CHAPTER IV

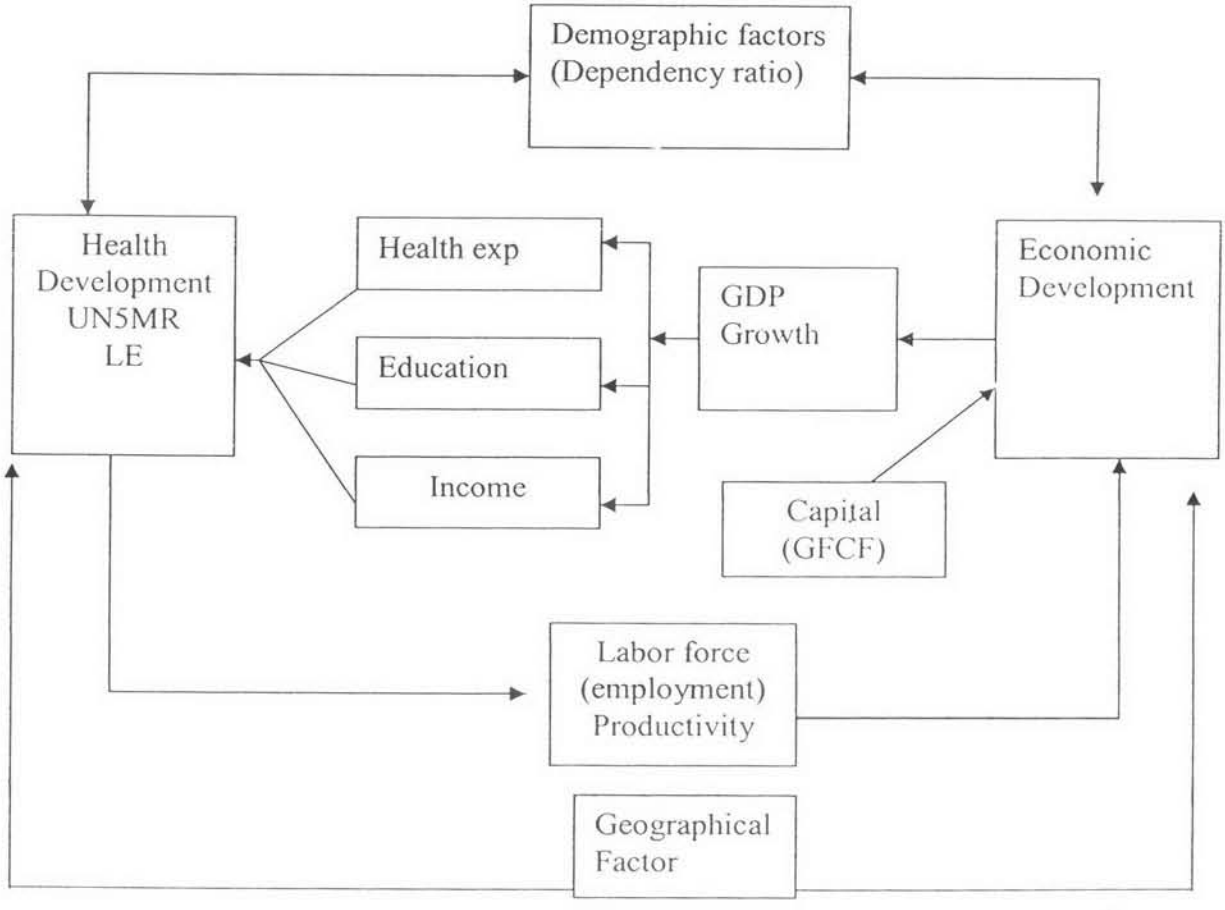
METHEDOLOGY

This chapter is concerned with the conceptual framework, hypothesis, design, variables, and the model of this study.

4.1 Conceptual framework

The objective of this study is directed to determine interrelation between economic development and health development. The conceptual frame work shows the interrelationship between economic indicators and health status.

Figure 4.1 conceptual framework



The conceptual framework shows the two ways relation between economic development and health development. Health status is dependent variable in the first equation while health expenditure, income,

education, geographic and demographic factors are independent variables. Gross domestic product is the dependent variable in the second equation while health statuses, gross fixed capital formation, geographical and demographical factors are in dependent variables.
Dependency ratio is the dependent variable in third equation while health status, Gross domestic product, geographical factors are independent variables.

4.2. Hypothesis (es).

1- Improve Economic status lead to improve health status.
A-Increase (income) GDP per capita improves health through increasing life expectancy, decreasing under 5 mortality.
B-Increase governmental health expenditure, total health expenditure lead to improve health through increasing life expectancy, decreasing under 5 mortality rate.
C- Increase gross-enrollment ratio has a positive impact on health status.
D-Demographic and geographic factor affect on health.

2-Improve health status leads to improve economic status
A-increasing life expectancy, decreasing Under 5 mortality rate lead to improve economical status through increase GDP.
B- Improve health status, demographic and geographic factors, labor force, and capital lead to improve economic status.

4.3-Design of study:

Descriptive and retrospective study .using panel data

Of 24countries (cross-countries) over a period of 8years from 1997-2004.

The countries are.
1-Iraq, 2- Syrian Arab Republic ,3-Jordan, 4-Lebanon, 5- Kuwait, 6-Islamic Republic of Iran, 7-Bahrain, 8-Egypt, 9-Qatar ,10- Oman, 11-Saudi Arabia.12- Pakistan, 13 Morocco,14- Libyan- Arab Jamahiriya , 15-Sudan ,16- muritanea17-Tunisia 18-United Arab Emirates 19-Yemen 20-dijibouti 21-algeria22-eritrea.23 -turkey.24- Cyprus.

4.4 Data collected

Secondary data from

1- Iraqi ministry of health data (national data),

2- W.H.O web site (country profile).

3- W.H.O web site (world health report for the years 1995-2005).

4- UNDP survey at Iraq.

5- Human development report.

6- Unesco.organization.

7-National income statistics

8- World Development Report.

9-World Education Report.

These data on appendix.

4.5Variables

4.5.1Health indicators Variables

1-under five mortality rate (U5MR) the number of deaths of children under age 5 per 1000 of life births during this year.

2- Life expectancy (LIFE) the number of years new born infant would live if prevailing patterns of mortality at the time of birth were to stay the same throughout child life. Unit of measurement (years).

4.5.2Economic variables.

1-General government expenditure on health (GGH) %THE. The governmental expenditure on health as percentage of total health expenditure.

2- Real Total Health Expenditure (THE). Per capita at $.

3- Real Gross Domestic Product (GDP) per capita ppp ($)

4-Gross fixed capital formation the statistical aggregate of GFCF is a measure of the net new investment by enterprises in the domestic economy in fixed capital assets during a one yearat $.

4.5.3 Socio Economic and Demographical variables.

1-. (EDU) gross enrolment ratio. (Combined primary, secondary and tertiary gross enrolment ratio).

2- Dependency ratio .percentage of population aged less than 15 and 60+years (age).

3-Total number of population (proxy of labour force) percentage of employed from total population . employed workers. units of measurment per thousands pop.

4-Dummy variable for geographical (Asia, Africa).

4.6 Model.

Regressions analysis using data for 8 years data cross- country for 24Middle East's and Arabic countries using simultaneous equations. The method used is two stage least squares.

The model in the study can be written as:

1-Using under 5 mortality rate as health indicator.

$$U5MR_{it} = \beta 10 + \beta 11 \text{ Log } GDP_{it} + \beta 12 \text{ DR}_{it} + \beta 13 GHE_{it} + \beta 14 \text{ LogTHE}_{it} + \beta 15 EDU_{it} + \beta 16 DM_{it} + \mu_1. \quad (1.1)$$

$$\text{Log } GDP_{it} = \lambda 10 + \lambda 11 \text{ U5MR}_{it} + \lambda 12 \text{ DR}_{it} + \lambda 13 DM_{it} + \lambda 14 \text{ Log } (K_{it} / L_{it}) + \mu 2. \quad (1.2)$$

$$\text{DR}_{it} = \acute{\alpha} 10 + \acute{\alpha} 11 \text{ U5MR}_{it} + \acute{\alpha} 12 \text{ Log } GDP_{it} + \acute{\alpha} 13 DM_{it} + \mu_3 \quad (1.3)$$

Where

i = number of countries 24 countries

t = is time series from 1997-2004

U5MR is under 5 mortality rates per 1000 life birth.

GDP is real gross domestic product per capita (ppp) in ($)

DR is dependency ratio

GHE is percentage of general governmental expenditure from total health expenditure

THE is real total health expenditure per capita in ($)

EDU is education which is gross enrollment ratio (primary, secondary, tertiary)

DM dummy variable 1 if Asia zero if not Asia.

K is capital which is gross fixed capital formation at constant price ($)

L is labor which is number of population (in thousands) as proxy of labor.

2-Using life expectancy as health indicator.

$$\text{Log } LE_{it} = \beta 20 + \beta 21 \text{ Log } GDP_{it} + \beta 22\ DR_{it} + \beta 23 GHE_{it} + \beta 24 \text{LogTHE}_{it} + \beta 25 EDU_{it} + \beta 26 DM_{it} + \mu 1 \quad (2.1)$$

$$\text{Log } GDP_{it} = \lambda 20 + \lambda 21 \text{ Log } LE_{it} + \lambda 22\ DR_{it} + \lambda 23 DM_{it} + \lambda 24 \text{ Log } (K_{it}/ L_{it}) + \mu 2. \quad (2.2)$$

$$DR_{it} = \acute{a}20 + \acute{a}21 \text{ LogLE}_{it} + \acute{a}22 \text{ Log } GDP_{it} + \acute{a}23\ DM_{it} + \mu 3 \quad (2.3)$$

Where

i = number of countries 24 countries

t = is time series from 1997-2004

LE is life expectancy (years)

GDP is real gross domestic product per capita (ppp) in $

DR is dependency ratio

GHE is percentage of general governmental expenditure from total health expenditure

THE is real total health expenditure per capita in us $.

EDU is education which is gross enrollment ratio (primary, secondary, tertiary)

DM dummy variable 1 if Asia zero if not Asia.

K is capital which is gross fixed capital formation at constant price.
($)L is labor which is number of population (in thousands) as proxy of labor.