

The role of social security in balancing families' consumption An econometrics (study of the heteroscedasticity phenomenon-the application of the Khurmah province).

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Abstract: This study aimed to explore the phenomenon of heteroscedasticity to measure economic gap between certain categories of the community. It addresses the phenomenon and consumption model through social security tools. It identifies the shortcomings and attempt to handle them. Similarly, the study aimed to examine the common impact of the prevalence of the phenomenon before social security, and the extent of balance achieved after social security that may lead to Homoscedasticity Moreover, the study dealt with the importance of social security and its role to achieve the consumption balance of families, and explore the extent to which that consumption balance targeted the categories of social security services. Consumption model demonstrated the consumption of households in the province of Khurmah before and after the Social Security. It is conducted on 45 families by 9 families each year for a period of 5 years, to measure the extent to which that balance through the econometric tool (phenomenon), through the formulation of the model. First the model was tested and evaluated it under Arch & White test of the sample used and the level of the gap (rate of heteroscedasticity) and rates of social security. The model is used to develop solutions to expected problems in the near future, through a model of **Forecast** for years to come. Using the E-economy models Curran Theater designer standard, the phenomenon of heteroscedasticity the study reached the following: The model showed statistical indication between changes in consumption and income with the emergence of the impact of some other factors in the model before social security. After social security services, model achieved higher rates, therefore there is statistical significance of the relationship between consumption and income, but lesser the impact of other factors (Zakat or assistance... etc.) and balance families consumer and dispensing with the other sources to support consumption

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1. Introduction

This study investigates the concept of heteroscedasticity, highlights the forms, and causes and ways of addressing and explains them through Bruch - pagan test. This phenomenon is considered one of the most effective econometrics instruments to identify the extent of the stability achieved for a category of society by providing the Social Security Service and extent its effectiveness. The phenomenon allows the possibility of recognition of the diversity of groups due to social security and its applications. Moreover, the study reviews the definition and types of social security. It demonstrates its significance, tools, means, and methods of applications. It identifies its target groups, organizational structure and conditions of Social Security including its different administration divisions. The social security system is defined by the State to protect individuals and their families, when they were to face disasters, including what insures welfare and comfort for them. Providing

individual with social security and social protection network is a part of his fundamental rights. Therefore, The Universal Declaration of Human Rights states that every person in of the community has the right to be a member of social security, and that it should be achieved by national effort and cooperation of international systems, and in accordance with each state, its resources and the rest of others' economic and social rights, which are indispensable to individual's freedom and dignity.

I. The problem of the study:

There are different levels of consumption among families, where we find that one of the most prominent problems of social security is the emergence of the disparity in the levels of social security and the impact of the differences in the levels of consumption of households.

- The extent to which consumer balance for families is achieved after they access to social security services.

- Good specification of the model to measure the consumption balance of families through the econometric tools, to represent the phenomenon of different disparity, to detect the imbalance before consumer access to social security, and then determining the rates of social security and achieve a better balance and the standard of living of families.

2. Significance of the study:

The significance of this study arise from the fact that it is an attempt to survey the phenomenon to measure economic gap between certain category of members of the community, and how to deal with it adopting the model of social security tools. It corroborates of the extent of the activation of social security using phenomenon as a measurement. Therefore, identify the shortcomings, if any, and then dealt with them. The study detect the tools to reveal the extent of the required values of social security in the future and alleviate of the problem and willing to achieve the main goal of social security (consumer balance families) through:

- The application on the research model from the factual data and determine the phenomenon in the study population. Also it is used to determine the importance of Social Security to address the problem of poverty and contribute to the adjustment to levels of balanced consumption. Moreover, to identify the degree of shortcomings of the tools of social security, if any.

- To investigate the phenomenon of heteroscedasticity from application perspective through research model and determine it as tool to detect deficiencies and the equipment required for the process.

- To identify the general framework for balanced consumption model for a category of society with the effectiveness of the social security and the achievement of stability and balance.

- To recognize the tools of social security and how it fits into the various categories.

- To facilitate identification the size of the problems and how to handle them carefully in the future.

- To benefit of the different ways to determine Prospective ratios needed to meet the expenses of Social Security and to identify resources in the appropriate time, and how to prepare for future problems and develop appropriate solutions.

- The objectives of the study:

This study aims to achieve the following objectives:

- To achieve a balanced households consumption and reduce poverty through Social Security.

- To show Non-prevalence of the heteroscedasticity between the high rates of the sample when social security is activated.

- To illustrate the role of tools for econometric model.

to study the effects before and after the application of social security, with regard to the degree and type of the relationship between income and consumption and the extent of the presence of other factors that affect consumption.

-To deal with the problems of instability or lack of integration of time-series data used as necessary steps to achieve accuracy in the model to determine phenomenon standard tool.

- To examine the phenomenon of the heteroscedasticity in the model of the study.

- To test the extent to which the rates of social security necessary to achieve balance in Khurmah families consumption and circulate it to other communities.

- to expect values of social security for the coming years with data processing and the phenomenon in the model to avoid imbalances in the future and to ensure the continuity of the achievement of the objectives of social security.

The Assumptions:

1- Social security system in the Kingdom helps to achieve a balanced consumption for households and reduce poverty.

2- No prevalence for the phenomenon of heteroscedasticity in communities that implements an effective system of social security.

3- Econometrics tools are good indicators to confirm the effectiveness of the social security system.

4- The phenomenon of heteroscedasticity has effects on the coefficients on the equations of economic models. This can be identified by the factors affecting the type of relationship between them as indicators for vectors and their interpretations.

5- The type of data used and the use of appropriate ways to address them to achieve accuracy in determining the phenomenon.

6- The possibility of configuring a standard model to determine the level of the gaps and show the extent of social security to address them.

7- forecast models are considered an important tool for future expectations and good preparation for the necessary programs to avoid errors.

Hypotheses:

- Effective Social Security is an important tool to reduce poverty and achieve the balanced consumption of families.

- Applying the Social Security achieves a balance between members in various consumption

categories, and reduces the phenomenon of resorting to aid in exchange for other necessities.

- The econometric tools have the ability to measure how effectively the social security applied.

- The heteroscedasticity effects on the coefficients of equations in the research form, taken as indicators to identify the extent of the balance of the consumer in the sample.

- Taking into account the problems of instability due to time series data used, or the integrity of the data and process it as necessary steps to achieve accuracy in determining the phenomenon.

- Investigating the heteroscedasticity of the study model to determine the rates needed to balance households' consumer in Khurmah and the possibility of its generalization to other communities.

- The possibility of formation of a standard model to determine the level of the gap and the extent necessary to address Social Security.

- Exploring the values of social security through the necessary model for the coming years.

Methodology of the study

This study follows inductive approach to track the theoretical aspects and explain the phenomenon forms and causes of occurrence and review of detection methods and treatment. It formulates objectives, reviews aspects of the importance of Social Security in the treatment of cases of different poverty, and clarifies the means to that, tools and administrative structure and conditions of the target groups.

Based on the sample type, size and characteristics of statistical and specifications, the model component of the consumption function for families before and after Social Security has been drafted and characterized for five years for 45 family rate of 9 families for each year by real data available. It formulates specialized recommendations phenomenon according to the results, and general recommendations on cases of model used as a sample for the community and how to disseminate scientifically, and to identify proper plans for treatment according to the results based on the specifications of the sample. The analytical deductive method has been adopted to deal with time-series data processing to estimate and evaluate the model. The sample data were analyzed via statistical analysis software SPSS, depending on the type and size of the sample and the statistical characteristics and specifications. The data were analyzed, formulated, and characterized of the model by real data using its examination Arch & White to investigate heteroscedasticity in the model. Then the formulation of the model is estimated by the results and determines the values of the ability of the model to

determine the forecast using standard analysis software Eviews, and then interpret the results to determine the balance of consumer rates of social security provided. Forecast also been used also to avoid future problems and determine the necessary level of social security in the near future.

Limitations of the study:

Time limits: 1430 – 1435 (Hijri calendar)

Location limits: Social security office in Khurmah governorate and its Administrations to discuss social cases in the social security department of the Ministry of Social Affairs in Saudi Arabia.

Human resources limits: The beneficiaries of social security represented by (sample).

Previous studies:

There are some studies that dealt with the social security system and its importance in the kingdom and some Arab States, represented by the following:

- A Study of Abdullah bin Ali Sayed Al Mubarak: National Report on Social Development in Saudi Arabia - 1995-2005 AD: dealt with all areas of the activities and programs of social development in the Kingdom and in particular the field of labor and social security, services and government loans.

- A study on marriage in Saudi Arabia, a comprehensive study of the issues and affairs of marriage - 1428: addressed the importance of developing and expanding the social security funds.

- A Study Sultan bin Saif Al Habsi: Social security services - Oman -2007: This study aimed to know the trends of social security beneficiaries towards the services provided to them.

This study differ from previous studies in a survey to measure the phenomenon of economic gap between particular category of the community and how to address it adopting the model through the tools of social security. The phenomenon is used as a measure to verify the extent of the activation of social security and consumer balance of families and therefore identify the deficiencies and find solution for it.

The study has also been made through the Forecast Tools to reveal the required range values of social security in the future, mitigate the phenomenon, and achieve the goals of social security.

Chapter (1)

The concept of heteroscedasticity

Forms heteroscedasticity: the problem of heteroscedasticity occurs in multiple formats:

- For example, in the form of **consumption-income**: $C_i = a + by_i + u_i$

C = consumption Y = income U_i is the expected error. It is found that the error variance spending on private consumption for low-income families usually

have a smaller variation comparing with error for the private spending of high-income families. This is due to the fact that most of the low-income families spends focus on the essentials while spending high-income families include luxuries also leaving room for differing levels of consumption, as in Figure (1).

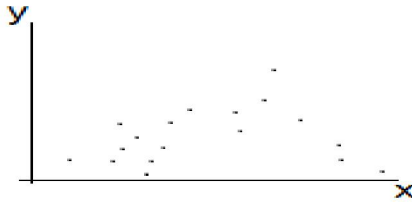


Fig (1) heteroscedasticity

The figure shows the increasing disparity of the error with the increasing values of independent variable X of income. The following forms indicate different cases of errors:

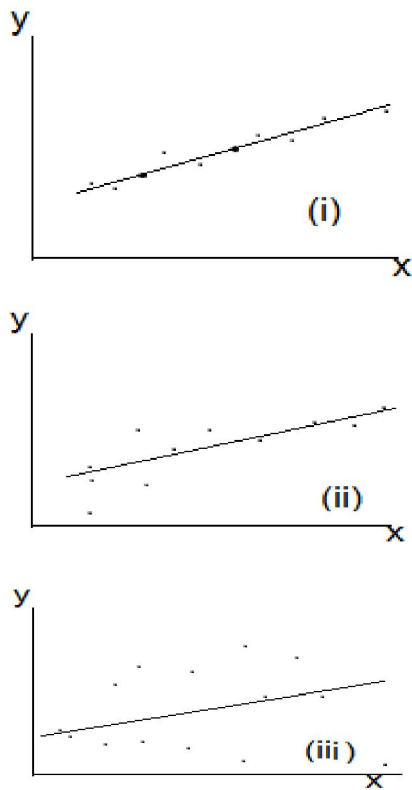


Fig (2) disparity of errors

Fig (i) reflects the heteroscedasticity, whereas (ii) reflects the decrease the disparity (U_i) with increasing values of the independent variable (y_i), and **error learning model** as the more human knowledge, behavioral errors committed over time will be

decreased, leading to decreasing component random variation in human behavior. The third form (iii) reflects the state of the growing disparity (u_i) with increasing values of the independent variable (y_i) as in the form of income and consumption shown (A. Koutsoyiannis, Theory of Econometrics. P.365).

Plausibility of the assumption of Homoscedasticity

In many of the standard applications, plausibility of the assumption of Homoscedasticity is not anticipated and the case is definitely recognized if we take into account the factors influencing the random Element. The random Element (U) reflects the errors of dependent variable measurement and the effects of the deleted variables. There are reasons in these cases lead to the anticipation of the disparity of error during the time and its difference on a regular basis with the independent variable in most cases. When increasingly views, the errors of disparity increased the random error variation with increasing values of the independent variable. On the other hand, and because of the expansion of technical inspection and other methods of data collection, the measurement errors will be reduced depending on the values of (u) over time. It is important that many of the deleted variables from the function are expected to change in the same direction with the (y) causing an increase disparity in Views on line of regression.

The causes of problem of Heteroscedasticity:

The most important reasons that lead to the emergence of this problem are as follows:

1 / there is a two-way relationship between the internal variables as occurs in models with simultaneous equations.

2 / the use of cross-sectional data instead of time series data, where such data is concerned with the characteristics of units ranging sizes in a specific period of time and the different sizes leads to Heteroscedasticity. When using cross-section data on sample of families, it is observed that when low-income disparity be spending on necessities, it is relatively low due to lower income and that means reducing the random variation diminishing (u), and there is minimum of spending could not decrease without it. While the spending on luxury goods is more dispersed due to the lack of limits on spending behavior at levels higher incomes and with the way the maximum spending and less spending. Therefore, we find that in this case that the dispersion between the values of spending increases with income as savings that people with high incomes more volatile than those on low incomes, and that means reducing the increasing random (u). The following figure illustrates the case:

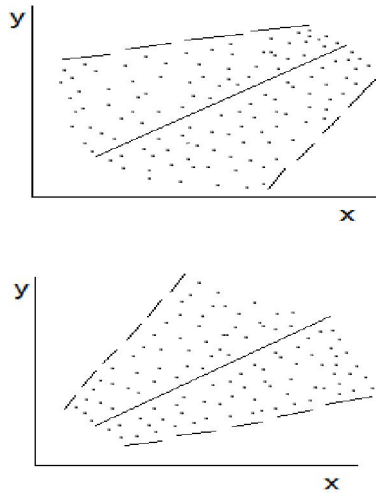


Fig (3)

Using partial data rather than aggregate data where they cancel each other where there is no room for dispersion values significantly, while in the case of partial data, such as those available when individuals or individual enterprises usually have a large dispersion between the values of the differences between the behavior of a large members.

3/ In learning models, the more learning, the less errors are expected. Therefore, novel institutions are more exposed to errors than the old, long experience one. The awareness of statistics, development the potentials and information gathering leads to improving the quality of information and reduces the error (A.Koutsoyiannis, Theory of Econometrics. P.371).

5/ Errors of Heteroscedasticity or omission of some important variables and in general the phenomenon of Heteroscedasticity is more common in data in the horizontal than vertical p 373 (ibid.).

The Consequences of Heteroscedasticity:

Consequences of the Heteroscedasticity are as follows:

The capabilities of least squares remains in linear and non bias but loose property efficiency –lowest discrepancy under Heteroscedasticity becomes a model variables with its assumption as follows: $Y_i = \alpha + \beta x_i + \mu_i$, $E(\mu_i) = 0$, $E(\mu_i^2) = \delta_i^2$ for all values of "i" and therefore the ability of ordinary least squares are still: $\hat{\beta} = \sum x_i y_i / \sum x_i^2$. It is obviously biased, that is: $\beta \neq \hat{\beta}$ but variability differs now from consistent state of variation as it:

$$\left[\frac{\sum x_i \mu_i}{\sum x_i^2} \right]^2 \epsilon = 2(\hat{\beta} - \beta) \epsilon = (\hat{\beta}) v$$

CT values disappear by taking the expectation to become a variation:

$$v(\hat{\beta}) = \delta_i^2 \sum x_i^2 / (\sum x_i^2)^2 = \delta_i^2 / \sum x_i^2 \neq \delta_i^2$$

To end property under the lowest variation and in fact, the lowest variation is reached using a different estimation method called generalized least squares or weighted generalized least squares method (A.Koutsoyiannis, Theory Of Econometrics. P.393). In the case of linear model year, and the existence of the problem of different contrast, the situation can be displayed as follows:

$${}^2 \varphi \delta = (\mu \mu) \equiv (\hat{\beta}) \text{cov}, 0 = E(\mu), Y = x \beta + \mu$$

Accordingly, the capabilities of ordinary least squares are still:

$$(x'x)^{-1} x'y = \beta + (x'x)^{-1} x'u = \hat{\beta}$$

These estimators are characterized with no bias that: $E(\hat{\beta}) = \beta$ But its variations are given by following matrix:

$$\text{Cov}(\hat{\beta}) = E(\hat{\beta} - \beta)(\hat{\beta} - \beta)' = E(\hat{\beta} - \beta)(\hat{\beta} - \beta)' = E((x'x)^{-1} x' \mu \mu' x (x'x)^{-1})$$

It is clear that this matrix is different from those obtained under the imposition of the stability of variation, which is equal to $(x'x)^{-1} \delta$ the rest of the consequences of the problem of different variation are:

1 - Confidence intervals are more spacious and less power of statistical tests due to the absence of property efficiency (low variation) using standard deviation:

$$\begin{aligned} S.e(\hat{\beta}) &= \sqrt{v(\hat{\beta})} = \sqrt{\sum x_i^2 \delta_i^2} \\ &= \sqrt{\hat{\delta}_i^2 (x'x)^{-1} x' \varphi x (x'x)^{-1}} \end{aligned}$$

2 - In the case of model variables worsen the situation if more tests were used t and f based on the imposition of the stability of the contrast as it depends on the standard error of the estimate under the imposition of the stability of variation (Ibid p397):

$$s.e(\hat{\beta}) = \sqrt{v(\hat{\beta})} = \delta / \sqrt{\sum x_i^2}$$

In the general linear model, the contrast gets it from the matrix of variance and covariance $\delta_i^2 (x'x)^{-1}$ in both cases is a tribute biased variance in the case of a difference, contrast, and produces a bias ratio bias δ^2 (Gold Feld & Quandt) and the degree of bias depends on the relationship between δ_i^2 and the independent variable xi.

Methods to discover Heteroscedasticity:

The methods used to verify the extent of the suffering form the problem of Heteroscedasticity mainly on the use of Residuals and by virtue of that residuals are fairly random error estimate (U_i) unknown values as linking them to the following relationship Model variables: as $e = t - (y)$ where: i-

um + xi β t = β , xi = (yi). Its direct compensation is obtained: and xi β - i-ūμ + β x_i = ei

$$(i \cdot \bar{u}\mu) + x \left[\frac{\sum xi \mu_i}{\sum xi^2} \right] = (i \cdot \bar{u}\mu) + x_i (\beta - \hat{\beta}) - =$$

That shows the adoption of residuals ei on the border of random anonymous iμ, while in the case of linear model, the relationship between them have been reached in advance and taken the following formula: e = Mμ where M is the matrix (I-x (x'x) ^ (-1) x ') Divided methods that are used for the detection of residuals phenomenon of Heteroscedasticity of graphical and analytical methods.

Charts Methods

The regression of ordinary least squares for residuals is done where: ei = y_ (i-y _i) calculated ei paint a graphically to make sure they Random does not reflect any path regularly compared to the values of the variable xi and so, as the boxes residuum ei ^ 2 can be viewed estimations of boxes error bounds ui ^ 2 which is equal to the expected value of the variation and give the following charts some different situations that may be taken as indicators to verify the extent of the phenomenon of Heteroscedasticity.

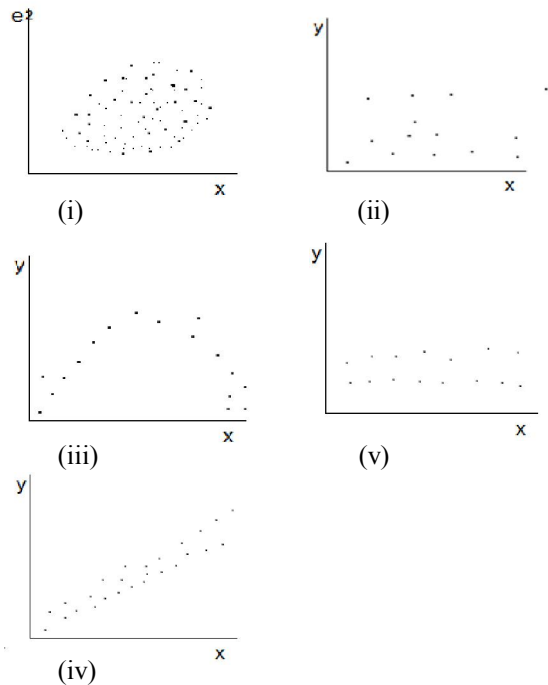


Fig (4)

In graph (i) there is no systematic relationship that combines e and x, which is taken evidence on the stability of the contrast, the rest of the graphics can be inferred by the existence of a relationship between the squares residuals e² and the values of the independent variable xi, which refers to the emergence of the

problem of Heteroscedasticity, the relationship relative quadratic in the graph(iii) and linear in the graph (ii) and quadratic again in the graph (iv) and is found in graph (v) and the use of this information can make transfers occasion to get rid of the problem of Heteroscedasticity as used after handling.

Analytical methods:

The most important analytical methods are as follows:

Bruch – Pagan Test 1979 - Spearman correlation test - Glosser test 1969 Park test 1966 - Cold Field & Quant test 1965 - Gold Feld & Quant (Attia, 2004 - p 451).

a) Bruch – Pagan Test:

this test has been used in 1979 and is based on the idea of a multiplier for Akranj.it depends on the use of residuals and is characterized by generality covering plenty of cases of Heteroscedasticity as includes test cases where the variation function that is not pre-determined for a number of independent variables, however is convergent used for large sample sizes and its power increases the sample size. It is the form: y = xβ + μ where u ~ (0, σ_i²) and the different independent variables associated with variation in the structural relationship, and the test involves the following steps:

1. To estimate the regression equation using the original method of least squares.
2. To obtain residuals and then calculate the stability of residuals using the formula: $\hat{\sigma}^2 = \sum e_i^2 / n$
3. To estimate the so-called decline regression in order to test whether there is a substantial correlation between e_i (representative of the random limit variation) and variables z_i which represents some or all of the explanatory variables in the original form or some derivatives of any value: $g_i = e_i^2 / n$ where: i = 1, ..., n
4. We obtain the sum of squares (SSR) of gradient and create value Q = SSR / 2, where this value is roughly divided by the distribution of x b p-1 test scores and significance level of 5%.
5. We compare the calculated value of Q reached with the value obtained from the tables of the distribution of x² (Chi square) If Q > x_{0,95(p-1)} accept the null hypothesis consistent variation at this degree of significance level of 5%.

Ways of addressing the Heteroscedasticity

There are two ways to deal with the problem of Heteroscedasticity. The first is used when the differences are known values, and the second when the differences unknown values (ibid. - R453).

The first Case: differences known values (generalized least squares) when the values known σ_i² can be used to generalize least squares (weighted) Taking sum weighted of residuals boxes:

$$\min \frac{\sum e_i^2}{\lambda_i^2} = \min \sum \frac{1}{\lambda_i^2} (\frac{1}{\lambda} - \alpha_3 - \hat{\beta}_3 \lambda_i)$$

Where $\hat{\alpha}_3$ and $\hat{\beta}_3$ estimations of generalized least squares and the test of weights n_i if ∂_i^2 using known methods to resolve the issue of the previous limit-end, we get capabilities $\hat{\alpha}_3$ and $\hat{\beta}_3$ as model following variables: $\hat{\alpha}_G = \bar{y} - \hat{\beta}_3 \bar{x}$, $\hat{\beta}_G = \frac{\sum \lambda^* y^* / \sum \lambda^{*2}}$ where weighted deviations are: $\lambda^* = x_i^* - \bar{x}^*$ & $y_i^* = Y_i^* - \bar{Y}^*$. The original weighted values are obtained by:

$$: x_i^* = x_i / \lambda_i = x_i / \partial_i, u_i^* = u_i / \lambda_i = u_i / \partial_i$$

$$y_i^* = y_i / \lambda_i = y_i / \partial_i$$

So the model becomes $y_i^* = \alpha + \beta x_i^* + \mu^*$ Where is observed that the debugger random element U_i^* to implement the consistency of variance: $v_i^* = \epsilon(u_i^{*2}) = \epsilon(u_i / \partial_i^2) = \epsilon(u_i^2) / \partial_i^2 = \frac{\partial_i^2}{\partial_i^2} = 1$. As for the general linear model in the case of Heteroscedasticity is shown as follows: $\epsilon(uu') = \partial^2 \phi \epsilon(u) = 0$. To address the problem, the model is corrected using the matrix of correction ϕ^{-y} as in $\phi^{-y_2} y = \phi^{-y_2} x \beta + \phi^{-y_2} u$ in which ϕ^{-y_2} includes the following Weights as diameter elements.

$$\begin{bmatrix} 1/\lambda & 0 & \dots & 0 \\ 0 & y_{\lambda 2} & \dots & 0 \\ 0 & 0 & \dots & y_{\lambda n} \end{bmatrix} = \begin{bmatrix} y_{\partial 1} & 0 & \dots & 0 \\ 0 & y_{\partial 2} & \dots & 0 \\ 0 & 0 & \dots & y_{\partial n} \end{bmatrix}$$

Here It is noted that the new limit random error u^* in the debugger model meets the assumptions necessary for the consistency of efficient ordinary least squares, which can be obtained on the capabilities of the debugger model, but from the mean we note that:

$$\epsilon(u^*) = \epsilon(\lambda^{-1/2} u) = \lambda^{-1/2} \epsilon(u)$$

$$Cov(u^*) = \epsilon(u^* u^{*'})$$

$$= \epsilon(\lambda^{-1/2} u u') = \lambda^{-1/2} \sigma^2 \lambda \cdot \lambda^{-1/2}$$

$$= \sigma^2 = \lambda^{-1/2} \lambda \cdot \lambda^{-1/2} = \sigma^2 I_n$$

Thus, the limit of error in the model meets the debugger to achieve variation consistency. However, when applying the ordinary least squares estimates of the debugger model, we obtain:

$$\hat{\beta}_G (x^{*'} x^*)^{-1} x^{*'} y^* = (x^{*'} \phi^{-1} x^*)^{-1} x^{*'} \phi^{-1} y^*$$

$$\beta_G = (x^{*'} \phi^{-1} x^*)^{-1} x^{*'} \phi^{-1} y^*$$

This is known as an estimate of generalized least squares, as obtained by the application of the method of least squares to a model has been corrected so that the discrepancy will be consistent. The estimate of generalized least squares is characterized by (blue) which is represented by the properties known as (unbiased – Linear – Best). Therefore, it produces the variance shown by the matrix: $cov(\beta_G) = \partial^2 (x^{*'} x^*)^{-1}$

$\partial^2 (x^{*'} \phi^{-1} x^*)^{-1}$ the estimation of ∂^2 is shown by the following equation:

$$\hat{\partial}^2 = \frac{e \phi^{-1} e}{n-k} = (y - x \hat{\beta}_G)' \frac{\phi^{-1} (y - x \hat{\beta}_G)}{n-k}$$

This matrix included these elements $\phi^{-1} = \begin{bmatrix} y_{\phi 1}^2 & 0 & \dots & 0 \\ 0 & \frac{1}{\phi_2^2} & \dots & 0 \\ 0 & 0 & \dots & y_{\phi n}^2 \end{bmatrix}$

The second case: Variations of unknown values (estimated generalized least squares) where estimation of the unknown values is obtained (∂_i^2) & $\hat{\partial}_i^2$ and it is used to correct original model $y_i = \alpha + \beta x_i + u_i$ and by dividing both sides of the variables in the model $\hat{\partial}_i$ we get $y_i^* = \alpha + \beta x_i^* + u_i^*$ where

$$y_i^* = y_i / \hat{\partial}_i \text{ and } x_i^* = x_i / \hat{\partial}_i, u_i^* = u_i / \hat{\partial}_i$$

Then apply the ordinary least squares model debugger for estimators $\hat{\beta}, \hat{\alpha}$ where:

$$\hat{\beta} = \frac{\sum x^* y^*}{\sum x^{*2}} \text{ and } \hat{\alpha} = \bar{y}^* - \hat{\beta} \bar{x}^*$$

α and β are called generalized least squares estimators where they are obtained using the estimators $\hat{\partial}_i$ in the process of correction in lieu of the original features $\hat{\partial}_i$ and so to get the capabilities of small boxes are generalized. It considered Efficient, and in the case of the general model, the matrix correction ϕ^{-1} take the following form:

$$\hat{\phi}^{-1} = \begin{bmatrix} \frac{1}{\hat{\partial}_1} & 0 & \dots & 0 \\ 0 & \frac{1}{\hat{\partial}_2} & \dots & 0 \\ 0 & 0 & \dots & \frac{1}{\hat{\partial}_n} \end{bmatrix} = \begin{bmatrix} \hat{\partial}_1^{-1} & 0 & \dots & 0 \\ 0 & \hat{\partial}_2^{-1} & \dots & 0 \\ 0 & 0 & \dots & \hat{\partial}_n^{-1} \end{bmatrix}$$

Therefore, it can be obtained on the estimates of generalized least squares, which is formed by $y = \alpha + \beta x + u$ and by applying the rule

$$\hat{\beta} = (x' \hat{\phi}^{-1} x)^{-1} x' \hat{\phi}^{-1} y$$

and can be:

$$cov(\hat{\beta}) = \hat{\partial}^2 (x' \hat{\phi}^{-1} x)^{-1}$$

While we obtain ∂^2

$$\frac{\hat{\partial}^2 (y - x \hat{\beta})' \hat{\phi}^{-1} (y - x \hat{\beta})}{n-k}$$

from $n-k$. In general, the estimators of the estimated generalized least squares B is characterized by linear and lack of bias, but it may not be efficient due to the use of $\hat{\phi}^{1/2}$ instead of $\phi^{-1/2}$ in the correction process (Ibid - p 473.).

Assuming the pattern of Heteroscedasticity:

In this case, we begin with a particular assumption about ∂_i^2 and the Original regression model is corrected to meet the imposition of flat consistent variation needed to obtain the efficient estimators, and include the process of correcting the model regressions on variables in the form of ratios so as to get rid of the effect of the size of the data, so that Heteroscedasticity diminishes. Of these assumptions

is $\delta_i^2 = \epsilon(u_i^2) = \delta^2 x_i^2$ the test used to detect Heteroscedasticity are often leads to the assumption that the different values of U_i proportionate with values of independent variable X_i as shown in the illustration: The graphic shows that proportionate with the values U_i & X_i .

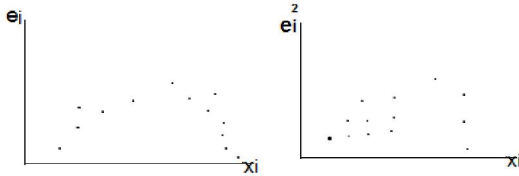


Fig (5)

In the variables model, this undergoes Heteroscedasticity around the original model-to-model corrector which dividing borders on the values of the independent variable x_i while the original model is:

$$\epsilon(u_i) = 0 \text{ \& } y_i = \alpha + \beta x_i + u_i \text{ \& } \text{Var}(u_i) = \epsilon(u_i^2) = \delta_i^2 = \delta^2 x_i^2$$

The model debugger becomes:

$$y_i^* = \alpha x_i^* + \beta + u_i^* \text{ \& } y_i/x_i = \frac{\alpha}{x_i} + \beta + \frac{u_i}{x_i} \text{ where}$$

$$y_i^* = \frac{y_i}{x_i}, x_i^* = \frac{1}{x_i}, u_i^* = \frac{u_i}{x_i}$$

It is noted that the random variable in the new model meets the debugger to impose the consistent of variance as it

$$v(u_i^*) = \epsilon(u_i^{*2}) = \epsilon\left(\frac{u_i^2}{x_i^2}\right) = \frac{\epsilon(u_i^2)}{x_i^2} = \frac{\delta^2 x_i^2}{x_i^2} = \delta^2$$

This is in addition to the rest of the hypotheses meets ordinary least squares and therefore it calculated the estimators of ordinary least squares model using the debugger instead of the original model with a note that the cross-lines in the form of the debugger is the tendency in the original model and the tendency is obtained in the form of debugger law:

$$\hat{\beta} = \bar{y}^* - \hat{\alpha} \bar{x}^*, \quad \hat{\alpha} = \frac{\sum x^* y^*}{\sum x^{*2}}$$

In addition it equals to original model, this can be generalized to the treatment models regression which contain more than two variables place where both sides of the dividing of model is done by debugger by ordinary least squares.

$\hat{\beta}$ is equals to the original model, therefore, this can be generalized to the treatment of regression models which contain more than two variables place where both sides of the dividing model debugger by ordinary least square.

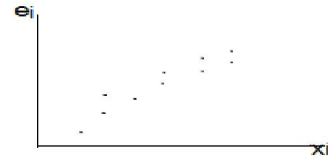


Fig (6)

Where it is believed that prove u_i linearly proportional to the values of the original x_i "see Figure6": In this case, for example, can be corrected by the original model $Y_i = \alpha + \beta x_i + u_i$

All limits are to be divided by the values of variable $\sqrt{x_i}$, where $x_i > 0$ to become a model is: $\frac{y_i}{\sqrt{x_i}} = \frac{\alpha}{\sqrt{x_i}} + \beta \sqrt{x_i} + \frac{u_i}{\sqrt{x_i}}$ where the new random variable u_i in model to meet debugger to show consistent variations:

$$v(u_i^*) = \epsilon(u_i^{*2}) = \epsilon\left(\frac{u_i^2}{x_i}\right) = \frac{\delta^2 x_i}{x_i} = \delta^2$$

This is in addition to meets the rest of the hypotheses of ordinary least squares. Thus being estimating parameters using the dependent variable debugger y in the regression on the independent variables corrected x with the observation that the model debugger does not contain cross-sector. The generalized treatment to models that contain more than two variables where rectify those models dividing the sides of the square root of the variable, which doubted the linear **Heteroscedasticity**. Among the other solutions targeted to address the problem of **heteroscedasticity** using **Siding** logarithm. Instead of using the original regression: $Y_i = \alpha + \beta x_i + u_i$ can be made using the regression variables in the form of logarithm: $= \alpha' + \beta \log x_i + u_i$; $\log Y_i$ has been observed that it often leads to reduce the problem of **Heteroscedasticity**.

It is clear from the foregoing that we can obtain unbiased estimates with little variance is by applying the method of least squares regular images modified from the original models.

Chapter II: Social Security

Introduction

This concept has been crystallized with the advent of the welfare state, which owe their origin to the report prepared by Beveridge in 1942, and although he hated to use that term and prefer to use the term state social service. On the basis of the welfare state, issued a set of legislative decisions, including social security and social welfare, which was designed to provide care for the poor, and to address problems arising from the application of technology and production methods, and the growth of urban slums; these problems that cannot be addressed only to the availability of social services provided by the State.

The term is used to indicate a variety of modes income support, such as: retirement pension, and disease, and compensation for injury, maternity, and compensation for disability, unemployment compensation, compensation for the child, and compensation for lack of family income. Some views the social security not only the term of the Whole of the income support only, but it is a great attempt to protect society as a whole, against all the social risks.

The social security at the turn to grant to aid the poor and needy in kind (food, clothing), and then it served variety purposes, some of which are related to financial assistance, contained in the social security laws, those who prove that their status on the poverty line or below, the elderly, the disabled, widows and orphans, and others who have no providers. As well as tended to establish some service projects such as donating medical treatment and medicine, or give scholarships to students from poor families, or children of broken families in alternative families.

Furthermore, the security or social security system was set by the State to protect individuals and their families, when they are to face disasters life, to ensure them a living and comfort level. In any case, the word 'secure' to concerned; the narrow sense, a guarantee against deprivation and abject poverty, to provide a minimum level of assistance; on the other hand is the guarantee absolute sense, which is to ensure a certain level of life, i.e. to ensure a minimum level of income, which sees the individual that it deserves. Accordingly, the social security term is comprehensive means of social solidarity between individuals, providing assistance and benefits provided to employees and their families in cases of old age, disability and natural death, and the case of work-related injury and illness, maternity, and unemployment

The concept of social security:

Social security and social network protection are considered the basic rights of individual. As stated in the Universal Declaration of Human Rights that Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality. (Universal Declaration of Human rights, Article 22.1948). The articles 23-26 has confirmed the Declaration on the economic and social rights of the individual, which includes the right to favorable and fair working conditions and the right to protection against unemployment. As well as to get a fair wage and favorable remuneration ensuring for himself and his family an existence worthy of human dignity, and supplemented, if necessary, by other

means of social protection. Article 25 provides that everyone has the right to an appropriate level for their health and happiness and his family, including food, clothing, housing and quality health care and necessary social services and the right to security in the event of unemployment, sickness, disability or lack of income or old age, or any shortage of living in circumstances beyond his will. To Motherhood and childhood are entitled to special care and assistance, and all children enjoy the same social welfare - (ibid., articles 23-26).

Definitions of social security:

A) From linguistic perspective: Social security means (the conservation and care). (Ibn Manzor, LesanAlarab P. 258).

B) From legal perspective: known (as a set of securities provided for male or female citizen as a protection from the risk of disease or infirmity, old age or unemployment and others. (Qaddoumi, Dutt).

C) From legislation perspective: known as (the state's obligation towards their citizens, which does not require the collection of subscriptions in advance, and the State is committed to providing assistance to the needy in the positive cases to be presented as a disease, disability or aging when what they do not have income or livelihood provides them fairly enough - (Fanjary 0.1990.)

ILO definition:

ILO used the following definition of the term "social security", which includes the collection of the necessary measures that provide financial or nonfinancial aid and assistance in order to protect the individual as follows:

- 1) Lack of or insufficient income due to illness or disability or maternity or work injury, unemployment, old age or death of a family member.
- 2) Unavailability and Lack of access to health care.
- 3) Inadequate family support, especially for children and adult dependents.
- 4) Mass poverty and social elimination.(ILO, 2009)

The objectives of social security:

The concept of Social Security has been elucidated previously as a system for the protection of individuals and their families. Therefore, It is designed to support income.

The material of the individual in line with the needs and circumstances. Over time it has become the concept of social security clearer and more specifically, and crystallized his philosophy, to achieve the following objectives:

- 1- To Provide comprehensive social welfare for all citizens, by achieving a consistent level of income meets the demands of the basic life needs of the poor and filling, to live in a honorable human level.

2- To eliminate the poverty and destitution, deprivation, and provide economic security for all individuals in all social groups in need and not for a certain class of them.

3- To integrate the social security services to its objectives and preventive construction, and its conformability with the needs, habits and culture of the individuals who are targeted by security laws or social security.

4- To associate the philosophy of social security with policy of operating and finding suitable job opportunities, through the establishment of training centers and social rehabilitation, such as training women to carry out dressmaking and sewing, crafts and mechanism, and home economics, health, culture and civilization.

5- To achieve social solidarity among all categories of society, and to provide assistance of social security as a legitimate right recognized by the society for all the needy children of the community, not just a grant or a gift from the people of philanthropy.

Our sublime religion- Islam encouraged and commanded us to apply social security along time ago. Therefore, we were the first ever in the world to apply systems of social security. Islam throughout ages had shown the manners of social security. First it has been defined and established its rules and identify the beneficiaries of social security. Moreover, Islam demonstrated the ways to fund and administer it. Social security was adopted in Islam to eradicate poverty through Zakat (Alms). The Zakat has been ordained from the rich who allocate some of their money for the poor as a sign of care systems and interdependence. Furthermore Islam has expanded the scope of beneficiaries of Zakat system. Social security is not only funded by Zakat but also added to them alms, charities and loot. So, if Zakat is not sufficient for the poor, more Money is imposed and required from the rich. Throughout the Islamic history, Muslims resorted to endowments which is not limited exchange of its revenue, but also building hospitals, shelters, the houses of elderly, orphans and the disabled, and the building of mosques as well. These developments indicate the interest of Islamic thought with the support of social solidarity and organization, in line with the times. (ESCWA, Charter 102.1952)

Social Security in Saudi Arabia: Origin and Evolution:

Social Security was created in 1382, by the Royal decree No. 18 and 19 in 18/03/1382.

Social Security in the Kingdom of Saudi Arabia had been executed by the department of social security from the fiscal year 1382/1383 (AH) to organize the assistance of the poor and needy of families and individuals and provide them with

incessant care and to ensure them a minimum level of contented living and saves their dignity. The department of the Social Security has transferred to the Ministry of social Security in the year 1395/1396 (Islamic Calendar).

Social Security has embarked on to provide its services to the beneficiaries in its early beginnings through twenty-eight offices, but currently are providing these services through (94) Eighty-four offices, which is broken down by administrative regions. The endorsed social security since its inception in fiscal year 1382/1383 AH until fiscal 1428/1429 AH is (92.048.338.825) SR.

The social security sector obtains the support and attention of the Custodian of the Two Holy Mosques and the Crown Prince, may Allah protect them and that is manifested by increasing social security funds year after year in order to achieve all the beneficiaries of the service sector. (Ministry of Social Affairs - Deputy Ministry for Social Security).

Objectives and main tasks of the Agency of Social Security:

- 1 /To access the beneficiaries.
- 2 / To achieve the financial support of beneficiaries.
- 3 /To achieve other types of support of beneficiaries.
- 4 / To support productive projects for poor families.
- 5 / To improve the environment of housing.
- 6 / To emphasize the quality of performance of the agency and its branch offices - (Ministry of Social Affairs - Deputy Ministry for Social Security).

Categories covered by the social security assistance and the conditions to be met and the required documents: (ibid)

Men: A - who has reached sixty years:

Documents and Conditions:

- National identity card and the family record are required.
- Reaching the age of sixty years and older,
- The man needs to bring proof of residence in the range of office services such school certificates for the children at schools or a copy of the instrument home or electricity bill or a copy of the lease.
- The lack of sufficient source to live.
- The pension income should not exceed the limit.
- There are no records or commercial licenses.
- The professional labors should not be more than three
- School certificates are required for anyone whose children of school age.

B - Below the age of sixty years:

Documents - Conditions:

- National identity card and the family record for those who have families with the original for verification.

- To be unable to work (partially or wholly) through the recommendations of the medical committee under the medical report issued by a government hospital.

- Bring proof of residence in the range of office services as certificates of school for boys or a copy of home possession or electricity bill or a copy of the lease.

- The pension income should not exceed the limit.

- There are no records or commercial licenses.

- The lack of sufficient source of living.

- The medical report that demonstrates his medical condition.

- Must not be working work does not exceed the income pension reduction inhibitor of exchange the lack of labor, professional.

- National identity card and the family record are required.

- Reaching the age of sixty years and older,

- The man needs to bring proof of residence in the range of office services such school certificates for the children at schools or a copy of the instrument home or electricity bill or a copy of the lease.

- The lack of sufficient source to live.

- The pension income should not exceed the limit.

- There are no records or commercial licenses.

- The professional labors should not exceed three labors.

- School certificates are required for anyone whose children of school age.

2- Widows:

Documents - Terms and Conditions: - previous conditions - Amendments social situation in the records of civil status to the widow.

3 - divorced women: - Documents - Conditions: Conditions previous image with the original divorce certificate for matching.

4 - the families of prisoners: Documents - Conditions: previous conditions - a letter from prison on entry and exit of the prison.

5 - Abandoned Families: Documents - Conditions: the previous conditions - bring a legitimate instrument or certificate with two witnesses to prove abandonment.

6 - family absenteeism:

Documents - Conditions: previous conditions - bring a legitimate certificate or a form from Police Report proves absenteeism.

7 - Orphans: Documents - Conditions: previous conditions - the lack of an adequate source of livelihood.

Social security offices:

The Ministry works on to extend the services of social security to the beneficiaries through its (100) offices in various parts of the kingdom. It is also keen to expand the use of methods and devices of advanced technology in the field of providing services. there are twelve main offices connected to each other through the Agency's network including offices of (Riyadh, Jeddah, Dammam, Al-Ahsa, Hail, Najran, Taif, Abha, Jizan, Medina, Mecca, Beljarshy). These offices are in turn recorded new cases of the beneficiaries of pensions, assistance and modify the decisions of the existing cases and conduct case study researches and follow up on all cases via information Center Agency network. They control cases are easily, less expensive and more accurate at the time of moving and expanding the use of modern equipment in the field of accounting, administration and transfer of information, save, and so on, which helps to provide the best services to the beneficiaries. Through the Computer project, which is focused on the automation of the agency, all computers are linked automatically with main and branch offices and use the best current technology for the exchange of information, which will be a quantum leap in business performance and implementation online. This is considered the best ways to facilitate everything that could be an obstacle faced by beneficiaries, which achieves during that big leap in performance and mastery of the services provided to beneficiaries) Ibid (.)

Chapter III: Model research

Research Model is the general linear model that shows the consumption function the families, where we examine first model of consumption to sample families by access to social security services, and examine the model to verify the phenomenon of Heteroscedasticity, then the analysis of the phenomenon in the form after getting social security service.

Specification of the model: The characterization of the standard model is the first basic step undertaken by the researcher in standard studies for the study of certain economic phenomenon. It means the expression of the phenomenon in mathematical formulation in order to reverse the different relationships which include:

Determining variables of the Model: there are many sources can be used to 1.

1. determine the standard model to several of economic theory.

2. available information about the phenomenon in particular.

3. Available information on previous studies.

Since the study is working to measure and estimate the consumption of families in Khurma therefore dependent variable in this study is Consumption, while the independent variable is income. To study the relationship of consumption per capita income available before and after the

application of the social security system, the table below shows the spending on consumption (C) and disposable income (Y) in Saudi Riyals, according to data of the social security office in Khurmah's (45) family in the period from 1430 to 1434 AH at a rate of nine families each year.

Table (1) The values of variables consumption

No.	Data peSRyeaSR	Yi income	Ci consumption	Family No.	Data peSRyeaSR	Available income Yi	Consumption Ci
1	1430	3700SR	3700SR	24	1431	3150SR	3150SR
2		2300SR	2300SR	25		2500SR	2500SR
3		3000SR	3000SR	26		2750SR	2750SR
4		2500SR	2500SR	27		2750SR	2750SR
5		2300SR	2300SR	28		2400 SR	2400SR
6		2400 SR	2400SR	29		3750SR	3750SR
7		2200 SR	2200SR	30		3300SR	3300SR
8		3800 SR	3800SR	31		3750SR	3750SR
9		3300SR	3300SR	32		2600SR	2600SR
10		2800SR	2800SR	33		2750SR	2750SR
11	1432	2250SR	2250SR	34	1433	2500 SR	2500SR
12		2300 SR	2300SR	35		2750SR	2750 SR
13		2650 SR	2650SR	36		2200SR	2200SR
14		2300SR	2300SR	37		2850SR	2850SR
15		2800SR	2800SR	38		2450SR	2450SR
16		2350 SR	2350SR	39		2700 SR	2700SR
17		2450SR	2450SR	40		3000SR	3000SR
18		2750SR	2750SR	41		2300SR	2300SR
19		2300SR	2300SR	42		3250SR	3250SR
20		1434	3500 SR	3500SR		43	1434
21	2750SR		2750SR	43	2750SR	22750SR	
22	3750SR		3750SR	45	3800SR	3800SR	
23		2300SR	2300SR				

First, the values of variables consumptionmodel in the family sector before Social Security: Table (1) model in the family sector before Social Security.

Table (2) The values of variables consumptionmodel in the family sector before Social Security:

No.	Data per year	Yi income	Ci consumption	Family No.	Data per year	Available income Yi	Consumption Ci
1	1430-	3000SR	3000SR	24	1431-	2000SR	3000SR
2		1500SR	2000SR	25		1700SR	1800SR
3		2000SR	1500SR	26		2000SR	2000SR
4		1700SR	2000SR	27		2000SR	2000SR
5		1500SR	2000SR	28		1800 SR	1800SR
6		1600 SR	2000SR	29		3000SR	3000SR
7		1450 SR	2000SR	30		2500SR	2500SR
8		3000 SR	3000SR	31		3000SR	3000SR
9		2500SR	3000SR	32		1800SR	1800SR
10		1432	2000SR	2000SR		33	1433-
11	1500SR		1900SR	34	1700 SR	1800SR	
12	1500 SR		2000SR	35	2000SR	1900 SR	
13	1900 SR		1900SR	36	1500SR	1500SR	
14	1500SR		1700SR	37	2100SR	2500SR	
15	2000SR		2000SR	38	1700SR	1700SR	
16	1600 SR		1800SR	39	2000 SR	2000SR	
17	1700SR		1900SR	40	1800SR	3000SR	
18	2000SR		2000SR	41	1500SR	1500SR	
19	1434		1500SR	1700SR	42	1434-	
20		2700 SR	3000SR	43	1700SR		1700SR
21		2000SR	2100SR	43	2000SR		2000SR

Secondly: family consumption model after social security. Table (2) Formulation of the model and determine its mathematical form.

Mathematical form of the model means the number of equations, which it contains (May be one or a number of equations). and the degree of linear model (it may be linear or non-linear) and the degree

of homogeneity for each equation (be homogeneous or non-homogeneous of degree).

Economic theory does not explain the exact mathematical form of the model, but may explain some of the information that to some extent in

determining the features of the mathematical form of the model. Therefore, the researchers resort to some tactics that serve to identify the appropriate mathematical form that considered important: -

1 / **Method of extension:** - is the collection of data on different variables that are contained in the form, and then monitor these data in the form of the spread of biaxial includes the dependent variable on one axis and the independent variables on the other axis. In addition, it is observed that the form of extension can be judged initially on the type of relationship (a linear or non-linear) and therefore can choose the appropriate mathematical form. However, this technique is used for two variables and therefore cannot use this method in the case of regression, which includes more than two variables.

Method of experimentation: -

According to this technique are experimenting with various mathematical formulas and then choose the formula that gives exact results in terms of economic and statistical standard. On that basis, the researchers that have adopted the method of experimentation to get to the most appropriate mathematical functions to represent the standard models to estimate consumption.

Properties of the Model: By assessing the model and determine the values and signals prior to the parameters:

1 / Signals prior to the parameters: -

In this step is to determine the expectations of the theory of pre-signal and the size of model parameters based on what offered by economic theory or previous sources of information. According to the standard models proposed in this study, the researchers signals prior based on the nature of the relationship arising between the independent variable (income) and the dependent variable (consumption) as follows:

1. The signal of Constant (a) is expected to be a positive signal which represents the self-consumption.
2. The Signal of coefficient of income (b) is expected to be a positive signal because there is a direct correlation between income and consumption.

These expectations susceptibility to indicate the size of the parameters that is important for the post-test assessment where the economic significance of the parameters estimated by comparing it with expectations in terms of its reference susceptibility and size.

2 / **estimation of model:** using the estimation methods and data sources to obtain quantitative estimates of the parameters, the researcher used the least squares method to estimate the standard models because it is considered one of the best standard methods used to estimate the parameters. As for the

resources of the data sources, the study variables and data were collected from the following sources:

A / Ministry of Social Affairs - Deputy Ministry for Social Security - Public Administration to discuss social situations.

B / Social security office of Khurma province.

C / the visiting members of the social security office in Khurmah.

Analysis of the Model:

1 / software program used for the analysis:

E-views program was used for data analysis because it is the latest software in the field of standard analysis of the record. It is a new version of a set of tools to deal with time-series data which was originally developed for large computers devices that contain software for processing time series. However, the current hardware are originally from a partial processing of time series. The first version of this program has been developed in 1981 and however, the E-views program was developed by economists and that most of its applications in econometrics where offers unusual possibilities for the analysis of data and relationships regression, predicting future values for data. The program is one of the most useful programs for financial and cost analysis.

Results:

First: the results of estimating standard models for estimating the consumption function:

1 / results of the standard model to estimate the consumption function before the social security: Thus we can express the relationship with the the following statistical function: $y_d = f(C_i)$ (Ci: consumption, yd: income before the security).

The results of model estimation:

The results of standard model of the consumption before social security.

To confirm the results of model estimation and its inspection according to standard economic, statistic criteria and after conforming the results with these criteria, the model and it estimation had been accepted.

Table (3) shows the results of standard model of the consumption before social security.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	457.4337	190.3502	2.403117	0.020
Yd	0.837304	0.092493	9.052665	0.001

Table (3) From the above table (3) $R^2 = 0.65$; $F = 81.9$. prob. $F = 0.000$; $d.w = 2.03$; $ARCH = 0.857$; $W.t(0.272)$.

2 / To evaluate the results of the assessment: A / evaluation according to standard economic theory: According to this criterion is matched values and signals. That was obtained from the results of the assessment with economic theory and economic

reality. And conducting economic examination, the estimated parameters of the function under study is clear from table (3) as follows:

- The reference of coefficient of constant ($457.4337 = a$) a positive signal represents the value of the dependent variable (consumption) when all the values of the independent variables in the model equal to zero represents the value of any self-consumption, which is not associated with changes in the independent variables.

- The reference of income coefficient (0.837304) signal is positive and this result shows a positive relationship between changes in income and changes in consumption. This signal is consistent with economic theory, which represents the nonaligned deviation to consume.

B / evaluation according to the statistical standard: to test the statistical model is used for the following tests:

1. Test of significance:

T-test is used to test significance of parameters to determine the effect of independent variables on the dependent variable. this test aims to compare the p-value (Prob.) of the parameter estimated with a level of significance of 5%. if the p-value is greater than 0.05, the null hypothesis is accepted and thus parameter is not statistically significant. either if the p-value is less than 0.05, the null hypothesis is rejected and the alternative hypothesis is accepted. Thus no statistically significant relationship between the independent variable and the dependent variable. And evaluate the results of the assessment tests, according to the significance is illustrated as follows:

A / the significance of constant (a) at the level of significance of 5% where noted from the table that the p-value for the parameter estimates is equal to (0.020), a statistically significant value.

B / confirmed significance of coefficient of income

as noted from the table that the (P.Value) for income coefficient (0.001), a lower value of the moral significance level of 5%. this result indicates a statistically significant relationship between consumption and income before Social security.

C / proven significance function as a whole through the F value where we find that the probability value (Prob. = 0.000 which is the value of statistical significance.

Goodness of fit test:

This test is known to test the explanatory power of the model or the ability of the model to interpretation. It is used the coefficient of determination (R^2), and the closer the value of one indicates that the correct quality fitness form. One table shows the results of the assessment that the

coefficient of determination about (65%) of the changes in consumption has been explained by changes in income, while (35%) of these changes can be traced to the variables not included in the model and this is an indication of the quality fitness form.

C / assessment according to ISO Standard -

It is used to evaluate the results of the assessment in accordance with the standard measure which is clear that:

- (DW) Test is conducted to discover the problem of autocorrelation of residuals was to make sure that the model does not suffer from this problem as the value of the test ($dw = 2.03$) which is close to the standard value (2)

- As it was ascertained that the model does not undergo the problem of different contrast and through the use of the (White) and (ARCH) tests where the estimated potential value of the test (ARCH) 0.857 and p-value for the (White) test 0.272, and we find that all of these values are greater than the level of significance of 5%.

Second, the results of the standard model to estimate the consumption function after social security: We can express the relationship with the function of the following equations: $(gnp) = C_d + C_i$ consumption, (gnp) income After social security. table (4) shows the results of the standard model of the consumption function after social security.

Table (4) the Results evaluating standard model of consumption function after Social security.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	834.6348	244.8834	3.408294	0.001400
Yd	0.613079	0.086471	7.090018	0.000137

Table (4)

From the table, we find that: to adopt the results of estimated model is presented and examined results of these standards are accepted model, the following are the results of the assessment:

1 / evaluation according to standard economic theory: According to this standard, and conformity of the values and signals that have been obtained from the results of the assessment of economic theory, and conducting economic inspection of the parameters estimated from the function under study is clear from Table (4) as follows:

- the constant (a) has a positive signal represents the value of the dependent variable (C) when all the values of the independent variables in the model is equal to zero which represents the value of self-consumption, which is not associated with changes in the independent variables.

- the coefficient of income (b) is positive and this result shows a positive relationship between changes

in income and consumption, and this signal consistent with economic theory.

2 / assessment, according to the statistical standard: the following tests have been used to test the statistical model:

A / significance test: (T) Test is used to test the significance parameters to determine the effect of independent variables on the dependent variable, and comparing the value of probability (Prob.) for the parameter estimated with a level of significance of 5%. If the p-value is greater than 0.05, null assumption is accepted. Thus, parameter is not statistically significant. but if the value is less than 0.05, null hypothesis will be rejected and the alternative hypothesis is accepted. This indicates the existence of a statistically significant relationship between the independent variable and dependent variable.

With the evaluation of the results of the assessment tests, according to the significance is clear that: -

- The confirmation of constant (a) significance at the level of 5% where it is noted from the table that the potential value (P.Value) for the parameter is equal to the estimated (.001400), a value is less than the significance level of 5%.

- The confirmation of significance of income (b) as noted from the table that the (P.Value) factor of income (.000137); a value is less than the level of significance of 5%. this result indicates statistical significant differences between consumption and income after security with high level.

- a significant function has been confirmed as a whole through the F value where we find that the probability value (Prob. = 0.000); a value less than the significance level of 5%.

b/ Goodness of fit test:

This is known test is used to test the explanatory power of the model or the ability of the model to the explanation, according to the coefficient of determination is used. The closer the value of (1) indicates the correct quality goodness of model. Therefore, results of the assessment shows the coefficient of determination (R²) to about (73%) of the changes in consumption has been explained by changes in income, while (27%) of these changes can be traced to the variables not included in the model. This is an indication of the quality reconcile form and low rates other factors. This is an indication of the quality goodness of model and low ratios of other factors.

C / with the evaluation of the results of the assessment in accordance with the standard, it is clear that: -

- (DW) Test is used to discover the problem autocorrelation of residuals was to ensure that the model does not suffer from this problem as the value of the test (dw = 1.5) which is close to the standard value (2).

- As it was ascertained the existence of the problem of different contrast and through the use of testing each of the (White) and (ARCH) test where the estimated potential value of the test (ARCH) (0.040) and the potential value of the (White) test (0.000), and we find that all these values displayed less significance level of 5%.

Chapter IV: Forecast Model

Scientific forecast is one of the most important objectives of econometrics, and is defined as a quantitative estimate of the predicted values for the future of the dependent variable to reflect the behavior of economic phenomena. It is based on the available information about the past and the present, where supposedly scientific prediction that the behavior of economic phenomenon in the future is an extension of the behavior of this phenomenon in the past. There are different types and methods for scientific forecast models and the ability to forecast is different as well.

There are several criteria by which are multiple types forecast: (Hamilton.2000.pp72-116.)

1 / forecast formula:

The point forecast:

It explores the value of one dependent variable's probability given.

Interval forecasting:

It explores the extent to which a particular variable can be determined by estimating the variation of the expected value of the dependent variable is expected to be located within the extent of forecast ($Y_f + t_{0.025}Sy_f$) the value of the dependent variable degree of probability of 95%.

2 / forecast period:

It is an Exposed F. and Extant F and both explore the expected values for the variable in the next period, which was estimated to model through it. Exposed F. exists in a period available by the actual data which can be compared to the values with the data used for the same period. while Extant F will be in a period for which data is available, especially dependent variable, and we find three types of this period: In sample Forecast, Out of sample Forecast and Extant Forecast for periods of no actual data are available for each of the dependent variable and independent variables, and this is meant in the field of scientific forecast.

3 / Degree of certainty:

it is exploring Conditional Forecast shall be one of the values of the independent variables that are based on the predicted values of the dependent variable is unknown, but is also be expected.

Unconditional Forecast is based on actual information available via the independent variables.

4 / Degree of inclusiveness: forecast by using a regression model consisting of Forecasting with a single equation model, or by using a model consisting of Forecasting with amulti-equation model.

5 / Style of forecasting: Econometric Forecasting, and Time series Forecasting which can be defined by methods of scientific forecasting. It is a Forecasting with a single equation model and Forecasting with amulti equation model and Time series Forecasting. (Attia 2004. Pp. 586-587.)

Measuring the ability of the model to forecast:

This is done by using the ability test of the model to the forecast, is the most important criteria to be used in measuring the ability of the model to Test of difference significance, and the coefficient of Theil Inequality,

Janus coefficient... etc. this study used the coefficient of Theil Inequality

$$\tau = \sqrt{\frac{\sum (df - da)^2}{\sum d^2 \alpha}}$$

Where **df** changes within the expected value of the dependent variable, **da** is the actual change in the value of the dependent variable. If the expected change is equal to the actual change, the value of T equal to zero, and this refers to the great ability of the model to forecast. However, if the expected change is equal to zero, the T is equal to (1). Therefore, the dependent variable shall be constant over time, but if the value of T equals more than (1), this indicates the reduction of the ability to forecast.

Theil's Inequality Coefficient Test:

This test is carried out when the values of the independent variables of model is known. This test reached the following results:

The test results indicate that the value of the coefficient of inequality of **Theil's** is less than (1), and a good indicator for the ability of the model to forecast. the values of the dependent variable used in the forecast are actual for the year 1434 AH. This also underlines the strength of the model on the forecast that year.

Table (5): **Theil's Inequality Coefficient test**

Theil's Inequality Coefficient test results		The expected values of consumption for the years 1435-1436 AH		
Forecast: cof	11.922435 Mean Absolute Error	N	The expected value of consumption COF	Year
Actual: co	Theil Inequality Coefficient 0.570123	1	1900	1434
Forecast sample: 1430-1434	Bias Proportion 0.037016	2	2250	1435
Adjusted sample: 1431-1434	Variance Proportion 0.0768010.076801	3	3100	1436
Included Observation 5	Covariance Proportion 0.003861	4	3700	1437
Root Mean squared error 27.368245		5	4050	1438

Results:

First, the results of the standard model of consumption equation before social security:

1 – The sign of self-consumption (a) is positive which indicates that the purpose of social security is aid and not loans.

2 – The sign of coefficient of income or marginal propensity to consume is positive which indicates the existence of a positive relationship between changes in income and changes in consumption. This corresponds to the logic of economic theory.

3 – The P-value for the estimated parameter achieved is a statistically significant by 98%. It also has the potential value of coefficient of income that statistically significant increased by 99.8 %.This refers to the relationship between income and consumption, and has the function as a whole

statistical significance, where 65% of the changes in consumption resulting from a change in income and achieve model. The results also indicate that there are other factors affecting consumption without income, before getting the social security services.

4 - Durban Watson Test proved that the model does not experience the problem of autocorrelation, as it was ascertained that the model does not suffer from the problem of **heteroscedasticity**, which achieved the P-value of (ARCH) and (White) test. These tests showed greater than the significance level of the moral 5 %. The interpretation of this is shown by the fact that this category of society converge relatively by low income levels which has achieved **homoscedasticity** of model estimated sample before social Security.

Secondly: The results of the estimated standard model of consumption equation after social Security:

1- The indicator of value of self-consumption is positive and represents the value of consumption of unrelated income. However, it rather results of positive resources (charity) and negative (loans and advances) which shows negative indicator to the income.

2- The indicator of coefficient of income is positive and shows that the existence of a positive relationship between changes in income and changes in consumption, and this is compatible with economic theory.

3- The P-value for the estimated parameter achieved statistical significance by nearly 100%, and demonstrated the (P.Value) of coefficient of income, and the presence of a statistically significant relationship between consumption and income after social security by 99.7%.

4- the equation has achieved as a whole through F value of statistical significance level less than 5%. the results of goodness test quality results show appreciation for the values of the coefficient of determination (R²) that about 73% of the changes in consumption has been explained by changes in income. Whereas 27% of these changes can be traced to the variables that are not included in the model and the indication of the quality of form of goodness and lower the impact of other factors.

5- The (DW) test has been conducted to ensure that the model does not suffer from the problem of autocorrelation as the value of the test ($dw = 1.5$) which is close to the standard value (2).

6- It was assured that there is a slight problem of **heteroscedasticity**, when using (White) and (ARCH) tests showed values to the level of significance by less than 5%.

7- From the results, we can point out that the levels of social security in its entirety have been adjusted for the consumption for families on the basis of categories and values determined for each case.

8- The merger emergence of the phenomenon of **heteroscedasticity** emphasizes the impact of Social

9- Security on community groups. It also refers to the variation of categories due to the social security services and values provided to them.

Findings: Results demonstrated the following:

1- The emergence of the phenomenon of slight **heteroscedasticity** among class members of the sample with the activation of social security.

2- The phenomenon Gap shows minor differences between the groups of social security does not refer to a real problem in the model.

3- The values of social security provided by consumer groups to strike a balance for families can reduce poverty.

4- The values of social security provided by consumer groups to strike a balance for families and reduce the phenomenon of resorting to other means of aid.

5- The tools of econometric model has the effects on the study before and after the application of social security.

6- Explaining the phenomenon of **heteroscedasticity** effects on indicators (coefficients) equations in the model of research.

7- Examination of the phenomenon of variation in the different model enabled the study to determine the ratios needed to balance consumption families in Khurma (the possibility of generalized to other communities).

8- - The possibility of forming a standard form to determine the level of the gap and the extent necessary to address Social Security.

9- The forecast of social security values of the data and model will achieve balance over the next five years.

Recommendations:

First, the recommendations of the specialist:

1) You should use excellence models to avoid the serious problem of **heteroscedasticity** and multi-linear correlation and autocorrelation, and identified by cross-sectional data to explain.

2) It is necessary in the economic studies using models of harmonious economic relations and taking into account the importance of the independent variables to the dependent variable and the type and degree of the relationship between them.

3) Make sure not to turn inward to form regressions false to achieve realistic results.

4) The data used in such studies should represent the real data and stable close ranks, and that time series data and synthesis.

5) Taking into account the use of appropriate method estimation for the user form, and this stems from a good description of the model.

6) Study the phenomenon of **heteroscedasticity** according to different variables to reach the extent of the effects of the beneficiaries and their behavior.

7) The need for the teaching of computer technology that address the problems of examination econometrics, and stability data as tools to address the phenomena of Applied Econometrics students in economics undergraduate and graduate.

Second: The general recommendations:

- Provide a centralized database control data sub- networks to provide data and information to achieve the effectiveness of such studies.

- Create Unit Studies and Research to conduct field studies for the development of services and to

ensure continuity, and can coordinate with one of academia.

- Activating the role of social science researchers to study the conditions of the beneficiaries of the social security after the grant of security to see how coverage for their needs.

- Study of the variables in the environment, the beneficiary and the extent of their impact on the levels of security granted.

- Assess the security granted and determine the extent of its ability to provide for the needs of beneficiaries.

- Conducting studies survey Every time in a while to see the extent of satisfaction with the social security programs.

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