Household Level Inequality Decomposition in the Consumption Expenditure: Regression Approach

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Abstract

The present study focuses on the Regression Based Inequality Decomposition at household level consumption expenditure in India by using NSSO 62nd, 63rd and 64th rounds of unit level data. An attempt has been made to focus on the inequality decomposition based on regression analysis developed by Morduch and Sicular (2002), Fields (2003) and Fiorio and Jenkins (2007) for the year 2005-06, 2006-07 and 2007-08. The variables used for the decomposition based on regression for AMPCE are age of the head of household, gender of the head of household, marital status of the head of household and education level of the head of household, household size household type religion social group land possessed dwelling unit type of structure primary source of energy for cooking primary source of energy for lighting and sector. Regression results show that all independent variables are significant in the model for the three rounds of survey under study. Education level of the head of household is contributing as the main factor for inequality followed by the size of households and region (rural or urban).

Keywords: *Consumption Expenditure, Inequality, Regression Based Inequality Decompositions.*

JEL: C21, D1, D63

Introduction

The particular method of decomposition depends on the nature of the inequality index and the way in which it is decomposed since the decomposability of the indices differs from measure to measure. The issue relating to subgroup inequality levels to overall inequality has been discussed in a number of recent studies like Cowell 1980, Cowell and Kuga 1981, Bourguignon, 1979, Shorrocks 1980 and 1984, Shorrocks and Mukherjee, 1982, Das and Parikh 1982, Mishra and Parikh 1992. If the total inequality can be expressed as a function of sub-group inequality values, when the sub-groups are mutually exclusive and exhaustive, then variety of ways are found to decompose the total inequality. Many researchers use most popular method for decomposition i.e. additive decomposability. Additively decomposable can be expressed as the sum of a "between-group" term and a "within-group" term. Between-group component is defined as "the value of the inequality index when all the within-group inequalities are assumed to be non-existent by a hypothetical assignment of the group average income to each member of the same group".

The common inequality indicators can be used to assess the major contributors to inequality, by different subgroups of the population and by region. For example, average income may vary from region to region, and this alone implies some inequality "between groups." Income may vary inside each region, adding a "within-group" component to total inequality. For policy purposes, it is useful to be able to decompose these sources of inequality: if most inequality is due to disparities across regions, for instance, then the focus of policy may need to be on regional economic development, with special attention to helping the poorer regions.

Inequality decomposition is important for understanding the main determinants of inequality and for policy analysis. The traditional approach to the subject was based purely on the analysis of the mathematical properties of inequality indices and is open to the criticism that the formal requirements for exact decomposition are perhaps too demanding for some practical applications (Fiorio and Jenkins 2007). It allows inequality accounting but not a causal analysis. Recent applied work in the field of inequality decomposition is focused on the use of regression-based (RB) approaches to avoid some of the restrictions of the traditional methods.

A range of different applications of the regression-based income inequality decomposition literature exist. Among these, note can be made of the extension by Morduch and Sicular (2002) where the composition of income by the different sources is observed, and the case where different income sources are accounted for by different income regimes in Farm-household income (Bardham and Boucher 1998, Yuko et al. 2006 and Kimhi 2007). While encountering a constant as a source of income inequality in empirical analysis of income distribution is possible but rare, the presence of a constant is a rule rather than an exception in regression equations.

It is important to note that expenditures are not similar with income, which may even be a better indicator of well-being, for various reasons. Among them, there is the possibility of consumption without expenditures at least within the same period. Rightly observed by the Atkinson (1998), "Expenditures are supposed to better reflect "long-term" or "permanent" income and are from this point of view considered to be a better measure of economic well-being and respective inequalities".

Consumption expenditure data are collected in many developing countries including India, the process is time taking, costly and needs adjustment for household size, composition and for price level. Owing to these difficulties, the economic proxies (consumer durables, housing quality and household amenities) are collected to measure the economic status of the households in both small and large-scale population based surveys.

The present study focuses on the regression based inequality decomposition based on household level consumption expenditure for the year 2005-06, 2006-07 and 2007-08. In the light of above the section II deals with the Review of Literature. Data and methodology have been presented in section III. Section IV consists of Empirical results and section V represents conclusion of the study.

Review of Literature

This issue was also addressed by Houthakker (1957) as early as in the 1950s. The issues related to household expenditures and consumption have been disregarded in sociology and particularly empirical sociological research to a large degree, although family and household budget data frequently used for empirical study in early days.

Although there is a long history of research on patterns of household expenditures and their changes across time, which goes back to the 19th century and the famous work by Ernest Engel and others, these questions have attracted surprisingly little attention in recent years. Atkison (1970), Sen (1973), Kakwani (1980) and Shorrocks (1982) proposed several concepts and measures to characterise inequalities in income distribution.

Oaxaca (1973) and Blinder (1973) first use Regression-based inequality decomposition measurement for between-group differences in the mean of income.

Juhn et al. (1993) applied this approach to allow for the decomposition of between-group differences in the full wage distribution.

DiNardo et al. (1996) and Deaton (1997) proposed semi-parametric and nonparametric techniques that sought to model and compare the whole distribution of income in terms of density functions. Fields (2003) developed regression-based decomposition to analyze labor earnings inequality in the United States for variables such as gender, race, experience, schooling, occupation, industry, and region.

Morduch and Sicular (2002) in their study adopted the regression-based approach to decompose the inequality of the average income of 259 farm households of 16 villages in Zouping County (Republic of China,) during 1990-1993. The variables were grouped into regional segmentations, human capital accumulation, and political variables. This study decomposed four inequality measures, namely, Theil-T, squared CV/variance, alternative CV, and the Gini coefficient, to quantify the sources of the inequality. They found that the contribution of political variables was relatively small whereas the contributions of spatial characteristics were large in all decompositions.

However, the relative contribution of each factor was highly sensitive to the decomposition rule. This sensitivity became a limitation of the Morduch and Sicular (2002) method. For example, while Theil-T indicated that human capital and demographic variables were strongly inequality reducing; the Gini decomposition stated that these factors contributed moderately to the inequality.

Adams (2002) followed the regression-based decomposition to examine the income inequality in rural Egypt based on 1,301 rural households in 1997. He found that although agricultural income was the second leading income source, it accounted for the highest share of the inequality, 40.2 percent, whereas nonfarm income, the largest income source in the rural Egypt, contributed 29.7 percent of the inequality.

Wan (2002 and 2004) in their study outlined some shortcomings. They observed that the main difficulty is associated with the failure to carry out an exact decomposition of the estimated sources including the error term, putting aside the functional form or the inequality index adopted. Heshmanti (2004 and 2006) pays some attention to the interrelationship between income inequality and the non-income inequality dimensions admitting that while inequality can have many dimensions; economists have long been concerned primarily with the monetary dimension.

Similar results were found by Arayama, Kim, and Kimhi (2006) who also extended the regression-based decomposition method suggested by Morduch and Sicular (2002) to estimate regime-specific income-generating functions of Korean farm household with a micro dataset collected in 2003. They found that family size and its composition as well as land ownership were the main determinants of the inequality in Korean farm household.

There are many studies concerned with the inequality in rural China specifically with its high economic growth and high inequality since the late 1970s economic reform. Wan and Zhou (2005) combined both Shapley value framework of Shorrocks (1999) and the regression-based decomposition proposed by Morduch and Sicular (2002) to examine the determinants and the changes of income inequality in rural China with household-level datasets during 1995-2002. To represent the level of development, they selected three villages from each of three provinces; Guangdong, Hubei, and Yunnan. The share of cropping patterns accounted for larger impacts than those of labour and human capital inputs in the rural areas, the Chinese government should improve rural credit services and raise returns for grain-cropping in order to reduce the income inequality in this region.

They also suggested that even the impact of education on inequality was rather small but its role would be higher in the near future because of more skill-demanding labour. As observed by Wan and Zhou conventional decompositions by factor components

or by population subgroups only provide limited information on the determinants of income inequality.

In this context, the regression-based decomposition (RBD) analysis can shed more light to our understanding of factors that determine income inequality (Oyekale et al, 2007). Cain, Hasan, Magsombol, and Tandon (2008) also adopted regression-based decomposition proposed by Fields (2003) on consumer expenditure surveys to investigate the poverty and the inequality of 17 major states of India in 1983, 1993, and 2004. The explanatory variables were age, gender, social group, production sector, occupation, level of education, and state of residence. Epo et al, (2010) explores determinants of economic welfare econometrically and applies the parameter estimates to compute income sources that explain measured inequality in the distribution of household income. Bay and Epo (2011) in their paper used regression-based inequality decomposition approach to explore determinants of income inequality in Cameroon using the 2007 Cameroon household consumption survey. They used a control function approach that tests for potential endogeneity and unobserved heterogeneity of synthetic variables for education and health, while controlling for other correlates of household consumption to generate contributions of regressed-sources to measured income inequality. In this paper regressed income sources attributable to education, health, urban residency, household size, fraction of active household members, working in the formal sector and farmland ownership are the main determinants of household income inequality in that order.

In the light of above review of literature it is observed that no significant study is available with respect to the regression based inequality decomposition based on age of the head of household, gender of the head of household, marital status of the head of household, education level of the head of household, household size, household type (activities for the source of income), religion, social group, land possessed, dwelling unit, type of structure, primary source of for cooking, primary source of energy for lighting and sector. It is an area, which deserved greater attention to be paid as inequality decomposition based on regression in terms of various characteristics of the head of household and socio demographic characteristics.

The broad aim of the study is to identify the inequality decomposition by focusing on the use of regression-based (RB) approach at households' level. The study also describes the level of inequality in terms of expenditure on various characteristics of the head of households like age, gender, marital status and education level and socio demographic characteristics like household size household type religion social group land possessed dwelling unit type of structure primary source of energy for cooking primary source of energy for lighting and sector.

Data and Methodology

The National Sample Survey Organisation (NSSO) conducted an all-India survey of households on participation and expenditure on education, employment, unemployment, migration and consumer expenditure on a regular basis for over four decades. The present study utilised unit level data from the 62nd, 63rd and 64th round of NSSO consumer expenditure survey collected in the years 2005-06, 2006-07 and 2007-08 respectively.

Decomposition of Income Inequality: Regression Based Inequality

Morduch and Sicular (2002) and Fields (2003) extended the decomposition of inequality to regression-based inequality decomposition by determinants of income. They suggested expressing household income (or log-income) as:

$$y=X\beta+\varepsilon, \qquad (1)$$

Where, X is a (nxk) matrix of explanatory variables (including a constant),

β is a (kx1) vector of coefficients, and

ε is a (nx1) vector of random error terms. Given a vector of consistently estimated coefficients b, income can be expressed as a sum of predicted income and a prediction error as:

$$y = x\hat{b} + \hat{\varepsilon} \qquad (2)$$

Per capita income of household is represented as (Cowell and Fiorio 2006):

$$y_i = \sum_{m=1}^{M} \hat{b}_m x_i^m + \hat{\varepsilon}_i \qquad (3)$$

Shorrocks (1982) suggested that inequality measures can be written as a weighted sum of incomes i.e.

$$\mathrm{I(y)} = \sum_{i=1}^{n} a_i(y) y_i \qquad (4)$$

where, *ai* are the weights, *yi* is the income of household *i*, and **y** is the vector of household incomes.

Substituting (1) into (4) and dividing by I(y), the share of inequality attributed to explanatory variable *m* is obtained as

$$\mathrm{s_m} = \mathrm{b_m} \sum_{i=1}^{n} a_i(y) x_i^m / \sum_{i=1}^{n} a_i(y) y_i \qquad (5)$$

Using the regression coefficients, it is possible to compute the "income shares" of the explanatory variables as

$$\alpha_{\mathrm{m}} = \mathrm{b_m} \sum_{i=1}^{n} x_i^m / \sum_{i=1}^{n} y_i \qquad (6)$$

and evaluate the marginal effect on the Gini index of inequality of a uniform increase in an explanatory variable *m*, as in Lerman and Yitzhaki (1985) by computing $s_m - a_m G(Y)$

In the present study inequality and inequality decomposition of income and household expenditure has been calculated in respect to age of the head of household, gender of the head of household, marital status of the head of household, education level of the head of household, household size, household type, religion, social group, land possessed, dwelling unit, type of structure, primary source of energy for cooking, primary source of energy for lighting and sector.

Fiorio and Jenkins (2007) developed Regression-based inequality decomposition (ineqrbd for STATA), by using Fields (2003) and Shorrocks decomposition rule. According to model, the Y_i and X_i variables based on n observations estimates following relationship as

$$y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots\ldots\ldots\ldots\ldots\ldots + \beta_k X_k + \mu \qquad (7)$$

The model can be rewritten as;

$$Y_i = \beta_0 + Z_1 + Z_2 + Z_3 + \dots\dots\dots\dots\dots\dots + Z_k + \mu_1 \qquad (8)$$

Z_1, Z_2, Z_3, ……………………..and Z_k are composite variable, product of regression coefficient and variables. For inequality decomposition calculations, the value of β_0 is irrelevant as it is constant for every observation. The predicted value $\hat{Y}$

$$\hat{Y}_i = \beta_0 + Z_1 + Z_2 + Z_3 + \dots\dots\dots\dots\dots\dots + Z_k \qquad (9)$$

Equations (8) and (9) are of exactly the same form as the Shorrocks (1982) used equation for deriving inequality decomposition by factor components (For example total income is the sum of labour earnings, income from savings and other assets, private and public transfers.

Alternatively, one may apply the decomposition rule to the inequality of $\hat{Y}$ itself, in which case there is also a decomposition term corresponding to the residual (Cowell and Fiorio, 2006.In STATA, ineqrbd provides a regression-based Shorrocks-type decomposition of a variable labelled "Total", where Total is defined as $\hat{Y}$, unless the fields option is used in which case Total refers to predicted $\hat{Y}$. In either case, the contribution to inequality in Total of each term is labelled "s_f" in the output (From help for ineqrbd in STATA , Carlo V. Fiorio and Stephen P. Jenkins, December 2008) .

In ineqrbd modules provides the means, standard deviations, and correlations, of Total, the residual and the composite variables Z_1, Z_2, ……………. Z_k. Results for the composite variables are ordered in the same order as the underlying variables are ordered in Z_1, Z_2, ……………. Z_k..

In addition, I_2 summarises inequality using half the squared coefficient of variation (the Generalized Entropy measure I2), rather than the coefficient of variation (CV). Based on various empirical studies it is observe that inequality may be negative, e.g. because the mean of a composite variable may be negative. In this paper right hand side variables are as follows:

X_1= Head of household (h_age)

X_2= Gender of the head of household (h_gen)

X_3= Marital status of the head of household (h_edu)

X_4= Education level of the head of household (h_maritulstatus)

X_5= Household size (hhsize_c)

X_6= Household type (Source of Earning in rural and urban areas, i.e. htype_c)

X_7= Religion (religion_c)

X_8= Social group (Socialgroup_c)

X_9= Land possessed (land_code)

X_{10}= Dwelling unit (dwelling_c)

X_{11}= Type of structure (structure_c)

X_{12}= Primary source of energy for cooking primary (cook_c)

X_{13}= Source of energy for lighting (light_c) and

X_{14}= Sector (Sector)

In the paper, results are presented as (http://www.stata.com/stb/stb48/sg104/ineqfac.hlp):

The decomposition rule is the proportionate contribution of factor f to total inequality (for f=1, 2, ………, 14) , s_f: s_f = rho_f * sd(factor_f) / sd(totvar)

Where, rho_f is the correlation between factor_f and total variable, and sd(.) is the standard deviation. (Equivalently, s_f is the slope coefficient from the regression of factor_f on totvar.) For each observation, $\sum_{1}^{F}(s\_f)=1$, and S_f = s_f*I2(Total), Mean: m_f = mean(f); Standard Deviation: sd(f) = std.dev. of f. The member of the Generalised Entropy class of inequality measures, I2_f = $0.5*[sd(f)/m\_f]^2$

Findings of the Study

Table 1 shows the general characteristics of the head of household and average monthly per capita expenditure of the households for the year 2005-06, 2006-07 and 2007-08 (based on NSSO 62^{nd} rounds, 63^{rd} round, and 64^{th} round of NSSO unit level Consumption Expenditure Survey). Table reveals that 26.89 percent head of households belongs to age group of 40-49 and 11.33 percent head of households are below age of 30. Similar trend has been found for the year 2006-07 and 2007-08. The average monthly per capita expenditure was the maximum i.e. ` 795 for the 50-59 years of head of households' age group in 2005-06. The same trend was notices for the year 2006-07 but for the year 2007-08 it has been maximum i.e. ` 1040 for the head of households age group below 30 years. Out of the total households 88.49 percent were male head of household and only 11.51 percent were female head of household in the year 2005-06 and average MPCE was maximum i.e. ` 797 for female head of households. The same trend was observed for the year 2006-07 and 2007-08. Table 1 also depict that 36.78 percent head of households were illiterate, 13.62 percent were having primary education and 16.45 percent head of households were having middle education in the year 2005-06. In the year 2007-08, 35.23 percent head of households were illiterate, 14.90 percent were having middle education and 14.19 were primary education.

As for as marital status of the head of household is concern out of the total households 84.25 heads of the households were currently married 4.46 were never married in 2005-06. Same trend was found in the year 2006-07 and 2007-08. Sixty second round of NSSO unit level survey for the year 2005-06 shows that, 83.18 percent households belonged to Hindu religion, 11.5 percent belonged to Islam and 2.39 belonged to Christianity (Table 1).

In 2005-06, 39.79 percent households belonged to Other Backward Class, 20.10 percent to Schedule Caste and 9.17 percent to Schedule Tribe. The same trend was found in the year 2006-07. In 2007-08, 41.28 households belongs other backward classes and 19.77 percent to schedule class and 8.97 belonged to schedule tribe (Table 1).

Table 2 presents housing characteristics and average monthly per capita expenditure of the households for the year 2005-06, 2006-07 and 2007-08. The majority of household source of income was self-employed in agriculture activities in rural areas for all the rounds of survey under study. The expenditure of households having other activities especially in urban areas for all the three rounds of NSSO survey reported maximum AMPCE i.e. ` 1598, ` 1788 and ` 2150 respectively. As per $62^{nd}$ rounds of survey, 16.11 percent households were having two or less than two members in the family and their AMPCE were ` 1218. Majority of the families i.e. 20.99 percent had four members in the family and their average AMPCE was ` 879. As per $63^{rd}$ rounds of the survey, majority i.e. 20.75 percent families had four members in the family with an average AMPCE of ` 997.

In this table, 16.02 percent families had two and less than two family members with an AMPCE of ` 1389 for the year 2006-07. As per 64th rounds of survey majority of the households, i.e. 21.89 percent had four members in their families with an AMPCE of ` 1109. The average monthly per capita expenditure of the families which was ` 1218 for 16.11 percent families with two and less than two family members increased to ` 1668 for the 17.17 percent families with a size of two and less than two family members from the year 2005-06 to the year 2007-08. Table 2 also reveals the ownership of the households. As per 62nd round of survey majority i.e. 84.73 percent households had own houses and their average MPCE was ` 702 and 11.5 percent households had hired houses and their AMPCE was ` 1260. The same trend was found for 63rd and 64th rounds of survey. Land possession situation shows that AMPCE has been the highest i.e. ` 1060 for those households having land greater than 8 hectares but the percentage of the head of households is negligible i.e. below one percent. The same trend can be seen for 63rd and 64th round of survey. Table 2 also shows the majority of the household were having firewood and chips as major source of energy for cooking i.e. 60.18 percent and their AMPCE was ` 577. LPG as a source of energy for cooking in the household is contributing 20.79 percent and AMPCE was ` 1359. As for as source of energy for lighting is concerned 65.61 percent household depended on electricity and AMPCE for those household was ` 896 in the year 2005-06. The same trend was noticed for 63rd and 64th rounds of survey.

Regression based inequality decomposition regression results for the 62nd, 63rd and 64th rounds of NSSO unit level data are presented in **Table 3**. In the Table estimates of coefficients, their standard error and t statistics are given in the table. All the coefficients are significant at .00 levels. In this Table, R^2, Adjusted R^2, F statistics and total sample observations are also given. In the regression equations explanatory variables are h_age, h_gen, h_edu, h_maritulstatus, religion_c, Socialgroup_c, dwelling_c, structure_c, land_code, hhsize_c, htype_c, cook_c, light_c and Sector for age of the head of household, gender of the head of household, marital status of the head of household, education level of the head of household, household size, household type, religion, social group, land possessed, dwelling unit, type of structure, primary source of energy for cooking, primary source of energy for lighting and sector respectively and explained variable is Average Monthly per capita expenditure of the households.

Decomposition of inequality in AMPCE and predicted AMPCE for the Year 2005-06, 2006-07 and 2007-08 are presented in **Table 4, 5 and 6**. For inequality decomposition AMPCE maximum value of s_f (= rho_f * sd(f) / sd(total) is for education of the head of household. This trend is also followed for predicted AMPCE. The size of households and sector (Rural and Urban) contributing 6.766 percent and 5.835 percent inequality for average monthly per capita expenditure in total inequality. For predicted AMPCE this value registered 20.229 and 17.446 respectively for size of households and sector. Dwelling unit and land possessed for S_f (= s_f*I2 (Total)) gives negative value in inequality decomposition of AMPCE and predicted AMPCE. The ratio S_f and I2_f for total is 0.371 in AMPCE and 0.124 for predicted AMPCE. In the year 2006-07 the regression based inequality decomposition for AMPCE and predicted AMPCE is given in **Table 5**. The maximum contribution in inequality is again education of the head of household followed by household size and sector (rural and urban) the value of 100*s_f for these variables is 11.126, 5.572 and 4.043; S_f reported 0.052, 0.026 and 0.019. Similar trend follows for the other measure of inequality decomposition. For the year 2007-08, these variables are also contributing in inequality similar fashion for the AMPCE and predicted AMPCE. In Appendix 1 Summary statistics like mean, standard deviation, minimum and maximum for Total, residual, and composite RHS variables for regression model for AMPCE and predicted AMPCE (equation 8 and equation 9) for the year 2005-06, 2006-07 and 2007-08.

Conclusion and Suggestions

In the present study, an attempt has been made to focus on the inequality decomposition based on regression analysis developed by Morduch and Sicular (2002), Fields (2003) and Fiorio and Jenkins (2007) for the year 2005-06, 2006-07 and 2007-08. Data used in the study is consumption expenditure unit level data collected by National Sample Survey Organisation. All the coefficients are significant at 99 percent significance level for the three rounds of survey. The variables used for the decomposition based on regression for AMPCE are age of the head of household, gender of the head of household, marital status of the head of household and education level of the head of household, household size household type religion social group land possessed dwelling unit type of structure primary source of energy for cooking primary source of energy for lighting and sector. Regression results show that all independent variables are significant in the model for the three rounds of survey under study. Education level of the head of household is contributing as the main factor for inequality followed by the size of households and region (rural or urban). Results of the study suggest that there is an urgent need for the enhancement in government expenditure on education especially in technical and higher level of education. The results are also revealing the fact that in rural areas still job opportunities are not sufficient and or of low level for the period under study.

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Table 1: General Characteristics of the Head of the Household and Average monthly per capita expenditure of the Households for the year 2005-06, 2006-07and 2007-08

Characteristics	2005-06		2006-07		2007-08	
	Percent age	Average MPCE (`)	Percent age	Average MPCE (`)	Percent age	Average MPCE (`)
Age of the head of household						
Less than 30	11.33	785	10.68	898	11.89	1040
30_39	25.44	670	25.26	748	24.50	862
40_49	26.89	767	27.30	845	27.32	968
50_59	18.70	795	19.60	908	18.73	994
60 and above Sixty	17.64	789	17.16	879	17.55	980
Gender of the head of Household						
Male	88.49	750	88.81	837	88.34	950
Female	11.51	797	11.19	936	11.66	1017
Education of the head of household						
Not literate	36.78	538	35.71	602	35.23	673
Literate without formal schooling	1.64	729	2.26	614	1.77	775
Literate but below primary	9.61	629	8.75	657	10.48	774
Primary	13.62	680	14.32	775	14.19	853
Middle	16.45	766	15.31	840	14.90	972
Secondary	9.16	1006	10.02	1112	9.72	1218
Higher secondary	4.65	1085	5.24	1205	5.43	1478
Diploma/certificate course	1.11	1579	1.16	1662	1.12	2034
Graduate	5.14	1604	5.47	1915	5.45	2070
Postgraduate and above	1.85	1753	1.78	2154	1.72	2608
Marital status of the head of household						
Never married	4.46	1222	4.04	1455	4.40	1929
Currently married	84.25	747	84.27	831	83.77	938
Widowed	10.71	732	11.17	866	11.27	964
Divorced /separated	0.59	810	0.52	957	0.57	897
Religion						
Hindu	83.18	745	83.37	835	83.10	950
Islam	11.50	675	11.12	772	11.45	839
Christianity	2.39	1140	2.90	1056	2.69	1354
others	2.92	1074	2.61	1256	2.76	1313
Social Groups						
scheduled tribe	9.17	521	9.66	552	8.97	673
scheduled caste	20.10	592	20.14	641	19.77	742
Other backward class	39.79	706	39.59	796	41.28	873
others	30.94	994	30.61	1150	29.98	1304

Note: Calculated on the basis of Unit level data NSSO data for the 62nd 63rd 64th rounds.

Table 2: Housing Characteristics and Average monthly per capita expenditure of the Households for the year 2005-06, 2006-07and 2007-08

Characteristics	2005-06		2006-07		2007-08	
	Percent age	Average MPCE (`)	Percent age	Average MPCE (`)	Percent age	Average MPCE (`)
Source of Income						
Self-employed in non-agriculture	12.27	657	10.86	731	10.37	822
Agricultural labour	19.17	468	21.85	515	20.73	593
Other labour in rural areas	8.58	600	7.88	659	7.70	723
Self-employed in agriculture	25.56	655	24.70	743	24.32	812
Others activities in rural areas	8.35	899	8.25	1073	8.45	1125
Self-employed in urban areas	9.13	1078	9.24	1217	10.15	1358
Regular wage/salary earning in urban areas	10.79	1353	10.78	1513	11.74	1705
Casual labour in urban areas	3.22	668	3.35	722	3.69	827
Others activities in urban areas	2.94	1598	3.07	1788	2.85	2150
Household Size						
Two and less than two	16.11	1218	16.02	1389	17.17	1668
Three	13.75	1035	13.99	1149	13.63	1280
Four	20.99	879	20.75	997	21.82	1109
Five	17.60	746	19.78	811	19.15	921
Six	13.17	649	12.87	728	12.54	787
Seven and seven above	18.39	595	16.59	654	15.69	730
Ownership of House						
Owned	84.73	702	86.09	791	85.08	883
Hired	11.94	1260	11.36	1396	11.79	1665
No dwelling unit	0.00	1305	0.00	1361	0.01	655
Others	3.33	780	2.55	915	3.13	1098
Structure of the House						
Pucca	59.24	911	58.65	1045	60.61	1165
Semi-pucca	25.62	548	23.82	598	25.09	665

Serviceable katcha	13.86	505	16.11	526	13.19	603
Unserviceable katcha	1.28	514	1.41	513	1.12	572
Land posses (in Hectare)						
Less than 0.005	23.74	868	26.18	959	24.84	1148
0.005 - 0.01	20.77	830	20.65	904	22.57	1005
0.02 - 0.20	15.82	759	14.75	874	16.06	947
0.21 - 0.40	9.87	647	9.95	695	9.36	803
0.41 - 1.00	13.65	628	13.62	694	13.22	775
1.01 - 2.00	8.84	640	8.37	743	8.58	837
2.01 – 3.00	3.44	704	3.23	836	2.66	972
3.01 - 4.00	1.65	758	1.35	878	1.00	995
4.01 – 6.00	1.20	910	0.89	1055	0.90	1057
6.01 - 8.00	0.44	869	0.45	914	0.40	1126
Greater than 8.00	0.56	1060	0.56	1306	0.41	1301

(Table 2 Continued............)

Table 2: General Characteristics of the Head of the Household and Average monthly per capita expenditure of the Households for the year 2005-06, 2006-07and 2007-08 (continued.....)

Characteristics	**2005-06**		**2006-07**		**2007-08**	
	Percent age	**Average MPCE** (`)	**Percent age**	**Average MPCE** (`)	**Percent age**	**Average MPCE** (`)
Source of Cooking						
Coke /coal	1.72	704	1.21	698	1.16	782
Firewood chips	60.18	577	61.27	651	61.23	714
LPG	21.79	1359	22.18	1519	24.05	1662
Dung cake	7.08	587	7.17	609	5.68	719
Kerosene	3.12	874	2.54	959	2.61	1081
Others	6.12	685	5.63	826	5.26	1219
Source of Lighting						
Kerosene	32.93	493	32.81	555	29.06	609
Electricity	65.61	896	65.74	999	69.74	1113
Others	1.46	615	1.45	740	1.20	827
Sector						
Rural	73.92	625	73.55	695	71.57	772
Urban	26.08	1171	26.45	1313	28.43	1472

Note: Calculated based on Unit level data NSSO data for the 62nd, 63rd and 64th rounds

Table3: Regression Based Inequality decomposition: Regression Results for the 62nd, 63rd 64th rounds of NSSO unit level data

Variables	62nd Round			63rd Round			64th Round		
	Coef.	se	t*	Coef.	se	t*	Coef.	se	t*
h_age	60.072	2.435	24.670	72.403	2.505	28.910	73.653	2.812	26.200
h_gen	47.222	12.387	3.810	111.087	12.848	8.650	140.300	14.311	9.800
h_edu	70.973	1.164	60.990	83.936	1.210	69.380	94.421	1.377	68.580
h_maritulsus	-67.893	10.257	-6.620	-79.354	10.518	-7.540	-134.078	11.866	-11.300
religion	27.715	1.919	14.440	35.865	2.042	17.560	32.668	2.280	14.330
Socialgroup	17.632	0.932	18.910	24.224	0.953	25.410	28.388	1.094	25.940
dwelling	-11.914	2.621	-4.550	1.246	2.855	0.440	-4.952	3.066	-1.620
Structure_hh	-52.549	3.920	-13.400	-70.792	3.910	-18.100	-75.351	4.718	-15.970
land	18.857	1.338	14.090	20.551	1.389	14.800	18.875	1.665	11.340
hhsize	-98.091	1.722	-56.980	-110.611	1.776	-62.270	-129.223	2.003	-64.520
htype	8.653	1.391	6.220	11.031	1.421	7.760	12.352	1.628	7.590
Cookenergy	6.372	1.651	3.860	10.481	1.745	6.010	32.153	2.180	14.750
lightenergy	24.154	1.505	16.050	23.156	1.540	15.040	25.252	1.811	13.940
Sector	250.440	14.322	17.490	238.164	14.549	16.370	258.363	16.541	15.620
constant	355.997	28.338	12.560	337.172	28.781	11.720	474.031	33.050	14.340
R^2	0.334			0.294			0.345		
Adj R^2	0.334			0.294			0.345		
F(14, 39241)	1408.5			1885.6			1890.3		
Observation	39256			63489			50182		

*statistically significant at the one percent level

Note: Results are based on STATA 11.0 "ineqrbd" developed by Fiorio and Jenkins (2007); NSSO 62nd, 63rd and 64th rounds unit level data has been used.

Table 4: Regression-based decomposition of inequality in AMPCE and predicted AMPCE for the Year 2005-06

Inequality Decomposition	For AMPCE					For Predicted AMPCE				
	100*s_f	S_f	100*m_f/m	I2_f	I2_f/I2(total)	100*s_f	S_f	100*m_f/m	I2_f	I2_f/I2 (total)
residual	66.555	0.247	0.000	1.E+32	3.E+32					
h_age	0.574	0.002	25.524	0.072	0.194	1.716	0.002	25.524	0.072	0.581
h_gen	0.038	0.000	6.779	0.032	0.085	0.115	0.000	6.779	0.032	0.255
h_edu	12.132	0.045	34.381	0.260	0.701	36.274	0.045	34.381	0.260	2.096
h_maritulsus	0.142	0.001	-18.732	0.013	0.034	0.425	0.001	-18.732	0.013	0.101
religion	0.504	0.002	5.196	0.492	1.328	1.507	0.002	5.196	0.492	3.969
Social group	2.127	0.008	10.382	0.239	0.644	6.359	0.008	10.382	0.239	1.924
dwelling	-0.137	-0.001	-1.941	0.375	1.011	-0.409	-0.001	-1.941	0.375	3.024
Structure_hh	1.643	0.006	-11.013	0.119	0.320	4.912	0.006	-11.013	0.119	0.957
land	-0.459	-0.002	9.139	0.198	0.535	-1.373	-0.002	9.139	0.198	1.599
hhsize	6.766	0.025	-68.602	0.051	0.137	20.229	0.025	-68.602	0.051	0.409
htype	2.157	0.008	6.215	0.315	0.850	6.448	0.008	6.215	0.315	2.543
Cookenergy	0.114	0.000	2.402	0.170	0.458	0.341	0.000	2.402	0.170	1.370
lightenergy	2.010	0.008	11.816	0.147	0.396	6.010	0.008	11.816	0.147	1.183
Sector	5.835	0.022	41.144	0.059	0.159	17.446	0.022	41.144	0.059	0.476
Total	100.000	0.371	100.000	0.371	1.000	100.000	0.124	100.000	0.124	1.000

Note: Results are based on STATA 11.0 "ineqrbd" developed by Fiorio and Jenkins (2007); proportionate contribution of composite var f to inequality of Total, s_f = rho_f*sd(f)/sd(Total); S_f = s_f*I2(Total); m_f = mean(f); sd(f) = std.dev. of ;. I2_f = $0.5*[sd(f)/m\_f]^2$; NSSO 62nd rounds unit level data has been used. More details of various estimates visit http://www.stata.com/meeting/13uk/fiorio_ineqrbd_UKSUG07.pdf

Table 5: Regression-based decomposition of inequality in AMPCE and predicted AMPCE for the Year 2006-07

Inequality Decomposition	For AMPCE					For Predicted AMPCE				
	100*s_f	S_f	100*m_f/m	I2_f	I2_f/I2(total)	100*s_f	S_f	100*m_f/m	I2_f	I2_f/I2(total)
residual	70.627	0.330	0.000	3.E+33	6.E+33					
h_age	0.471	0.002	27.443	0.070	0.150	1.604	0.002	27.443	0.070	0.511
h_gen	0.121	0.001	14.197	0.032	0.068	0.412	0.001	14.197	0.032	0.230
h_edu	11.126	0.052	36.579	0.259	0.555	37.879	0.052	36.579	0.259	1.888
h_maritulstatus	0.083	0.000	-19.521	0.013	0.027	0.282	0.000	-19.521	0.013	0.093
religion_c	0.494	0.002	5.910	0.467	1.000	1.681	0.002	5.910	0.467	3.405
Socialgroup_c	2.329	0.011	12.532	0.246	0.526	7.930	0.011	12.532	0.246	1.789
dwelling_c	0.010	0.000	0.177	0.338	0.722	0.035	0.000	0.177	0.338	2.459
structure_c	1.875	0.009	-13.462	0.124	0.266	6.385	0.009	-13.462	0.124	0.907
land_code	-0.297	-0.001	8.545	0.207	0.443	-1.010	-0.001	8.545	0.207	1.508
hhsize_c	5.572	0.026	-68.007	0.051	0.109	18.969	0.026	-68.007	0.051	0.372
htype_c	2.063	0.010	7.096	0.319	0.682	7.022	0.010	7.096	0.319	2.321
cook_c	0.140	0.001	3.477	0.162	0.347	0.475	0.001	3.477	0.162	1.180
light_c	1.343	0.006	10.131	0.144	0.308	4.573	0.006	10.131	0.144	1.049
Sector	4.043	0.019	35.007	0.060	0.127	13.764	0.019	35.007	0.060	0.433
Total	100.000	0.467	100.000	0.467	1.000	100.000	0.137	100.000	0.137	1.000

Note: Results are based on STATA 11.0 “ineqrbd” developed by Fiorio and Jenkins (2007); proportionate contribution of composite var f to inequality of Total, s_f = rho_f*sd(f)/sd(Total); S_f = s_f*I2(Total); m_f = mean(f); sd(f) = std.dev. of ;. I2_f = 0.5*[sd(f)/m_f]^2; NSSO 62nd rounds unit level data has been used. More details of various estimates visit http://www.stata.com/meeting/13uk/fiorio_ineqrbd_UKSUG07.pdf

Table 6: Regression-based decomposition of inequality in AMPCE and predicted AMPCE for the year 2007-08

Inequality Decomposition	For AMPCE					For Predicted AMPCE				
	100*s_f	S_f	100*m_f/m	I2_f	I2_f/I2(total)	100*s_f	S_f	100*m_f/m	I2_f	I2_f/I2(total)
residual	65.466	0.264	0	4.E+32	9.E+32					
h_age	0.269	0.001	24.583	0.073	0.182	0.778	0.001	24.583	0.073	0.526
h_gen	0.100	0.000	15.907	0.033	0.081	0.289	0.000	15.907	0.033	0.234
h_edu	12.793	0.052	36.212	0.258	0.642	37.044	0.052	36.212	0.258	1.859
h_maritulstatus	0.266	0.001	-29.207	0.013	0.032	0.770	0.001	-29.207	0.013	0.093
religion_c	0.374	0.002	4.806	0.475	1.180	1.084	0.002	4.806	0.475	3.417
Socialgroup_c	2.709	0.011	13.007	0.239	0.593	7.844	0.011	13.007	0.239	1.716
dwelling_c	-0.055	0.000	-0.633	0.370	0.920	-0.160	0.000	-0.633	0.370	2.664
structure_c	1.842	0.007	-12.247	0.118	0.294	5.335	0.007	-12.247	0.118	0.852
land_code	-0.390	-0.002	6.832	0.197	0.488	-1.129	-0.002	6.832	0.197	1.414
hhsize_c	7.257	0.029	-69.507	0.053	0.131	21.013	0.029	-69.507	0.053	0.379
htype_c	2.387	0.010	7.277	0.299	0.742	6.912	0.010	7.277	0.299	2.149
cook_c	0.793	0.003	9.151	0.146	0.363	2.295	0.003	9.151	0.146	1.051
light_c	1.439	0.006	10.097	0.127	0.315	4.168	0.006	10.097	0.127	0.911
Sector	4.751	0.019	34.112	0.061	0.151	13.756	0.019	34.112	0.061	0.437
Total	100.000	0.403	100.000	0.403	1.000	100.000	0.139	100.000	0.139	1.000

Note: Results are based on STATA 11.0 "ineqrbd" developed by Fiorio and Jenkins (2007); proportionate contribution of composite var f to inequality of Total, s_f = rho_f*sd(f)/sd(Total); S_f = s_f*I2(Total); m_f = mean(f); sd(f) = std.dev. of ;. I2_f = 0.5*[sd(f)/m_f]^2; NSSO 62nd rounds unit level data has been used. More details of various estimates visit http://www.stata.com/meeting/13uk/fiorio_ineqrbd_UKSUG07.pdf

Appendix 1: Summary statistics Total, residual, and other variables

Variable	62nd rounds				63rd rounds				64th rounds			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Y	752.47	648.02	25.08	52371	845	817	21	92486.26	955.53	857.3435	56	56073
resid	0.00	528.67	-1503.48	50508.05	0.00	686.6152	-1859.12	91771.27	0.00	693.6829	-1868.5	53418.80
b1Z1	192.06	72.88	60.072	300.36	231.94	86.89	72.40	362.01	234.90	89.808	73.65	368.26
b2Z2	51.01	12.82	47.222	94.44	119.98	30.15	111.09	222.17	152.00	38.783	140.30	280.60
b3Z3	258.70	186.51	70.973	780.70	309.15	222.57	83.94	923.30	346.01	248.768	94.42	1038.63
b4Z4	-140.95	22.29	-271.573	-67.89	-164.98	26.34	-317.42	-79.35	-279.08	44.917	-536.31	-134.08
b5Z5	39.10	38.80	27.715	249.43	49.95	48.29	35.86	322.78	45.92	44.755	32.67	294.01
b6Z6	78.12	53.97	17.632	158.69	105.92	74.23	24.22	218.01	124.28	85.837	28.39	255.49
b7Z7	-14.60	12.65	-107.222	-11.91	1.50	1.23	1.25	11.21	-6.05	5.205	-44.57	-4.95
b8Z8	-82.87	40.37	-210.195	-52.55	-113.77	56.75	-283.17	-70.79	-117.02	56.942	-301.41	-75.35
b9Z9	68.77	43.30	18.857	226.28	72.21	46.47	20.55	246.61	65.28	40.925	18.87	226.49
b10Z10	-516.20	164.36	-686.639	-98.09	-574.76	183.65	-774.28	-110.61	-664.16	215.709	-904.56	-129.22
b11Z11	46.76	37.14	8.653	164.41	59.97	47.87	11.03	209.59	69.54	53.745	12.35	234.69
b12Z12	18.07	10.53	6.372	57.35	29.39	16.73	10.48	94.33	87.44	47.267	32.15	289.38
b13Z13	88.91	48.16	24.154	217.39	85.62	45.94	23.16	208.40	96.48	48.547	25.25	227.27
b14Z14	309.60	106.38	250.440	500.88	295.86	102.04	238.16	476.33	325.95	113.554	258.36	516.73
For Predicted MPCE												
Yhat	752.47	374.76	-71.56	2485.33	845.15	442.80	-233.34	2896.95	955.53	503.83	-129.72	3415.63
b1Z1	192.06	72.88	60.07	300.36	231.94	86.89	72.40	362.01	234.90	89.81	73.65	368.26
b2Z2	51.01	12.82	47.22	94.44	119.98	30.15	111.09	222.17	152.00	38.78	140.30	280.60
b3Z3	258.70	186.51	70.97	780.70	309.15	222.57	83.94	923.30	346.01	248.77	94.42	1038.63

b4Z4	-140.95	22.29	-271.57	-67.89	-164.98	26.34	-317.42	-79.35	-279.08	44.92	-536.31	-134.08
b5Z5	39.10	38.80	27.71	249.43	49.95	48.29	35.86	322.78	45.92	44.75	32.67	294.01
b6Z6	78.12	53.97	17.63	158.69	105.92	74.23	24.22	218.01	124.28	85.84	28.39	255.49
b7Z7	-14.60	12.65	-107.22	-11.91	1.50	1.23	1.25	11.21	-6.05	5.21	-44.57	-4.95
b8Z8	-82.87	40.37	-210.20	-52.55	-113.77	56.75	-283.17	-70.79	-117.02	56.94	-301.41	-75.35
b9Z9	68.77	43.30	18.86	226.28	72.21	46.47	20.55	246.61	65.28	40.92	18.87	226.49
b10Z10	-516.20	164.36	-686.64	-98.09	-574.76	183.65	-774.28	-110.61	-664.16	215.71	-904.56	-129.22
b11Z11	46.76	37.14	8.65	164.41	59.97	47.87	11.03	209.59	69.54	53.74	12.35	234.69
b12Z12	18.07	10.53	6.37	57.35	29.39	16.73	10.48	94.33	87.44	47.27	32.15	289.38
b13Z13	88.91	48.16	24.15	217.39	85.62	45.94	23.16	208.40	96.48	48.55	25.25	227.27
b14Z14	309.60	106.38	250.44	500.88	295.86	102.04	238.16	476.33	325.95	113.55	258.36	516.73

Note: Results are based on STATA 11.0 “ineqrbd” developed by Fiorio and Jenkins (2007Calculated on the basis of coefficient from regression coefficient given in Table 3and exogenous variables used in regression.

Appendix 2: Correlation Coefficient among total, residual and other variables.

Variables	Yhat	b1Z1	b2Z2	b3Z3	b4Z4	b5Z5	b6Z6	b7Z7	b8Z8	b9Z9	b10 Z10	b11 Z11	b12 Z12	b13 Z13	b14 Z14
62nd															
Yhat	1.00														
b1Z1	0.09	1.00													
b2Z2	0.03	0.03	1.00												
b3Z3	0.73	-0.11	-0.13	1.00											
b4Z4	0.07	-0.24	-0.55	0.17	1.00										
b5Z5	0.15	0.03	0.00	0.02	0.00	1.00									
b6Z6	0.44	0.10	0.01	0.27	0.01	0.07	1.00								
b7Z7	-0.12	0.12	-0.03	-0.07	-0.08	0.00	-0.04	1.00							
b8Z8	0.46	0.08	0.03	0.27	0.02	0.05	0.19	-0.05	1.00						
b9Z9	-0.12	0.20	-0.08	-0.06	-0.01	-0.02	0.00	0.17	-0.01	1.00					
b10Z10	0.46	-0.23	0.18	0.08	-0.04	-0.02	0.03	-0.16	0.02	-0.23	1.00				
b11Z11	0.65	0.02	0.10	0.33	0.01	0.03	0.21	-0.17	0.30	-0.26	0.14	1.00			
b12Z12	0.12	-0.01	-0.01	0.06	0.09	0.04	0.07	-0.12	0.04	-0.09	0.05	0.11	1.00		
b13Z13	0.47	0.07	0.01	0.25	0.01	0.07	0.18	-0.09	0.38	-0.08	0.07	0.29	-0.03	1.00	
b14Z14	0.61	-0.01	0.03	0.30	0.01	0.03	0.20	-0.16	0.28	-0.38	0.10	0.88	0.10	0.29	1.00
63rd															
Yhat	1.00														
b1Z1	0.09	1.00													
b2Z2	0.03	0.03	1.00												
b3Z3	0.73	-0.11	-0.13	1.00											
b4Z4	0.07	-0.24	-0.55	0.17	1.00										
b5Z5	0.15	0.03	0.00	0.02	0.00	1.00									
b6Z6	0.44	0.10	0.01	0.27	0.01	0.07	1.00								
b7Z7	-0.12	0.12	-0.03	-0.07	-0.08	0.00	-0.04	1.00							
b8Z8	0.46	0.08	0.03	0.27	0.02	0.05	0.19	-0.05	1.00						
b9Z9	-0.12	0.20	-0.08	-0.06	-0.01	-0.02	0.00	0.17	-0.01	1.00					
b10Z10	0.46	-0.23	0.18	0.08	-0.04	-0.02	0.03	-0.16	0.02	-0.23	1.00				

b11Z11	0.65	0.02	0.10	0.33	0.01	0.03	0.21	-0.17	0.30	-0.26	0.14	1.00			
b12Z12	0.12	-0.01	-0.01	0.06	0.09	0.04	0.07	-0.12	0.04	-0.09	0.05	0.11	1.00		
b13Z13	0.47	0.07	0.01	0.25	0.01	0.07	0.18	-0.09	0.38	-0.08	0.07	0.29	-0.03	1.00	
b14Z14	0.61	-0.01	0.03	0.30	0.01	0.03	0.20	-0.16	0.28	-0.38	0.10	0.88	0.10	0.29	1.00
64th															
Yhat	1.00														
b1Z1	0.04	1.00													
b2Z2	0.04	0.07	1.00												
b3Z3	0.75	-0.13	-0.15	1.00											
b4Z4	0.09	-0.26	-0.57	0.17	1.00										
b5Z5	0.12	0.02	0.00	0.00	0.00	1.00									
b6Z6	0.46	0.09	0.00	0.27	0.00	0.08	1.00								
b7Z7	-0.15	0.11	-0.01	-0.07	-0.09	-0.01	-0.04	1.00							
b8Z8	0.47	0.09	0.01	0.30	0.02	0.07	0.21	-0.07	1.00						
b9Z9	-0.14	0.18	-0.08	-0.04	0.01	-0.02	0.01	0.16	0.02	1.00					
b10Z10	0.49	-0.23	0.15	0.13	-0.02	-0.02	0.03	-0.14	0.00	-0.22	1.00				
b11Z11	0.65	0.02	0.08	0.37	0.01	0.02	0.22	-0.18	0.33	-0.28	0.12	1.00			
b12Z12	0.24	-0.05	0.02	0.09	0.09	0.05	0.08	-0.13	0.10	-0.11	0.08	0.17	1.00		
b13Z13	0.43	0.07	0.01	0.25	-0.01	0.07	0.16	-0.08	0.38	-0.06	0.07	0.30	0.00	1.00	
b14Z14	0.61	0.00	0.01	0.33	0.01	0.03	0.21	-0.17	0.32	-0.39	0.09	0.89	0.16	0.31	1.00

Note: Results are based on STATA 11.0 “ineqrbd” developed by Fiorio and Jenkins (2007Calculated on the basis of coefficient from regression coefficient given in Table 3and exogenous variables used in regression.

Appendix 2: Correlation Coefficient among total, residual and other variables.

Variables	Yhat	resid	b1Z1	b2Z2	b3Z3	b4Z4	b5Z5	b6Z6	b7Z7	b8Z8	b9Z9	b10 Z10	b11 Z11	b12 Z12	b13 Z13	b14 Z14
62nd																
Yhat	1.00															
resid	0.82	1.00														
b1Z1	0.05	0.00	1.00													
b2Z2	0.02	0.00	0.03	1.00												
b3Z3	0.42	0.00	-0.11	-0.13	1.00											
b4Z4	0.04	0.00	-0.24	-0.55	0.17	1.00										
b5Z5	0.08	0.00	0.03	0.00	0.02	0.00	1.00									
b6Z6	0.26	0.00	0.10	0.01	0.27	0.01	0.07	1.00								
b7Z7	-0.07	0.00	0.12	-0.03	-0.07	-0.08	0.00	-0.04	1.00							
b8Z8	0.26	0.00	0.08	0.03	0.27	0.02	0.05	0.19	-0.05	1.00						
b9Z9	-0.07	0.00	0.20	-0.08	-0.06	-0.01	-0.02	0.00	0.17	-0.01	1.00					
b10Z10	0.27	0.00	-0.23	0.18	0.08	-0.04	-0.02	0.03	-0.16	0.02	-0.23	1.00				
b11Z11	0.38	0.00	0.02	0.10	0.33	0.01	0.03	0.21	-0.17	0.30	-0.26	0.14	1.00			
b12Z12	0.07	0.00	-0.01	-0.01	0.06	0.09	0.04	0.07	-0.12	0.04	-0.09	0.05	0.11	1.00		
b13Z13	0.27	0.00	0.07	0.01	0.25	0.01	0.07	0.18	-0.09	0.38	-0.08	0.07	0.29	-0.03	1.00	
b14Z14	0.36	0.00	-0.01	0.03	0.30	0.01	0.03	0.20	-0.16	0.28	-0.38	0.10	0.88	0.10	0.29	1.00
63rd																
Yhat	1.00															
resid	0.82	1.00														
b1Z1	0.05	0.00	1.00													
b2Z2	0.02	0.00	0.03	1.00												
b3Z3	0.42	0.00	-0.11	-0.13	1.00											
b4Z4	0.04	0.00	-0.24	-0.55	0.17	1.00										
b5Z5	0.08	0.00	0.03	0.00	0.02	0.00	1.00									
b6Z6	0.26	0.00	0.10	0.01	0.27	0.01	0.07	1.00								
b7Z7	-0.07	0.00	0.12	-0.03	-0.07	-0.08	0.00	-0.04	1.00							
b8Z8	0.26	0.00	0.08	0.03	0.27	0.02	0.05	0.19	-0.05	1.00						
b9Z9	-0.07	0.00	0.20	-0.08	-0.06	-0.01	-0.02	0.00	0.17	-0.01	1.00					

b10Z10	0.27	0.00	-0.23	0.18	0.08	-0.04	-0.02	0.03	-0.16	0.02	-0.23	1.00				
b11Z11	0.38	0.00	0.02	0.10	0.33	0.01	0.03	0.21	-0.17	0.30	-0.26	0.14	1.00			
b12Z12	0.07	0.00	-0.01	-0.01	0.06	0.09	0.04	0.07	-0.12	0.04	-0.09	0.05	0.11	1.00		
b13Z13	0.27	0.00	0.07	0.01	0.25	0.01	0.07	0.18	-0.09	0.38	-0.08	0.07	0.29	-0.03	1.00	
b14Z14	0.36	0.00	-0.01	0.03	0.30	0.01	0.03	0.20	-0.16	0.28	-0.38	0.10	0.88	0.10	0.29	1.00
64th																
Yhat	1.00															
resid	0.81	1.00														
b1Z1	0.03	0.00	1.00													
b2Z2	0.02	0.00	0.07	1.00												
b3Z3	0.44	0.00	-0.13	-0.15	1.00											
b4Z4	0.05	0.00	-0.26	-0.57	0.17	1.00										
b5Z5	0.07	0.00	0.02	0.00	0.00	0.00	1.00									
b6Z6	0.27	0.00	0.09	0.00	0.27	0.00	0.08	1.00								
b7Z7	-0.09	0.00	0.11	-0.01	-0.07	-0.09	-0.01	-0.04	1.00							
b8Z8	0.28	0.00	0.09	0.01	0.30	0.02	0.07	0.21	-0.07	1.00						
b9Z9	-0.08	0.00	0.18	-0.08	-0.04	0.01	-0.02	0.01	0.16	0.02	1.00					
b10Z10	0.29	0.00	-0.23	0.15	0.13	-0.02	-0.02	0.03	-0.14	0.00	-0.22	1.00				
b11Z11	0.38	0.00	0.02	0.08	0.37	0.01	0.02	0.22	-0.18	0.33	-0.28	0.12	1.00			
b12Z12	0.14	0.00	-0.05	0.02	0.09	0.09	0.05	0.08	-0.13	0.10	-0.11	0.08	0.17	1.00		
b13Z13	0.25	0.00	0.07	0.01	0.25	-0.01	0.07	0.16	-0.08	0.38	-0.06	0.07	0.30	0.00	1.00	
b14Z14	0.36	0.00	0.00	0.01	0.33	0.01	0.03	0.21	-0.17	0.32	-0.39	0.09	0.89	0.16	0.31	1.00

Note: Results are based on STATA 11.0 “ineqrbd” developed by Fiorio and Jenkins (2007Calculated on the basis of coefficient from regression coefficient given in Table 3and exogenous variables used in regression.