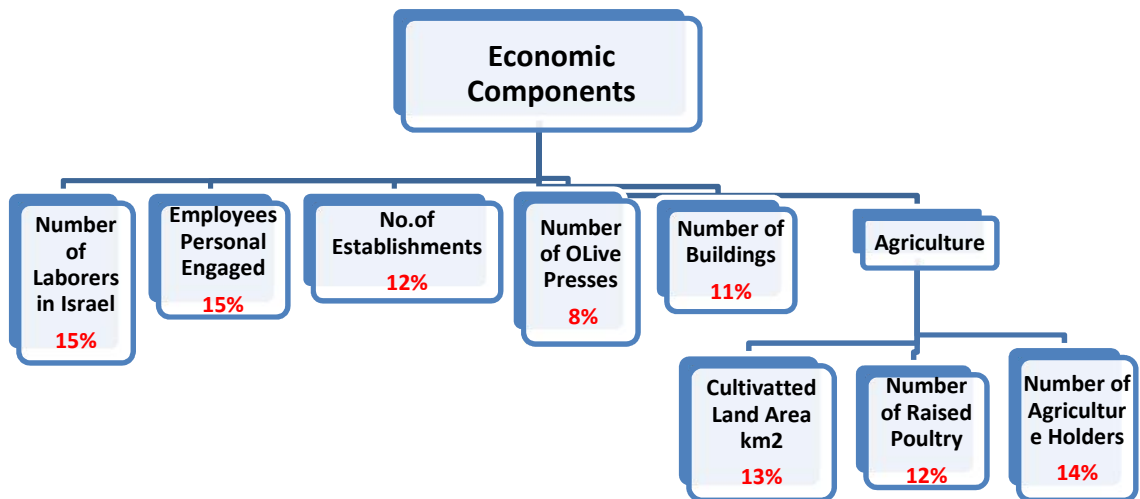
Figure4.43: Economic Components and Their Ratio Effect on the Economic Sector

The results of this analysis are eight maps, representing the number of components of the economic sector. The final map is the overall sector map (final map) composed of the components map. Each component had the effect of weight through which the sector map was built.

Note: Components maps are in Appendix 2

Table 4.11: Economic Components at Local Level

ID	Community	Cultivated Area	Agriculture Holdings	Laborers in Israel	Olive Oil Presses	Employees	Establishments	Buildings	Raised Poultry
1	Kafr 'Abbush	0.037	0.024	0.020	0.050	0.233	0.007	0.014	0.018
2	Kafr Jammal	0.033	0.034	0.049	0.050	0.216	0.011	0.016	0.000
3	Kafr Zibad	0.041	0.014	0.019	0.100	0.248	0.006	0.009	0.000
4	Kur	0.013	0.004	0.018	0.000	0.160	0.001	0.003	0.001
5	Kafr Sur	0.037	0.013	0.029	0.000	0.211	0.010	0.010	0.003
6	Ar Ras	0.013	0.006	0.035	0.000	0.178	0.002	0.004	0.001
7	Beit Lid	0.083	0.069	0.030	0.100	0.195	0.025	0.037	0.012
8	Saffarin	0.013	0.009	**0.061**	0.000	0.195	0.003	0.006	0.009
9	Khirbet Jubara	0.009	0.004	0.010	0.000	0.215	0.002	0.003	0.013
10	Shufa	0.046	0.028	0.045	0.000	0.229	0.016	0.018	0.112
11	Far'un	0.021	0.018	0.031	0.050	0.217	0.014	0.020	0.017
12	Ramin	0.037	0.028	0.020	0.050	0.189	0.007	0.014	0.013
13	Al Hafasa	0.003	0.002	0.006	0.000	0.217	0.001	0.001	0.000
14	Kafa	0.007	0.004	0.000	0.000	0.215	0.001	0.003	0.018
15	Kafr al Labad	0.053	0.044	0.047	0.100	0.117	0.016	0.029	0.023
16	'Anabta	0.050	0.063	0.018	0.050	0.229	0.045	0.056	0.031
17	Tulkarm R.Camp	0.000	0.009	0.021	0.000	0.175	0.040	0.044	0.000
18	Tulkarm	0.043	0.120	0.023	0.100	0.220	0.481	0.274	0.102
19	Nur Shams R. Camp	0.000	0.004	0.043	0.000	0.195	0.030	0.029	0.003
20	Iktaba	0.005	0.010	0.013	0.000	0.172	0.008	0.021	0.013
21	Bal'a	0.047	0.057	0.020	0.100	0.187	0.043	0.053	0.242
22	Al Jarushiya	0.009	0.009	0.027	0.000	0.228	0.005	0.007	0.021
23	Deir al Ghusun	0.061	0.079	0.015	0.150	0.208	0.039	0.050	0.016
24	'Attil	0.025	0.063	0.019	0.100	0.205	0.061	0.064	0.104
25	'Illar	0.049	0.063	0.022	0.100	0.188	0.029	0.046	0.046
26	Seida	0.023	0.043	0.015	0.100	0.201	0.013	0.023	0.039
27	Zeita	0.010	0.023	0.024	0.100	0.187	0.014	0.019	0.033
28	An Nazla al Gharbiya	0.008	0.012	0.017	0.000	0.181	0.003	0.007	0.012
29	Baqa ash Sharqiya	0.021	0.029	0.014	0.100	0.183	0.024	0.030	0.012
30	An Nazla ash Sharqiya	0.014	0.016	0.015	0.100	0.130	0.004	0.010	0.008
31	Nazlat 'Isa	0.015	0.019	0.041	0.000	0.180	0.008	0.017	0.005
32	An Nazla al Wusta	0.006	0.006	0.011	0.000	0.153	0.002	0.003	0.008
33	Qaffin	0.052	0.074	0.044	0.000	0.174	0.039	0.057	0.018
34	'Akkaba	0.011	0.005	**0.165**	0.000	0.165	0.003	0.003	0.050

Economic Sector Map:
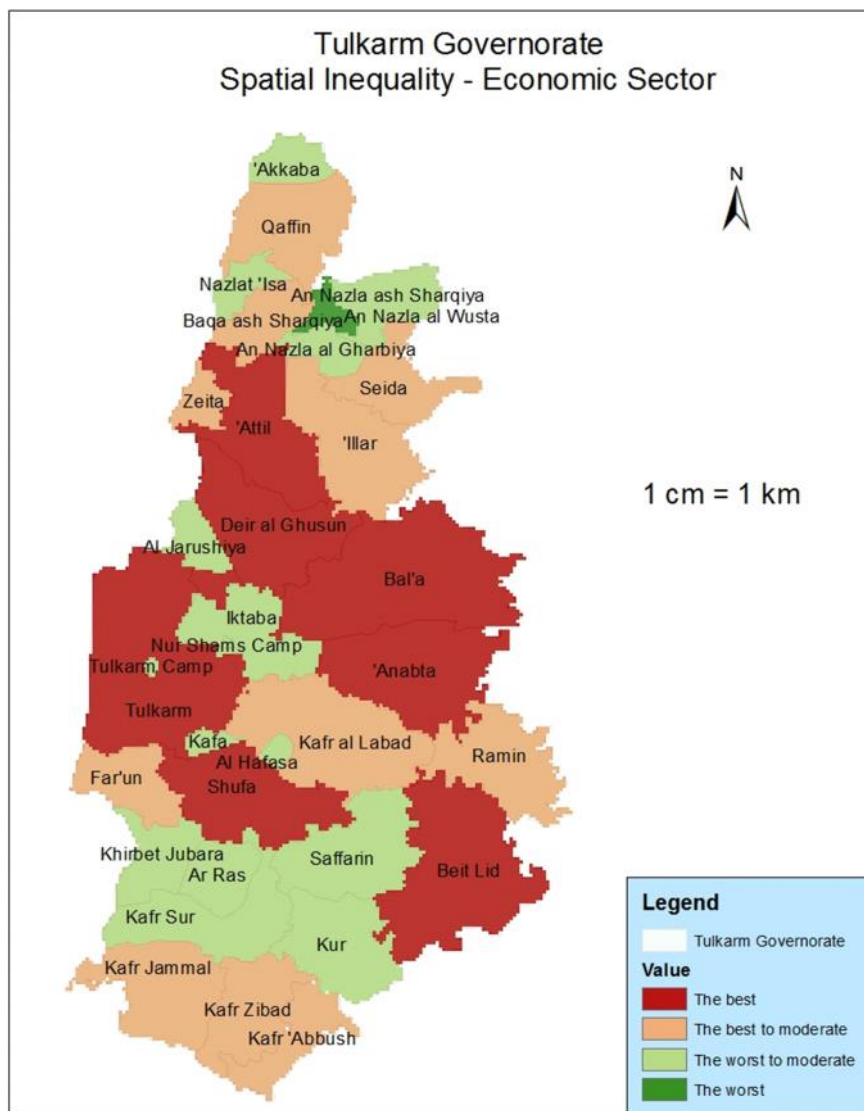
Figure 4.44: Economic Sector Map for Tulkarm Communities

The final map of the economic sector shows that An Nazla al Wusta was the worst off community because it appeared among the worst off places in the components maps of the buildings' map (0.003), raised poultry was 0.0079. An Nazla al Wusta had the lowest number of establishments   (0.0388), lowest cultivated land area (0.0114), no olive oil press (0.0), lowest number of employees (0.1529) It had also the lowest number of agricultural holdings (0.0062) and no laborers in Israel (0.0). It

was also found that the laborers in Israel and the employees affected the economic sector by 15% while the number of agricultural holdings affected it by14%. These components had the highest effect on the sector map.

Regardless of the high effect of the employees (15%) and agricultural holdings (14%), the figure on the components revealed that the number of establishments, laborers in Israel, raised poultry and buildings were the components that impacted most economic differences between the communities. The comparison between the maps of components showed that An Nazlt al Wusta was one of the worst communities in terms of the number of establishments, number of laborers in Israel, and number of buildings. That coincides with the final map and the figure of components.

Figure 4.45: Economic Components Variation

4.3.3 Results of Education Sector

The components' weights, illustrated in Figure 4.36), show that number of students had a high effect on the education sector (20%), followed by class density (19%), and the least effect was that of Ph.D. holders (11%).
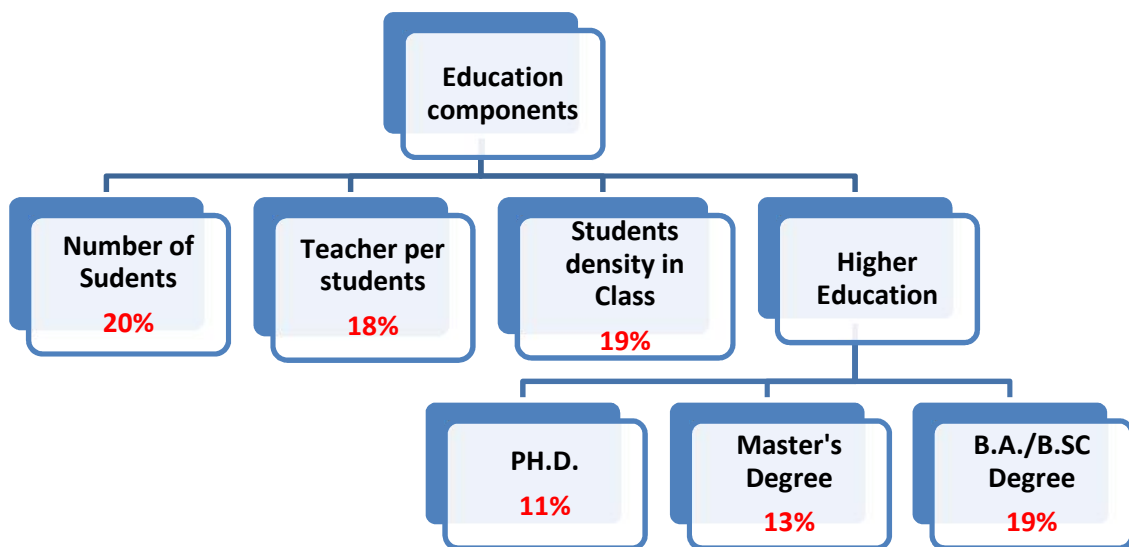
Figure 4.46: Education Components and Their Ratio Effect on the Education Sector

The education sector map is composed of six component maps. These components were combined through GIS, taking into consideration the effect of weight of each component. This allowed the building of the final map of education.

Table 4.12: Results of Education Components at Local Level

ID	Community	Class /Student	Teacher per students	B.A./B.SC	M.A./M.SC.	Students	Ph.D.
1	Kafr 'Abbush	0.040	0.066	0.073	0.004	0.261	0.0
2	Kafr Jammal	0.039	0.072	0.042	0.004	0.271	0.008
3	Kafr Zibad	0.048	0.093	0.104	0.016	**0.363**	0.008
4	Kur	0.078	0.158	0.007	0.0	0.138	0.0
5	Kafr Sur	0.060	0.112	0.050	0.018	0.296	0.0
6	Ar Ras	0.064	0.109	0.014	0.0	0.333	0.0
7	Beit Lid	0.039	0.073	0.093	0.017	0.278	0.023
8	Saffarin	0.064	0.118	0.058	0.019	0.234	0.0
9	Khirbet Jubara	0.146	0.232	0.029	0.016	0.134	0.0
10	Shufa	0.099	0.166	0.048	0.0065	0.145	0.030
11	Far'un	0.043	0.078	0.073	0.0221	0.326	0.030
12	Ramin	0.047	0.089	0.068	0.0142	0.260	0.008
13	Al Hafasa	0.111	0.222	-	0.0	0.164	0.0
14	Kafa	0.055	0.096	0.066	0.007	0.257	0.008
15	Kafr al Labad	0.048	0.088	0.043	0.003	0.230	0.008
16	'Anabta	0.044	0.082	0.081	0.029	0.199	0.098
17	Tulkarm Camp	0.032	0.049	0.016	0.004	0.144	0.0
18	Tulkarm	0.027	0.037	0.068	0.017	**0.401**	0.602
19	Nur Shams Camp	0.031	0.046	0.022	0.004	0.253	0.008
20	Iktaba	0.034	0.043	0.023	0.001	0.1988	0.0
21	Bal'a	0.036	0.064	0.033	0.007	0.286	0.023
22	Al Jarushiya	0.066	0.110	0.047	0.012	0.1718	0.008
23	Deir al Ghusun	0.036	0.065	0.067	0.016	0.268	0.053
24	'Attil	0.033	0.059	0.056	0.008	0.2631	0.0
25	'Illar	0.037	0.070	0.037	0.003	0.2645	0.015
26	Seida	0.038	0.067	0.029	0.006	0.2642	0.008
27	Zeita	0.027	0.051	0.060	0.012	0.263	0.008
28	An Nazla al Gharbiya	0.077	0.141	0.018	0.0061	0.3042	0.0
29	Baqa ash Sharqiya	0.040	0.049	0.042	0.004	0.2914	0.0
30	An Nazla ash Sharqiya	0.058	0.105	0.044	0.006	0.271	0.0
31	Nazlat 'Isa	0.045	0.083	0.030	0.007	0.2532	0.023
32	An Nazla al Wusta	0.086	0.129	0.073	0.0	0.0980	0.015
33	Qaffin	0.033	0.048	0.030	0.005	0.2992	0.023
34	'Akkaba	0.103	0.207	0.011	0.0	0.2172	0.0

Education Sector Map

The findings of the study revealed that the highest effect on the education sector, in terms of weight, was the ratio of students (20%), followed by bachelor's degree holders and class density, 19% each. It is worth mentioning that these results had a limited effect on spatial inequality between communities. Otherwise, the values of the component themselves would have considerable variations.

The education sector map illustrates the best and the worst off communities as shown in Figure 4.47.
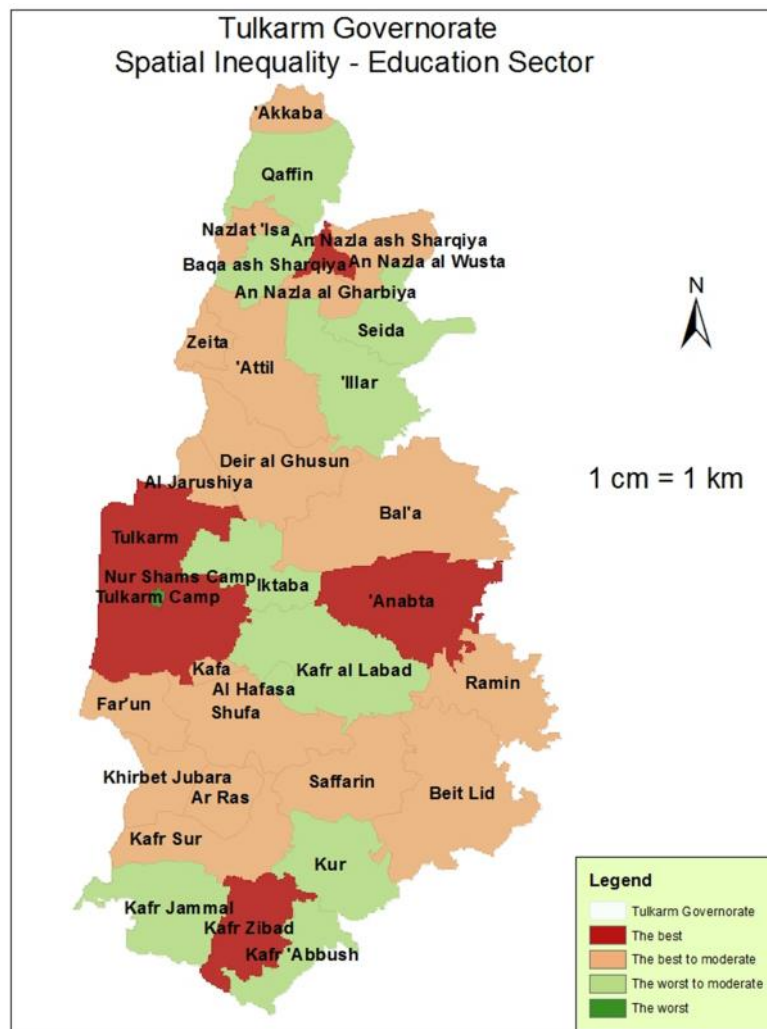
Figure.4.47: Education Sector Map for Tulkarm Communities

The combination of the components in one map, using ArcGIS tools and weighted overlay order, allowed us to classify the results (communities) into five ranks more or less. These ranks were classified from the best to the worst. Figure 4.47 shows that the best communities were Tulkarem city (18), Anabta (16) and Kafr Zibad (3), while the worst off community was Tulkarem Refugee Camp (17) . Other communities were between the worst class to moderate class: Kur(4), Al Haffasi (13), Nur Shams Refugee Camp (19), Iktaba (20), Illar (25), Seida (26), Baqa ash Sharqiya (29) and Qaffin (33). As the components' maps shows, it is crystal clear that Tulkarm Refugee Camp was one of the worst off communities in the components maps. It had the lowest proportion of bachelor degree holders, lowest proportion of students, master's degree, and Ph.D. holders and teachers per student. The other worst communities were the following: Kur (4), Al Haffasi (13), Nur Shams Refugee Camp (19). Among the worst off area in terms of proportion of students were Al Haffasi and Kur. The map also shows the worst communities that had the lowest proportion of master's degree holders . It was found that Iktaba (20), Al Haffasi (13), and Kur (4), Qaffin, Baqa ash Sharqiya,, Iktaba, Al Haffasi and Kur were among the worst communities which had the lowest proportion of Ph.D. holders. Qaffin, Baqa ash Sharqiya, and Iktaba were among the worst communities in terms of teachers per student. Qaffin was one of the worst communities in terms of class density.

The best communities that had the highest proportion of students were Tulkarm City (18), and Kafr Zibad (3). The best communities that had

the highest proportion of bachelor degree holders were Anabta (16) and Kafr Zibad (3). Anabta was one of the best communities that had the highest proportion of master's degree holders. The best communities that had the highest proportion of Ph.D. holders were Anabta, and Tulkarem city.

In order to show which components affected the unevenness balance between the communities, we can benefit from the figure of components. The gap between the highest and the lowest values can be highlighted. The component bar (column), which alters up and down in a big distance, affected the spatial inequality more than others. Looking at the figure, we observe the following: Tulkarem had the highest proportion of PhD holders and the highest column of the accumulative components and it was among the best off communities. On the other hand, the shortest bar (column) of the accumulative components shows that the worst off community was Tulkarem Refugee Camp. This result emphasizes that although Ph.D. had low ratio effect, the big gap between the lowest and the highest values makes sense in the unevenness on the education sector. The components that had a small gap between the highest and lowest values were considered insignificant. BA and class density (class/student) had less variation as the figure shows and that means insignificant indicators on inequality. Such components could be rejected; they did not have effect on the education inequality.
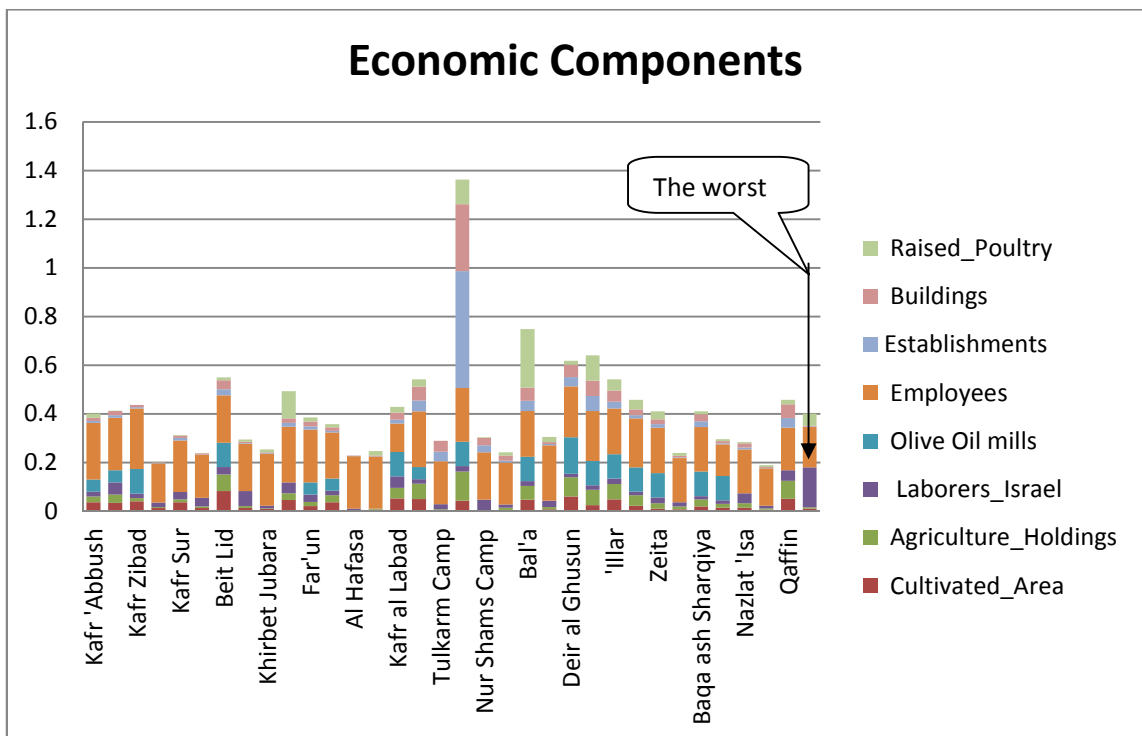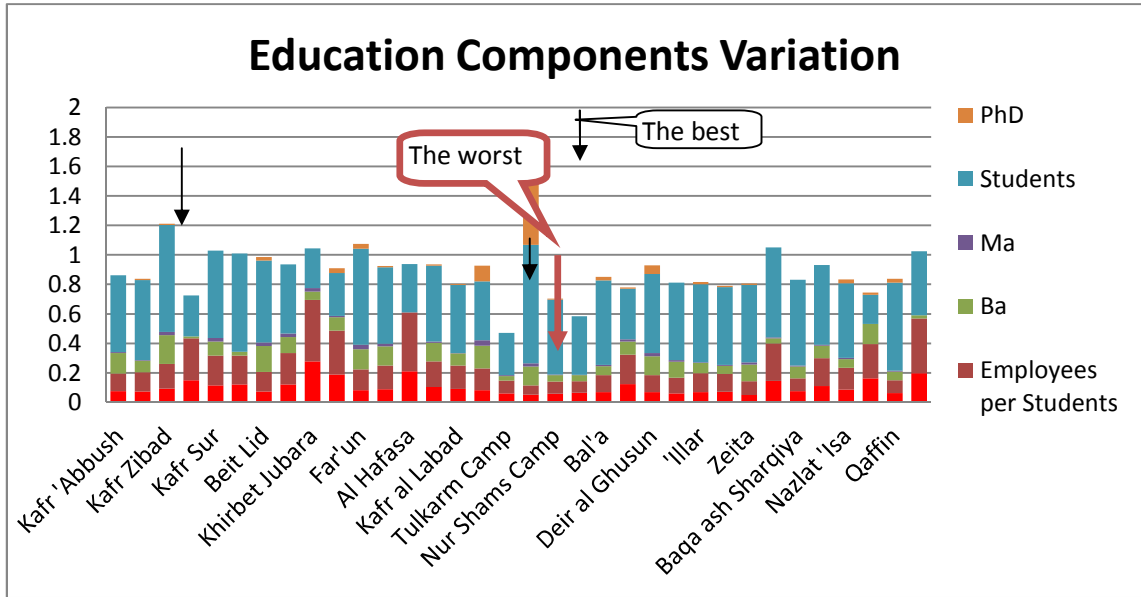
Figure 4.48: Education Component Variation

4.3.4 Results of Health Sector

The components' weights, illustrated in Figure 4.49 show that the hospitals had a high effect on the health sector (22%), followed by health insurance (20%), and the least effect was that of dental clinics (11%).
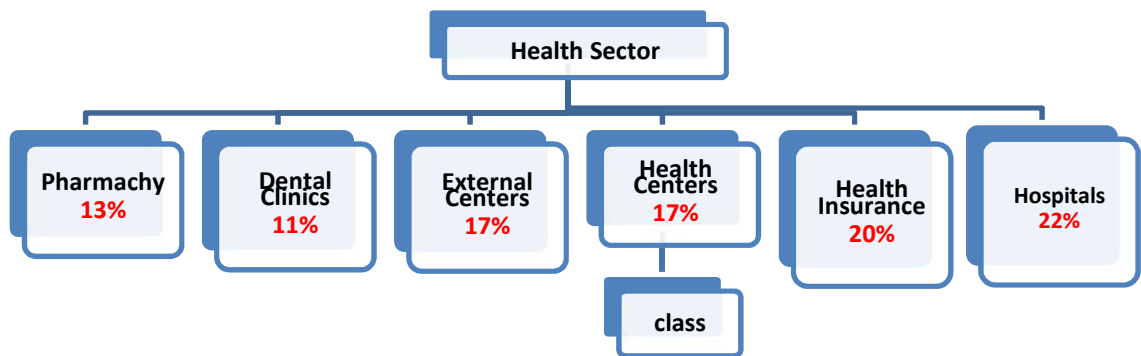
Figure 4.49: Health Components and Their Ratio Effect on Health Sector

The final map is the overall sector map, consisting of six component maps which represent the health sector. The sector map was built through

the weighted overlay, taking into consideration the effect of weight of each
component.

Table 4.13: Results of Health Components at Local Level

ID	Community	Clinics Per1,000 Capita	Hospital Per 1,000/Capita	Pharmacy per1,000 Capita	Health Centers	Dental Clinics	External Health Centers	Health Insurance
1	Kafr 'Abbush	0.654	-	-	0.654	-	-	0.810
2	Kafr Jammal	0.786	-	0.393	0.393	-	-	0.857
3	Kafr Zibad	0.885	-	0.885	0.885	-	-	0.831
4	Kur	-	-	-	-	-	-	**0.396**
5	Kafr Sur	0.853	-	0.853	0.853	-	-	0.794
6	Ar Ras	1.764	-	-	1.764	-	-	0.808
7	Beit Lid	0.382	-	0.382	0.191	0.191	-	0.859
8	Saffarin	1.253	-	-	1.253	-	-	0.759
9	Khirbet Jubara	-	-	-	-	-	-	0.645
10	Shufa	0.869	-	0.434	0.434	-	-	0.759
11	Far'un	0.307	-	0.615	0.307	0.307	-	0.839
12	Ramin	-	-	-	0.528	-	-	0.859
13	Al Hafasa	-	-	-	-	-	-	0.715
14	Kafa	-	-	-	-	-	-	**0.599**
15	Kafr al Labad	0.234	-	0.234	0.234	-	-	0.782
16	'Anabta	0.650	0.130	0.390	0.130	0.130	0.130	0.81
17	Tulkarm Camp	0.269	-	0.269	0.090	-	-	0.941
18	Tulkarm	0.539	0.056	0.910	0.074	0.985	0.037	0.831
19	Nur Shams Camp	0.294	-	0.294	0.147	-	-	0.936
20	Iktaba	-	-	0.358	0.358	-	-	0.821
21	Bal'a	0.289	-	0.289	0.144	-	-	0.810
22	Al Jarushiya	-	-	-	1.022	-	-	0.826
23	Deir al Ghusun	0.347	-	0.462	0.116	0.116	-	0.824
24	'Attil	0.316	-	0.422	0.105	0.105	0.105	0.859
25	'Illar	0.154	-	0.308	0.154	-	-	0.795
26	Seida	0.325	-	0.325	0.325	-	-	0.791
27	Zeita	0.334	-	0.334	0.334	0.334	-	0.837
28	An Nazla al Gharbiya	1.017	-	-	1.017	-	-	0.749
29	Baqa ash Sharqiya	0.697	-	0.465	0.232	-	-	0.840
30	An Nazla ash Sharqiya	-	-	0.626	0.626	0.626	-	0.787
31	Nazlat 'Isa	-	-	0.408	0.408	-	-	0.827
32	An Nazla al Wusta	-	-	-	-	-	-	0.838
33	Qaffin	-	-	0.341	0.114	0.114	-	0.870
34	'Akkaba	-	-	-	-	-	-	0.802

Health Sector Map

The health sector map, composed of the components maps, was built through the weighted overlay, taking into account the ratio effect of every component.
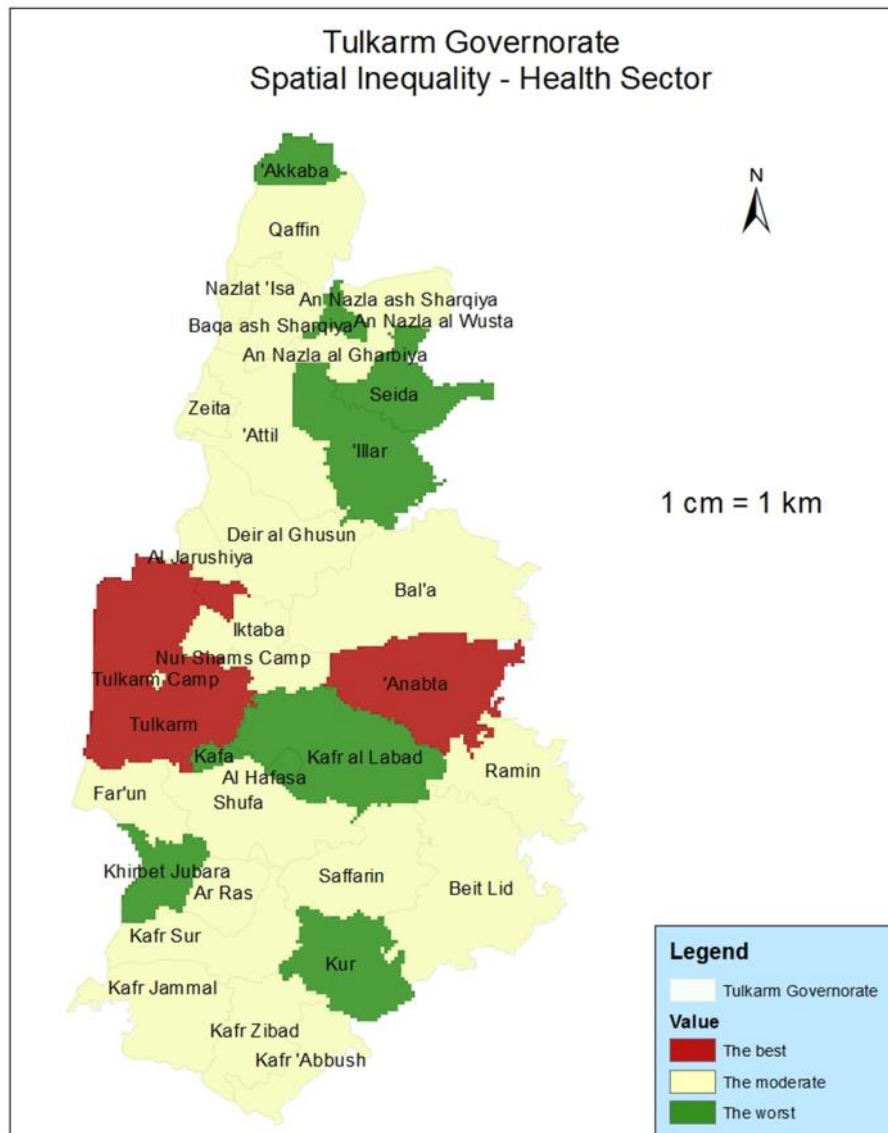
Figure 4.50: Health Sector Map for Tulkarem Communities

The worst off communities, which represented the most negatively affected places by health sector were Kur, Khirbet Jubara, All Hafassi, Kafr al Labad, Seida, Illar, An Nazla al Wusta and Akkaba. This result is

attributed to the fact that these communities had the lowest proportions of the health components. The GIS analysis maps show that the worst communities that had lowest ratio of health insurance were Kur (0.3964) and Kaffa (0.599). The lowest ratio of external clinics in all worst communities that did not have any external clinics was 0%. The reason is that most clinics were concentrated in the centers of Tulkarm city and Anabta. The community in the governorates which did not have dental clinics (0%) outside Tulkarm city (0.9845) was An- Nazla ash Sharqiya (0.6258). Kur, Khirbet Jubara, Al Hafasa, Kafa, An -Nazla al Wusta, 'Akkaba were among the worst communities that had the lowest number of pharmacies (0%) with dark color. All communities did not have hospitals outside Tulkarm city and Anabta.

Despite the fact that it is illogical to have hospitals in every community, it is recommended that all communities receive fair distribution. All hospitals are concentrated in the middle of the governorate (Tulkarem and Anabta). This has affected the spatial of health inequality, where the best off area was in the middle of the governorate. The results of the study show the weight effect of the hospitals (22%) and health insurance (20%). This makes sense in spatial inequality. This is highlighted in the components variation figure.

From another point of view, the results of the components variation among the communities in the figure enable us to see the gap between the highest and lowest values. This indicates that most components were

significant and impacted spatial inequality. This figure shows clearly that the health insurance column had the same length in all communities, which means that the gap between the highest and the lowest values h insurance. Besides, the pharmacy bar had a little variation, so it was considered insignificant. It had no effect on spatial inequality. On the other hand, clinics, health centers and dental clinics are different up and down more than the others. As the figure shows, we can see that the best off communities had hospitals: Tulkarm and Anabta. Regardless of the fact that Anabta did not have the highest length of the accumulative column, than Kafr Sur, it was the best in the health sector map, which means that the hospitals played a big role in the heath sector.
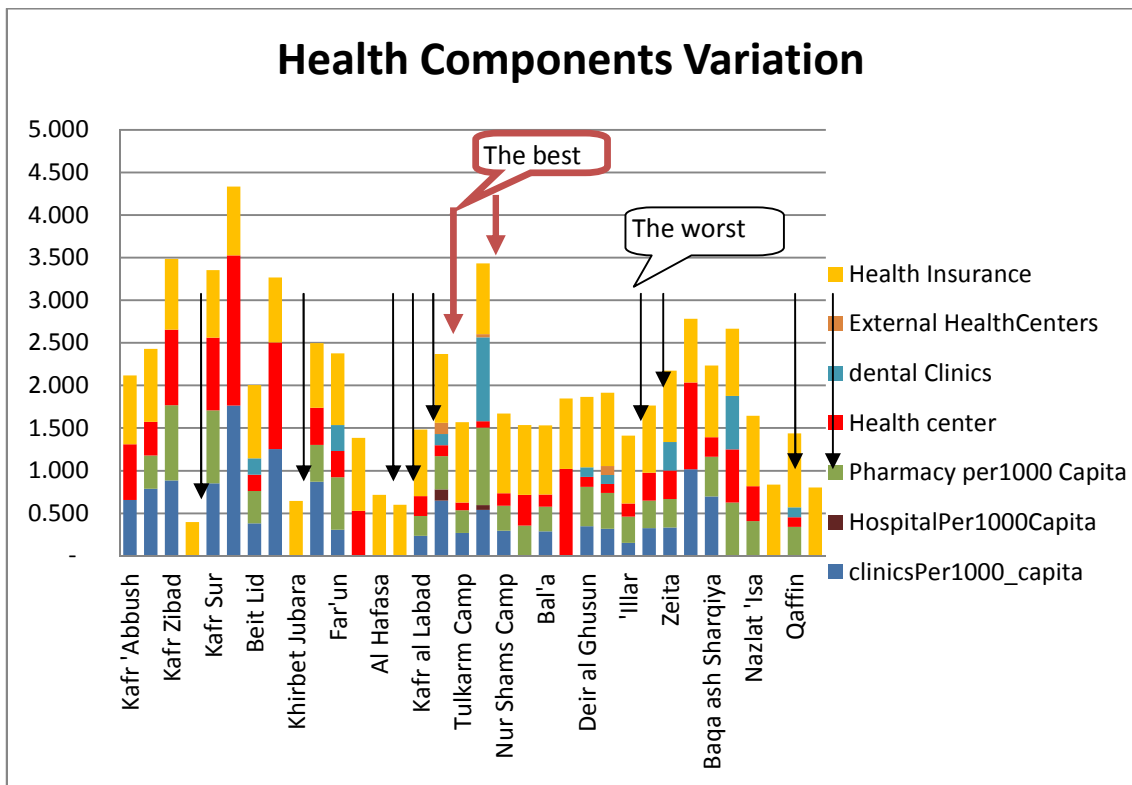
Figure 4.51: Health Components Variation

4.3.5 Results of Infrastructure Sector:

The components' weights, illustrated in the Figure 4.51 below show that the availability of water networks had a high effect on the infrastructure sector (29%), followed by the availability of electricity (25%). The least effect was that of paved roads and sewage networks (23%).
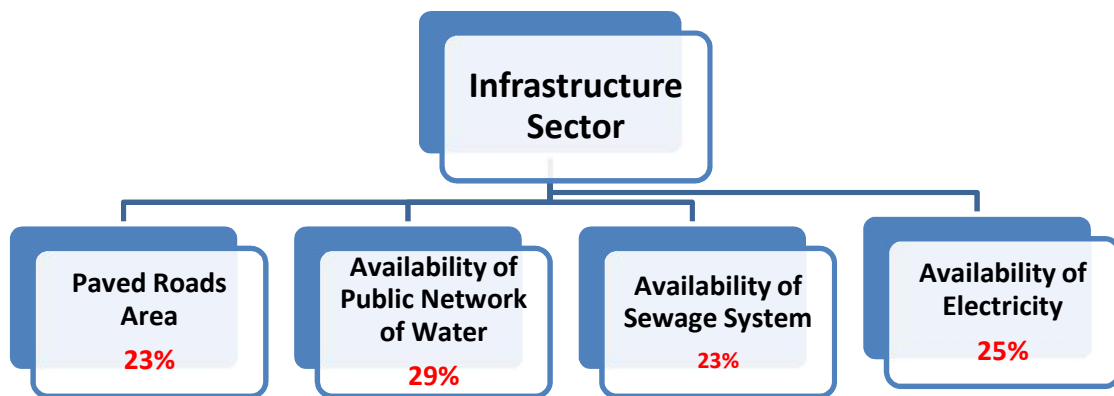
Figure 4.52: Infrastructure Components and Their Ratio Effect on the Infrastructure Sector

The components of the infrastructure sector are four. Every component had an effect of weight on the sector map (final map).These components were weighted overlay through GIS to build the sector map.

Table 4.14: Results of Infrastructure Components at Local Level

ID	Community	Public Network of Water	Availability of Electricity	Availability of Sewage System	Road Area Capita
1	Kafr 'Abbush	0.785	0.989	0	0.049
2	Kafr Jammal	0.992	1	0	0.053
3	Kafr Zibad	0.981	0.995	0	0.039
4	Kur	1.9	1	0	**0.009**
5	Kafr Sur	0.995	0.995	0	0.032
6	Ar Ras	1	0.979	0	**0.016**
7	Beit Lid	0.945	0.987	0	0.139
8	Saffarin	**0.03**	1	0	**0.019**
9	Khirbet Jubara	1	**0.968**	0	**0.021**
10	Shufa	0.992	0.992	0	0.075
11	Far'un	0.994	0.984	0	0.059
12	Ramin	1	0.997	0	0.039
13	Al Hafasa	1	1	0	**0.006**
14	Kafa	**0**	1	0	**0.014**
15	Kafr al Labad	0.913	0.987	0	0.062
16	'Anabta	0.992	0.988	0.583	0.242
17	Tulkarm R. Camp	0.998	0.999	0.999	**0.024**
18	Tulkarm	0.985	0.989	0.737	1.065
19	Nur Shams Camp	0.999	0.999	0.995	**0.042**
20	Iktaba	0.993	0.985	0.214	0.091
21	Bal'a	0.989	0.994	**0**	0.135
22	Al Jarushiya	0.643	0.987	**0**	**0.036**
23	Deir al Ghusun	0.997	0.994	**0**	0.143
24	'Attil	0.97	0.99	**0**	0.212
25	'Illar	**0.032**	0.987	**0**	0.139
26	Seida	0.707	0.986	**0**	0.056
27	Zeita	0.989	0.987	0.64	0.07
28	An Nazla al Gharbiya	**0.013**	0.994	**0**	0.020
29	Baqa ash Sharqiya	**0.044**	0.987	**0**	0.084
30	An Nazla ash Sharqiya	0.516	0.985	**0**	0.023
31	Nazlat 'Isa	0.977	**0.973**	**0**	0.049
32	An Nazla al Wusta	0.205	**0.959**	**0**	**0.012**
33	Qaffin	0.997	0.988	**0**	0.153
34	'Akkaba	**0**	1	**0**	**0.0162**

Infrastructure Sector Map:

The final map represents the sector map which resulted from the components' maps. The sector map was built from the components, taking into consideration the ratio effect of the results of the study.
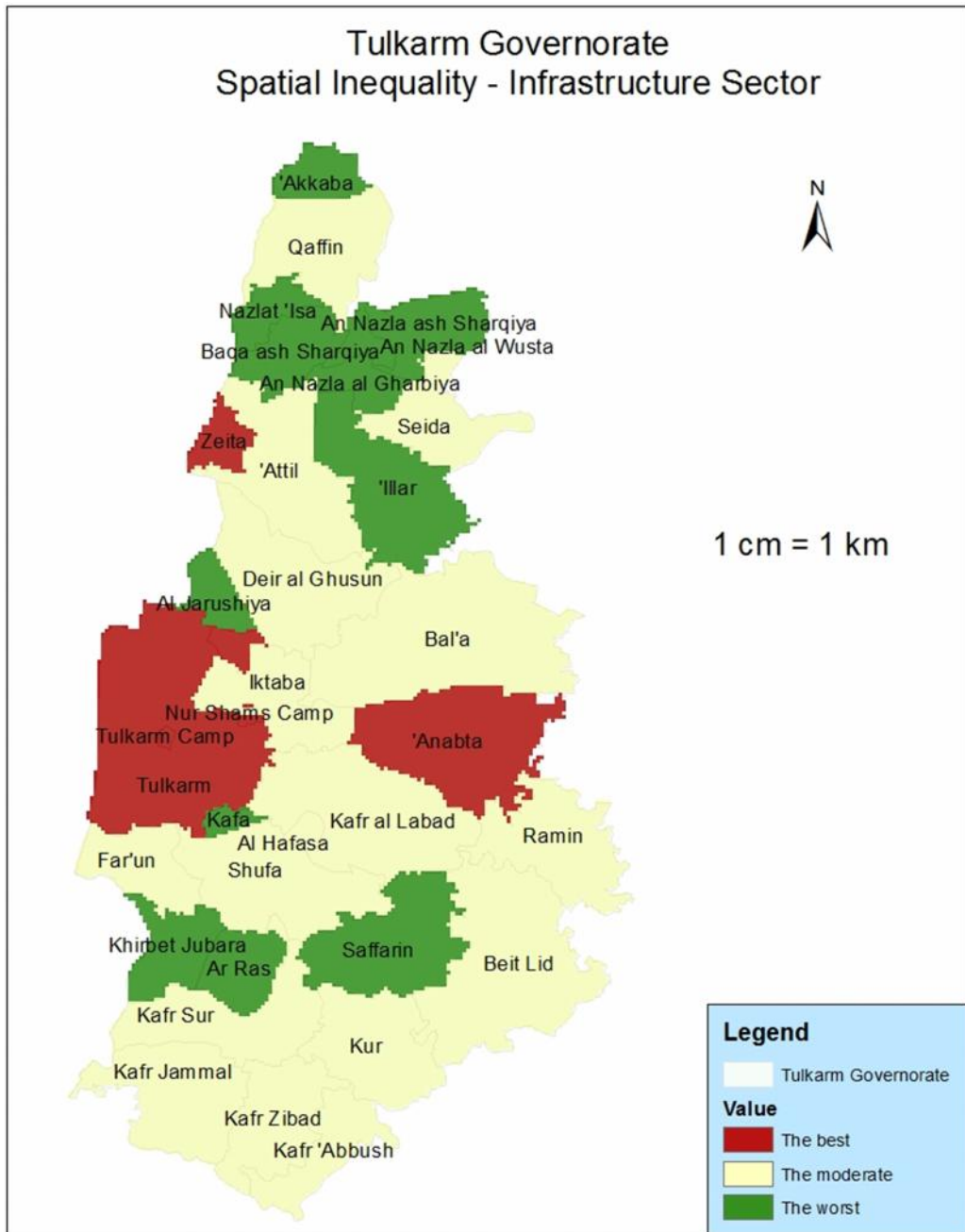
Figure 4.53: Infrastructure Sector Map for Tulkarem Communities

The final map of the infrastructure sector, following the GIS analysis, shows that Kafa, Ar- Ras, Saffarin, Khirbet Jubara, Deir al Ghusun, Illar, An- Nazlat, Baqa Ash Sharqiya and Akkaba were the worst off communities in the governorate. These results estimated the lowest values of availability of public services in these respective communities. Table 4.41 shows the following: the worst localities in water networks were Akkaba (0.0), Kafa (0.0), Illar (0.032), Saffarin (0.03), An Nazla al Gharbiya (0.013) and Baqa ash Sharqiya 0.044. All the worst off communities aforementioned did not have sewage network (0.0%). The worst off communities with no electricity networks were An -Nazla al Wusta and Khirbet Jubara. The worst off communities with poor road networks were Kur (0.0084), Akkaba, An Nazla al –Wusta (0.0124), Al Hafasa (0.0059), Kafa, Saffarin, An- Nazla al Gharbiya and Ar -Ras.

Figure 4.53, on the infrastructure components, shows that the highest variation between the lowest and the highest was in water networks. This big gap is assumed to play an essential role in spatial inequality. If we link this note with the effect ratio from the questionnaire, we would find the weight effect of the water network was the highest (29%). The component in question was magnified in the GIS analysis. The unevenness between the communities is self-evident, but the majority of the communities had water networks. This has reduced the effect of the differences between them.

The bars of road areas and the sewage networks also had a good variation. Its highest effect (23%) affected the infrastructure spatial inequality. The last component bar of electricity network had less variation up and down and was considered an insignificant component which did not have any remarkable effect on spatial inequality. In other words, this component could be rejected. It should be stated that all lowest values were considered the worst values. As Figure 4.53 shows, the recurrence of the low values in the bars indicates the worst off places. That matches the GIS analysis. The arrow lines in the graph refer to the worst communities.
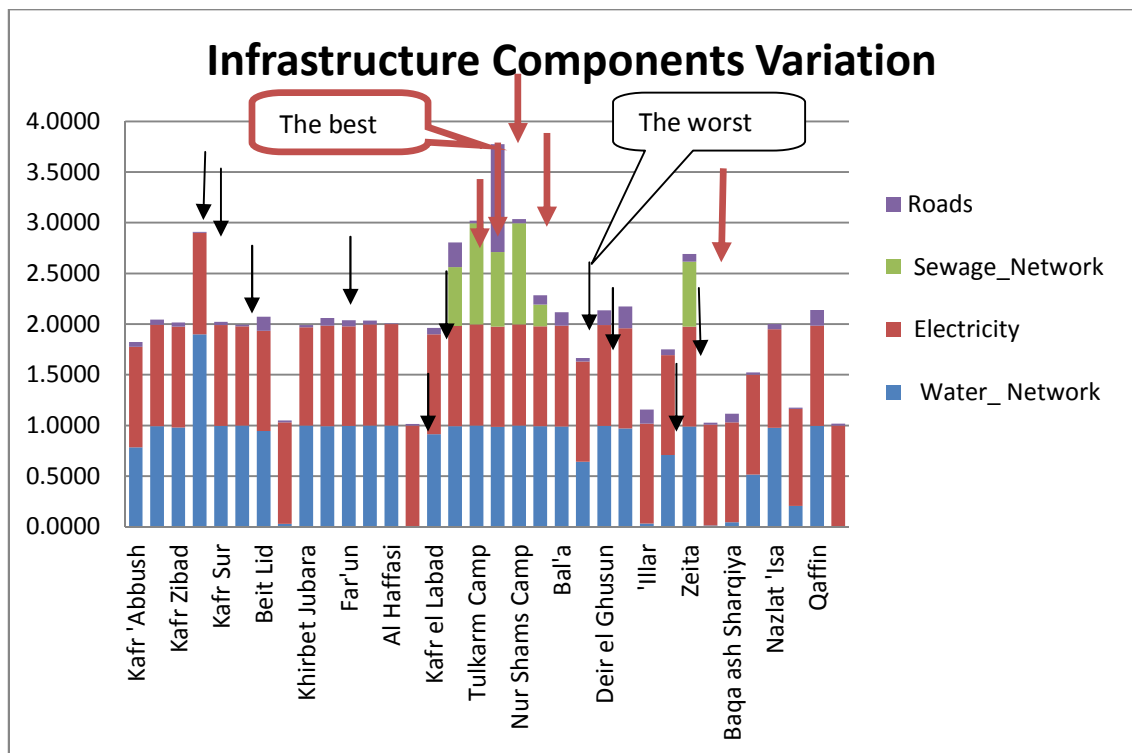
Figure 4.54: Infrastructure Components Variation

4.3.6 Results of Social Sector:

The components weights of the social sector are shown in Figure 4.42 below. These weights show that house density had high effect on the

social sector (28%), followed by availability of divorce (22%) . The least effect was that of proportion of deaths.
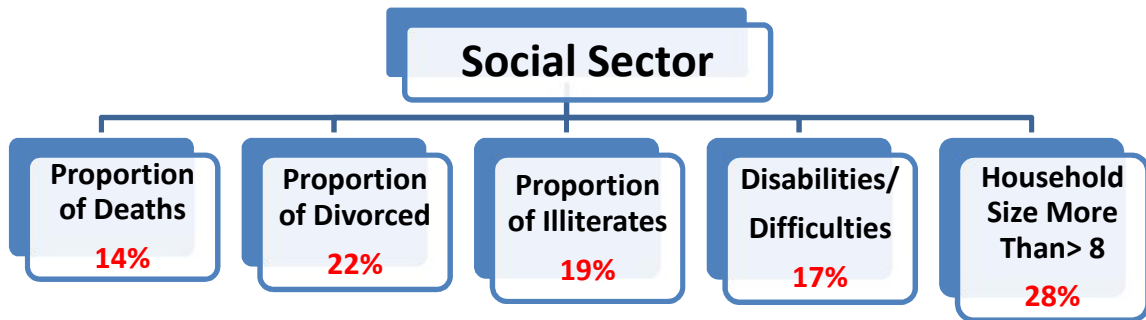
Figure 4.55: Social Components and Their Ratio Effect on the Social Sector

The social sector map is composed of five component maps. Each component had an effect on the final map. Through GIS analysis, and taking into consideration the effect of weight of each component, the social sector map was built.

Table 4.15: Results of Social Components at Local Level

ID	Community	Divorces	Illiterates	Household Size 8+	Deaths	Disabilities/ Difficulties
1	Kafr 'Abbush	0.021	0.052	0.194	0.240	0.013
2	Kafr Jammal	0.020	0.068	0.188	0.158	0.024
3	Kafr Zibad	0.023	0.060	0.170	0.244	0.015
4	Kur	**0.025**	0.055	0.111	0.200	**0.058**
5	Kafr Sur	0.011	0.063	0.155	0.154	0.009
6	Ar Ras	0.000	0.056	**0.263**	0.174	0.016
7	Beit Lid	0.015	0.064	0.177	0.138	0.019
8	Saffarin	0.016	0.055	0.222	0.238	0.011
9	Khirbet Jubara	0.018	0.049	0.111	0.111	0.007
10	Shufa	0.011	0.050	0.209	0.188	0.013
11	Far'un	0.022	0.048	0.137	0.086	0.031
12	Ramin	**0.045**	0.058	0.163	0.163	0.022
13	Al Hafasa	0.000	**0.212**	**0.370**	0.200	0.006
14	Kafa	0.014	**0.575**	0.095	0.167	0.024
15	Kafr al Labad	0.022	0.057	**0.282**	0.191	0.020
16	'Anabta	**0.032**	0.040	0.159	0.209	0.027
17	Tulkarm R. Camp	**0.038**	0.051	0.217	0.137	0.037
18	Tulkarm	**0.028**	0.027	0.164	0.131	0.032
19	Nur Shams Camp	**0.037**	0.040	0.198	0.115	0.054
20	Iktaba	0.018	0.031	0.244	0.063	0.019
21	Bal'a	0.021	0.041	0.218	0.115	0.018
22	Al Jarushiya	**0.024**	0.037	0.137	**0.375**	0.025
23	Deir al Ghusun	0.021	0.045	0.164	0.142	0.028
24	'Attil	**0.024**	0.047	0.200	0.163	0.023
25	'Illar	0.010	0.048	0.233	0.117	0.030
26	Seida	**0.026**	0.045	0.154	0.047	0.020
27	Zeita	**0.027**	0.057	0.178	0.250	0.030
28	An Nazla al Gharbiya	**0.027**	0.043	**0.277**	0.100	0.020
29	Baqa ash Sharqiya	0.016	0.034	0.209	0.169	0.018
30	An Nazla ash Sharqiya	**0.025**	0.061	0.240	**0.229**	**0.040**
31	Nazlat 'Isa	0.015	0.032	0.176	0.067	0.020
32	An Nazla al Wusta	0.000	0.106	0.123	0.111	0.011
33	Qaffin	0.009	0.037	0.175	0.119	0.025
34	Akkaba	0.000	0.067	**0.375**	0.000	0.000

Social Sector Map:

- The social sector map came from the weighted overlay of the related components, taking into account the ratio effect.
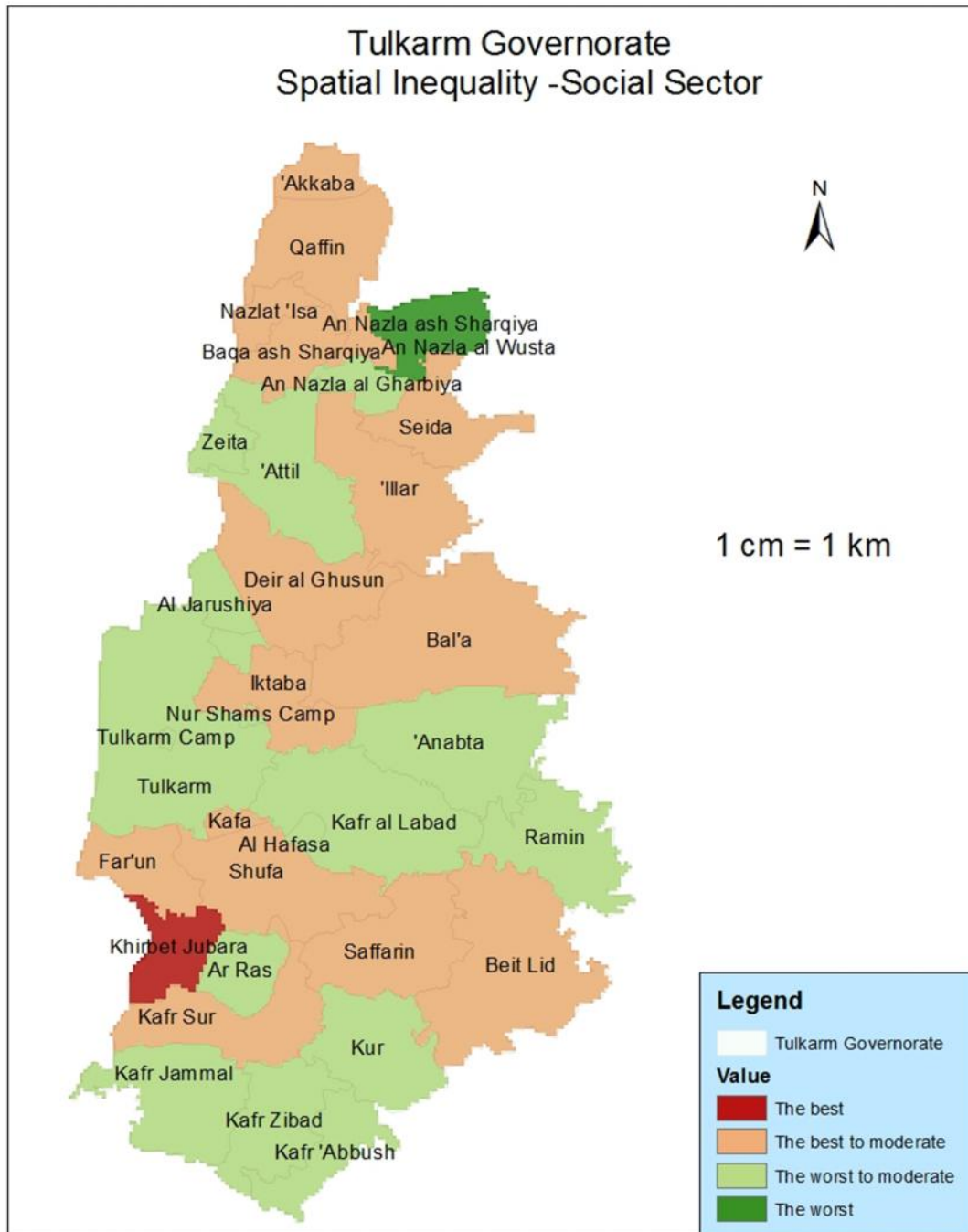
Figure 4.56: Social Sector Map for Tulkarem Communities

The less fortunate community, which represents the most negatively affected place by social sector, was An -Nazla Ash Sharqiya (30). This community was one of the worst off communities in the components maps in number of divorces, difficulties and disabilities and deaths . In the map of household size + 8, An- Nazla ash Sharqiya ranked the second place in terms of worseness. The weight of household size + 8 (more than 8) was 28%; the effect was magnified over the social sector map (final map).

From another point of view, the results of the components variation among the communities in the figure enabled us to observe the gap between the highest and lowest values in most communities. This indicates that most components had spatial inequality. This figure shows clearly that the household size + 8 and deaths were the components that affected spatial inequality the most. The illiterate column varies up and down more than the other columns although it played a little role in the unevenness; all its values were small in all communities except two values. That makes no sense in the overall picture. It explains why An- Nazla ash Sharqiya was the worst off community and not Kaffa (14). Although the length of the accumulative column of components was the highest, Al Hafasa (13) did not have divorce cases in the period of the study, and it had the lowest number of disabilities and difficulties. This was the reason why it was not among the worst off communities. On the other hand, we notice that the gap between the lowest and the highest values was small in the case of divorces and disabilities. Such results had minor effects on the spatial inequality. As Figure 4.56 shows the highest columns of components in

many communities, indicating the worst off places. And that matches the GIS analysis in the social sector map. The arrow lines refer to the worst off community (An- Nazla ash Sharqiya), but the best off community that had the maximum number of overlapping of the lowest values was Khirbet Jubara.
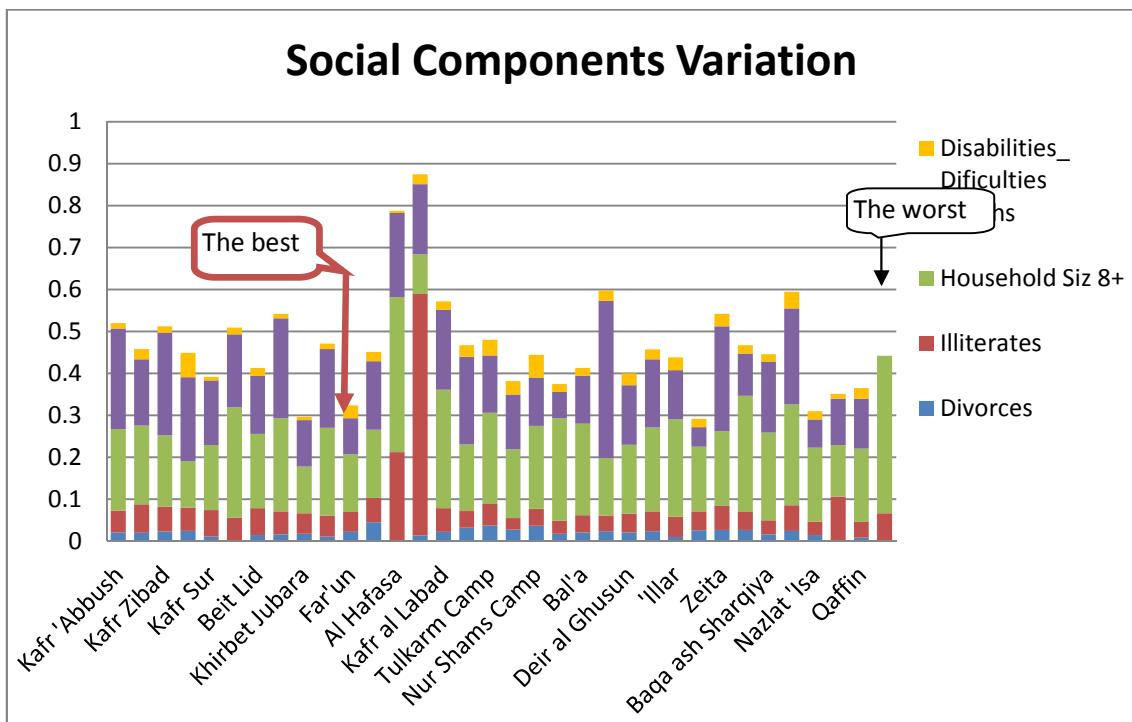
Figure 4.57: Social Components Variation

4.3.7 Results of Telecommunication and Transportation Sectors:

The components weights, illustrated in the Figure 4.57 show that road areas had a high effect on the telecoms and transportation sectors (27%) followed by the private cars (26%), and the least effect was that of the phone lines (22%).
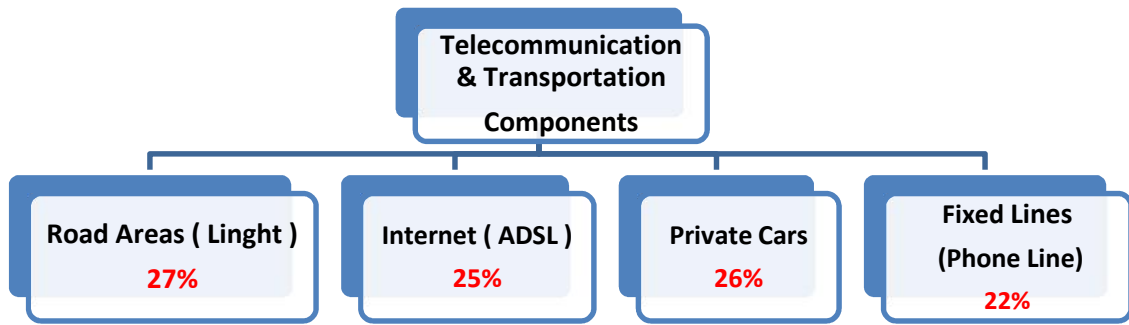
Figure 4.58: Telecommunication & Transportation Components and Their Ratio Effect on the Sector

The components of the telecommunication and transportation sectors are four. Every component had an effect on the sector map (final map). (Figure 4.57). These components were weighed overlay through GIS to build the sector map.

Table 4.16: Results of Telecommunication and Transportation Components at Local Level

ID	Community	Private Cars	Road Area Per Capita	Households having Fixed Lines	Households havingADSL Lines
1	Kafr 'Abbush	0.158	0.049	0.705	0.488
2	Kafr Jammal	0.157	0.053	**0.481**	0.363
3	Kafr Zibad	0.15	0.039	0.870	0.649
4	Kur	**0.074**	**0.008**	0.574	0.352
5	Kafr Sur	0.241	0.032	0.667	0.410
6	Ar Ras	0.295	**0.016**	0.646	0.448
7	Beit Lid	**0.062**	0.139	0.610	0.438
8	Saffarin	0.141	**0.019**	0.574	0.353
9	Khirbet Jubara	0.492	**0.021**	**0.413**	0.270
10	Shufa	0.232	0.075	0.630	0.415
11	Far'un	0.156	0.058	0.558	0.373
12	Ramin	0.154	0.039	0.552	0.343
13	Al Hafasa	**0**	**0.006**	**0.000**	**0.000**
14	Kafa	0.135	**0.014**	0.853	0.653
15	Kafr al Labad	**0.07**	0.062	**0.244**	**0.145**
16	'Anabta	0.2	0.242	0.901	0.586
17	Tulkarm R. Camp	**0.054**	**0.024**	**0.451**	0.285
18	Tulkarm R. Camp	0.24	1.065	1.092	0.700
19	Nur Shams Camp	**0.085**	0.042	0.526	0.366
20	Iktaba	0.292	0.091	0.657	0.458
21	Bal'a	0.19	0.135	0.620	0.408
22	Al Jarushiya	0.258	0.036	0.792	0.514
23	Deir al Ghusun	0.235	0.143	0.635	0.396
24	'Attil	0.295	0.212	0.751	0.442
25	'Illar	0.26	0.139	0.597	**0.268**
26	Seida	0.498	0.056	0.639	**0.269**
27	Zeita	0.142	0.074	0.561	0.300
28	An Nazla al Gharbiya	0.09	**0.020**	**0.506**	0.327
29	Baqa ash Sharqiya	0.21	0.084	0.598	0.308
30	An Nazla ash Sharqiya	0.138	0.023	**0.451**	**0.217**
31	Nazlat 'Isa	0.217	0.049	0.573	0.311
32	An Nazla al Wusta	0.219	0.012	0.527	0.311
33	Qaffin	0.184	0.153	**0.510**	0.304
34	'Akkaba	0.475	**0.016**	**0.463**	**0.268**

Telecommunication and Transportation Sectors Map:

The final map, composed of four components, came through the GIS analysis weighted overlay. Taking into consideration the ratio effect of every component, the telecommunication and transportation sectors' map will be built .
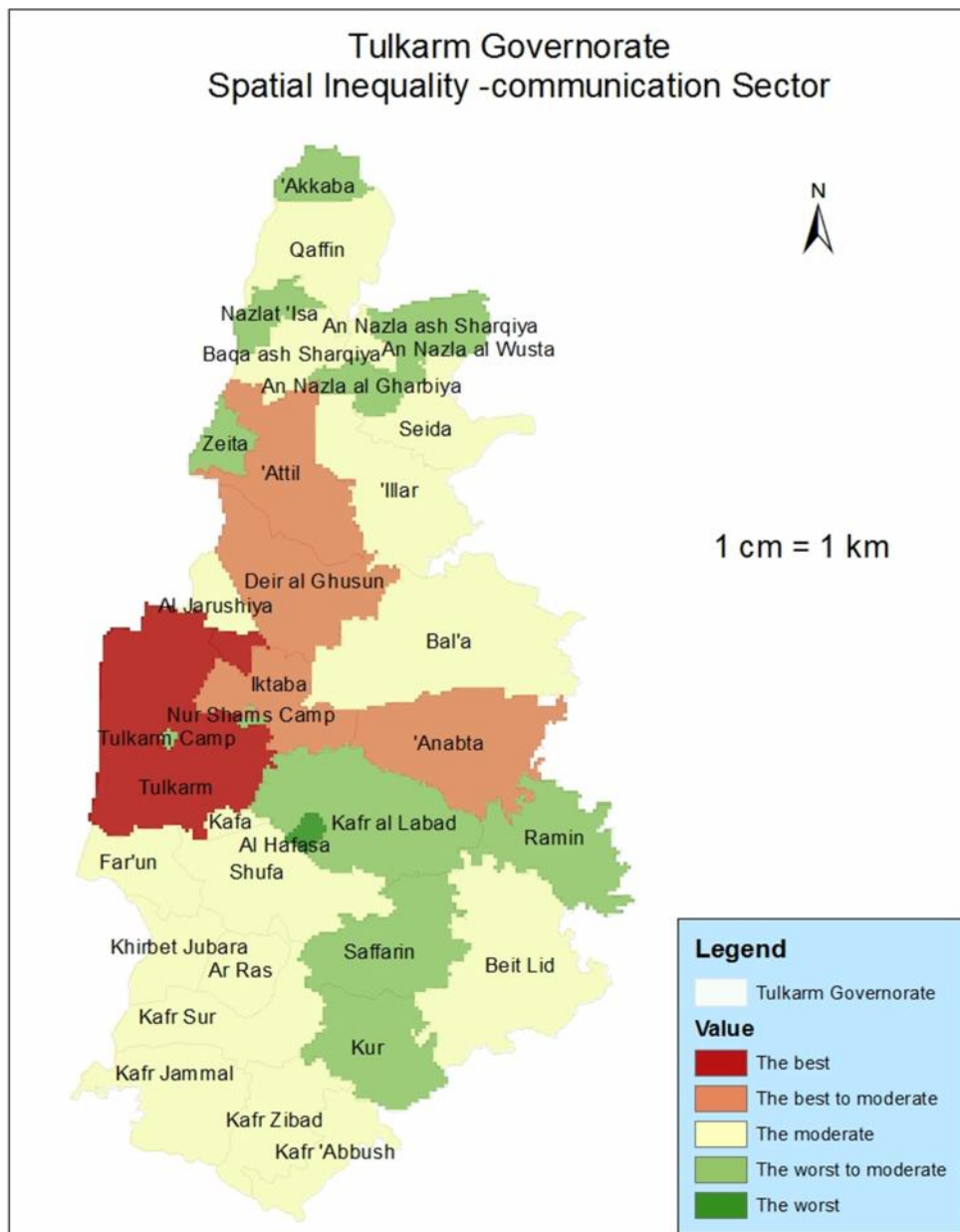
Figure 4.59: Telecommunication and Transportation Sector s' Map for Tulkarem Communities

The highest components effect was the ratio of paved road areas in the locality (27%). The lowest components effect was that the phone lines (22%).

The less fortunate community, after GIS analysis, based on the result of the weight analysis was Al-Hafasa (13) while the best place was Tulkarm City (18).

The final map of telecommunication and transportation sectors, which came from GIS analysis, shows the best off and the worst off communities. Figure.4.45 revealed that Al-Hafasa was the worst off community and the best off was Tulkarm city. In order to explain this result, we have to look at the components maps in terms of how many times Al -Hafasi was classified as the worst community or Tulkarm as the best off community, Al- Haffasi was one of the worst communities in the maps of the private car ownership, ADSL- lines, fixed lines (telephones) and paved roads area. It is worth mentioning that Al -Haffasi had neither telephones and internet networks, nor paved roads outside the agricultural road which connects Tulkarn and Kafr el- Labad. Tulkarm was shown as one of the best communities in ADSL (Internet) map, the best off in the road area map and, telephones (fixed lines). The results of the study give the highest weight for the road network areas (27%). This weight magnified the effect of this component on the sector map.

The figure on components shows that road areas and private car bars vary up and down more than others. This means that components played an

essential role in spatial inequality. The telephone bar had less variation than the road areas, In other words, the gap between the highest and the lowest values was small and that means the majority of communities had the same values. Therefore, the inequality did not exist. The shortest bar indicates the worst place. The highest bar indicates the best off community. Figure 4.59 shows that the highest accumulative bars represent the best off community (Tulkarm city), and the worst off community (Al Haffasi).
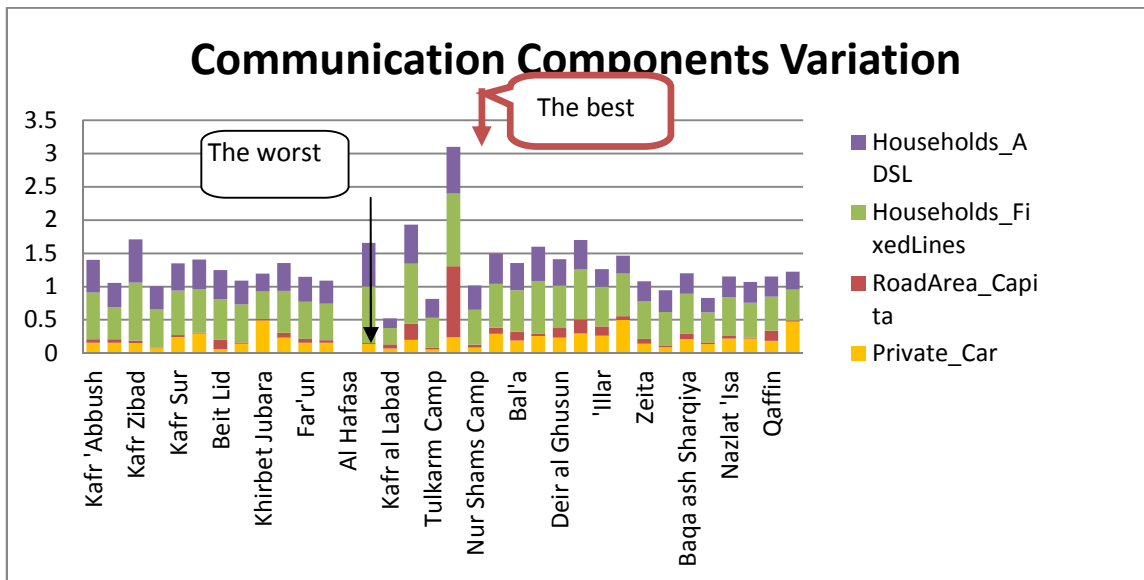
Figure 4.60: Telecommunication and Transportation Components Variation

Final map of All Sectors for Tulkarem Communities:

All sectors maps were combined together in another GIS analysis using a weighted overlay order. The effect of weight of every sector on the final map was taken into account .The final map was taken and it showed the best and the worst off communities in the two sectors

Table 4.17: Results for All Sectors and Their Ratio Effect on Public Life in Tulkarem Communities

	TeleCommunication Sector	Infrastructure Sector	Social Sector	Health Sector	Education Sector	Economic Sector	Political Sector
Average of Statistical Results	9.82	12.22	10.82	10.91	14.41	20.91	21.36
Average	10	12	11	11	14	21	21

Final Map
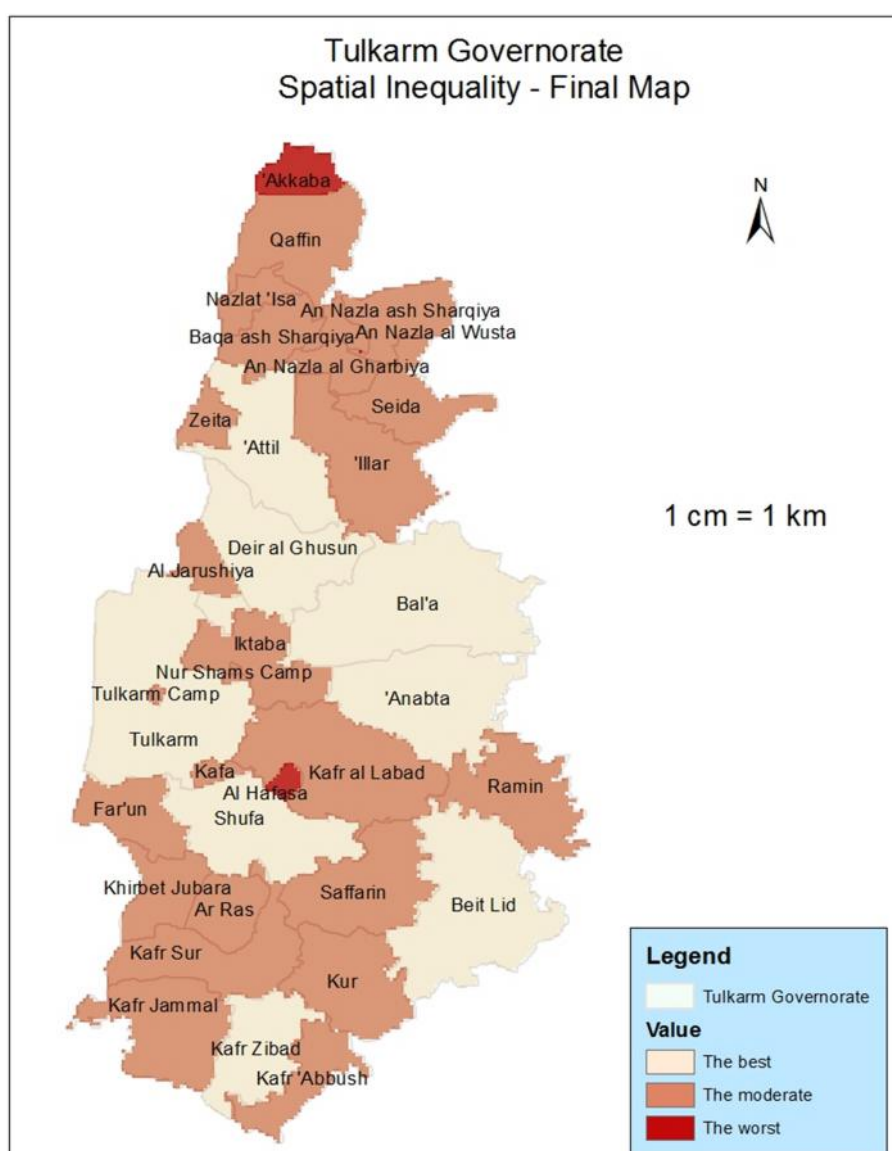
Figure 4.61: Final Map of Public life for Tulkarm Communities

As the final map shows, it is obvious that there are three areas representing the level of overall services in the localities. The best off has light color, and the moderate area and the worst off area had a dark color. This was obtained through the combination of all sector maps according to the effect of weight of every sector in Table 4.17. This table shows the highest effect of weight on the economic and political sectors (21%). The final map shows that the worst off communities were Akkaba and Al - Hafassi, and the best off communities were Attil, Deir el Ghusun, Balʼa, Anabta, Tulkarm, Shufa, Beit Lid and Kafr Zibad.

All the aforementioned communities were the best in the economic sector. If we held a comparison between the best communities in the final map and the economic sector map, we would find a big similarity. All the best off communities in the economic map were themselves in the final map outside. Kafr Jammal and Kafr Abbush were among the moderate. However, in the case of the worst off communities, things were different. In order to reveal which sector affected the final map more than others, a comparison was made between the sector maps and the final map. Therefore, we can say that the highest ratio of similarity in the number of the communities that had the same feature in both final and sector map, was considered the most effective.

$$Economic\ Similarity$$
$$= \frac{Number\ of\ communities\ that\ had\ the\ same\ feature\ (best\ and\ worst)in\ the\ economic\ sector}{Number\ of\ the\ best\ and\ worst\ communities\ in\ the\ final\ map}$$

$$Ratio\ of\ similarity\ in\ the\ economic\ sector = \frac{7}{9} = 78\%$$

Political Similarity

$$= \frac{Number\ of\ communities\ that\ had\ the\ same\ feature\ (best\ and\ worst)in\ the\ political\ sector}{Number\ of\ the\ best\ and\ worst\ communities\ in\ the\ final\ map}$$

$$Ratio\ of\ similarity\ in\ the\ economic\ sector = \frac{5}{9} = 55\%$$

The big similarities were in the results of the economic and political sectors and the final map for all sectors (78% and 55% successively) These similarities show the big effect of both sectors on the general situation and spatial inequality in Tulkarm communities. If we took a look at all sectors' maps and final map, we would find Akkaba as one of the worst off places in the social sector, infrastructure sector, health sector and political sector, while Al Haffasi was among the worst off places in the telecommunication and transportation sectors, and health sector. The other sectors had less effect on the final picture. The similarity between the social map and the final map is a case in point.

Social Similarity

$$= \frac{Number\ of\ communities\ that\ had\ the\ same\ feature\ (best\ and\ worst)in\ the\ social\ sector}{Number\ of\ the\ best\ and\ worst\ communities\ in\ the\ final\ map}$$

$$Ratio\ of\ similarity\ in\ the\ social\ sectoor = \frac{0}{9} = 0\ \%$$

$$Ratio\ of\ similarity\ in\ the\ Infrastructure\ ssector = \frac{3}{9} = 33\ \%$$

Based on the above results, we can conclude that not all sectors had the same effect on social life (final map). The economic sector ranked first class while the political sector ranked the second class. They had a bigger effect than the social or infrastructure sectors on spatial inequality in Tulkarm governorate.

The weights of the classes in all sectors could be another way to explain the results in the final map.

The weight of the community in all sectors was calculated as the sum of class order in the sector maps. The classification of communities, from the best to the worst, respects the descending order. The best took 1 and the worst took 5. All communities and their classes in all maps were filled and grouped in Table 4.18. in terms of the best off and the worst off (two classes for both) communities that had the same weights.

Table 4.18: Results of all Sector Maps at Local Level

ID	Community	Political 4	Economic 4	Education 4	Health 3	Infrastructure 3	Social 4	Telecommunic ation 5	Class weight	
16	'Anabta	1	1	1	1	1	3	2	10	Best off
18	Tulkarm	2	1	1	1	1	3	1	10	
7	Beit Lid	1	1	2	2	2	2	3	13	Best to moderate
21	Bal'a	1	1	2	2	2	2	3	13	
23	Deir al Ghusun	2	1	2	2	2	2	2	13	
24	'Attil	2	1	2	2	2	2	2	13	
4	Kur	1	3	3	3	2	3	4	19	Worst to moderate
6	Ar Ras	3	3	2	2	3	3	3	19	
28	An Nazla al Gharbiya	2	3	2	2	3	3	4	19	
29	Baqa ash Sharqiya	2	2	3	2	3	4	3	19	
30	An Nazla ash Sharqiya	1	3	2	2	3	4	4	19	
31	Nazlat 'Isa	3	3	2	2	3	2	4	19	
32	An Nazla al Wusta	2	4	2	3	3	2	3	19	
13	Al Hafasa	3	3	3	3	2	3	5	22	Worst off
34	'Akkaba	4	4	2	3	3	2	4	22	

Chapter Five

Conclusions and Recommendations

Based on GIS analysis and the weighted overlay of components for the related sectors and the result of study, sector maps and final maps were drawn for all sectors. One was for the governorates of the West Bank and another for the communities of Tulkarm Governorate as a case study. Therefore, under the concept of the best-off and the worst-off areas, the following conclusions and recommendations have been given:

5.1 Conclusions:

5.1.1. At the National Scale:

Depending on the final map in the results and the summary table of all sectors at the national level, it can be concluded that the best off areas (Ramallah and Nablus) had only one worst off sector (social sector). However, Nablus appeared in the five sectors as the best off area. Ramallah, in contrast, appeared in four sectors as the best off. On the other hand, the worst governorates had at least one worse sector to five sectors. Tubas Governorate is the case in point. Some governorates did not fall in any of worse sectors. They are classified as worst - moderate governorates in many sectors. Tulkarm Governorate is one example.

5.1.1.1 Worst Sector at the National Scale:

Based on the results of the study, the economic sector had a 22% effect on spatial inequality. This result agrees with the known argument

that the basis of politics is economy. Because of this, it was found that Jericho was among the worst off governorate in the economic field. This governorate had the second highest proportion of Area C after Jerusalem. It is well known that all development projects are forbidden or limited and need permission from the occupation forces. The correlation between the political and the economic sectors is demonstrated in the components of the political sector. For instance, the establishments closed for being next or behind the Wall, the lands isolated behind the Wall, and water resources (wells and groundwater basins) isolated, land confiscated or the access have also been denied.

All the worst off governorates in the economic and political sectors were not among the best areas in the final map. Based on these results, it is clear that the economic and the political sectors had a big negative effect on formation of the final map and on spatial inequality.

5.1.1.2 Worst Governorates at the National Scale:

The final map, sectors maps and the comparison between them revealed that Nablus and Ramallah were the best off areas regarding all sectors. The worst off governorate was Tubas. It had five poor sectors maps (infrastructure, education, culture, communication and health). Hebron was the worst off in two sectors: social and telecommunication and transportation sectors). Jenin was the worst off governorate in three sectors: social, culture and communication. Jericho was one of the worst off sectors in economy, culture and telecommunication and transportation sectors.

Jerusalem was the worst-off in the political and telecommunication and transportation sectors. Likewise Qalqilya and Salfit were the worst off in the political and telecommunication and transportation sectors. Tulkarem was classified as one of the moderate to worst in the telecommunication and transportation sectors. These governorates were not classified in the same level in term of the worst off. Based on the aforementioned, we can say that all governorates were the worst outside Ramallah and Nablus. Ramallah is considered the political capital city and Nablus is considered the economic capital city.

5.1.1.3 Worst Components Affecting the Sectors Maps at National Scale:

The main components that affected the sector maps, more than others, were number of settlers, Area C and number of settlements (in the political sector). In the economic sector the main components were the cultivated area, the water pumped for agricultural use, number of employees and gross added value. These values affected significantly the social sector. The components that affected spatial inequality more than others were deaths, traffic road accidents and poverty. Waste collection, electricity and water networks affected the infrastructure sector more than other sectors. In the education sector, research projects, class density and M.A. degree holders and cultural institutions had a significant effect (diversity) on the cultural sector. In the telecommunication sector, it was found that internet lines, vehicles and road networks had a big effect on spatial inequality. In the health sector, the number of beds per 1,000 inhabitants played a big role in the differences.

5.1.2 Local Level Scale

5.1.3   Worst Sector at Local Level Scale

The results of the study at the local level, the comparison between the component maps and the final map showed that both economic and political sectors had the same biggest effect: 21% on the state of spatial inequality. The correlation and the interaction between the political and economic components explain the conflict between the Israeli occupation forces and the Palestinian people over the land because the land is an important factor in any development policy (water resources, agricultural activity, urban sprawl, transportation road networks… etc).

The economic and political sectors also were found to have a negative impact on the social sector. These sectors have increased poverty, unemployment, and housing density. The accessibility was restricted to education, health and employment centers for the people who were isolated behind the Wall. The pattern of the negative effect of political sector on the economic field was in the number of establishments closed, the land confiscated for settlements, the Wall and the bypass roads and the aquifers.

5.1.2.2 Worst Communities at the Local Scale:

Akkaba and Al Hafasi were the worst off communities because both of them were affected by the political and economic sectors. Akkaba was the worst off in the political sector while Al Hafassi was the second worst communities in terms of the political and economic sectors. Both

communities were marginalized when it came to main services. Al Hafasi did not have any health and telecommunication and transportation services. Akkaba was the worst off in the infrastructure sector.

This demonstrates the results of the study which assumed that the wall and the settlements played a big role in social life. The Wall has isolated the land and people of Akkaba. This was in addition to the demolition orders for homes in Area C. This demonstrates that the communities close the Wall or the Jewish settlements are always the worst off places in the governorate. The best-off communities were Attil, Deir el-Ghusun, Bal ʾa, Anabta, Tulkarm city, Shufa, Beit Lid and Kafr Zibad.

5.1.2.3 Worst Components Affecting the Sectors Maps at Local Level Scale:

The Wall and Area C are the political components which affected the political life and all aspects of the social life the most. The urban sprawl, the economic activity, the availability of transportation for the people, isolated behind the wall, and the infrastructure projects in Area C like, road paving need permission from the Israeli occupation forces. The number of establishments, laborers in Israel, raised poultry and buildings are the components that impact the economic differences between the communities the most. Ph.D. and students affect the education sector more than the other components. Clinics, health centers, dental clinics and hospitals had the biggest effect on health. In the infrastructure sector, the worst components which affected spatial inequality more than other component were sewage

and road networks. In the social sector, the household size, rate of deaths, road areas and private cars were the most significant components which affected the telecommunication transportation sectors.

5.2   Recommendations:

5.2.1 Worst Sectors:

It was found that the economic and political sectors were the worst sectors which affected the final map. The measures should be taken to overcome the negative effects. To that end, it is important to address the factors that have led to this outcome. It is also important that decision makers follow a policy based on scholarly research and adopt the recommendations based on the conclusions.

One conclusion drawn is that the economic sector plays a great role in the spatial equality of the governorates (22%). Therefore, the priority of the concerned authorities must be to earmark 22% of their budget s to the economic field. This measure should be taken in order to compensate spatial inequality and achieve economic justice between governorates. In this area, the results of this analysis can be useful and should concentrate on economic reforms in most components which played an essential role in the sector. These components are the cultivated land area, the water pumped for agricultural use, the number of employees and GAV. In this way, support of small projects and reduction of taxes, imposed on farmers, help in creation of jobs and increase of the GDP(Gross Domestic Product).

These activities should be in Jericho, Tubas, Salfit, Jerusalem and Bethlehem.

Pertaining to the political sector, addressing the negative effects requires the completion of liberation and independence which is unattainable at the moment. For instance, Area C's security and civil administration are under the Israeli control. Furthermore, the issue of the land confiscated for settlements, the Wall and settlers cannot radically be solved at present. Despite the obstacles on the ground, we recommend some measures. There is a necessity to support the agricultural projects in Area C. This can be achieved by adopting popular resistance against the Wall and exposing the crimes of the occupation, in the international media, to stop the demolition orders. There is also a need to encourage forestation in the land, classified as financial, to stop land confiscation. Finally, the agriculture projects in Area C should be supported by both the political and economic sectors.

5.2.2. Deprived (Worst) Governorates:

Tulkarm, Qalqilya, Salfit, Hebron, Jerusalem, Bethlehem, Jenin, Tubas and Jericho were found to be the worst among the eleven governorates explored in this study. This means that the vast majority of West Bank is considered the worst in one or more sectors. This reality requires diverse measures to be taken by decision/policy makers. The priority of development policy must be considered the main principle in any policy in order to achieve justice between governorates in all aspects of

life. This objective requires orienting the kinds of developments as priorities in the target places. In other words, the sector or sectors in every governorate should be developed or improved. Under this concept, we recommend that the decision makers develop the worst governorates as follows:

Tubas needs to be developed in the sectors of infrastructure (the sewage and water network in 11 localities), education, culture, telecommunication and transportation and health. Jericho needs to be developed in the sectors of economy, culture and telecommunication and transportation. Jenin needs also to be developed in the sectors of social, culture and telecommunication and transportation. Jerusalem, Salfit and Qalqilya need a support policy to resist the negative effect of the political situation and needs to be developed in the telecommunications sector. Hebron needs to be developed in the social and telecommunication sectors. Tulkarm needs to be developed in the telecommunications and transportation sectors.

5.2.3 Worst Sector at the Local Level Scale:

In the findings of the GIS analysis, it was found out that the political and economic sectors had the greatest effect on social life. Every sector had 21% effect on the final map. Therefore, it is recommended that decision makers in Palestinian National Authority and local councils draw new policies and give priorities to development of economic projects. About 21% of budget should be allocated for the development of economic

projects and 21% to support the communities that are affected by the political situation despite the limitations on change of the situation of political situation, due to the occupation and liberation. The well-known argument is that policy-based economy is useful and logical, but under the occupation, it is not. Therefore, the policy move in supporting the affected communities can take place through agricultural projects in Area C, supporting the people isolated behind the Wall, and activating popular resistance against the occupation policies.

5.2.4 Deprived (Worst) Communities:

Given the priority of economic development, to compensate for the disparities of social inequality between the communities, the recommendation for the policy makers is to achieve equality between the communities of Tulkarm in all sectors. As for the worst off communities, namely Akkaba and Al –Haffasi, the development must be in the most affected components in every community. This concept can be achieved relatively because the political components. Area C, and the Wall require radical solutions and these are unattainable at present. However, measures should be taken to save the land from confiscation and support the affected people by the Israeli occupation forces. Therefore, it's recommended that the negative effects of political sector in Akkaba (which resulted from the occupation policy) be addressed seriously. This can be achieved by providing material support for agricultural projects in Area C, despite the restrictions imposed by the occupation forces. Popular resistance could be

organized against the Wall. In addition, the crimes of the occupation have to be exposed in the international media to stop the demolition orders. Concerning Al- Hafasi, it is necessary to install a phone line network, internet, paved roads in the community. It is also recommended that health centers be built in both Akkaba & Al- Hafasi.

5.3 General Recommendations Related to Thesis Subject:

Spatial inequality (SI) in many sectors affects human rights of people to live in security and enjoy justice regardless of their place of residence. The patterns of SI in the West Bank and in the communities of Tulkarem Governorate were revealed in the results of analysis. This conclusion of analysis is used to guide decision makers in determination of their priorities of development projects. But here in the case of the West Bank under occupation, it is difficult for the Palestinian National Authority to meet the needs of people in various sectors, especially in the political sphere. However, there are several measures which could be taken:

a. To achieve the objectives of studying spatial inequality, it is necessary to delimit the indicators of every sector representing all aspects of life as standard indicators.

b. There is a need to provide and to classify the database temporarily, taking into consideration the order of sector indicators, according the PCBS, for every locality and governorate. This would facilitate studying spatial inequality.

c.   There is a need to adopt a standard methodology of spatial inequality, using GIS, in all relevant institutions of urban planning.

d.   Development projects should be conducted according to analysis of spatial planning inequality.

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Appendix 1

Collected Data at Regional Scale and Local Scale

Table (1): Components of Political sector at Governorates Level

ID	Governorate	Area km2	Population. 2013	Area C	Settlements Area	No. of Settlements	No. of Settlers	No. Communities	No. of Residents. Behind The Wall	No. of Establishments.	No. of Closed Establishments
1	Bethlahem	659	204,929	43.99	12.67	13	66392	45	173	7,068	289
2	Hebron	997	662,452	458.1	10.08	19	17628	92	0	19,779	9
3	Jenin	583	295,985	190.6	4.79	5	2277	80	735	11233	282
4	Jericho	593	49,390	522.3	17.04	17	5549	15	0	1282	0
5	Jerusalem	345	404,165	308.4	34.75	26	277501	44	0	9570	1014
6	Nablus	605	364,333	249.9	9.886	11	14019	64	0	14933	0.412
7	Qalqilya	166	105,330	115.7	8.136	7	33308	34	4202	3989	734
8	Ramallah	855	328,811	539.7	26.70	24	107586	75	0	12837	42
9	Salfit	204	67,641	148.6	13.91	12	35138	20	0	2367	143
10	Tubas	402	60,582	319.8	5.45	7	1452	21	0	3139	0
11	Tulkarem	246	175,494	97.4	1.88	3	2696	35	393	6633	1038

*Source (PCBS, population, Governorate area, number of settlers &
number of Settlements, Yearbook 2013 page 26,27).*
*The source : PCBS, Ministry of Local Government the wall apartheid
department*
Yearbock 2011 Number of Establishments page 22

Table (2): Components of Economic sector at Governorates Level

ID	Governorate	Area km²	House Expenditure	Cultivated land Area km²	Establishments	No. of Employees	Water m3/year (million m³)	No. of Agricultural Holding s2013	No. of Livestock's	Gross Added Value
1	Bethlahem	659	792.7	33557	7,068	22,843	0	6713	60706	297.7
2	Hebron	997	805.3	154994	19,779	50,056	0	18827	203390	335
3	Jenin	583	769.7	199752	11233	24721	0.6	13375	81027	1745.7
4	Jericho	593	671	33633	1282	4187	7.6	1540	60067	44
5	Jerusalem	345	1460.9	16457	9570	31310	0	2752	59349	187
6	Nablus	605	1075.1	139240	14933	42422	1.6	12859	98983	1066
7	Qalqilya	166	981.4	53443	3989	9014	6.2	4488	22618	521.2
8	Ramallah	855	1098	80202	12837	54054	0	10415	57509	1,884
9	Salfit	204	981.4	69490	2367	5419	0	4504	12780	883
10	Tubas	402	880	64801	3139	1512	2.1	2786	60537	1745.7
11	Tulkarem	246	868.4	83803	6633	15660	10.4	7626	21305	1396.6

Source (PCBS, Yearbook 2013 Agricultural Holdings page 20). Cultivated Land Area (km2) page 21, Annual Pumping Water Quantity Unit: Million m³/Year page 30, No. of Establishments & Number of Employees page 146,

Table (3): Components of Social Sector at Governorates Level.

ID	Governorate	Criminal Offenses	No. Deaths median 10;11;2012	Marriages (2010;2011; 2012)	median divorces (2010; 2011; 2012	Disabilities/Difficulties	Poverty Proportion	Road Traffic Accidents
1	Bethlahem	1105	539.67	1198.333	160.00	8823	0.213	853
2	Hebron	2864	1,357.33	5937.667	654.67	24329	0.325	1193
3	Jenin	2056	899.33	2851.667	423.33	14893	0.248	853
4	Jericho	639	155.67	314.3333	89.33	1876	0.264	231
5	Jerusalem	840	270.00	1810.667	417.67	5570	0.08	319
6	Nablus	2541	1,114.67	3078	590.67	17596	0.113	1723
7	Qalqilya	1401	291.33	927.6667	169.33	5918	0.084	249
8	Ramallah	2404	794.00	2283	470.00	11955	0.117	1869
9	Salfit	813	210.00	798.6667	107.33	3921	0.084	183
10	Tubas	946	148.33	534.3333	66.33	2344	0.199	157
11	Tulkarem	1181	608.33	1637	322.67	10560	0.109	433

Table (4): Components of Infrastructure Sector at Governorates Level

ID	Governorate	Area	localities	No water network	Waste collection	Sewage Network	Electricity Network	Paved Roads km
1	Bethlahem	659	45	0	5	36	2	490.5
2	Hebron	997	92	38	33	86	11	771.1
3	Jenin	583	80	22	9	77	1	409.7
4	Jericho	593	15	2	3	14	1	369.5
5	Jerusalem	345	44	1	3	23	1	331.3
6	Nablus	605	64	18	3	51	0	427.7
7	Qalqilya	166	34	3	3	28	2	161.6
8	Ramallah	855	75	1	2	66	1	857.5
9	Salfit	204	20	1	2	19	1	232.5
10	Tubas	402	21	11	9	21	6	124
11	Tulkarem	246	35	2	3	28	0	213.9

Source: (PCBS, 2013 year bock)
Localities in Palestine by Availability of Water Network, Waste Collection,
Sewage Network, Electricity Network page 50- 5
. Source: (PCBS, 2011year bock) Road Network Length page 162

Table (5): Components of Education Sector at Governorates Level

ID	Governorate	No. of Schools	Students	Classes	Students / Class	population 2013	BA	Master	PhD
1	Bethlahem	170	52089	2221	25.6	204929	8234	862	273
2	Hebron	474	181077	6206	29.3	662452	20571	862	273
3	Jenin	260	76789	3019	25.7	295985	10787	735	213
4	Jericho	31	12131	449	27	49,390	1305	103	20
5	Jerusalem	226	42537	2761	24.75	404,165	14673	1230	316
6	Nablus	273	97013	3440	27.65	364333	16619	1546	458
7	Qalqilya	88	27810	1048	26.5	105330	3980	267	49
8	Ramallah	241	81685	3180	25.7	328,811	15003	2465	625
9	Salfit	70	16389	762	25.4	67641	3391	279	60
10	Tubas	44	15107	529	28.6	60582	2276	146	28
11	Tulkarem	143	45637	1657	27.5	175494	8875	649	142

Source PCBS2007 Education Attainment Table 8 Page1

Table(6): Components of culture sector of the West Bank governorates

ID	Governorate	Population	No. Households	Home Library	No. Cultural Institutions	No. Mosques
1	Bethlehem	204929	32667	6449	76	150
2	Hebron	662452	89919	14057	89	556
3	Jenin	295985	47437	7905	68	219
4	Jericho	49,390	7615	1146	16	45
5	Jerusalem	404,165	70434	4345	60	105
6	Nablus	364333	59663	12806	103	225
7	Qalqilya	105330	16483	3278	8	90
8	Ramallah	328,811	52834	13875	46	180
9	Salfit	67641	11103	2511	17	63
10	Tubas	60582	9004	1445	15	48
11	Tulkarm	175494	29938	6518	52	150

Source: PCBS North of West Bank Governorates Statistical Yearbook, Cultural Institutionstable18 page68, Mosquestable17 page67, Southern Governorates Statistical Yearbook, ٰ 2011, Cultural Institutions, Mosques pages67-68, West Bank Central Governorates Statistical Yearbook, 2011

Table (7): Components of Communication sector at Governorates Level

ID	Governorate	No. of House Holds	Phone line	No. of Communities	Mail Services Centers	Road Network Length	Vehicles (total 121310)	Own Mobile Phone	Availability of Computer %
1	Bethlahem	31471	14987	45	16	348.3	11642	0.8	48.4
2	Hebron	87645	30925	92	27	606.6	21293	0.767	46
3	Jenin	46541	19512	80	41	389.1	12752	0.74	50.8
4	Jericho	7262	2913	15	3	248.9	2098	0.901	67.4
5	Jerusalem	23190	8689	44	7	143.4	312	0.789	41.6
6	Nablus	58750	30927	64	57	357.3	20397	0.787	40.6
7	Qalqilya	16000	6634	34	23	99.3	3925	0.728	46.5
8	Ramallah	49637	28935	75	69	595.3	39972	0.804	42.9
9	Salfit	10958	4806	20	17	145.7	178	0.789	42.3
10	Tubas	8628	2859	21	14	92.6	92	0.709	42.7
11	Tulkarem	29708	15788	35	30	197.3	8649	0.743	45.8

Source: PCBS:Year Bock 2011 vehicles,
PCPS, Transportation and Communication Statistics2013, \Road Network Length Table 2
PCPS 2013Computer availability page 111
Internet Availability PCBS statistical
http://www.pcbs.gov.ps/Portals/_Rainbow/Documents/ICT_Households_Annual%2007_A.htm

Table (8): Components of health at Governorates Level

ID	Governorate	population 2013	Housing Density+3	Insured Families by Governorate	No. of Health Centers	No. of 1000 Inhabitants	Beds per 1000 Inhabitants	No. of Hospitals
1	Bethlahem	204929	5.70	10488	38	3	8
2	Hebron	662452	10.10	32504	150	0.9	9
3	Jenin	295985	6.30	17447	69	0.6	3
4	Jericho	49,390	18.80	3,341	18	1.2	1
5	Jerusalem	404,165	5.30	7,483	40	1.7	8
6	Nablus	364333	8.60	20831	62	1.5	6
7	Qalqilya	105330	13.50	6569	34	1.4	3
8	Ramallah	328,811	4.70	21,349	74	1.2	8
9	Salfit	67641	5.30	4935	28	0.8	1
10	Tubas	60582	8.20	2585	12	0	1
11	Tulkarem	175494	14.50	12178	39	0.9	3

Source: PCPS, Year Bock 2011, Housing density page 108

PCPS, Health report Mid Year 2013, Distribution of Insured Families table 112

CBS: North of West Bank Governorates, Southern Governorates & Central Governorates Statistical Yearbook, 2011, Table 6: Beds Per 1000 Inhabitant and Number of Hospitals and Beds page 56,Health centers page24.

Collected Data for Tulkarm Communities

Table (9): Components of Political Sector at Local Level

ID	Community	Area km²	Area C m²	Access times visit (h/week)	People Behind the Wall	Demolition Order	No. of Households	No. of Establishments	Commercial/ industrial Centers Closed	Land Isolated behind The Wall (Dunum)	Land Confiscated by the Wall km²
1	Kafr 'Abbush	5.11	0.0	168	0	0	281	43	0	0	-
2	Kafr Jammal	9.42	2755.	168	0	0	455	68		2200	0.111
3	Kafr Zibad	7.04	0.0	168	0	0	208	34	0	1000	0.148
4	Kur	8.46	0.0	168	0	0	54	8	0	0	-
5	Kafr Sur	88.67	0.0	11	0	0	222	63	0	1500	0.010
6	Ar Ras	3.91	0.0	168	0	12	96	9	0	8000	0.077
7	Beit Lid	16.73	0.0	168	0	11	947	150	0	0	0.006
8	Saffarin	9.71	0.0	168	0	0	136	16	0	0	-
9	Khirbet Jubara	4.46	313003	168	360	7	63	12	0	0	0.231
10	Shufa	10.98	665871	168	0	17	400	80	0	0	0.009
11	Far'un	5.15	398647	1.5	0	39	633	83	0	3000	0.194
12	Ramin	8.92	0.0	168	0	0	353	42	0	0	0.002
13	Al Hafasa	0.71	51800	168	0	7	27	3	0	0	0.211
14	Kafa	0.86	169439	168	0	0	75	7	0	0	-
15	Kafr al Labad	14.13	0.0	168	0	0	1440	99	0	0	0.014
16	'Anabta	12.99	0.0	168	0	0	1440	274	0	0	-
17	Tulkarm Camp	0.19	0.0	168	0	0	1962	245	0	0	-
18	Tulkarm	20.49	3616139	10.5	12	59	9877	2921	80	1283	0.027
19	Nur Shams Camp	0.22	165352	168	0	0	1216	179	0	0	-
20	Iktaba	6.82	465651	168	0	3	463	49	0	0	-
21	Bal'a	19.68	0.0	168	0	0	1202	262	0	0	-
22	Al Jarushiya	2.50	171864	168	0	6	183	33	0	100	0.120
23	Deir al Ghusun	11.18	92416	18	0	0	1578	237	0	2500	0.036
24	'Attil	10.53	992641	15	0	1	1720	373	0	500	0.005
25	'Illar	10.62	80594	168	0	0	1142	173	0	450	0.005
26	Seida	2.15	0.0	168	0	0	568	79	0	0	-
27	Zeita	6.15	290946	4.5	0	2	560	88	0	400	0.070
28	An Nazla al Gharbiya	2.42	126070	168	0	2	156	17	0	220	0.082
29	Baqa ash Sharqiya	4.32	231229	168	0	38	762	144	0	200	0.051
30	An Nazla ash Sharqiya	4.93	1209	42	90	0	277	23	0	0	-
31	Nazlat 'Isa	2.29	294983	4.5	0	65	440	48	48	524	0.131
32	An Nazla al Wusta	1.42	206541	168	0	4	74	12	0	200	0.141
33	Qaffin	8.96	621481	9	0	6	1587	238	0	5000	0.078
34	'Akkaba	2.79	117136	4.5	0	6	41	18	0	2000	0.043

Sources:MOLG, GIS department, Data center Community Area, Area C, Demolition Order, PCBS(Tulkarm Governorate Statistical Yearbook No. 2: Number of Establishments
Table 42page 77,people Isolated behind the Wall page 15
Apartheid Wall Access time page 10, land extracted for the Settlements page 4, land isolated behind the Wall and Land confiscated for the wall page 24,

Table (10): Components of economic sector of the Tulkarm communities

ID	Community	population	Number of Raised Poultry	No. of Labors In Israel	No. of. Oil Mill	No. of Agriculture Holdings	Cultivated Area (D)	No. of Buildings	No. of Establishments	No. of Households	Employees
1	Kafr 'Abbush	1528	9500	30	1	191	2728	355	43	281	340
2	Kafr Jammal	2544	150	127	1	274	3041	441	68	455	523
3	Kafr Zibad	1130	0	21	2	108	2305	251	34	208	268
4	Kur	275	300	5	0	34	1133	72	8	54	42
5	Kafr Sur	1172	1400	35	0	101	1478	262	63	222	236
6	Ar Ras	567	500	20	0	50	603	106	9	96	96
7	Beit Lid	5241	5644	155	2	554	7166	954	150	947	976
8	Saffarin	798	4800	49	0	68	1583	149	16	136	148
9	Khirbet Jubar	307	0	3	0	30	508	64	12	63	63
10	Shufa	2302	53100	103	0	224	2897	465	97	400	503
11	Far'un	3253	7000	100	1	142	1371	507	83	633	671
12	Ramin	1895	6450	37	1	224	2744	369	42	353	341
13	Al Hafasa	165	0	1	0	15	148	32	3	27	34
14	Kafa	424	5600	0	0	28	565	77	7	75	86
15	Kafr al Labad	4275	12755	201	2	350	4311	747	99	1440	858
16	'Anabta	7691	12500	140	1	503	4019	1460	274	1440	1677
17	Tulkarm	11167	0	235	0	70	0	1146	245	1962	1866
18	Tulkarm	53834	32700	1239	2	957	4701	7143	2921	9877	11285
19	Nur Shams Camp	6799	1500	293	0	35	36	761	179	1216	1260
20	Iktaba	2797	2050	36	0	79	545	551	49	463	458
21	Bal'a	6930	21800	141	2	454	4067	1375	262	1202	1235
22	Al Jarushiya	978	2500	26	0	71	742	191	33	183	212
23	Deir al Ghusun	8649	8550	130	3	631	5115	1313	237	1578	1717
24	'Attil	9484	35550	178	2	503	2852	1672	373	1720	1856
25	'Illar	6496	22030	143	2	505	4674	1198	173	1142	1163
26	Seida	3074	16400	46	2	346	2385	601	79	568	590
27	Zeita	2993	15150	71	2	187	1276	506	86	560	532
28	An Nazla al Gharbiya	983	5500	17	0	93	886	187	17	156	170
29	Baqa ash Sharqiya	4304	6500	58	2	229	2244	768	144	762	752
30	An Nazla ash Sharqiya	1598	4350	24	2	127	767	263	23	277	196
31	Nazlat 'Isa	2449	2700	101	0	148	1291	431	50	440	420
32	An Nazla al W	357	4300	4	0	46	714	82	12	74	52
33	Qaffin	8801	6000	385	0	592	4326	1474	236	1587	1462
34	'Akkaba	**267**	27000	44	0	36	363	69	18	41	42

Sources: PCBS(Tulkarm Governorate Statistical Yearbook No. 2: Number of Establishments Table 42page 77

PCBS, Agricultural csensus2010, tTulkam Governorate : Number of agriculture Holdings table 1, Cultivated Land Area Table 9 page 69, number of Raised Poultry table 95 page162,Emplyees OSS : one stop shop (Office and operating multi-service employment),Number of labors in Israel,

Tulkarm Chamber of Commerce, No.olive machine, Table 4: Population in Tulkarm Governorate

PCBS 2011Tulkarm Governorate Statistical Yearbook No. 3, Table 4: Population in Tulkarm Governorate page 57, MOLG, GIS, Data center, Buildings Number

PCBS, Census Final Results 2008- Summary Tulkarm Governorate, Employees, table 6 page 60

Table (10): Components of Education Sector at Local Level

ID	Community	Population	No. of Teachers	No. of Classes	No. of Schools	No. of Students	PhD	MA	BA
1	Kafr 'Abbush	1528	26.5	16	1	399	0	2	112
2	Kafr Jammal	2544	49.5	27	3	689	1	3	106
3	Kafr Zibad	1130	38	20	2	410	1	6	117
4	Kur	275	6	3	1	38	0	0	2
5	Kafr Sur	1172	39	21	2	347	0	7	59
6	Ar Ras	567	20.5	12	1	189	0	0	8
7	Beit Lid	5241	107	57	6	1457	3	30	487
8	Saffarin	798	22	12	1	187	0	5	46
9	Khirbet Jubara	307	9.5	6	1	41	0	2	9
10	Shufa	2302	55.5	33	2	334	4	5	111
11	Far'un	3253	82.5	46	4	1061	4	24	237
12	Ramin	1895	44	23	3	492	1	9	129
13	Al Hafasa	165	6	3	1	27	0	0	0
14	Kafa	424	10.5	6	1	109	1	1	28
15	Kafr al Labad	4275	87	47	4	985	1	4	184
16	'Anabta	7691	125	67	5	1532	13	75	623
17	Tulkarm Camp	11167	78	51	2	1609	0	14	183
18	Tulkarm	53834	767.5	579	35	21585	80	299	3639
19	Nur Shams Camp	6799	79	54	2	1723	1	8	152
20	Iktaba	2797	24	19	2	556	0	1	63
21	Bal'a	6930	127	72	6	1980	3	15	225
22	Al Jarushiya	978	18.5	11	1	168	1	4	46
23	Deir al Ghusun	8649	150	84	5	2318	7	47	583
24	'Attil	9484	147	81	6	2495	0	26	534
25	'Illar	6496	121	63	6	1718	2	7	241
26	Seida	3074	54	31	4	812	1	6	88
27	Zeita	2993	40	21	3	787	1	12	178
28	An Nazla al Gharbiya	983	42	23	2	299	0	2	18
29	Baqa ash Sharqiya	4304	61	50	4	1254	0	6	181
30	An Nazla ash Sharqiya	1598	45.5	25	2	433	0	3	71
31	Nazlat 'Isa	2449	51.5	28	3	620	3	6	73
32	An Nazla al Wusta	357	4.5	3	1	35	2	0	26
33	Qaffin	8801	127.5	87	6	2633	3	15	267
34	'Akkaba	267	12	6	1	58	0	0	3

Sources: Directorate of education of Tulkarm,(education employees, No. of classes, No. of Schools,No. of Students)

PCBS, Census Final Results – Tulkarm Governorate 2007,(Master, Ph.D, Bachelor) table 5 page 57.

Table (11): Components of Health Sector at Local Level

ID	Community	Population	Hospitals	Health Center	Class	External Center	Class	Dental Clinics	No. Of Pharmacy	Clinics	Health Insurance
1	Kafr 'Abbush	1528	0	1	2	0		0	0	1	1238
2	Kafr Jammal	2544	0	1	3	0		0	1	2	2179
3	Kafr Zibad	1130	0	1	2	0		0	1	1	939
4	Kur	275	0	0	0	0		0	0	0	109
5	Kafr Sur	1172	0	1	3	0		0	1	1	930
6	Ar Ras	567	0	1	2	0		0	0	1	458
7	Beit Lid	5241	0	1	3	0		1	2	2	4502
8	Saffarin	798	0	1	2	0		0	0	1	606
9	Khirbet Jubara	307	0	0	0	0		0	0	0	198
10	Shufa	2302	0	1	2	0		0	1	2	1748
11	Far'un	3253	0	1	2	0		1	2	1	2729
12	Ramin	1895	0	1	2	0		0	0	0	1628
13	Al Hafasa	165	0	0	0	0		0	0	0	118
14	Kafa	424	0	0	0	0		0	0	0	254
15	Kafr al Labad	4275	0	1	2	0		0	1	1	3343
16	'Anabta	7691	1	1	3	1	4	1	3	5	6230
17	Tulkarm Camp	11167	0	1	3	0		0	3	3	10503
18	Tulkarm	53834	3	4	4	2	3	53	49	29	44729
19	Nur Shams Camp	6799	0	1	3	0		0	2	2	6364
20	Iktaba	2797	0	1	2	0		0	1	0	2297
21	Bal'a	6930	0	1	3	0		0	2	2	5611
22	Al Jarushiya	978	0	1	2	0		0	0	0	808
23	Deir al Ghusun	8649	0	1	3	0		1	4	3	7127
24	'Attil	9484	0	1	3	1	3	1	4	3	8151
25	'Illar	6496	0	1	3	0		0	2	1	5161
26	Seida	3074	0	1	3	0		0	1	1	2430
27	Zeita	2993	0	1	2	0		1	1	1	2505
28	An Nazla al Gharbiya	983	0	1	2	0		0	0	1	736
29	Baqa ash Sharqiya	4304	0	1	3	0		0	2	3	3614
30	An Nazla ash Sharqiya	1598	0	1	3	0		1	1	0	1258
31	Nazlat 'Isa	2449	0	1	2	0		0	1	0	2025
32	An Nazla al Wusta	357	0	0	0	0		0	0	0	299
33	Qaffin	8801	0	1	3	0		1	3	0	7660
34	'Akkaba	267	0	0	0	0		0	0	0	214

Source: Tulkarm Health Directorate

Table (12): Components of Infrastructure Sector at Local Level

ID	Community	Public Network of Water	Availability of Electricity	Availability of Sewage System	Road Area per Capita
1	Kafr 'Abbush	219	276	0	0.049
2	Kafr Jammal	449	452	0	0.053
3	Kafr Zibad	202	205	0	0.039
4	Kur	1	54	0	0.008
5	Kafr Sur	219	219	0	0.0319
6	Ar Ras	95	93	0	0.016
7	Beit Lid	888	928	0	0.139
8	Saffarin	4	135	0	0.019
9	Khirbet Jubara	63	61	0	0.021
10	Shufa	394	394	0	0.075
11	Far'un	624	618	0	0.058
12	Ramin	350	349	0	0.039
13	Al Hafasa	27	27	0	0.006
14	Kafa	0	74	0	0.014
15	Kafr al Labad	628	679	0	0.062
16	'Anabta	1417	1412	833	0.242
17	Tulkarm Camp	1944	1946	1945	0.024
18	Tulkarm	9656	9693	7224	1.065
19	Nur Shams Camp	1206	1206	1201	0.042
20	Iktaba	456	452	98	0.091
21	Bal'a	1180	1186	0	0.135
22	Al Jarushiya	117	180	0	0.036
23	Deir al Ghusun	1561	1557	0	0.143
24	'Attil	1656	1690	0	0.212
25	'Illar	36	1118	0	0.139
26	Seida	399	556	0	0.056
27	Zeita	550	549	356	0.074
28	An Nazla al Gharbiya	2	154	0	0.020
29	Baqa ash Sharqiya	33	746	0	0.084
30	An Nazla ash Sharqiya	142	746	0	0.023
31	Nazlat 'Isa	427	425	0	0.049
32	An Nazla al Wusta	15	70	0	0.012
33	Qaffin	1571	1556	0	0.153
34	'Akkaba	0	40	0	0.016

Source: PCBS, Census Final Results – Tulkarm Governorate 2007 page (68-73)

Table (13): Components of Social Sector at Local Level

ID	Community	Population	Divorced	Married	Illiterate	Households	Household Size 8+	Deaths	Births	Disabilities Difficulties
1	Kafr 'Abbush	1528	5	242	80	279	54	12	50	20
2	Kafr Jammal	2544	8	393	172	452	85	9	57	60
3	Kafr Zibad	1130	4	174	68	206	35	10	41	17
4	Kur	275	1	40	15	54	6	1	5	16
5	Kafr Sur	1172	2	182	74	220	34	10	65	11
6	Ar Ras	567	0	91	32	95	25	4	23	9
7	Beit Lid	5241	13	858	338	940	166	17	123	97
8	Saffarin	798	2	123	44	135	30	5	21	9
9	Khirbet Jubara	307	1	55	15	63	7	1	9	2
10	Shufa	2302	4	370	115	397	83	12	64	30
11	Far'un	3253	12	554	156	628	86	7	81	100
12	Ramin	1895	13	287	109	350	57	7	43	42
13	Al Hafasa	165	0	25	35	27	10	1	5	1
14	Kafa	424	1	70	244	74	7	2	12	10
15	Kafr al Labad	4275	14	643	244	688	194	22	115	84
16	'Anabta	7691	39	1213	305	1429	227	32	153	204
17	Tulkarm Camp	11167	64	1693	569	1947	423	43	315	413
18	Tulkarm	53834	242	8630	1480	9799	1605	199	1519	1697
19	Nur Shams Camp	6799	39	1051	272	1207	239	28	243	370
20	Iktaba	2797	8	452	87	459	112	3	48	52
21	Bal'a	6930	23	1102	287	1193	260	25	217	122
22	Al Jarushiya	978	4	164	36	182	25	6	16	24
23	Deir al Ghusun	8649	29	1398	387	1566	257	35	246	245
24	'Attil	9484	36	1481	442	1707	342	39	239	219
25	'Illar	6496	10	964	309	1133	264	21	179	197
26	Seida	3074	13	501	139	564	87	4	86	62
27	Zeita	2993	12	442	171	556	99	15	60	91
28	An Nazla al Gharbiya	983	4	148	42	155	43	2	20	20
29	Baqa ash Sharqiya	4304	10	640	145	756	158	20	118	78
30	An Nazla ash Sharqiya	1598	6	237	98	275	66	8	35	64
31	Nazlat 'Isa	2449	6	401	79	437	77	7	105	49
32	An Nazla al Wusta	357	0	60	38	73	9	1	9	4
33	Qaffin	8801	14	1500	323	1575	275	32	269	223
34	Akkaba	267	0	37	18	40	15	0	1	0

Source: PCBS, Census Final Results 2008- Summary Tulkarm Governorate Married, Divorced, Table 3 page49, Households+8 Table 8 page 62, Illiterate table 5 page 56,
Tulkarm Health Directorate, Disabilities & Difficulties,
Department of Civil Status – Ministry of Interior- Tulkarm, Births& Deaths

Table (14): Components of Communication Sector at Local Level

ID	Community	Population	Phone Line (Fixed Lines)	Length Paved Roads	No. of ADSL Lines	No. of Households
1	Kafr 'Abbush	1528	0.444	8178.8	137	281
2	Kafr Jammal	2544	0.352	8765.22	165	455
3	Kafr Zibad	1130	0.621	6435.78	135	208
4	Kur	275	0.241	1400	19	54
5	Kafr Sur	1172	0.673	5308.27	91	222
6	Ar Ras	567	0.509	2592	43	96
7	Beit Lid	5241	0.489	23139.03	415	947
8	Saffarin	798	0.563	3085.39	48	136
9	Khirbet Jubara	307	0.635	3468.56	17	63
10	Shufa	2302	0.511	12516.55	166	400
11	Far'un	3253	0.439	9743.8	236	633
12	Ramin	1895	0.52	6496.43	121	353
13	Al Hafasa	165	0.037	981.46	0	27
14	Kafa	424	0.351	2371.72	49	75
15	Kafr al Labad	4275	0.358	10396.8	209	1440
16	'Anabta	7691	0.653	40399.77	844	1440
17	Tulkarm Camp	11167	0.319	3952.8	560	1962
18	Tulkarm	53834	0.623	177465.8	6914	9877
19	Nur Shams Camp	6799	0.319	6925.7	445	1216
20	Iktaba	2797	0.427	15124	212	463
21	Bal'a	6930	0.559	22463.3	490	1202
22	Al Jarushiya	978	0.654	6026.13	94	183
23	Deir al Ghusun	8649	0.54	23838.56	625	1578
24	'Attil	9484	0.588	35327.9	760	1720
25	'Illar	6496	0.545	23140.28	306	1142
26	Seida	3074	0.589	9329.34	153	568
27	Zeita	2993	0.518	12339.12	168	560
28	An Nazla al Gharbiya	983	0.258	3321.7	51	156
29	Baqa ash Sharqiya	4304	0.56	14026.7	235	762
30	An Nazla ash Sharqiya	1598	0.349	3766	60	277
31	Nazlat 'Isa	2449	0.478	8105.188	137	440
32	An Nazla al Wusta	357	0.603	2061.9	23	74
33	Qaffin	8801	0.435	25553.2	483	1587
34	'Akkaba	267	0.45	2705.55	11	41

Sources: : PCBS, Census Final Results 2008- Summary Tulkarm
Governorate,(Phone line, Private car) table 9 page 62
Paltel, ADSL (Internet)
MOLG, GIS Data Center,

Appendix2

Components Maps at Governorates Level and Local level
Component maps of Economical Sector at Governorates Level
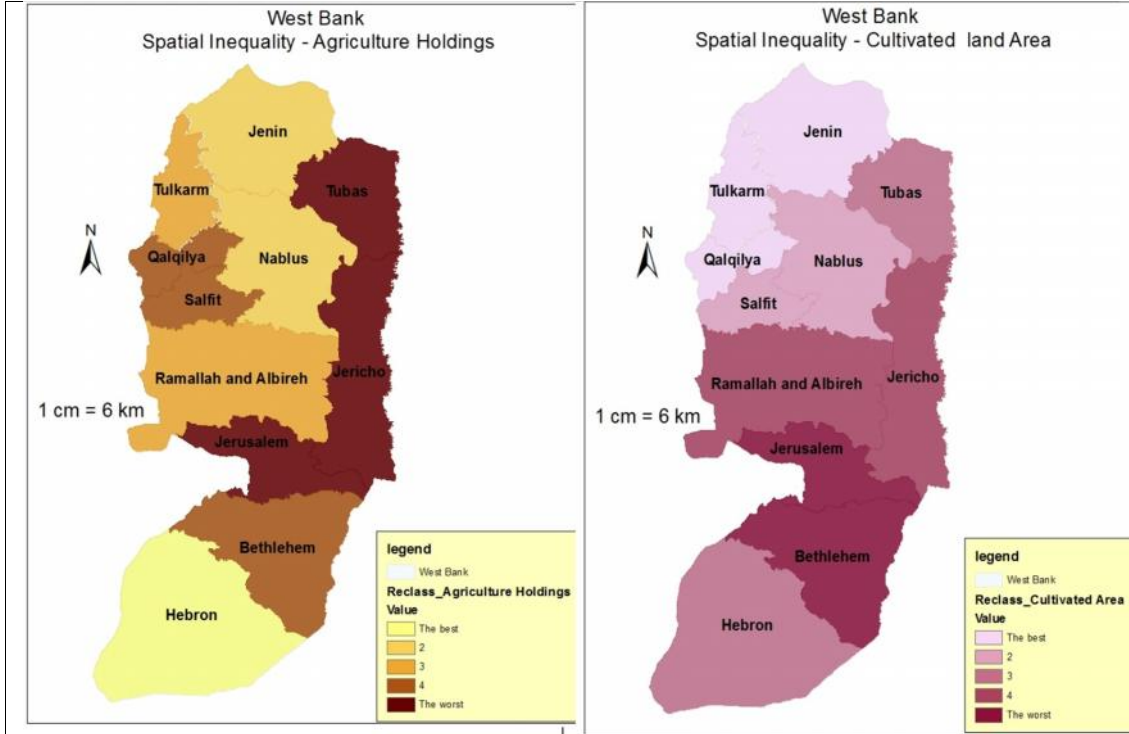
Figure(1): Agricultural Holdings	Figure (2): Cultivated Land Area
Figure (3): Employees map	Figure(4.): Establishments Number map
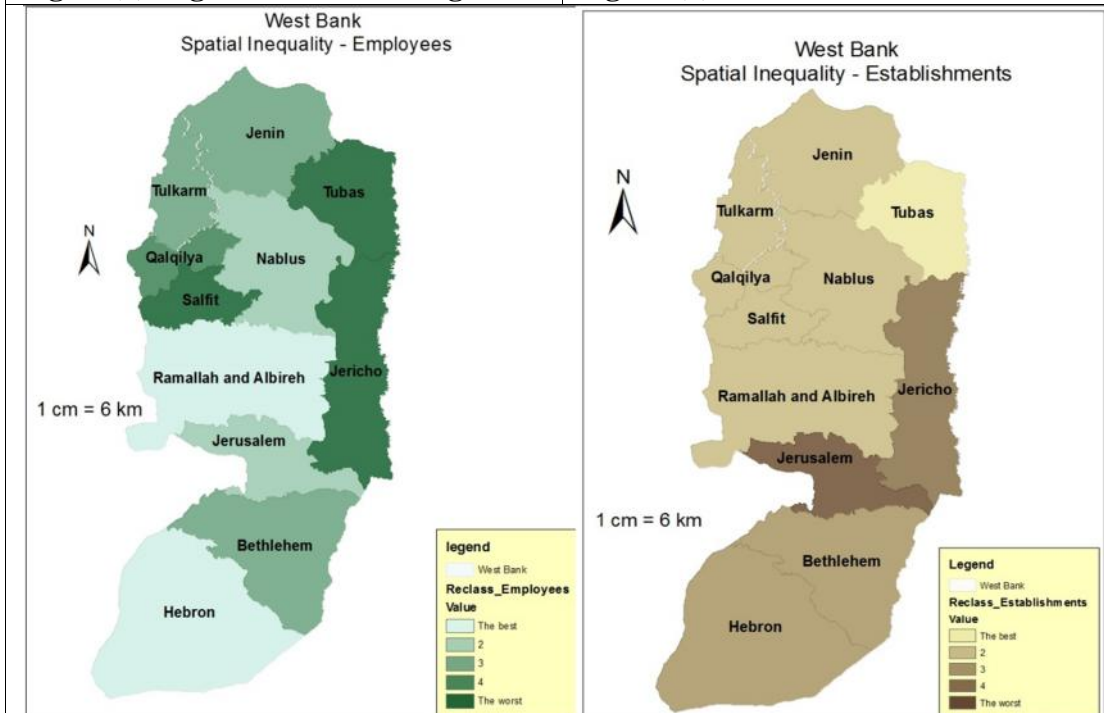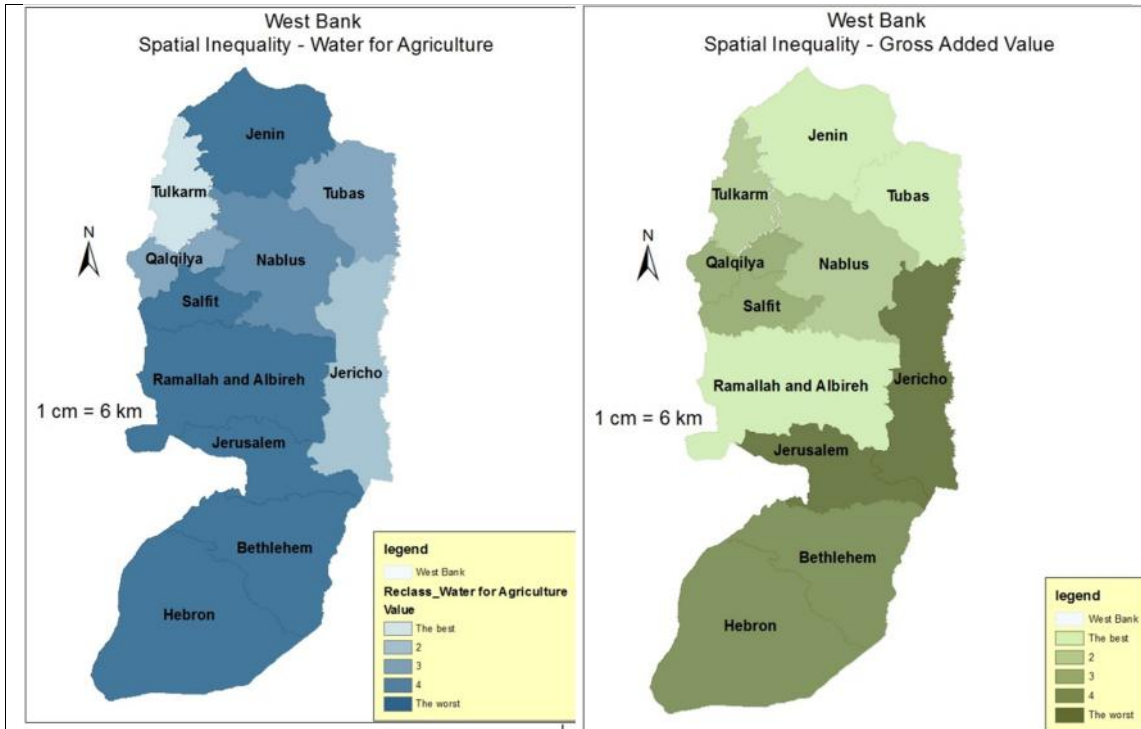
Figure (5): Water Pumped for Agriculture Use

Figure (6): Gross Added Value
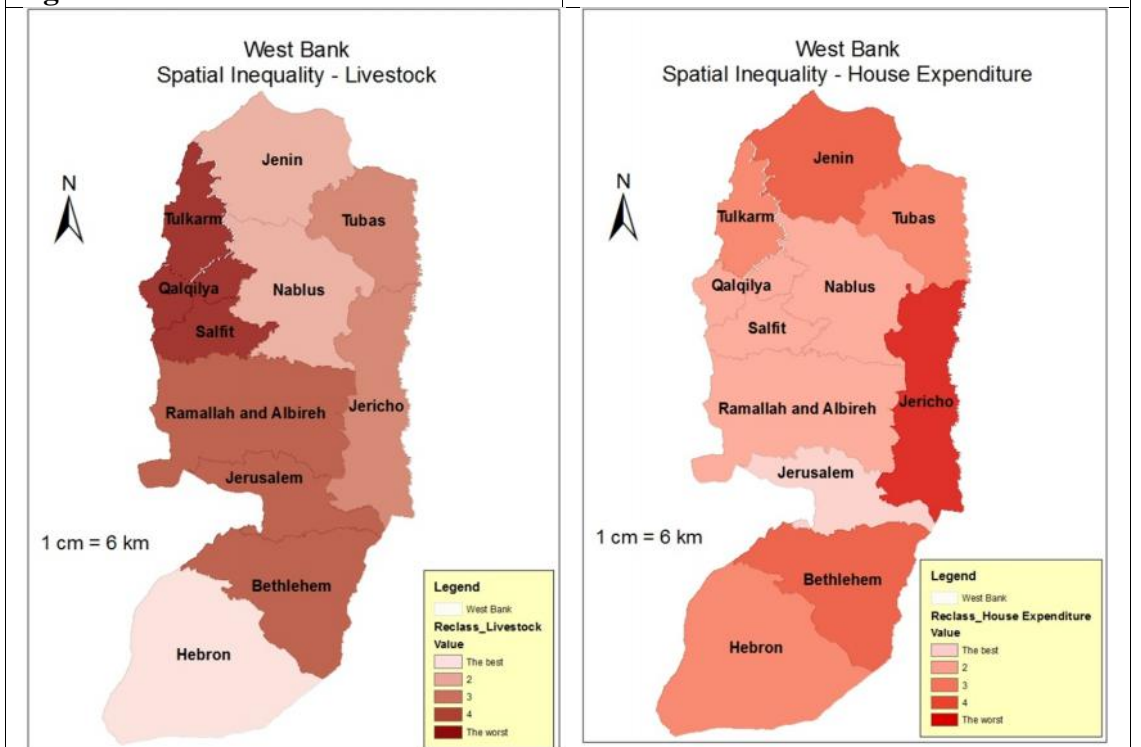
Figure (7): Livestock map

Figure (8): House Expenditure

Component Maps of Social Sector at Governorates Level
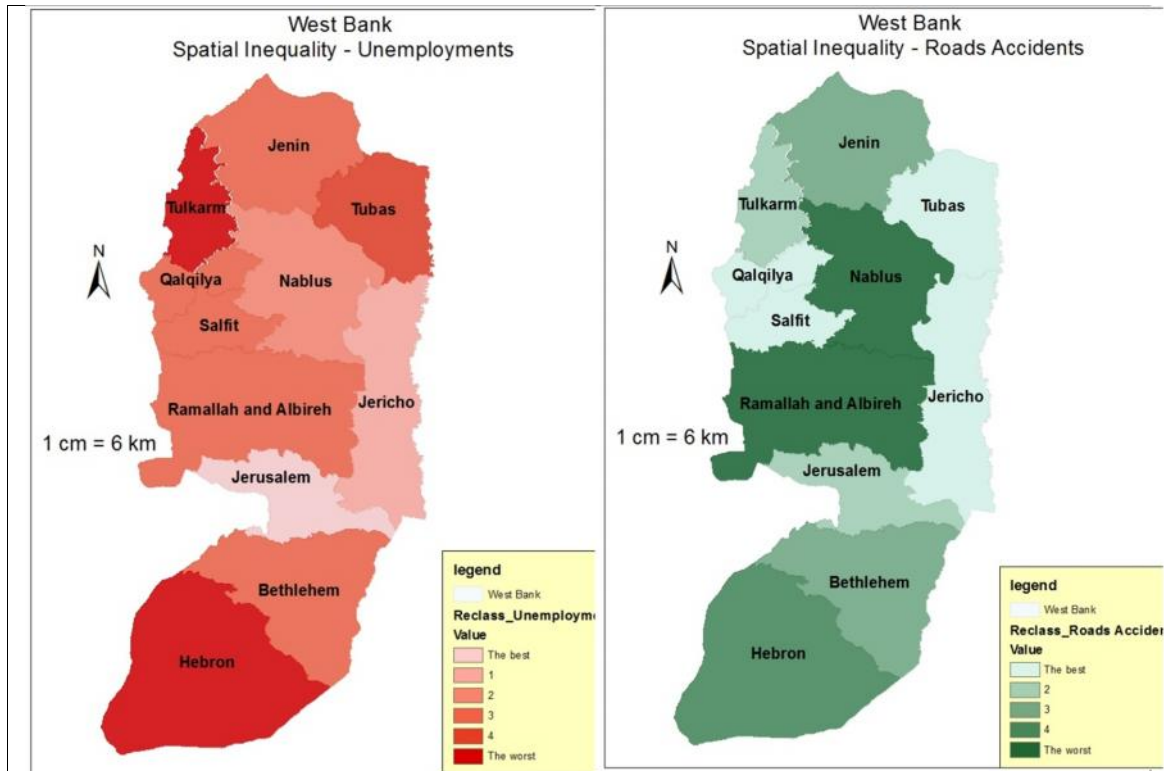
Figure(9): Unemployment

Figure (10): Road Traffic Accidents
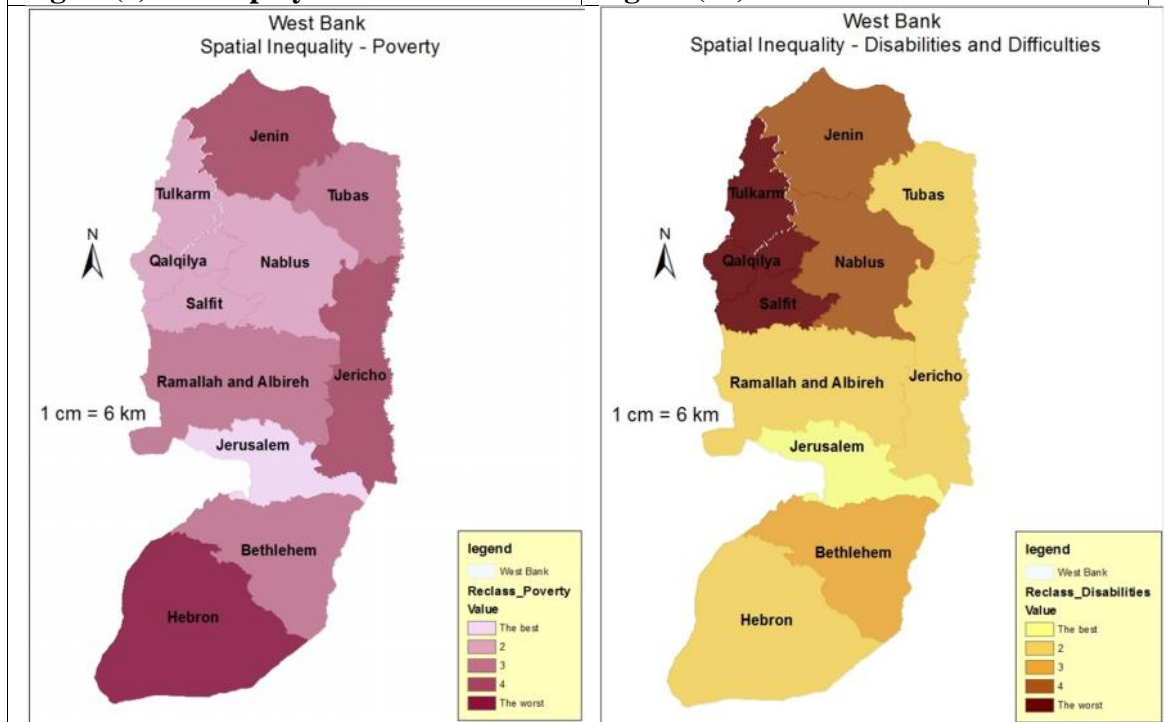
Figure (11): Poverty

Figure (12): Disabilities & Difficulties
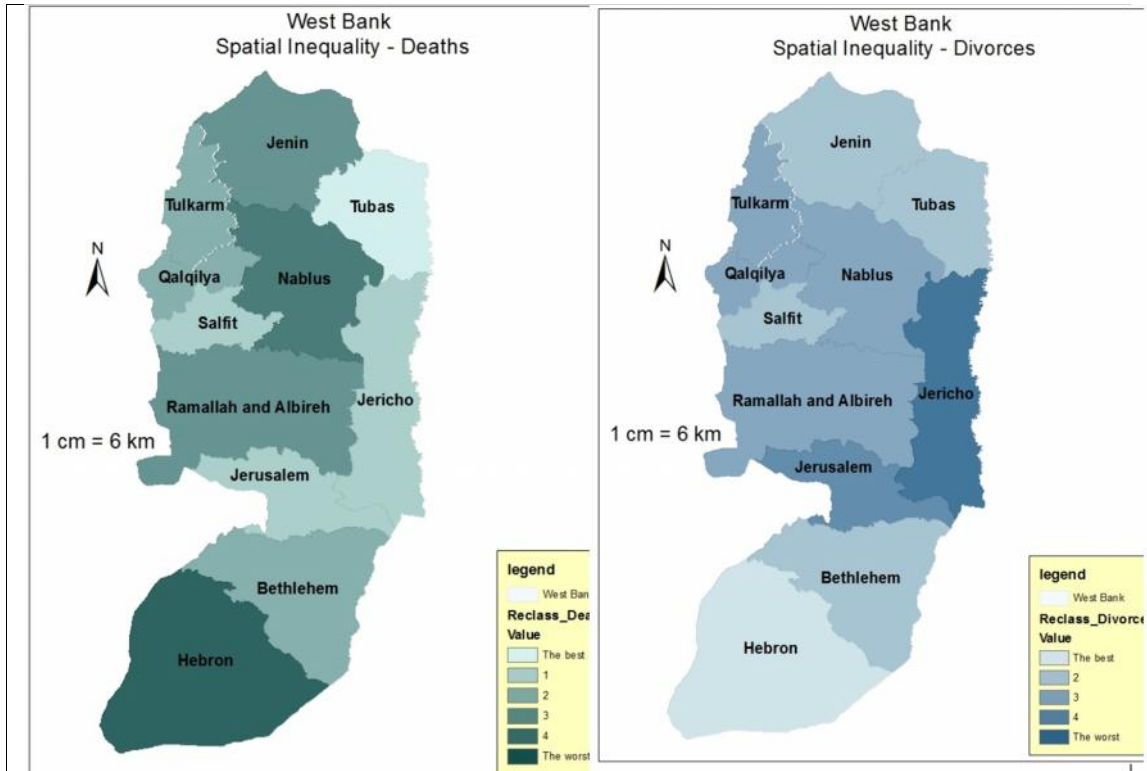
Figure (13): Deaths map

Figure (14): Divorces map
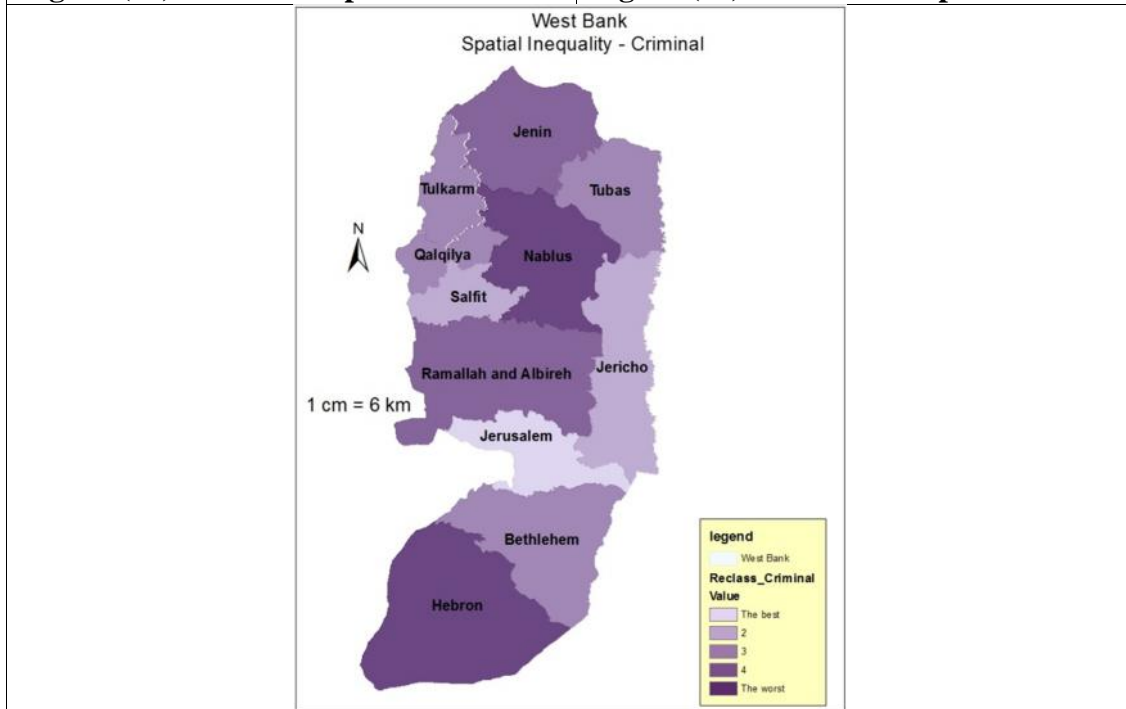
Figure (15): Criminal map

Component Maps of Infrastructure at Governorates Level
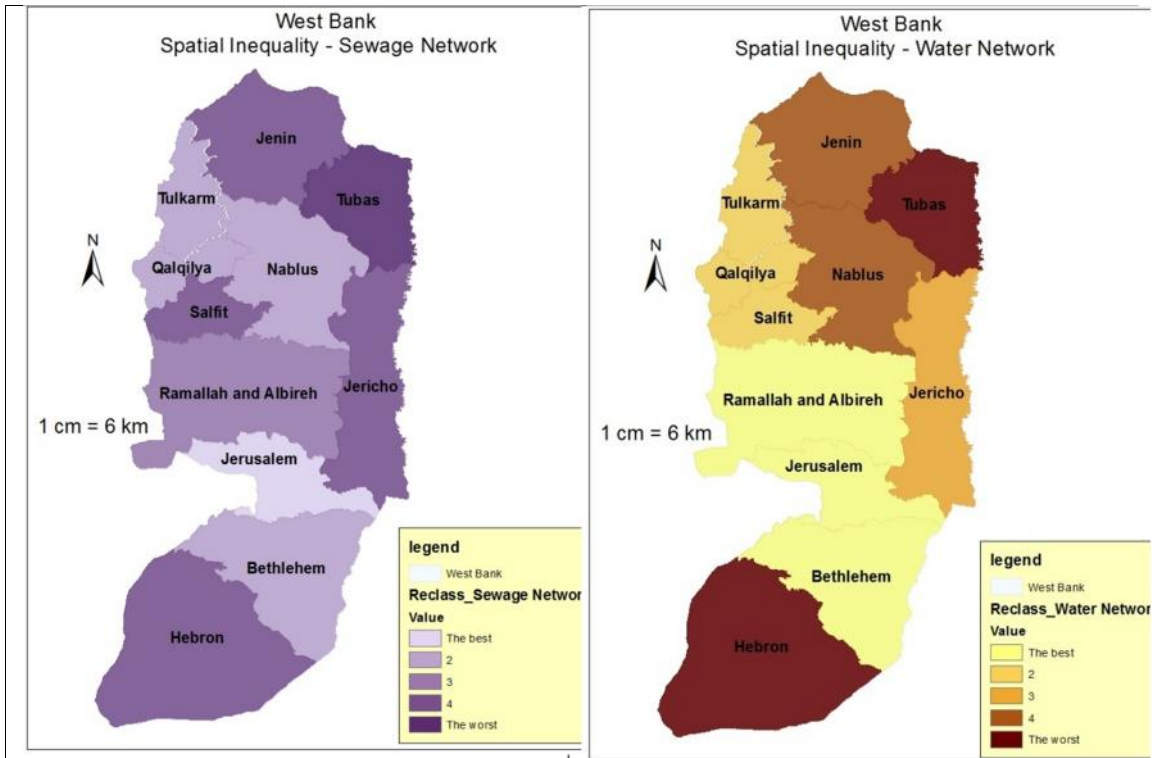
Figure (16): Sewage Network

Figure (17): Water Network
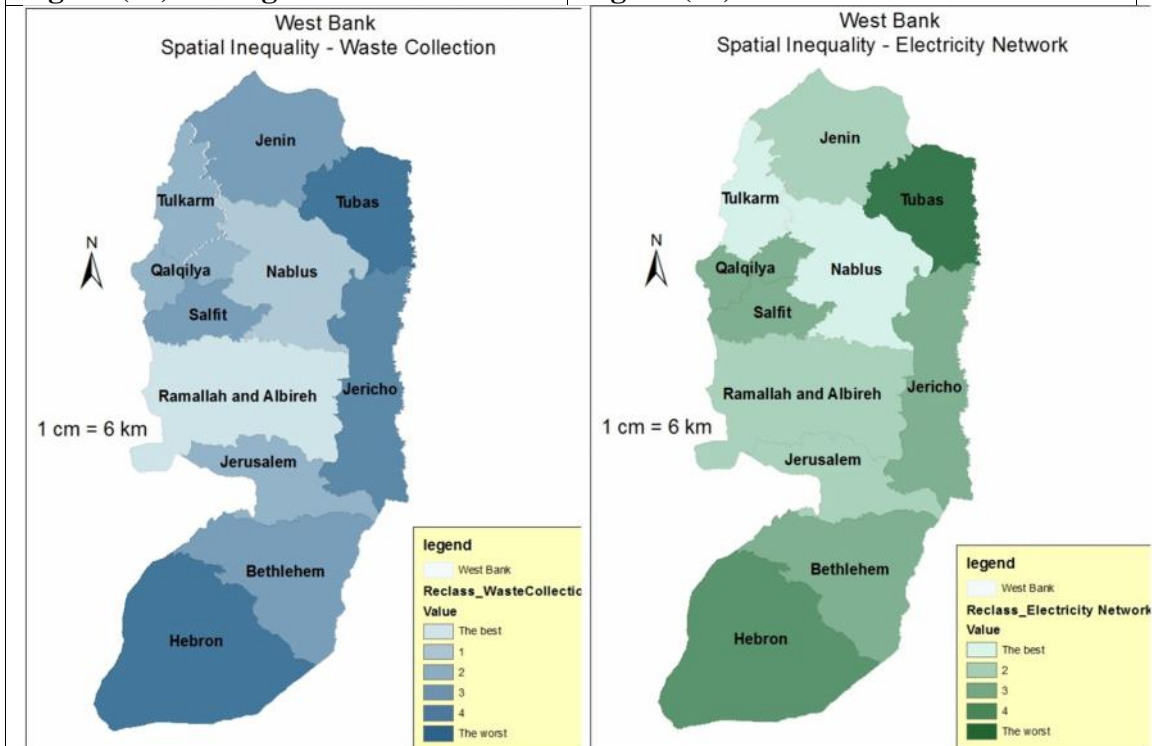
Figure (18): Waste collection

Figure (19): Electricity Network
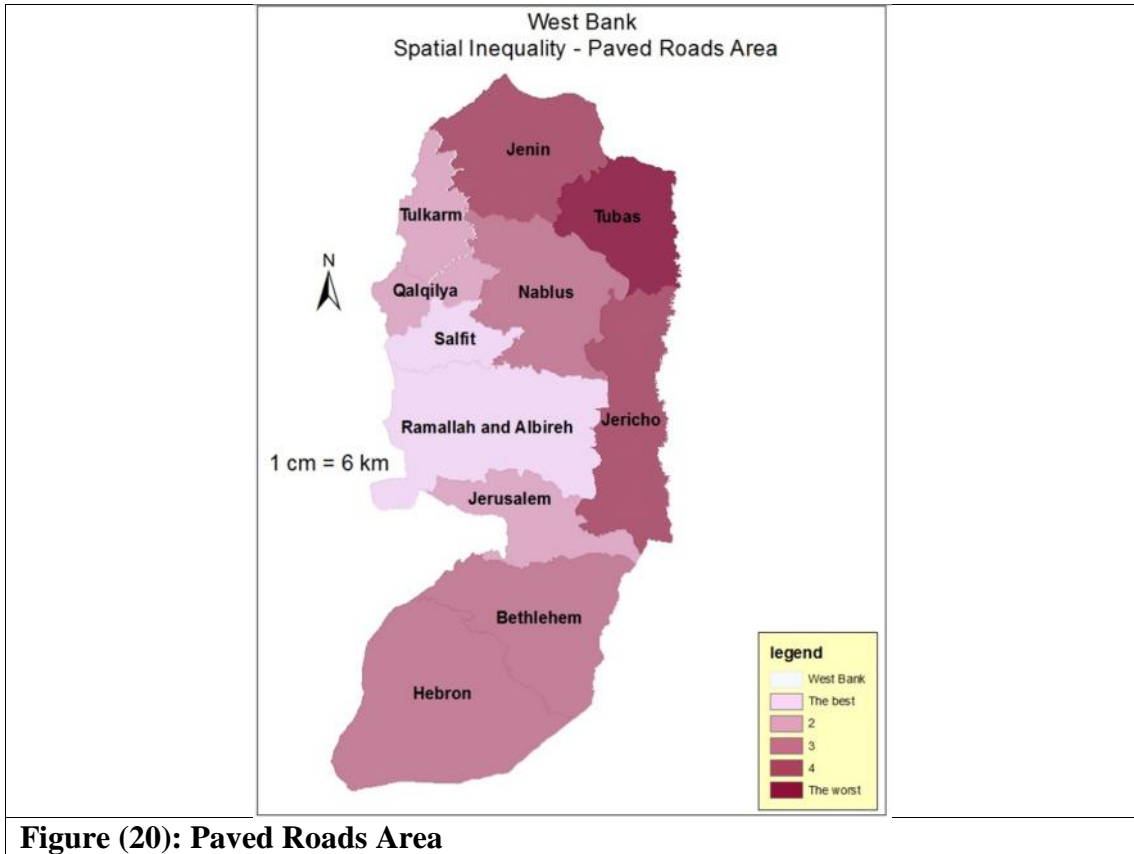
Figure (20): Paved Roads Area

Component maps of Social Sector at Governorates Level
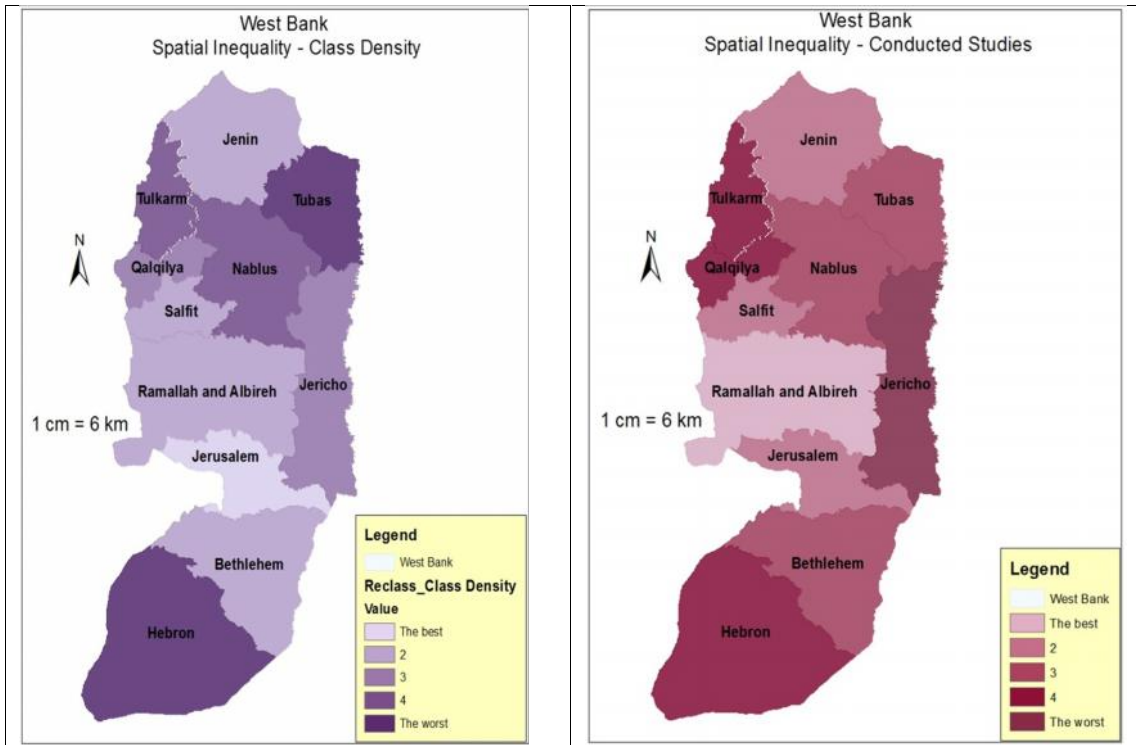
Figure (21): Class Density

Figure(22): Conduct Studies Map
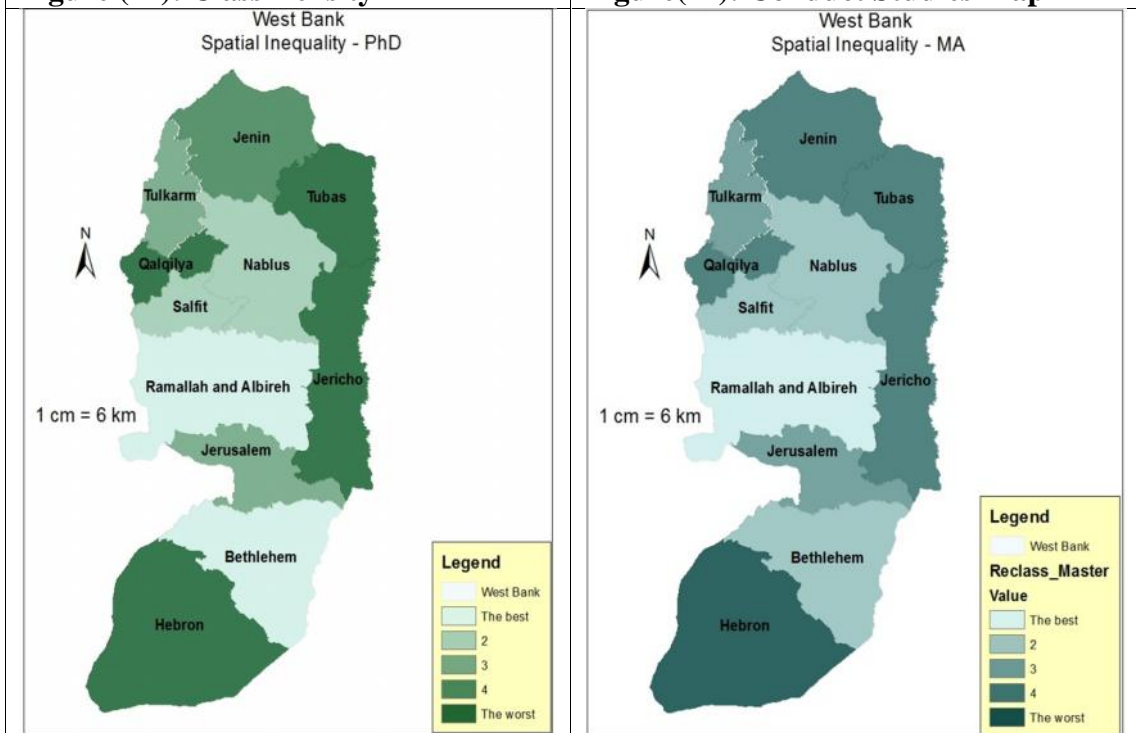
Figure (23): PhD

Figure (24): MA
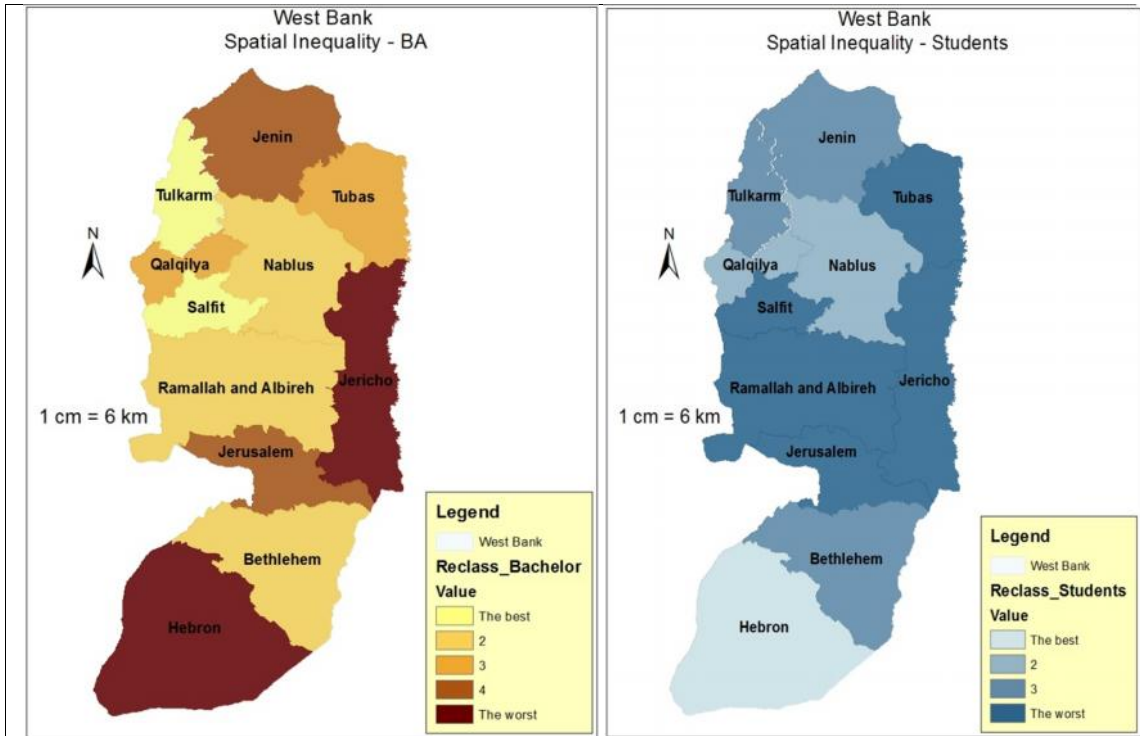
Figure (25): BA

Figure (26): Students

Component Maps of Culture Sector at Governorates Level
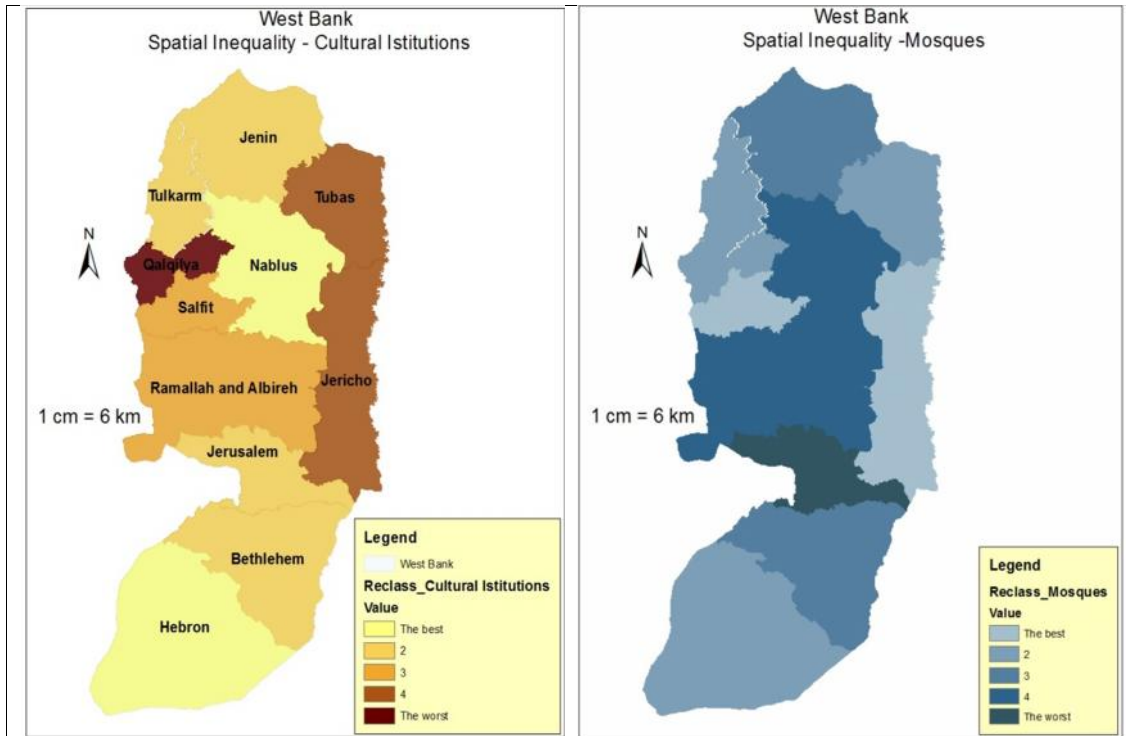
Figure (27): Culture Institutions Map

Figure (28): Mosques
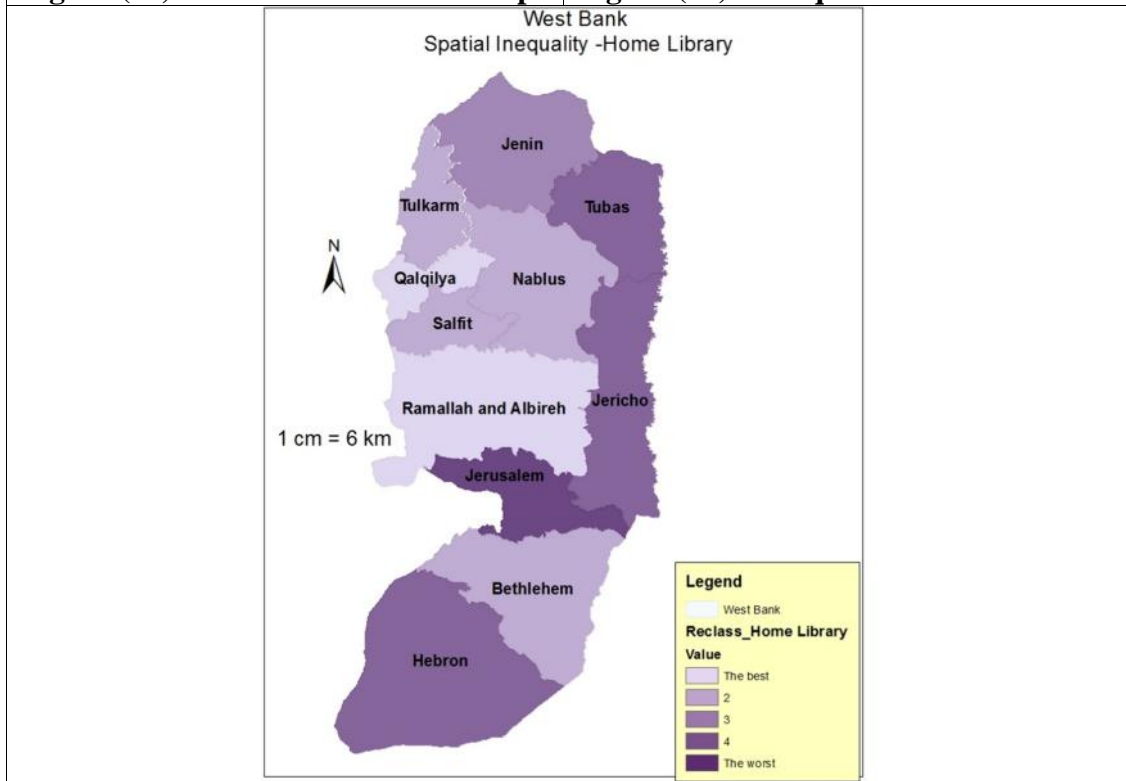
Figure (29): Home Libraries

Component Maps of Communication Sector at Governorates Level
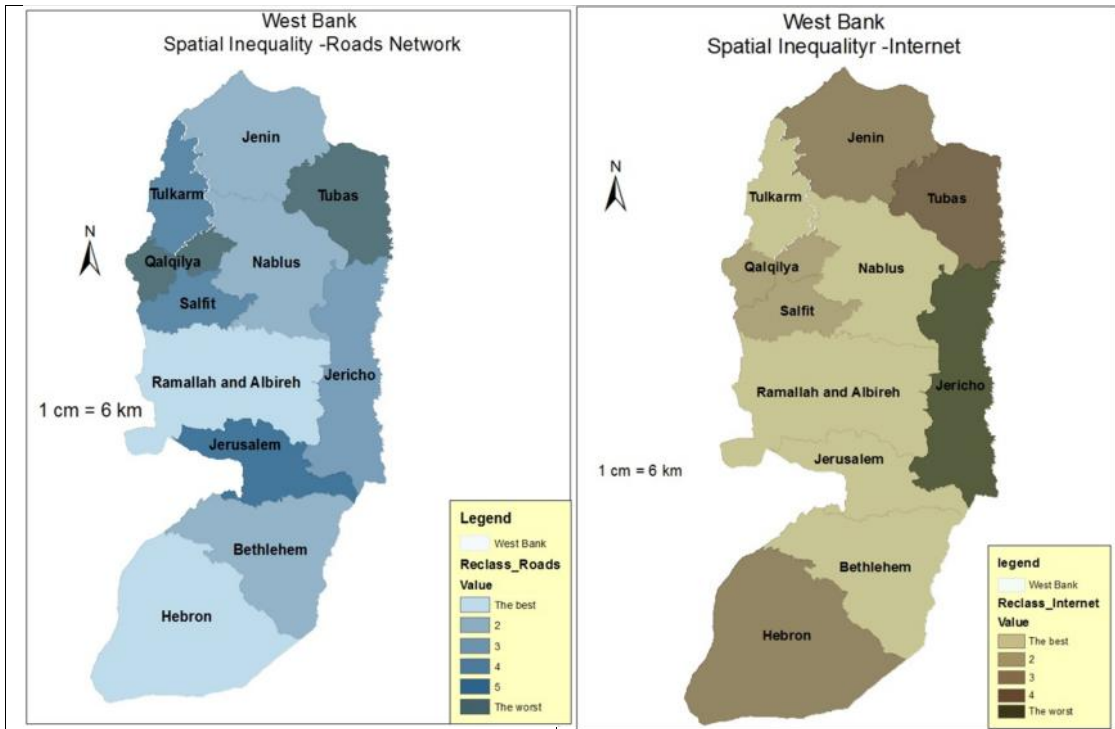
Figure (30): Roads Network

Figure (31): Internet Availability
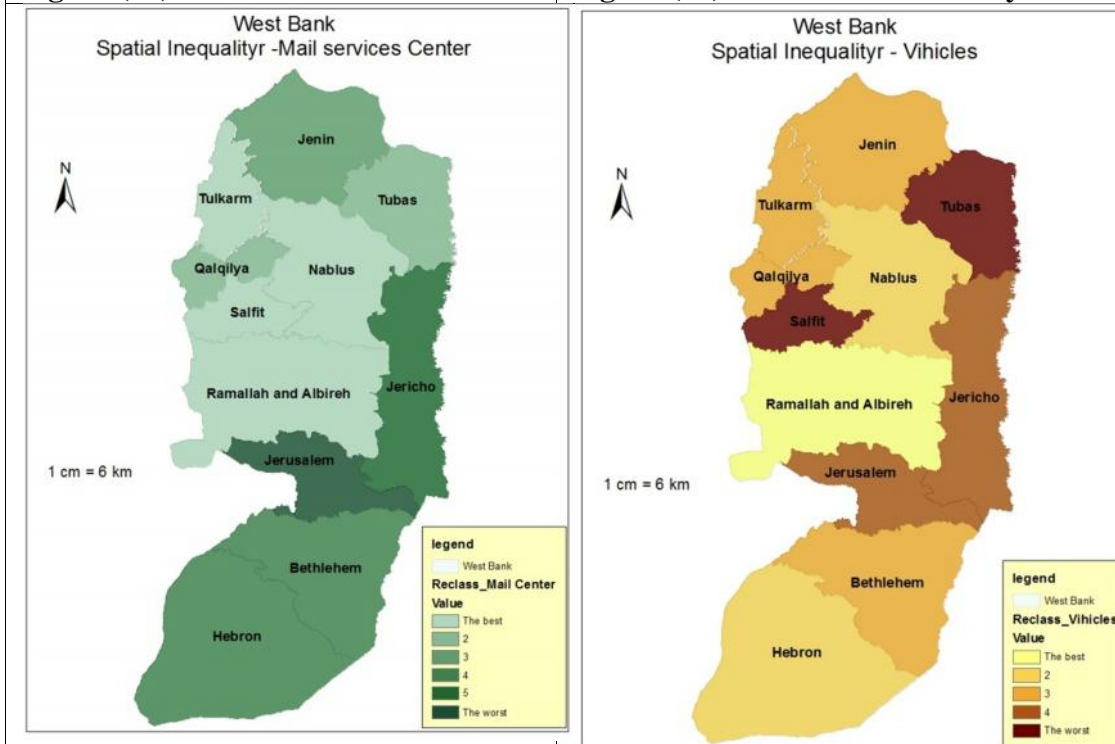
Figure (32): Mail services centers

Figure (33): Vehicles
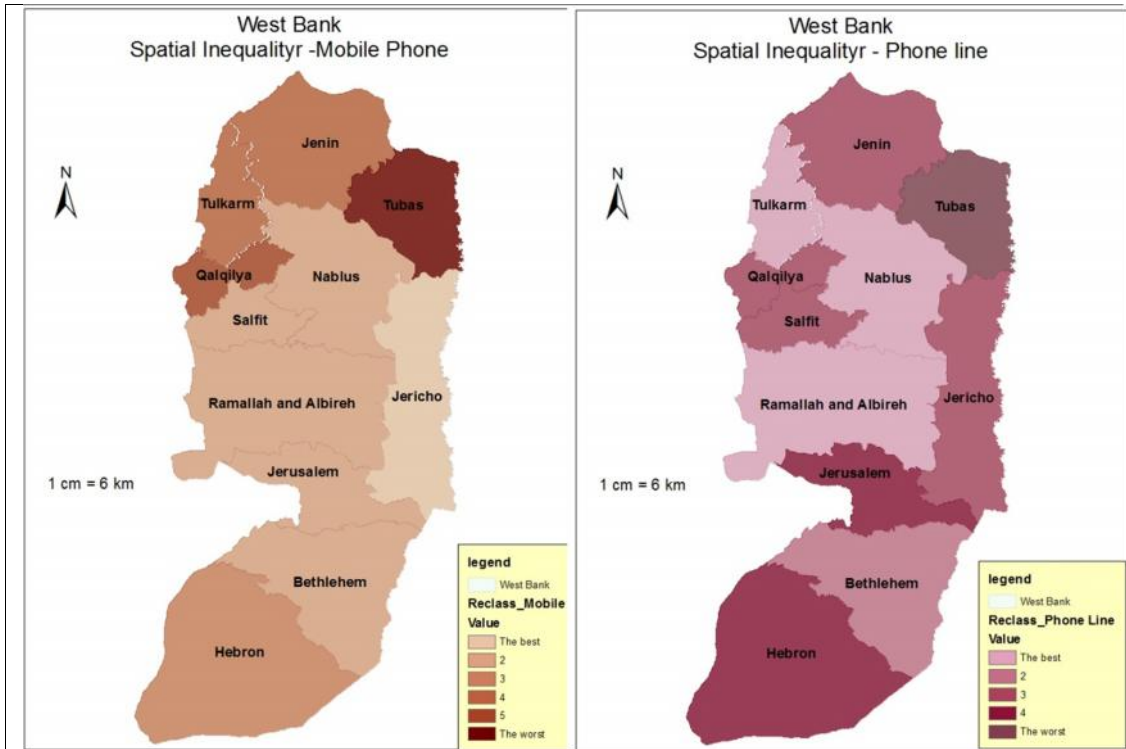
Figure (34): Mobile phone availability

Figure (35): Phone line
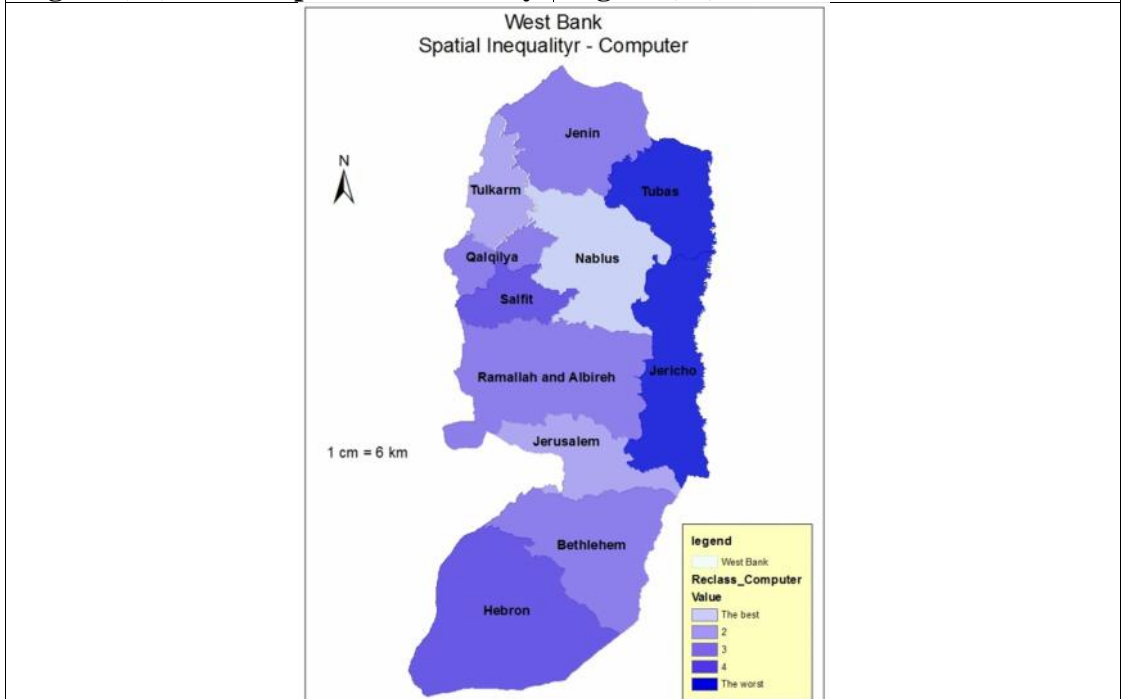
Figure (36): Computer map

Component Maps of health Sector at Governorates Level
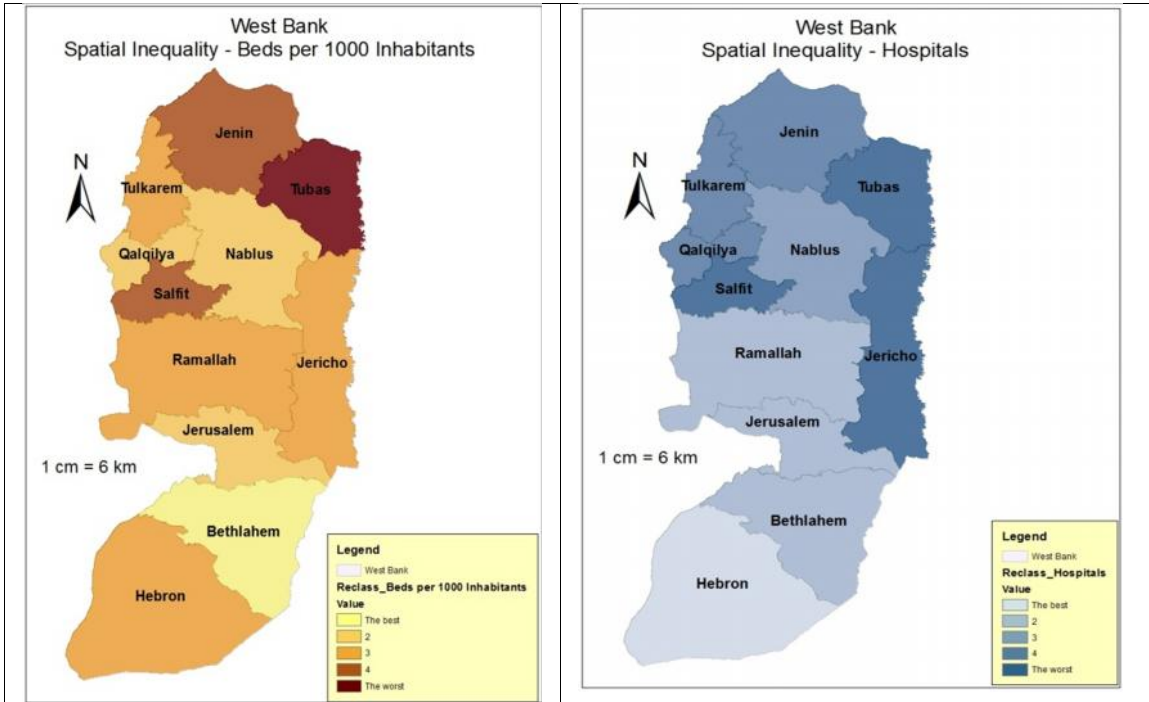
Figure(37): Beds per 1000 Capita

Figure (38): Hospitals per 1000 Capita
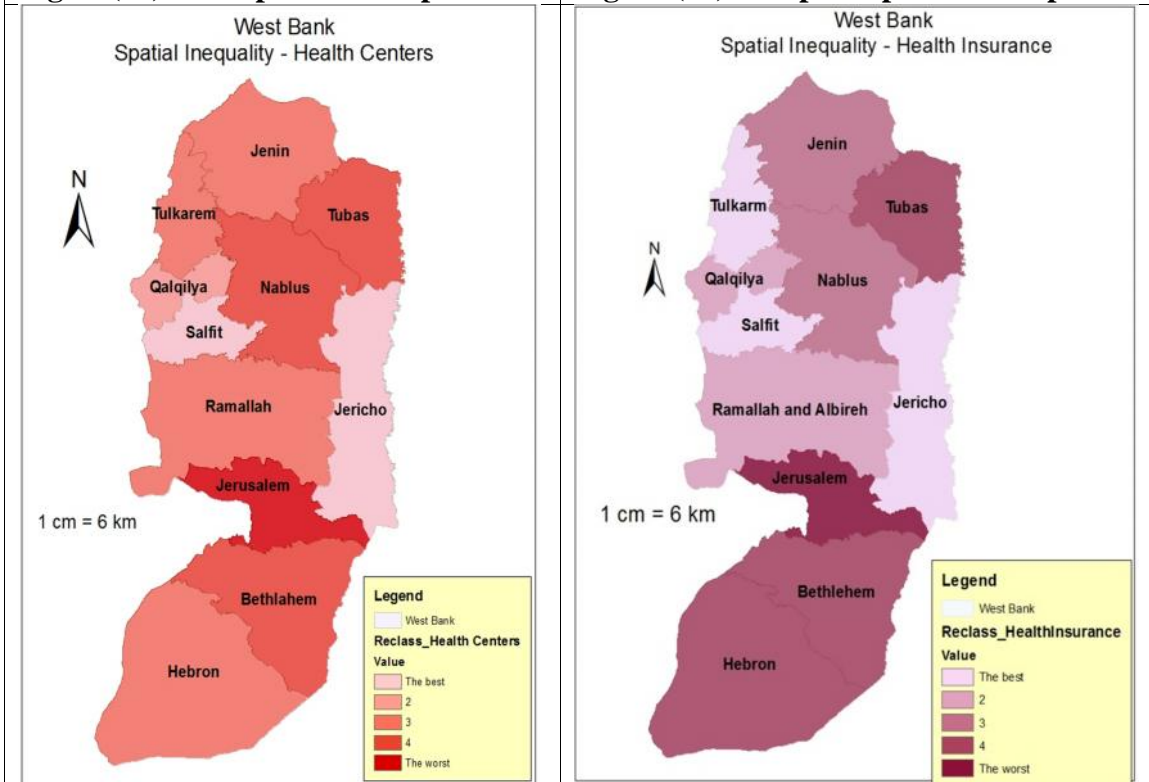
Figure (39): Health centers

Figure (40): Health Insurance Families
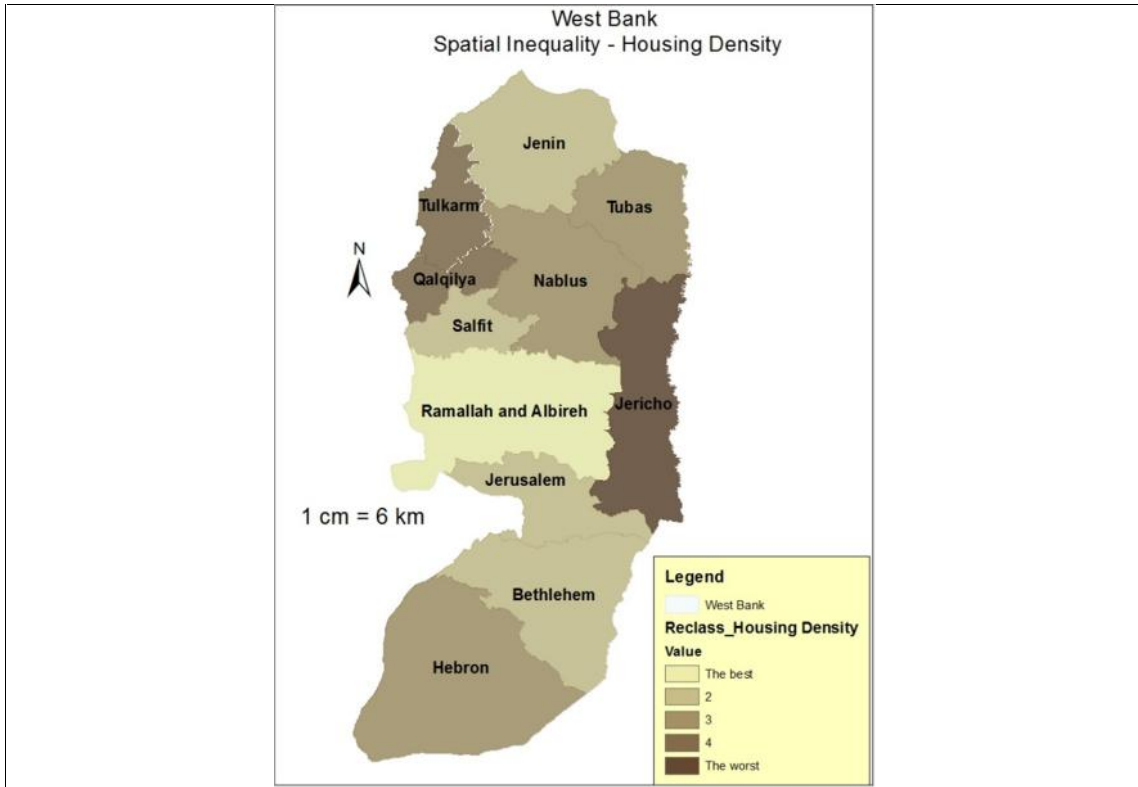
Figure (41): Housing Density

Components Maps at Local Level

Component Maps of Economic Sector at Local Level
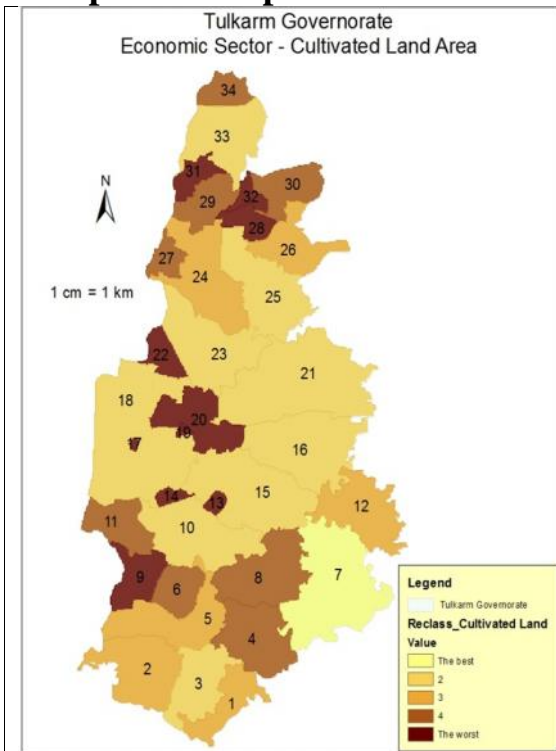
Figure (42): Cultivated Land Area
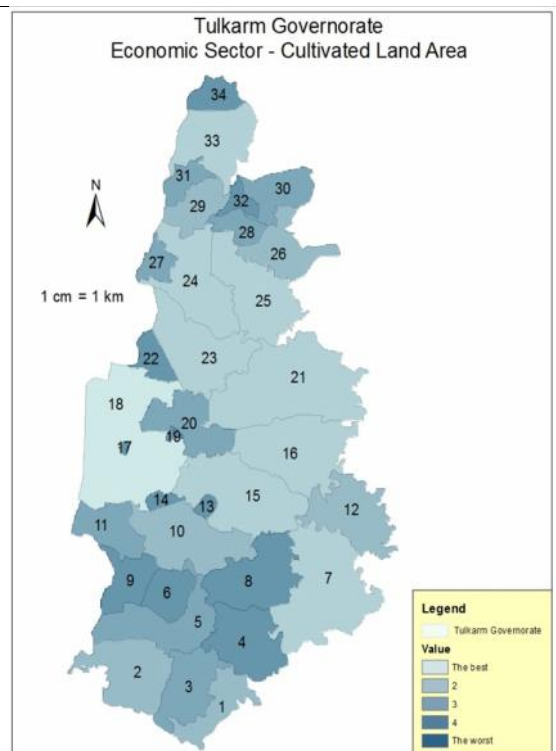
Figure (43): Agriculture Holdings
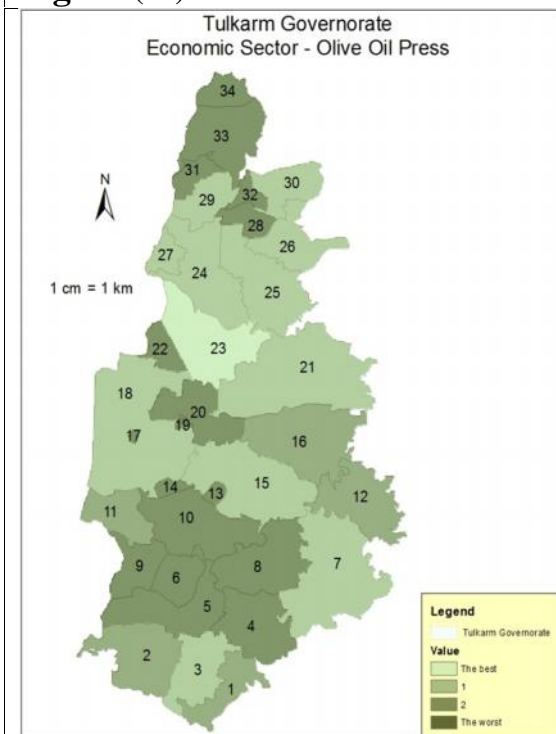
Figure (44): Machine Press of Olive Oil
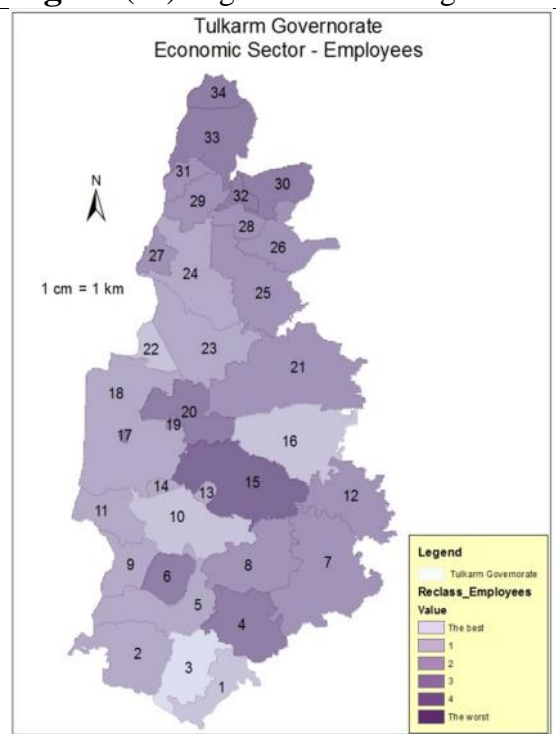
Figure (45): Number of Employees
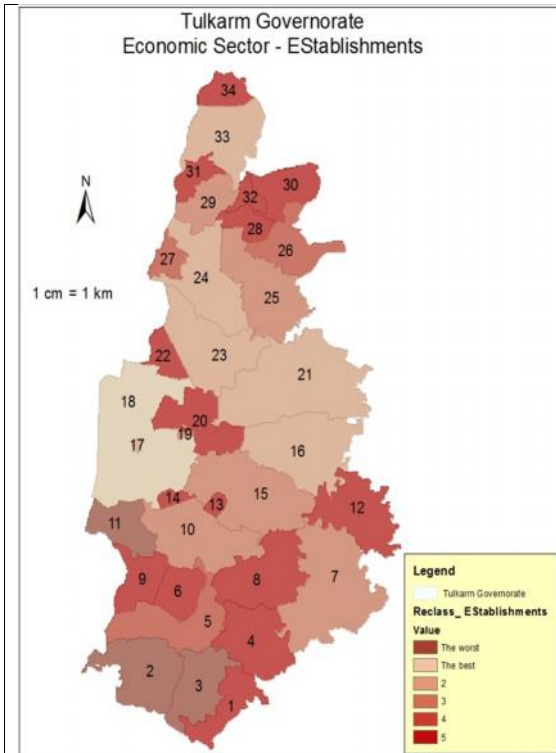
Figure (46): Establishments Number
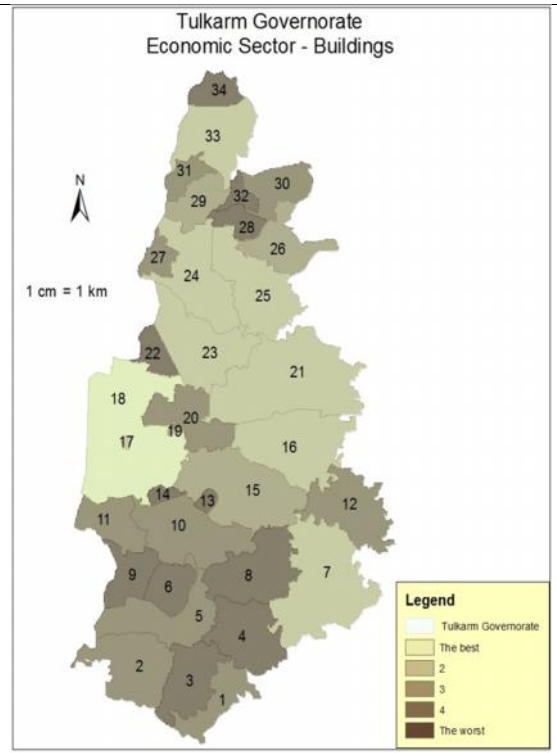
Figure (47): Buildings
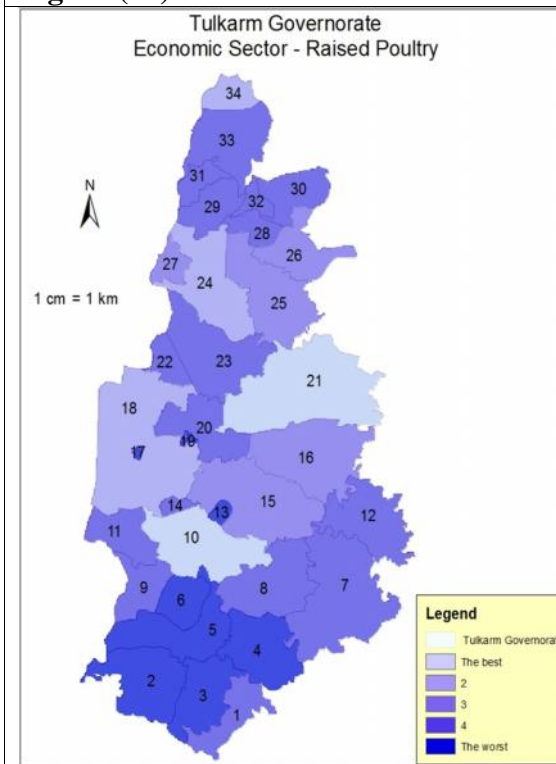
Figure (48): Raised Poultry
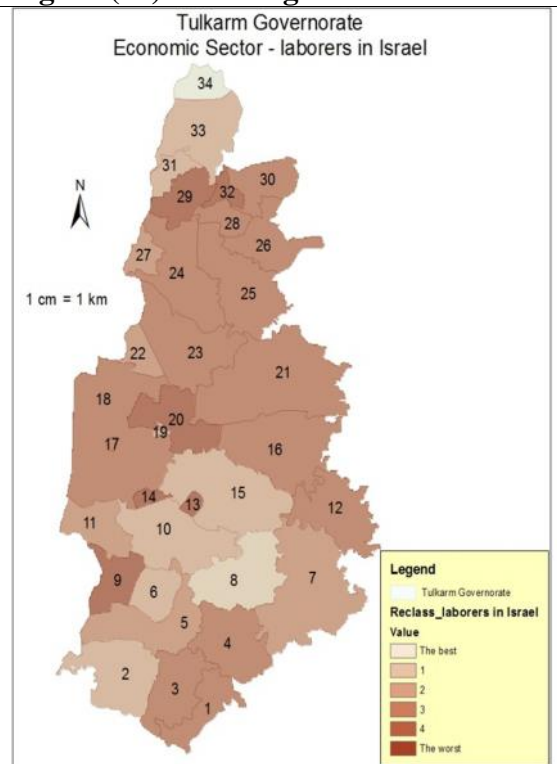
Figure (49): laborers in Israel

Component maps of education sector for Tulkarm communities
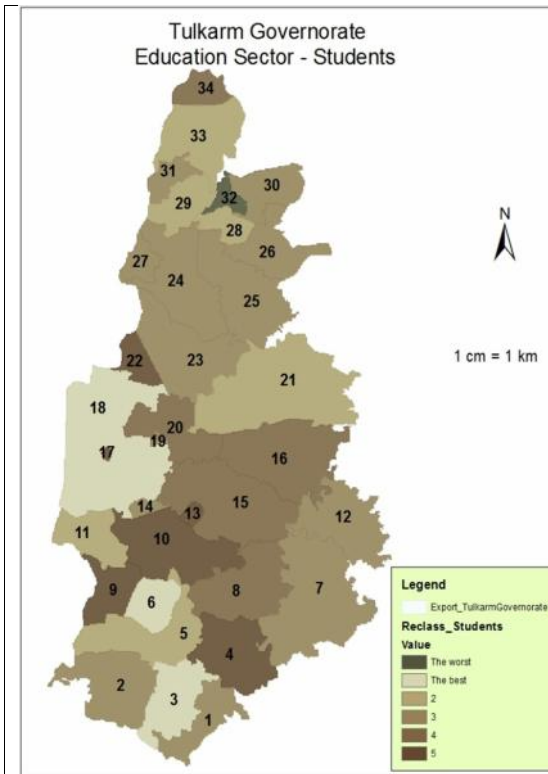
Figure (50): Students
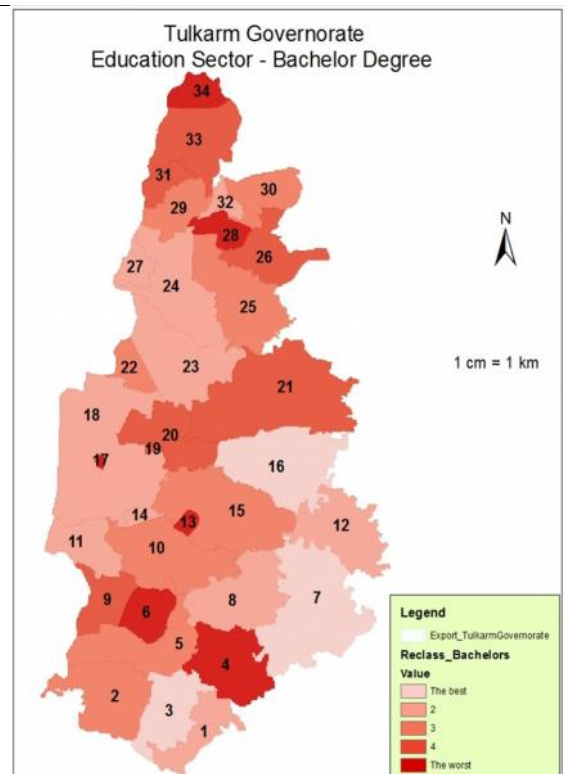
Figure (51): Bachelor Degree
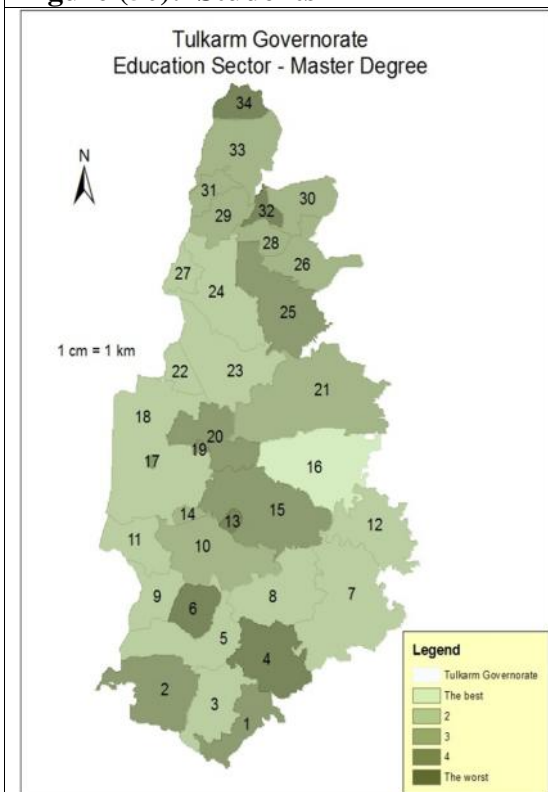
Figure (53): Master Degree
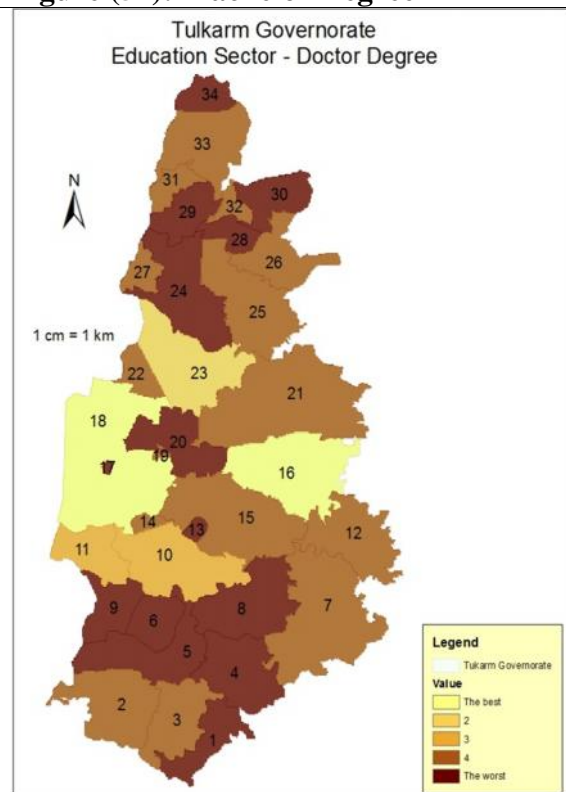
Figure (52): PhD
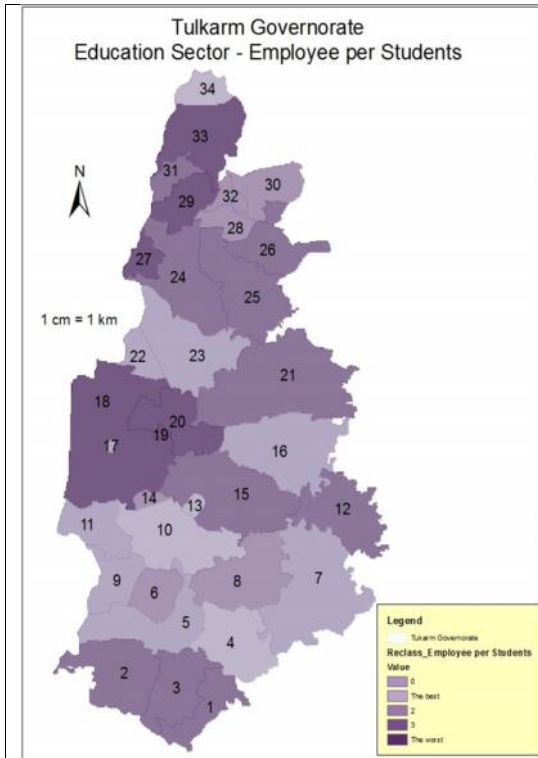
Figure (54): Employees per Student | **Figure (55): Class density Student**
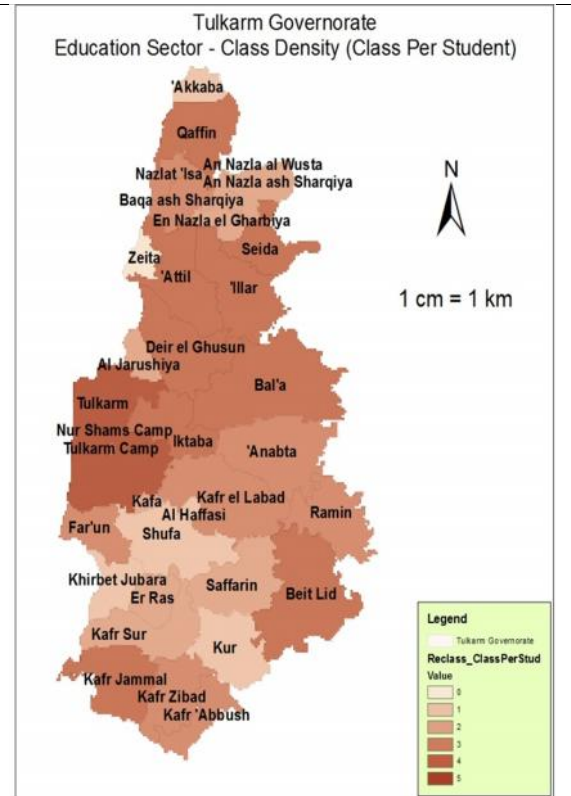
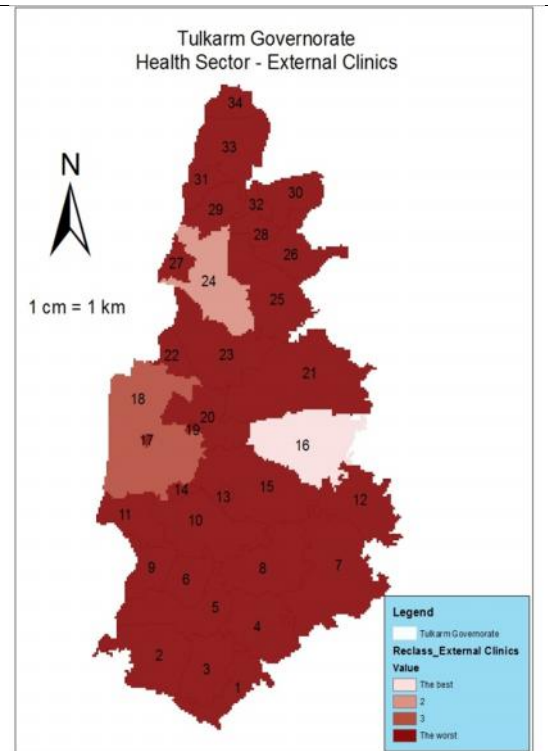# Component Maps of Health Sector at Local Level
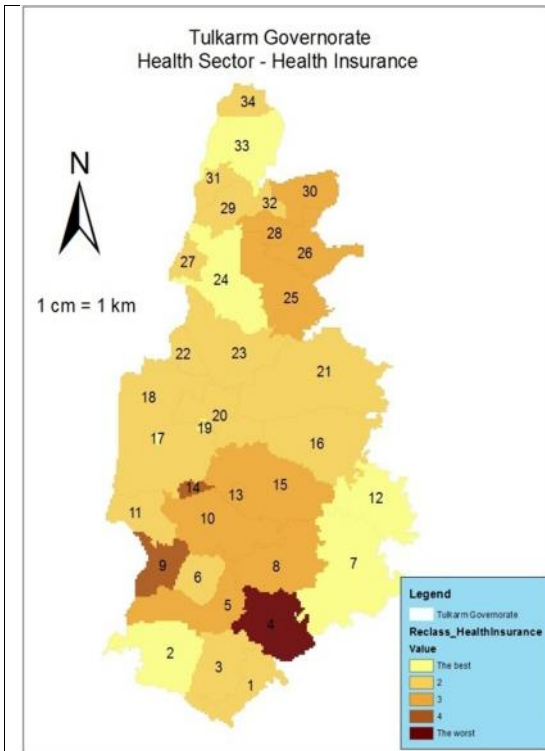
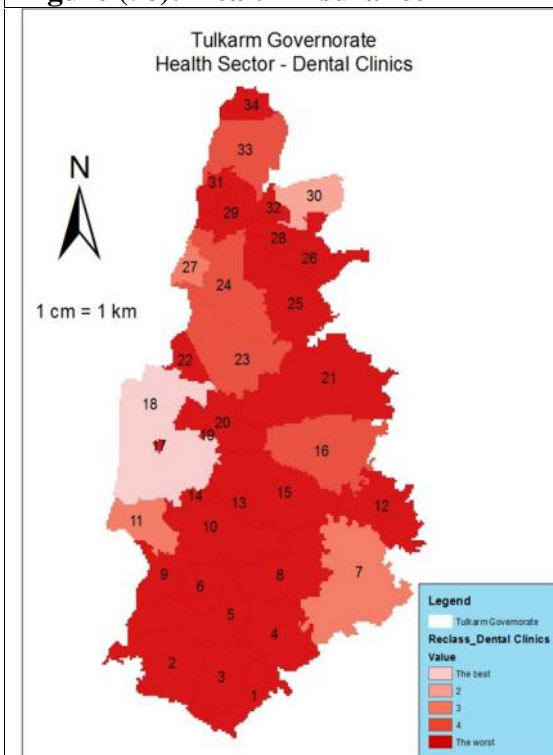**Figure (56): Health Insurance**

Figure (57): External Clinics
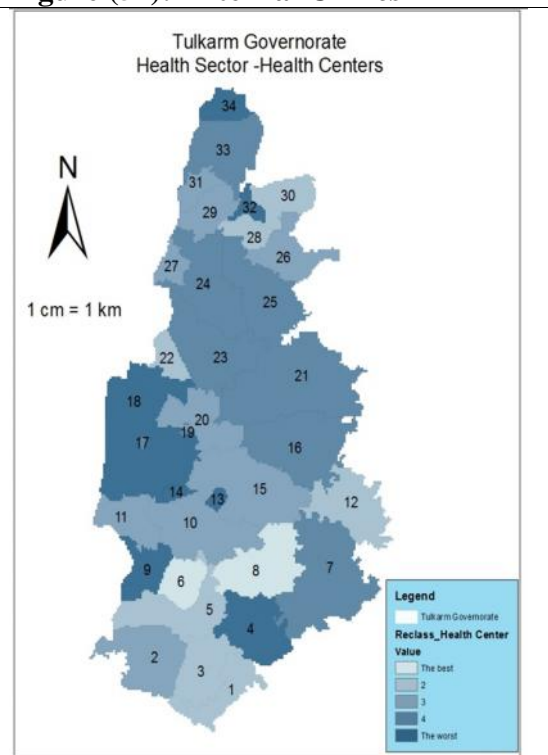

Figure (58): Dental Clinics

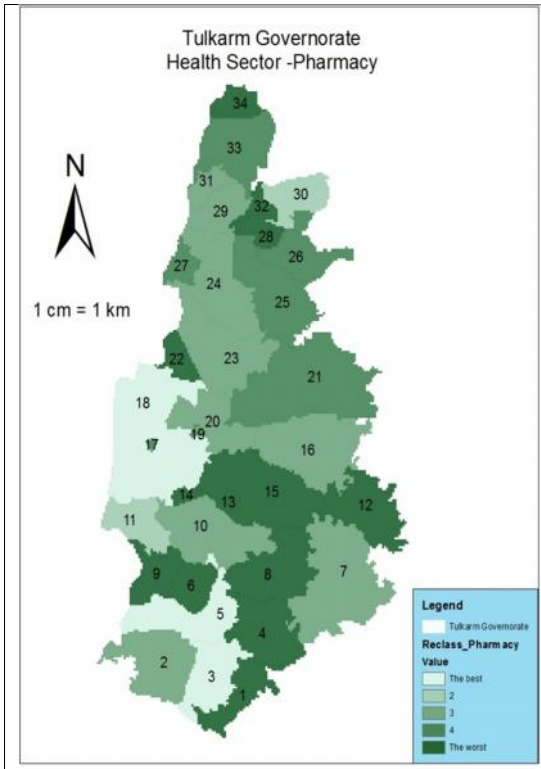**Figure (59): Health Centers**
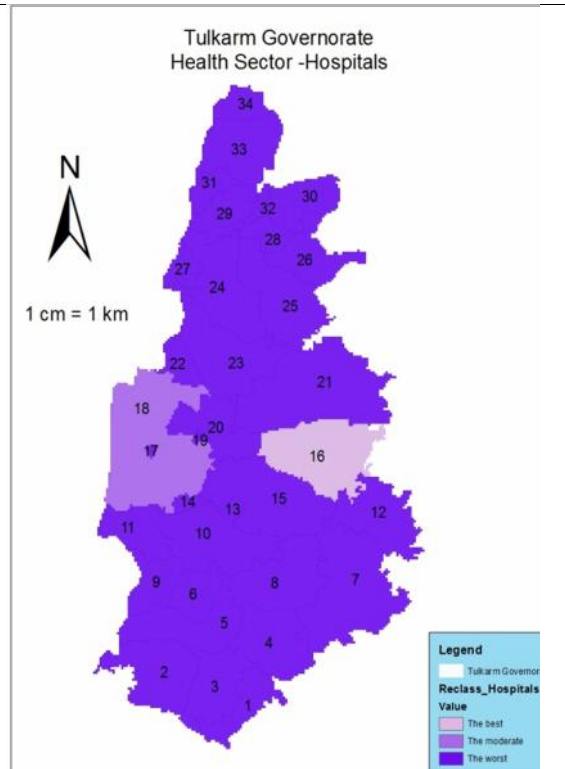
Figure (60): Pharmacy

Figure (61): Hospitals

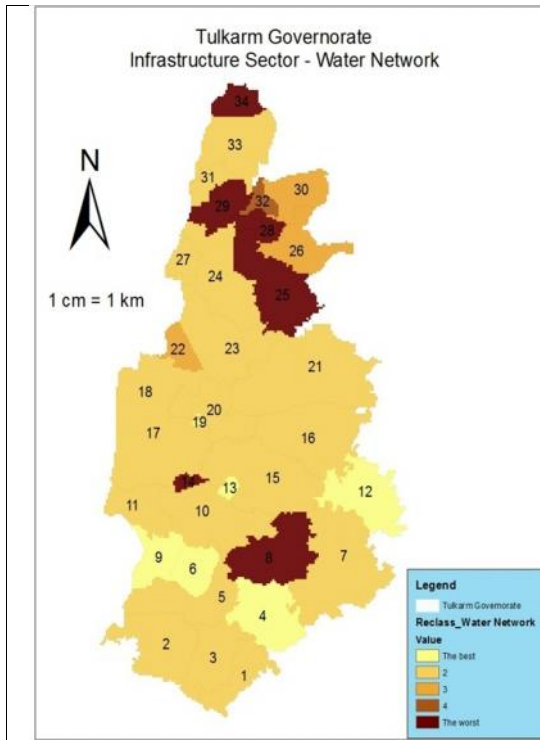# Component Maps of Infrastructure Sector at Local Level
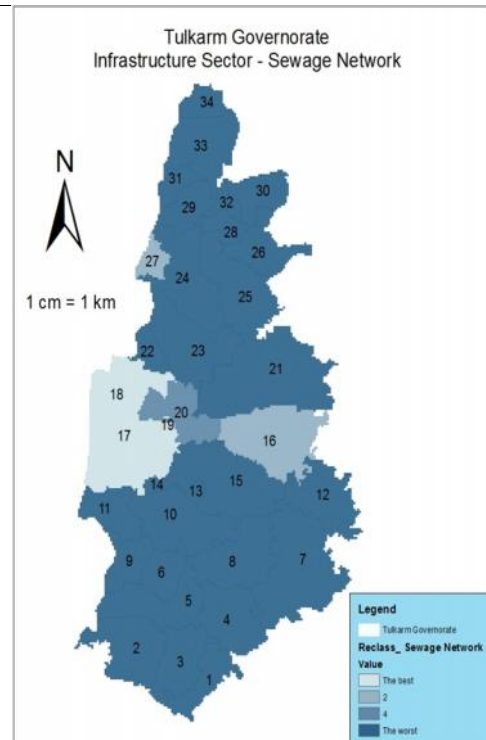

Figure (62): Water Network availability

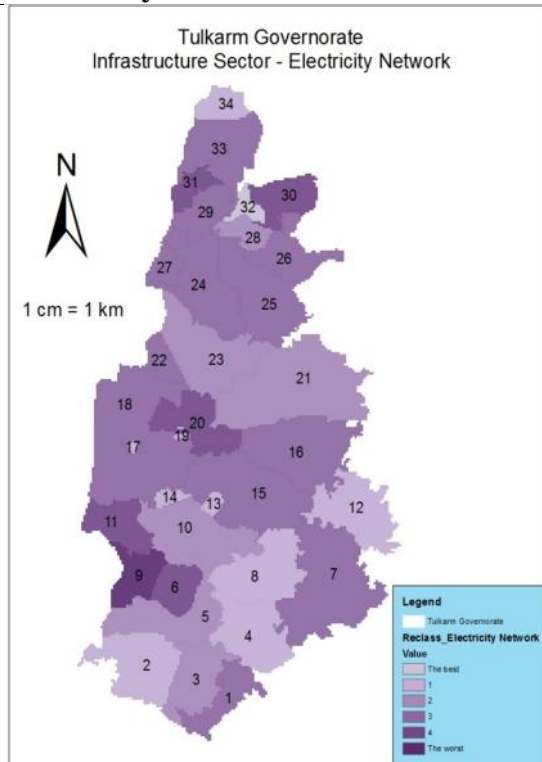

Figure (63): Sewage Network availability

Figure (64): Electricity Network availability
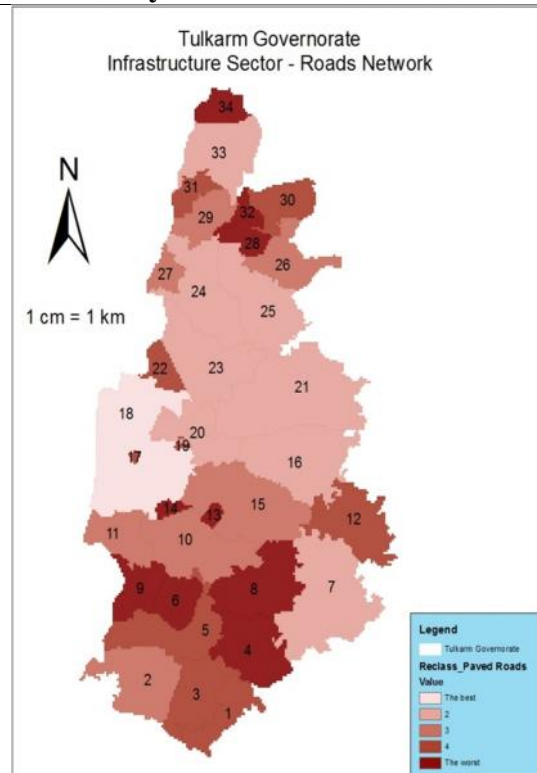
Figure (65): Paved Roads Area

Component Maps of Social Sector at Local Level
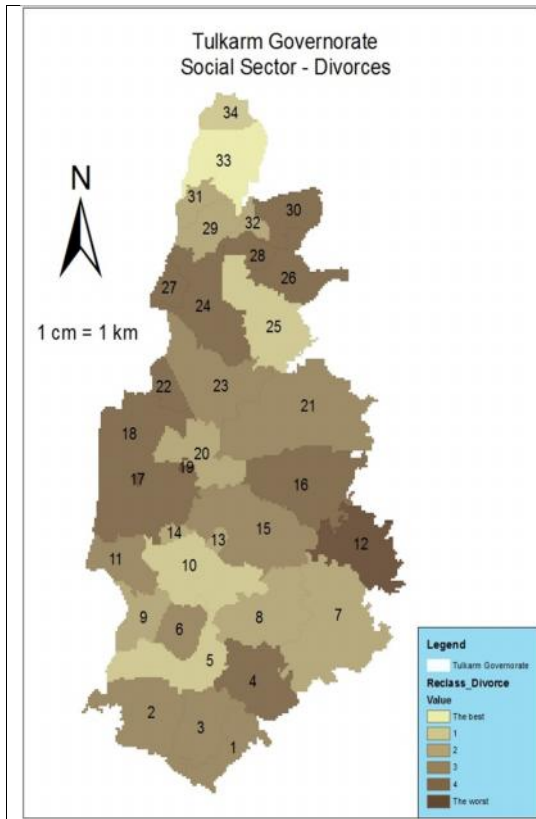
Figure (66): Divorces
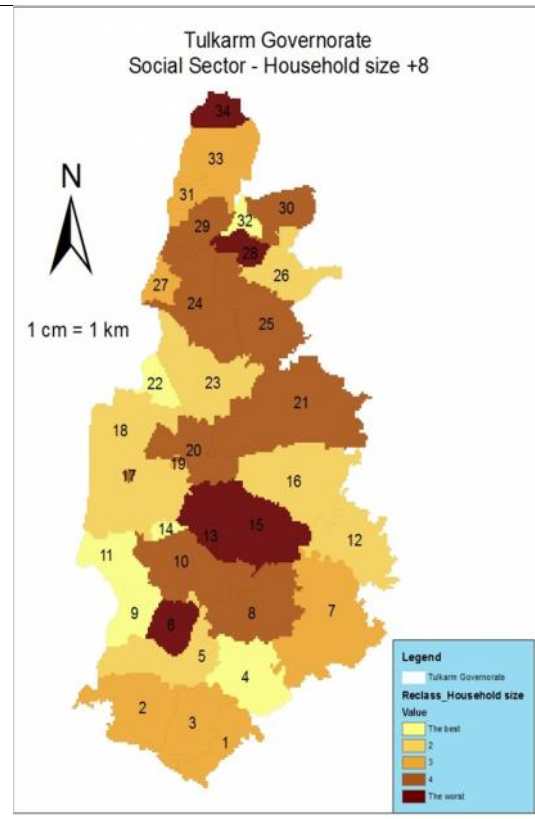
Figure (67): Household size more than8

Figure (68): Difficulties & Disabilities

Figure (69): Illiterate

Figure (70): Deaths

Component Maps of Communication Sector at Local Level

Figure (71): Private cars

Figure (72): ADS- line (Internet)

Figure (73): Telephone (Fixed Lines)
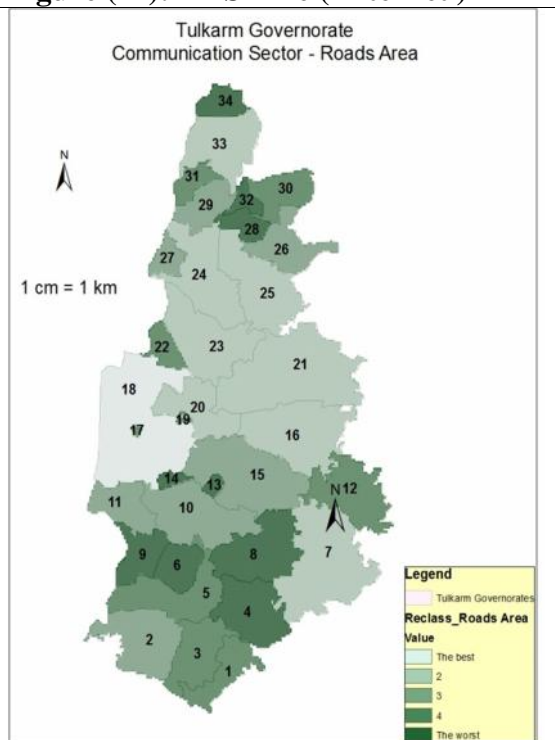
Figure (74): Roads Network (Area)

Appendix 3

Questionnaire

Table (1): List of Participant of the questionnaire at Governorates Level

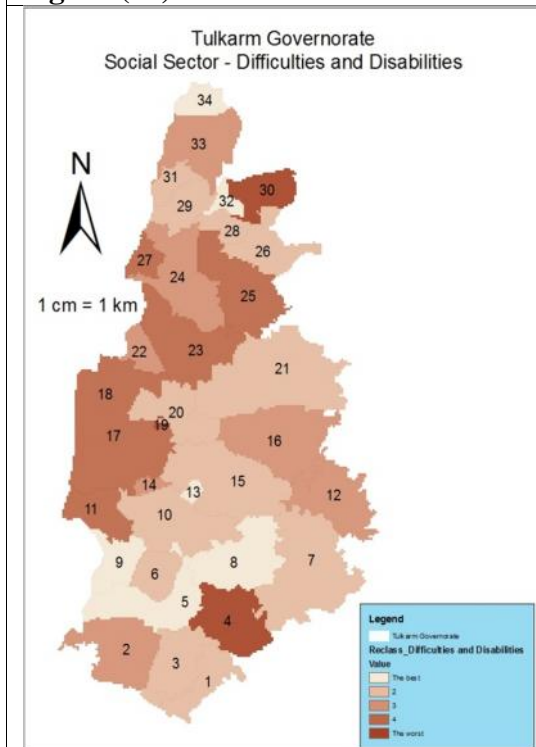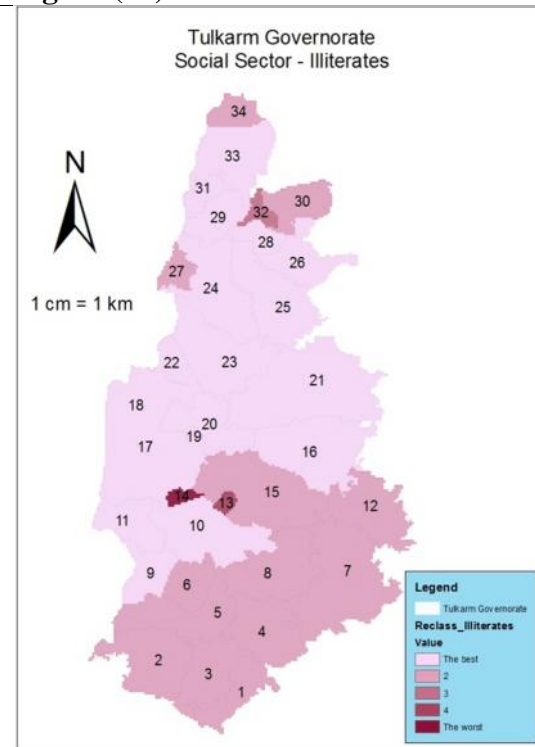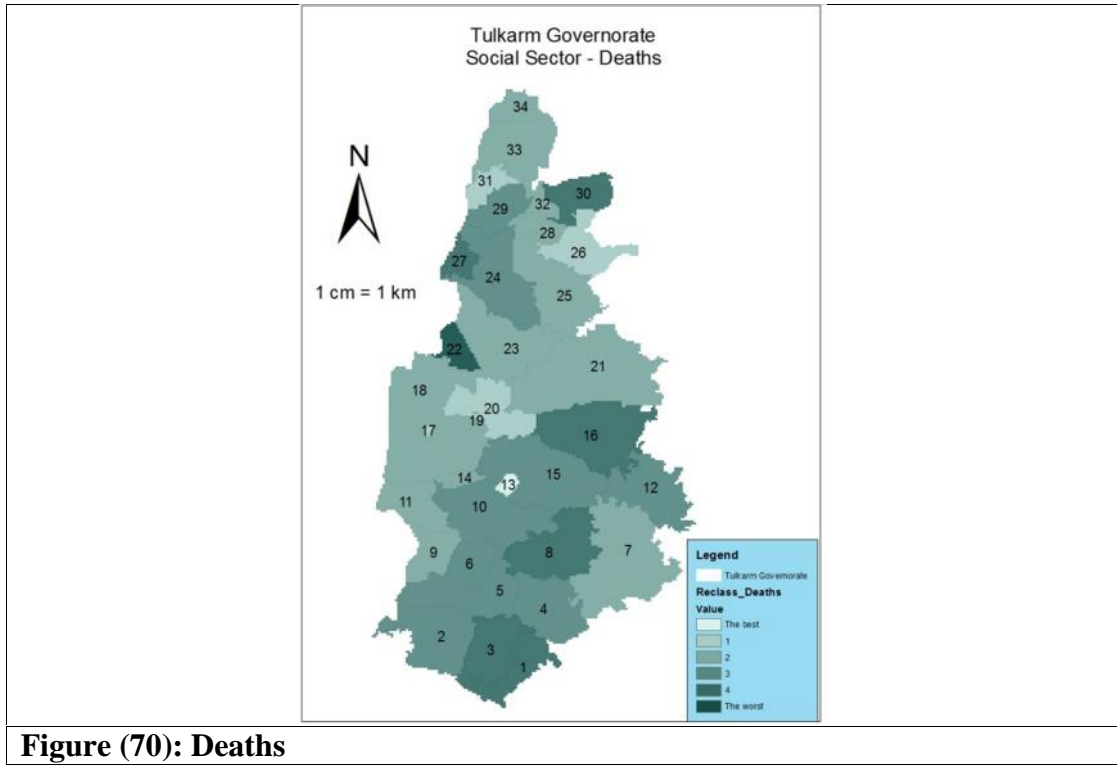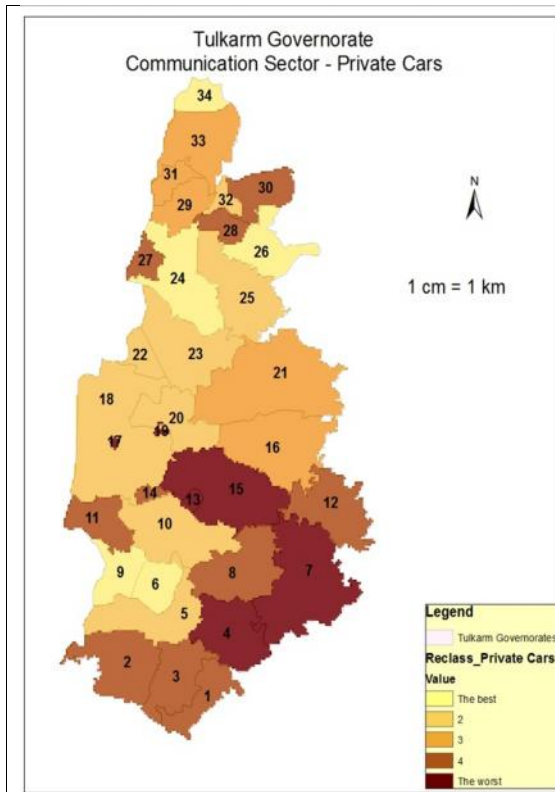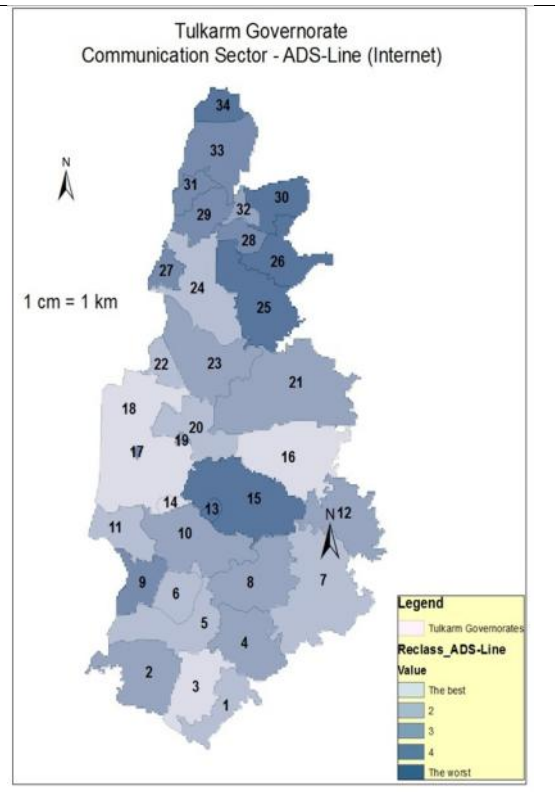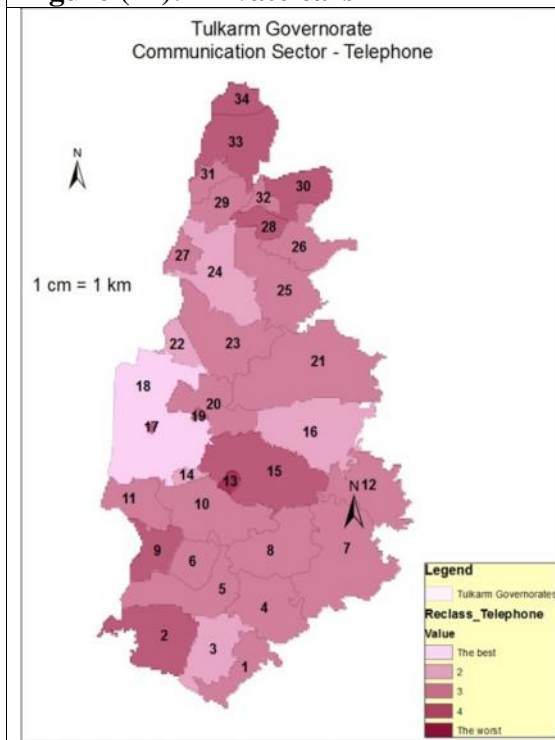| التخصص	المركزالوظيفي	مكان العمل
المشاركين في استبيان التفاوت المكاني في محافظات الضفة الغربية		
المبحوث		
هندسة تخطيط عمراني	خبير نظم معلومات جغرافية	المخطط الوطني المكاني
ماجستير جغرافيا	رئيسة قسم القدس/مركز المعلومات	هيئة مقاومة الجدار
هندسة معمارية	مدير الأبحاث والدراسات	هيئة مقاومة الجدار
مساحة خرائط	مدير دائرة نظم المعلومات الجغرافية	وزارة التخطيط
هندسة مدنية	رئيس قسم الخرائط	وزارة الحكم المحلي
جغرافيا	Geomolg Team	وزارة الحكم المحلي
هندسة مدنية	مهندس GIS	الحكم المحلي – الإدارة العامة
هندسة مدنية + GIS	Geomolg Team	وزارة الحكم المحلي
هندسة مدنية + GIS	Geomolg Team	وزارة الحكم المحلي ـ تخطيط'
هندسة مدنية	Geomolg Team	دائرة المعلومات الجغرافية المكانية
جغرافيا	Geomolg Team	وزارة الحكم المحلي
محاسبة	مدير عام الادارة العامة للموارد البشرية والمالية	وزارة الاقتصاد الوطني
علوم سياسية	رئيس وحدة	وزارة الاقتصاد الوطني
مهندس أغذية	مدير عام حماية المستهلك	وزارة الاقتصاد الوطني
هندسة بترول	مدير عام مديرية الاقتصاد الوطني / طولكرم	طولكرم
دكتور ـ اقتصاد	رئيس قسم أكاديمي	جامعة خضوري
أ.م. إقتصاد	عميد شؤون التنمية وخدمة المجتمع	جامعة خضوري
إحصاء	محاضر	جامعة خضوري
تنمية بشرية ويناء مؤسسات	محاضر	جامعة خضوري
توثيق انتهاكات الاحتلال	منسق اللجان الشعبية في حملة مقاومة الجدار والاستيطان	رام الله
هندسة مدنية	مدير دائرة التخطيط	بلدية طولكرم
أ.م. إهندسة تخطيط حضري	رئيس قسم التخطط الحضري	جامعة النجاح الوطنية
تخطيط حضري	تخطط ـ قسم المياه	بلدية طولكرم
تخطيط وتنمية سياسية	محاضر	جامعة خضوري
هندسة مدنية	رئيس قسم التنظيم	الحكم المحلي – اطولكرم
هندسة تخطيط حضري	مدير مكتب وزارة الثقافة – طولكرم	طولكرم
أستاذ مساعد	تخطيط عمراني	جامعة النجاح الوطنية
إحصاء	مدير دائرة	الجهاز المركزي للإحصاء الفلسطيني
إقتصاد	وئيس قسم	الجهاز المركزي للإحصاء الفلسطيني

جغرافيا	مدير دائرة	الجهاز المركزي للإحصاء الفلسطيني
هندسة كيماوية	مدير دائرة	الجهاز المركزي للإحصاء الفلسطيني
ماجستير جغرافيا		الجهاز المركزي للإحصاء الفلسطيني
إحصاء	مدير	الجهاز المركزي للإحصاء الفلسطيني
هندسة زراعية	مدير دائرة	الجهاز المركزي للإحصاء الفلسطيني
علم اجتماع	رئيس قسم	الجهاز المركزي للإحصاء الفلسطيني
إدارة	محاضر + مساعد النائب الإداري	جامعة خضوري
ماجستير اقتصاد	مدير عام التخطيط والتطوير	محافظة طولكرم
ماجستير سياسة	مستشار محافظ طولكرم	محافظة طولكرم
دكتوراه هندسة مدنية	مدير سلطة الأراضي / طولكرم	وزارة سلطة الأراضي – طولكرم
دبلوم مساحة	رئيس قسم أملاك الدولة في محافظة طولكرم	سلطة الأراضي الفلسطينية / طولكرم
مهندس مدني	مدير مشروع صرف صحي	مجلس الخدمات المشترك لوادي الزومر
مهندس ميكانيك	مدير دائرة المياه والصرف الصحيح	بلدية طولكرم
إدارة أعمال	مدير دائرة الدراسات والتنمية المجتمعية	جامعة خضوري
ماجستير ديمقراطية وحقوق إنسان	محاضرة	جامعة خضوري
بناء مؤسسات وتنمية موارد بشرية	مدير دائرة القبول والتسجيل	جامعة خضوري
نظم معلومات جغرافية GIS	أستاذ مساعد	جامعة النجاح الوطنية
تخطيط حضري وإقليمي	أستاذ مساعد	جامعة النجاح الوطنية
هندسة مدنية /طرق ومواصلات	أستاذ	جامعة النجاح الوطنية

Table (2): List of Participant of the questionnaire at Local Level

التخصص		المركزالوظيفي	مكان العمل
المبحوث			
التخصص		المركزالوظيفي	مكان العمل
هندسة مدنية		محاضر	جامعة خضوري
تربية تكنولوجية		مشرف مرسم	جامعة خضوري
هندسة معمارية		محاضر	جامعة خضوري
هندسة كهربائية		محاضر	جامعة خضوري
إدارة أعمال		مدير مبيعات	شركة جوال
هندسة كيميائية		محاضر	جامعة خضوري
هندسة حاسوب		عميد القول والتسجيل	جامعة خضوري
هندسة معمارية		محاضرة	جامعة خضوري
إدارة		نائب مدير عام	وزارة الاقتصاد / طولكرم
هندسة تكنولوجيا كيمياء عضوية		مدير عام وزارة الاقتصاد الوطني	وزارة الاقتصاد / طولكرم
رياضيات		مدير	وزارة الاقتصاد / طولكرم
هندسة تخطيط حضري		محاضر	جامعة خضوري
هندسة حاسوب		محاضر	جامعة خضوري
ماجستير هندسة طاقة		رئيس قسم	جامعة خضوري
هندسة كهربائية		أستاذ مساعد	جامعة خضوري
هندسة حاسوب		أستاذ مساعد	جامعة خضوري
هندسة كهربائية		أستاذ مساعد/ رئيس قسم	جامعة خضوري
هندية ميكانيكية		محاضر	جامعة خضوري
هندسة كهربائية		أستاذ مشارك	جامعة خضوري
هندسة كهربائية		محاضرة	جامعة خضوري
هندسة ميكانيكية		محاضر	جامعة خضوري
هندسة كهربائية		مدير دائرة التعليم المستمر	جامعة خضوري

المشاركين في استبيان التفاوت المكاني في محافظة طولكرم

Results of the Questionnaire

Political Sector at Governorate Level						
Number of Settlements	Number of Establishments closed	Residences Isolated behind The Wall	Area C	Number Of Settlers	Settlements Area	Land Area confiscated for The Wall
14.07	8.71	8.11	20.72	12.36	19.51	16.40
14	9	8	21	13	19	16

Economic Sector at Governorate Level							
House Expenditure	No. Livestock (cows, sheep's & goats)	Gross Added Value (GAV)	Water Pumped for Agriculture use	Establishments	Employees Personal Engaged	Cultivated land area km2	No. of Agricultural Holdings
10.37	8.29	8.82	16.97	13.88	10.90	17.35	13.41
10	8	9	17	14	11	17	14

Social Sector at Governorate Level						
Unemployment's Proportion	Poverty Proportion	Road Traffic Accidents Proportion	Divorces Marriages Proportion	Criminal-population	proportion of Disabilities Difficulties	Deaths Proportion
26.81	21.49	8.85	13.87	10.40	8.54	9.99
27	21	9	14	10	9	10

Infrastructure Sector at Governorate Level				
Paved Roads	Waste collection	Electricity Network	Sewage Network	water network
18.79	17.55	20.43	20.47	22.77
19	18	20	20	23

Education Sector at Governorate Level					
Students per class	Conduct studies_ Research	DH	MA	Students BA	Students number
18.54	14.08	13.66	12.66	20.70	20.38
18	14	14	13	21	20

Cultural Sector at Governorate Level

No of Cultural Institutions	Home Library	No Mosques
35.64	31.17	32.34
36	31	33

Communication Sector at Governorate level

No_Availability of Computer	Mail Service Centers P.O Boxes	Road Network Length	Vehicles Number	Availability Tel_Line	Availability internet at home	Own Mobile Phone
16.43	7.19	14.43	13.90	10.59	19.09	18.38
16	7	15	14	11	19	18

Health Sector at Governorate Level

No. Hospitals	Housing Density+	Insured Families by Governorate	No. of Health Centers	Beds per 1000 Inhabitants
20.11	16.49	20.64	20	22.66
20	16	21	20	23

Political Sector at Local Level

Area C	Establishments closed because of the Wall	Freedom of movement and access through the wall	Land area isolated behind The Wall	Number of people isolated behind The Wall	Area of land confiscated for the Wall	Demolition order
26.36	10.91	12.86	12.36	9.32	16.59	12.05
26	11	13	12	9	17	12

Economic Sector at Local Level

Employees number	Establishments number	Buildings number	Cultivated land Area	Olive Oil Press	No. of Laborers In Israel	Number of Agriculture Holdings	Number of Raised Poultry (Broilers)
14.66	12.27	11.25	13.64	8.18	15	13.68	11.77
15	12	11	13	8	15	14	12

Education Sector at Local Level

Class density	Employee for Student	Phd degree	Master degree	BA degree	Students ratio
18.64	18.18	11.32	12.55	19.32	19.55
19	18	11	13	19	20

Health Sector at Local Level

Health Insurance	External clinics	Pharmacies	Health centers	Dental clinics	Hospitals
19.77	16.59	13.41	17.05	11.36	21.82
20	17	13	17	11	22

			Infrastructure sector at Local Level
Roads network	Electricity network	Sewage network	Water network
22.73	25.68	23.41	29.32
23	25	23	29

				Social Sector at local Level
_Disabilities Difficulties	House density more than 8	Illiterates	Deaths	Divorces
16.59	28.41	18.64	14.09	21.59
17	28	19	14	22

Communication Sector at local Level

ADS Line (Internet)	Roads area (length)	Number of Cars	ADS Fixed line (Phone line)
25	26.82	25.68	23.643636
25	27	25	23

جامعة النجاح الوطنية

كلية الدراسات العليا

تحليل انماط التفاوت المكاني في محافظات الضفة الغربية: حالة دراسية محافظة طولكرم وتجمعاتها

إعداد

نعيم فايز حسن اشتيوي

إشراف

د. عماد دواس

قدمت هذه الأطروحة استكمالا لمتطلبات الحصول على درجة الماجستير في هندسة التخطيط الحضري والاقليمي بكلية الدراسات العليا، جامعة النجاح الوطنية، فلسطين.

2016

تحليل انماط التفاوت المكاني في محافظات الضفة الغربية:

حالة دراسية محافظة طولكرم وتجمعاتها

إعداد

نعيم فايز حسن اشتيوي

إشراف

د. عماد دواس

الملخص

فكرة هذا البحث نشأت من مفهوم العدالة وعلاقتها بالمكان الجغرافي والمساواة المكانية والتي تعتمد في مفهومها على أن جميع السكان يتمتعوا بنفس الحقوق بغض النظر عن العرق أو الدين أو مكان السكن. إن غياب العدالة المكانية تقود الى التمييز العنصري والصراع بين مختلف شرائح المجتمع. هذا البحث يهدف بالدرجة الأولى البحث عن التمايز المكاني في فلسطين. الباحث سوف يجيب عن السؤال الكبير وهو: الى أي مدى يمكن أن ينطبق التمايز المكاني على التجمعات السكانية.

للإجابة عن هذا التساؤل، تم اختيار الضفة الغربية كحالة دراسية. ومشكلة الدراسة تطرقت الى مستويين: المستوى الوطني للمحافظات والمستوى الثاني هو المستوى المحلي والتي تغطي التجمعات السكانية في محافظة طولكرم. في البحث عن هذه المشكلة، تم اختيار مجموعة من القطاعات لفحص مدى التمايز المكاني في هذه القطاعات

تم اختيار القطاعات بعناية بحيث تغطي جميع مناحي الحياة وهي: السياسية، الاقتصادية، الثقافية، التعليم، الصحة، الاجتماعية، خدمات البنية التحتية والاتصالات والمواصلات.

في إطار المنهجية المستخدمة في هذا البحث تم اختيار أداتين في جمع البيانات وهما الاستبيان الموجه للخبراء لتقييم القطاعات والثاني البيانات الاحصائية التي تم الحصول عليها من المؤسسات ذات العلاقة على المستويين المحلي والوطني. تم توظيف رأي الخبراء لحساب نسبة

تاثير كل قطاع على الحالة النهائية للتفاوت المكاني بينما تم استخدام برنامج نظم المعلومات الجغرافية (GIS) في تحليل البيانات الاحصائية لاظهار عناصر كل قطاع.

في الحالتين (المستويين المحلي والوطني) النتائج أظهرت بشكل واضح مدى التمايز في القطاعات وبين القطاعات أنفسها. على سبيل المثال، ظهر بشكل جلي مدى التفاوت بين نابلس والقدس في القطاع السياسي. فيما يتعلق بالحالة النهائية أظهرت النتائج أن نابس ورام الله تتميز بشكل كبير من ناحية الأفضلية عن بقية محافظات الضفة الغربية.

نفس المنهجية وطريقة التحليل في التفاوت المكاني اتبعت على المستوى المحلي بين تجمعات محافظة طولكرم. والنتائج أظهرت أن بلدة عكابا كانت الأسوأ حظا في المحافظة.

أخيرا، البحث احتوى على مجموعة من التوصيات والتي تركزت على القطاعين السياسي والاقتصادي باعتبارهما الاكثر سوءا وتاثيرا على التمايز المكاني.

فيما يتعلق بالقطاع السياسي، فإن البحث اقترح تقديم الدعم المادي للتجمعات والمدن التي تقع في مناطق ج لحين ايجاد حلول جيوسياسية.