

Inequality and Welfare by Food Expenditure Components

RASHIDA HAQ and NABEELA ARSHID

1. INTRODUCTION

The effect of rising global food crises had a potential impact on food consumption in Pakistan and also its implications for inequality and welfare in urban and rural areas. In Pakistan agriculture is the predominant sector of the economy accounting 46.2 percent of the gross domestic product in 2008-09 which provides livelihood for 60.94 percent of its rural population where its 27 percent poor reside [Pakistan (2009)]. Due to food inflation of 26.61 percent in 2008-09, food expenditure are increasingly dominating household budget, the poor are consuming even less than before and the quality of their diet has deteriorated further indicating a 30 percent undernourished population [UNDP (2003)]. The *Household Integrated Economic Survey* (HIES), 2005-06 demonstrates that, out of total expenditure on average 43.05 percent goes for food mainly for essential food, i.e., cereals, pulses, milk, oil, vegetables and sugar where it constitutes 81 percent of food budget share for bottom 20 percent poor population. This food purchase decisions is also based on a budget that also must cover expenses for clothing, housing, and other goods and services. The overall budget available for food depends on the amount of total household budget spent on other goods and services. This phenomenon indicates that low-income countries spend a greater portion of their budget on necessities such as food than wealthier countries do. Therefore, an in-depth study on food components distribution requires an understanding of the complete welfare function of consumers.

Effective evaluation of food policy issues requires accurate information on distribution of food consumption patterns. This distribution of household food expenditure also represents a very important aspect of the distribution of economic welfare. Its role becomes even more important when the distribution of economic welfare is observed using micro data. In this case income data is considered the best proxy to the level of the household's economic welfare is usually not reliable and total consumption is taken as the second best solution. However, micro level data do not present consumption statistics and expenditure is used instead as a proxy. One important problem associated with the use of total expenditure is that many households account zero expenditure for various goods while

Rashida Haq <rashida_haq@hotmail.com> and Nabeela Arshid <nabeela@pide.org.pk> are Senior Research Economist and Senior Systems Analyst at the Pakistan Institute of Development Economics, Islamabad.

Authors' Note: We would like to thank Dr Attiya Javid, Dr Najam us Saqib and Mr Masood Ishfaq Ahmed for their useful comments and suggestions on an earlier draft of the paper.

their consumption is not zero, simply because they do not purchase those goods during the survey period. This becomes more important in the case of long-life durable goods or goods purchased only occasionally [Lazaridis (2000)]. Second, measures of consumption inequality are a useful complement or even alternative to income or earnings inequality because households do take some steps to smooth consumption. Therefore, consumption inequality is probably the better measure of inequality in welfare. For all these reasons, the distribution of total expenditure on food, despite its limitations, is considered a good indicator of the distribution of economic welfare.

However, food expenditure consists of several food components with different shares and distributions which can be classified in essential and non-essential or luxury items. In terms of foods, each society determines which foods are social necessities and which are luxuries, and this distinction reflects the 'social grammar' of a society. Luxury usually denotes foods that are desirable or hard to obtain but not essential to human nutrition. If the number of people who have access to a luxury increases, the status of these goods changes; they turn into commonplace goods and may ultimately become necessities [Veen (2003)]. In Pakistan meat, fruits, soft drinks and other readymade food products have little access to majority of the masses, thus categorised as luxury food for the present analysis of inequality and welfare. The principal purpose of this paper is to examine the contribution of each food item to overall food expenditure inequality and welfare. This analysis enables the policy-maker to reduce inequality through taxes or subsidies in the most efficient way.

This paper examines the impact of eleven food components including essential and luxury on the inequality of total food expenditures in Pakistan. It also evaluates the effect of price changes on the aggregate welfare. The study is also concerned with such questions as: what is the extent of the inequality in food expenditure components? How do the various expenditure components affect total welfare? The paper is organised as follows: Section 2 discusses briefly, some evidence in distribution of food consumption patterns in Pakistan. Section 3 develops techniques intended to analyse inequality and welfare in terms of per capita expenditure components while Section 4 deals with results. Finally, Section 5 is devoted to some concluding remarks.

2. SOME EVIDENCE ON FOOD CONSUMPTION PATTERNS

Recent shifts in food trade reveal dramatic changes in consumption patterns for food around the globe. These changes are likely to continue well into the future. A number of driving forces are working behind these changing consumption patterns, but growth in income is perhaps the most important of them. Growth of income during the past few decades has resulted in increased purchasing power of the consumers around the world that in turn has caused a shift of consumption to more expensive food items. The overall budget available for food depends on the amount of total household budget spent on other goods and services. Although the food budget may grow at a relatively slow rate among high-income consumers, global food consumption patterns are rapidly changing with growing demands for quality, variety, and convenience. Globalisation, improved transportation, and increased purchasing power have generally increased the demand for higher value food products such as fruit and vegetables, meats, and processed food products across all countries [Seale, Anita, and Jason (2003)].

Despite considerable progress in recent decades, the goal of adequate food and nutrition for all is still elusive. Eradicating hunger and malnutrition is a high priority of aid agencies and governments throughout the world. Several policies have been enacted to fight malnutrition. One of them has focused on raising the incomes of the poorest people [Grimard (1996)]. The distribution of budget shares for the eight food sub-categories across three income groups countries are presented in Table 1 which demonstrates that cereals, fats and oils, and fruits and vegetables account for a larger share of the total food budget in low-income countries compared with high-income countries. Low-value staples, such as cereals, account for a larger share of the food budget in poorer countries, while higher-valued food items or luxury foods, such as dairy and meat, and beverages and tobacco are a larger share of the food budget in richer countries. In terms of food, luxury usually denotes foods that are desirable or hard to obtain but not essential to human nutrition. For a good to be a luxury it needs to be desired by many but attained by few. As the true arena of luxury goods, by definition, outside the reach of mass consumption; using Berry's (1994) words, it is not possible to 'democratise' luxuries. The conclusion that can be drawn from this is that luxury goods will occur only in societies with strong social stratification, where elites require goods in order to display and maintain their status.

Table 1

Percentage Distribution of Budget Shares for Food Sub-categories Across Countries

Food Sub-categories	Low Income Countries	Middle Income Countries	High Income Countries
Cereals/breads	26.97	17.98	11.83
Meat and Fish	19.65	22.48	23.41
Dairy	7.89	10.78	10.03
Fruits and Vegetables	20.34	18.24	14.62
Beverages and Tobacco	9.25	14.22	25.92
Fats and Oils	5.90	4.36	2.78
Other Foods	10.0	11.94	11.41
Food Expenditure Share as % of Total Expenditure	52.58	34.69	16.97

Source: www.ers.usda.gov.

Table 2 shows inequality in budget shares for food sub-categories for poorest quintile and richest quintile over time in Pakistan which is largely a reflection of poverty: people do not have income for food. There are some distinct differences in the expenditure patterns of poor and rich households. Poor households spend on average 55 percent of their budgets on food, whereas rich household's average per capita food expenditure is 33 percent in 2005-06. The consumption pattern of poor and rich households also shows that the richest 20 percent allocate a large share of expenditure on high valued food items such as meat and fruits. Given the slow income growth that is likely for the poorest people in the foreseeable future, large numbers will remain malnourished for decades to come.

Table 2

Inequality in Monthly Budget Shares for Essential and Luxury Food Items: Pakistan

Food Categories	2000-01		2004-05		2005-06	
	Poorest 20%	Richest 20%	Poorest 20%	Richest 20%	Poorest 20%	Richest 20%
Cereals/Pulses	32.72	16.03	31.54	15.06	31.14	15.18
Dairy	15.02	24.50	18.51	25.03	17.44	26.19
Vegetables	9.50	8.16	10.02	7.61	10.33	7.36
Fats and Oils	8.44	6.69	10.47	8.11	9.49	7.72
Condiments and Spices	3.56	2.97	3.51	3.04	3.41	3.04
Gur and Sugar	8.94	6.99	7.14	5.30	9.79	7.12
Tea	3.38	2.56	2.77	2.08	3.04	2.04
Meat, Poultry and Fish	4.84	12.87	7.18	15.68	6.77	14.70
Fruits	1.67	5.12	2.28	5.58	1.90	5.55
Tobacco	4.36	3.13	2.69	2.79	3.72	2.46
Readymade Food	7.57	10.99	3.87	9.70	2.98	8.62
Food Expenditure as % of Total Expenditure	63.44	49.33	59.22	40.57	55.61	33.1

Source: 'Household Integrated Economic Survey' for respective years.

In this scenario, Pakistan ranks at 61st position in Global Hunger Index-2008 with 21.7 points out of 88 countries surveyed indicating alarming level of hunger. The Index ranks countries on a 100-point scale with zero being the best score (no hunger) and 100 being the worst in three indicators which include child malnutrition, rates of child mortality and the number of people who are calorie deficient [IFPRI (2008)].

The food consumption patterns of households have been analysed in a number of studies¹ in Pakistan. These studies differ not only in their scope but also by the period of the data which are discussed here.

Rise in food prices have a big impact on the poorest households in rural and urban areas in Pakistan which is explored by Naqvi and Akbar (2000). They revealed that Pakistani households they have shifted expenditures toward basic needs and away from non-essential items over the 1987-88 to 1996-97, a period associated with rapidly increase in price levels and with very slowly rising real incomes. High own-price elasticity of demand for food combined with high expenditure allocations on food indicates that the poorest households in Pakistan are facing a distressful situation due to food price hikes. Currently, the nominal prices of many staple food commodities are at their highest levels in nearly 50 years leading to food riots in some developing countries. Haq, Hina, and Meilke (2008) had estimated the impacts of rising world food prices on poverty in rural and urban areas of Pakistan. As compared to 2004-2005 the unexpected food price changes resulting from the food crisis increased poverty by 8.2 percentage points (34.8 percent), severely affecting the urban areas where poverty doubled. The effect of inflation are highly non-egalitarian and in fact, contributed more to increase the existing inequalities in food expenditure than in non-food expenditure especially in lower income brackets [Afridi, *et al.* (1984)]. The rise in inequality was more pronounced in urban areas than in rural areas where both the poorest and middle income groups lost their consumption share while the richest top two deciles gained in their consumption

¹See, for example Burney and Khan (1991), Haq, Nazli and Meilke (2008), Naqvi and Akbar (2000), Grimard (1996), Haq (1998), Anwar, (2009) and Zakir and Idrees (2009).

Where x the mean income of the society and G is the Gini index which is a widely used measure of the dispersion in welfare, with values closer to unity associated with higher inequality. When $G=1$, all income is received by one individual (perfect inequality) and $G=0$ indicates absolute equality. The method of estimating Gini coefficient is due to Lorenz's (1905) defined as:

$$G = 1 - \sum_{i=1}^n (Z_i - Z_{i-1})(x_i + x_{i-1}) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

Where Z is the cumulative proportion of income receivers and x_i is the corresponding cumulative proportion of income received. Although there are several alternative welfare measures such as Atkinson (1970), this paper uses W as a basis for analysing welfare in Pakistan because it can be considered as an appropriate welfare measure which takes into account both size and distribution of income.

(a) Inequality and Welfare by Food Expenditure Components

In measuring inequality, consumption expenditure is used as an appropriate indicator of economic welfare because utility is derived from the consumption of goods and services. It is also a better indicator measure of long term standard of living than income. Since the individual expenditure is the sum of several expenditure components, it will be useful to analyse total inequality and welfare in terms of individual total food expenditure components as proposed by Sen (1974).

Suppose there are k expenditure components whose prices are p_1, p_2, \dots, p_k and q_1, q_2, \dots, q_k are the quantities consumed of the k food expenditure components then u_j is taken the mean of j th expenditure component. Then it is obvious that:

$$W = \sum_{j=1}^k \mu_j (1 - C_j) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (4)$$

Here the disaggregation of Gini index in terms of expenditure components can be written as [Kakwani (1980)]:

$$G = 1 / \mu \sum_{j=1}^k \mu_j C_j \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (5)$$

Where C_j is considered as the concentration index of the j th expenditure component. The concentration index C_j is similar to the Gini index except that the ranking of individual is by the total expenditure and not the j th expenditure component. The concentration index of expenditure component measures how evenly or unevenly that expenditure component is distributed over the aggregate per capita expenditure. If C_j is greater (smaller) than G , it implies that the j th expenditure component is distributed over the aggregate expenditure in favour of rich (poor) individuals. Thus combining Sen welfare index (2) with (4) and (5) gives:

$$W = \sum_{j=1}^k \mu_j (1 - C_j) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (6)$$

Which shows how the total welfare can be decomposed in terms of individual expenditure components; $\mu_j(1-C_j)$ being the contribution of the j th expenditure component to total welfare.

(b) The Price Elasticity of Aggregate Welfare

To evaluate the effect of price change on the total welfare, then following equation expresses the price elasticity of aggregate welfare as Kakwani (1980):

$$n_j = -\frac{\mu_j(1-C_j)}{\mu(1-G)} \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (7)$$

Which implies that if the price of j th commodity increases by 1 percent, then the aggregate welfare changes by n_j percent. n_j will always be negative. Thus the magnitude of n_j can be used to evaluate the effects of price changes on the aggregate welfare.

(c) Progressivity Index

This progressivity index is expressed as the ratio of the inequality component to aggregate expenditure:

$$P_j = \frac{(G-C_j)}{(1-G)} \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (8)$$

A positive value of P_j implies the j th expenditure component to be progressive and the negative value implies the j th component to be regressive. Thus, the magnitude of P_j indicates whether the increase in the j th component favours the poor or the rich. If the j th component is distributed in proportion to total expenditure, C_j will be equal to G which gives P_j to be equal to zero. In this case, the effect of an increase in the j th component favours neither the poor nor the rich. P_j provides a quantitative basis for maximising the country's total welfare with minimum cost.

The above measure should be interpreted with care since it is based on the assumption that per capita total expenditure on food is considered a good indicator of the distribution of welfare. This is an approximate measure of individual welfare because it assumes that the basic needs of every household member are the same.

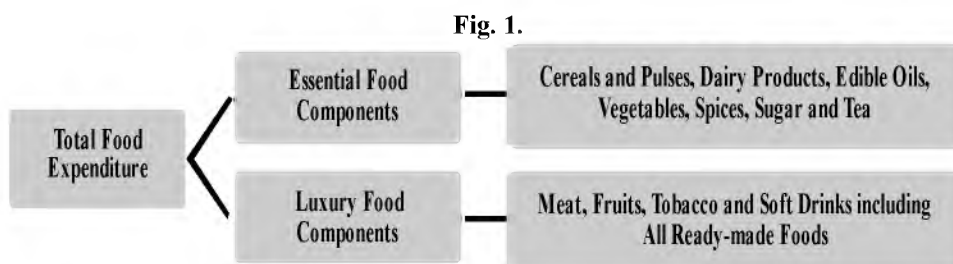
(d) The Data

All computations are performed on the complete set of data collected in Household Integrated Economic Survey (HIES), 2005-06 conducted by Federal Bureau of Statistics (FBS). The universe of HIES consists of all urban and rural areas of all four provinces as defined by the Provincial Governments. Military restricted areas have been excluded from the scope of the survey. Separate sampling frames have been used in the survey for urban areas and rural areas. FBS has developed its own urban area frame. All urban areas known as cities/towns of the urban domain of the sampling frame have been divided into small compact areas known as enumeration blocks. Each enumeration block comprises about 200-250 households. Each enumeration block has been divided into low, middle and high income group, keeping in view the status of the living of majority of

households. With regard to the rural areas, the lists of villages/*mouzas/dehs* according to population census, 1998 have been used as sampling frame.

A sample size of 15,453 households was considered appropriate to provide reliable estimates of key characteristics at the National/provincial level with urban/rural breakdown. The entire sample of households has been drawn from 1109 Primary Sampling Units (PSUs) out of which 531 are urban and 578 are rural. Households within each Primary Sampling Units have been considered as secondary sampling units. 16 and 12 households have been selected from each sample village and enumeration block respectively by random systematic sampling technique with a random start [Pakistan (2005-06)]. It collects data on household characters, consumption patterns, households' income by sources/occupation/sectors and social indicators that make it possible to estimate inequality and welfare across various sections of the society. In this paper weights are assigned to each household in order to insure the representativeness of the sample, and to obtain unbiased sample population parameter estimates.

For the analysis of inequality and welfare, total food expenditure is decomposed into essential and non essential food groups which are further disaggregated into its food components as presented by Naqvi and Akbar (2000).



4. ANALYSIS

In this section per capita food expenditure inequality and welfare is analysed for Pakistan. The basic sample weights for sampled households are used that reduces biases due to imperfections in the sample related to non-coverage and non-response households. Inequality measures such as quintile shares, Gini index and decile dispersion ratio (DDR) in Table 3 are based on per capita household food consumption expenditure across region in Pakistan. The DDR is defined as the share of the bottom 20 percent in relation to the share of the top 20 percent. For an in depth analysis of inequality, total food expenditure is decomposed in essential and non essential food components. It is observed that disparity in essential food expenditure is less as compare to non essential food components; approximately fifty percent of non essential food expenditure is incurred by top fifth quintile of the population. Inequality parameters indicate that distribution in expenditure is more pronounced in urban area as compare to rural area. The decile dispersion ratio also indicates disparity in non essential food expenditure is quite high within urban households.

Table 3

Inequality of Per capita Household Food Consumption Expenditure: 2005-06

Quintiles	Share of Total Food Expenditure (%)			Share of Essential Food Expenditure (%)			Share of Non-essential Food Expenditure (%)		
	Pakistan	Urban	Rural	Pakistan	Urban	Rural	Pakistan	Urban	Rural
1 st	9.7	7.3	11.4	11.1	8.6	12.4	5.7	3.7	7.4
2 nd	13.1	10.6	14.7	14.4	12.0	15.7	9.0	6.8	10.9
3 rd	16.8	14.9	17.9	17.8	16.4	18.6	13.1	10.8	15.1
4 th	22.5	21.6	23.0	23.1	22.7	23.3	20.4	18.8	21.9
5 th	37.8	45.8	32.9	33.7	40.3	30.0	51.9	60.0	45.7
Gini Index	26.27	27.10	25.34	21.0	20.52	21.80	43.0	44.37	39.9
DDR	25.66	15.94	34.65	32.93	21.34	41.33	10.98	8.33	16.19

Source: Computations are based on 'Household Integrated Economic Survey (HIES), 2005-06'.

Total per capita food expenditures inequality by its components is presented in Table 4. Food consumption patterns show that a typical household spends a larger share of food budget on essential food item, i.e. on average cereals and pluses 22.1 percent, dairy products 23.34 percent, edible oils 9.26 percent, vegetables 8.6 percent, spice 3.28 percent and sugar 8.13 percent constituting 77.37 percent of total food budget. Cereals and pluses, a basic foodstuff, sees its relative importance in food budget share in urban and rural areas. In Pakistan it is a major source of daily calories intake which constitute approximately 62 percent of total calories intake [Grimard (1996)]. All other essential food items represent a consistent consumption pattern in urban and rural areas.

The concentration index of food expenditure component measures how evenly or unevenly that component is distributed over the per capita total expenditure. It can be seen that the concentration index of dairy products, meat, poultry and fish, fruits (fresh and dried) and all readymade food products are higher than overall Gini coefficient which implies that expenditures on these commodities are unevenly distributed over the total expenditure in favour of rich families. Wheat and rice which is included in cereals and pluses category had high inequality in rural area as compare to urban area. Concentration of all essential food items is less as compare to total food expenditure in all regions. Overall non essential food expenditure is more unevenly distributed as compare to total food inequality. The last column shows the contribution of food components inequality in total inequality. Dairy products and meat, poultry and fish had major share in total inequality in all regions. All essential food items which had 77.37 percent budget share contribute 62.77 percent in total inequality.

To make statements about the magnitude of welfare, it will be necessary to compute single measures of welfare. Statistics given in Table 5 is based on Sen Welfare function (1974) given by Equation (1) which takes into account both size and distribution of expenditure. It is evident that cereals and pulses and dairy products are the major source of welfare in urban, rural and overall Pakistan. Tea and tobacco contribute least magnitude of welfare in Pakistan indicating that these items cannot be categorised as social necessities.

Table 4

Food Expenditure Inequality by It's Components: 2005-06

Food Expenditure Components	% Share of Food Expenditure			Concentration Index (%)			% Contribution to total Inequality		
	Pakistan	Urban	Rural	Pakistan	Urban	Rural	Pakistan	Urban	Rural
Essential Food Components									
Cereals and Pluses	22.15	18.54	24.36	11.2	9.60	12.73	9.44	6.64	12.25
Dairy Products	23.34	23.92	22.98	33.0	30.30	34.03	29.32	26.57	30.83
Edible Oils and Fats	9.26	8.60	9.66	21.0	18.80	22.26	7.40	5.90	8.30
Vegetables	8.60	8.15	8.88	18.66	18.91	18.49	6.11	5.54	6.32
Condiments and Spices	3.28	3.51	3.13	21.6	21.0	20.84	2.70	2.58	2.77
Gur and Sugar	8.13	6.97	8.84	19.47	20.19	19.81	6.03	5.17	7.11
Tea	2.61	2.60	2.61	17.67	19.25	16.19	1.76	1.85	1.58
Non Essential Food Components									
Meat, Poultry and Fish	11.26	14.49	9.29	40.46	41.45	36.61	17.34	22.14	13.44
Fruits (Fresh and Dried)	4.03	5.25	3.28	41.69	41.87	38.34	6.40	8.12	5.14
Tobacco	3.29	3.00	3.47	23.8	26.18	22.78	2.99	2.95	3.16
Readymade Food Products	4.05	4.96	3.50	67.9	66.54	67.50	10.48	12.18	9.49
Total Food Expenditure	100.00	100.00	100.00	26.27	27.10	25.34	100	100	100
All Essential Food Expenditure	77.37	72.30	80.47	21.0	20.52	21.8	62.77	54.61	69.17
Non Essential Food Expenditure	22.63	27.70	19.53	43.0	44.37	39.97	37.23	45.39	30.83

Computations are based on 'Household Integrated Economic Survey (HIES), 2005-06'.

While prices play an important role in our lives, inflation undeniably affects the welfare of the poorest in society. Rise in food prices have a big impact on the poorest households in rural and urban areas. If the prices of essential food items increases faster than those of luxuries, the poorest in first quintile will be hurt more than the top 20 percent. If the prime concern is to protect the poor, it is important to know how changes in prices affect their welfare. To evaluate the effect of price changes on the aggregate welfare, price elasticity of welfare is computed which indicates that if the price of the j th commodity increases by 1 percent, then the aggregate welfare changes by n_j percent as in Equation (5). The price elasticity welfare for cereals and pulses is 0.269 in Pakistan; it means if the price of cereals and pulses increases by 1 percent aggregate welfare decreases by 0.269 percent. It can also be analysed that essential food item such as cereals and pulses, dairy products and edible oils have 55 percent budget share; if the price increases by one percent the aggregate welfare will decrease by 0.58 percent. This phenomenon is observed in recent food inflation in Pakistan where bottom 20 percent population hurt proportionately more than the rich as they have greater share of these essential items in the food budget. A welfare comparison of the two components cannot be made without taking into account the cost involved in increasing welfare. A progressivity index is also computed to make this cost adjustment in the last column of Table 5. It is the ratio of the j th inequality component to the aggregate expenditure inequality implies that if its value is positive the j th component is to be progressive and the negative value implies the j th component to be regressive. It is observed that essential food components except dairy products are the most progressive expenditure as the poor spend a greater proportion of their income on food. If the government decides to give subsidy on cereals and pluses the poor will advantaged more than the rich. The magnitude of progressivity index indicates whether the tax/subsidy on the j th commodity have an adverse impact on the poor or the non poor or how prices changes affect aggregate inequality in a society.

Table 5

Welfare by Food Expenditure Components: 2005-06

Food Expenditure Components	% Contribution to Total Welfare			Price Elasticity of Welfare by Components			Progressivity Index by Components		
	Pakistan	Urban	Rural	Pakistan	Urban	Rural	Pakistan	Urban	Rural
Cereals and Pulses	26.90	23.00	28.48	0.269	0.23	0.28	0.214	0.240	0.169
Dairy Products	21.33	22.88	20.31	0.213	0.23	0.20	-0.086	-0.044	-0.116
Edible Oils and Fats	9.98	9.59	10.06	0.100	0.10	0.10	0.078	0.114	0.041
Vegetables	9.55	9.07	9.69	0.095	0.09	0.10	0.110	0.112	0.092
Condiments and Spices	3.50	3.80	3.32	0.035	0.04	0.03	0.070	0.084	0.060
Gur and Sugar	8.94	7.63	9.50	0.089	0.08	0.10	0.099	0.095	0.074
Tea	2.93	2.88	2.93	0.029	0.03	0.03	0.124	0.108	0.123
Meat, Poultry and Fish	9.15	11.64	7.89	0.091	0.12	0.08	-0.188	-0.197	-0.151
Fruits (Fresh and Dried)	3.20	4.19	2.71	0.032	0.04	0.03	-0.205	-0.203	-0.174
Tobacco	1.44	3.03	3.59	0.014	0.03	0.04	0.040	0.013	0.034
Readymade Food Products	4.21	2.28	1.52	0.042	0.02	0.02	-0.562	-0.541	-0.565
Food Expenditure	100	100	100	1	1	1	0	0	0
All Essential Food Expenditure	83.39	78.35	84.28	0.834	0.783	0.843	0.078	0.090	0.047
Non Essential Food Expenditure	17.60	21.65	15.72	0.177	0.216	0.157	-0.222	-0.237	-0.196

Source: Computations are based on "Household Integrated Economic Survey (HIES), 2005-06".

5. CONCLUSIONS

A central area of inquiry in stratification research concerns income or expenditure inequality. Per capita inequality and welfare in the distribution of food consumption expenditures across consumer units has been focus of this research. Using the Kakwani (1980) disaggregation of Gini index and Sen (1974) welfare function, inequality and welfare in food expenditure components have been examined by employing full sample of 'Household Integrated Economic Survey' 2005-06.

The total food expenditure is decomposed in essential and non essential food components, having budget share of 77.37 percent and 22.63 percent respectively. Cereals and dairy products; the basic foodstuff, find its relative importance in food budget share in urban and rural areas. Inequality parameters indicate that distribution in food expenditure is more pronounced in urban area as compare to rural area. The decile dispersion ratio indicates that disparity in non essential food expenditure is quite high within urban households. It can be seen that the concentration index of dairy products, meat, fruits and all readymade food products are higher than overall Gini coefficient which implies that expenditures on these commodities are unevenly distributed over the total expenditure in favour of rich families. It is evident that cereals and dairy products are the major source of welfare in urban, rural and overall Pakistan. The study also present results on price elasticity of welfare and the progressivity index for each component. The price elasticity welfare for cereals is 0.269 in Pakistan which indicates that aggregate welfare is very responsive to price changes. It can also be analysed that essential food items such as, dairy products and edible oils having 32 percent food budget share are fairly sensitive to price changes. This phenomenon is observed in recent food inflation in Pakistan where bottom 20 percent population hurt proportionately more than the rich as they have greater share of these essential items in the food budget. It is also observed that essential food components except dairy products are the most progressive expenditure as the poor spend a greater proportion of their income on food. If the government decides to give subsidy on cereals and pluses the poor will advantaged more than the rich.

The present analysis provides a basis for determining the magnitude of inequality and welfare that can be helped in designing appropriate policies. As the changes in prices have generally affected the welfare of the poor more adversely than the non-poor, safety nets will be required for the most vulnerable population as they will not be able to sustain their livelihoods.

REFERENCES

- Afridi, U., A. Qadir, and J. Zaki (1984) Effect of Dual Sector Inflation across income Levels in Pakistan. *The Pakistan Development Review* 23:2, 381–390.
- Anwar, T. (2009) Measuring Inequality of Consumption and Opportunities in Pakistan, 2001-02 and 2004-05. *Pakistan Economic and Social Review* 47:2, 157–181.
- Atkinson, A. B. (1970) On the Measurement of Inequality. *Journal of Economic Theory* 2, 244–263.
- Berry, C. J. (1994) *The Idea of Luxury: A Conceptual and Historical Investigation*. Cambridg: Cambridge University Press.
- Burney, N. A. and A. H. Khan (1991) Household Consumption Patterns in Pakistan: An Urban-Rural Comparison Using Micro Data. *The Pakistan Development Review* 30:2, 145–172.
- Cheema, A. A. and M. H. Malik (1985) Changes in Consumption Patterns and Employment under Alternative Income Distribution in Pakistan. *The Pakistan Development Review* 24:1, 1–22.
- Grimard, F. (1996) Does the Poor's Consumption of Calories Respond to Changes in Income? Evidence from Pakistan. *The Pakistan Development Review* 35:3, 257–283.
- Haq, R. (1998) Trends in Inequality and Welfare in Consumption Expenditure: The Case of Pakistan. *The Pakistan Development Review* 37:4, 257–283.
- Haq, Z., H. Nazli, and K. Meilke (2008) Implications of High Food Prices for Poverty in Pakistan. *Agricultural Economics* (39) Supplement 477–484. Department of Food, Agricultural and Resource Economics, University of Guelph, Ontario, Canada.
- Idrees, M. (2006) An Analysis of Income and Consumption Inequalities in Pakistan. Unpublished PhD Dissertation, Department of Economics, Quaid-i-Azam University, Islamabad.
- International Food Policy Research Institute (2008) Global Hunger Index. Retrieve: <http://www.ifpri.org/pressrelease/new-global-hunger-index>
- Kakwani, N. (1980) *Income Inequality and Poverty: Methods of Estimation and Policy Applications*. New York: Oxford University Press.
- Kakwani, N. (1980) On the Class of Poverty Measures. *Econometrica* 48, 437–446.
- Lazaridis, P. (2000) Decomposition of Food Expenditure Inequality: An Application of the Extended Gini Coefficient to Greek Micro-data. *Social Indicators Research* 52, 179–193.
- Lorenz, M. O. (1905) Methods of Measuring Concentration of Wealth. *Journal of the American Statistical Association* 9.
- Naqvi, Z. F. and M. Akmal (2000) How Do the Poor Respond to Rising Prices? *The Pakistan Development Review* 39:4, 827–842.

- Pakistan, Government of (2002) *Household Integrated Economic Survey*. Islamabad: Federal Bureau of Statistics.
- Pakistan, Government of (2005) *Household Integrated Economic Survey*. Islamabad: Federal Bureau of Statistics.
- Pakistan, Government of (2006) *Household Integrated Economic Survey*. Islamabad: Federal Bureau of Statistics.
- Pakistan, Government of (2009) *Pakistan Economic Survey 2008–09*. Islamabad: Finance Division, Economic Adviser's Wing.
- Seale, J., R. Anita, and B. Jason (2003) International Evidence on Food Consumption Patterns. United States Department of Agriculture. Retrieved from www.ers.usda.gov.
- Sen, A. K. (1974) Information Base of Alternative Welfare Approach: Aggregation and Income Distribution. *Journal of Public Economics* 44:1, 219–31.
- UNDP (2003) *Human Development Report 2000*. New York: Oxford University Press.
- Veen, M. (2003) When Is Food a Luxury? *World Archaeology* 34:3, Luxury Foods. pp. 405-427. Taylor & Francis, Ltd. Stable URL: <http://www.jstor.org/stable/3560194>
- Zakir, N. and M. Idrees (2009) Trends in Inequality, Welfare and Growth in Pakistan, 1963-64 and 2004-2005. Pakistan Institute of Development Economics, Islamabad. (PIDE Working Paper 2009:53).

Comments

This is an important paper in the areas of distribution and welfare. Indeed, effective evaluation of food policy issues will be possible through analysing distribution of food consumption patterns which is the objective of this paper. First of all, I would like to comment on page 5 where authors says that inequality in budget shares for food sub-categories for poorest quintile and richest quintile over time in Pakistan is largely a reflection of poverty as people do not have income for food. But I would comment that most of the poor do have income for food as their food share is higher compared with the non-poor. Therefore, most of the poverty is mainly due to insufficient income to spend on the non-food need.

Secondly, I would like to point out that authors say at page 11 that consumption is also a better indicator measure of long term standard of living than income. While current consumption expenditure may be a good indicator on different account, one of the drawbacks of consumption is that it gives a short run status of household resources. It may be possible for the poor to finance their consumption payments by dissaving or by borrowing—a process which cannot be sustained in the long run. It is, therefore, recommended to examine welfare using both income and consumption and draw inference from the comparison.

Thirdly, I would like to say that authors have used the per capita consumption that ignored the differences needs and economies of scale in household consumption. Different individuals of different age and sex in a household have different requirement for food and non-food. For example adult calorie needs are higher than children and similarly male adult needs more calories than female adult. Since the paper focuses on inequality on consumption in particular food, it is therefore, important to use adult equivalent household consumption rather than per capita household. While analysis is mostly focused on presenting the statistical results, more discussion is required on policy implications in the concluding section.

Talat Anwar

Canadian International Development Agency (CIDA),
Programme Support Unit, Islamabad.