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Impact Analysis of Petroluem Product Price Changes on Households' Welfare in Zaria Metropolis, Kaduna State

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ABSTRACT: *This paper examines the impact of petroleum products price changes on household welfare in Zaria metropolis of Kaduna state. Respondents communities were stratified selected base on their geographical locations. Descriptive statistics and inferential statistics tools were employed and use for data analysis. Descriptive statistics was used to analyze socio economic characteristics of household head and to determine the price changes of petroleum products on households. while inferential statistical tools was employed to specifically show how price changes of petroleum products affect the household through increase in prices of petroleum products which causes decrease in demand for the products, and also have multiplier effect on goods and services. On the other hand, decrease in prices of petroleum products also increase the demand for the products in Zaria metropolis. To achieved this objective, non parametric chi-square test was employed. The results shows that, the three petroleum products that is, petrol (PMS), gas (LPG) and kerosene (DPK) of the study have an impact on household welfare. This indicated that increase in the petroleum products price changes causes decrease in demand of the products, while on the other hand the decrease of the petroleum products prices causes increase in demand for the products which was in conformity with the demand theory that was adopted in this study. The study also recommends, government should deregulate the downstream petroleum sector to allow for increase participation and competition which will alternatively result in reducing prices of petroleum products Moreover, emphasis on alternative sources of energy such as gas, solar, wind and hydraulic sources should put into consideration. Government should expanded consumption capacity effect which will translate to increased demand for varied consumer good and hence increased sales and profitability of a number of Nigerians.*

KEYWORDS: *Petroleum Products, Price Changes and Household Welfare.*

I. INTRODUCTION

Nigeria as one of the fastest growing economy in Africa and is highly endowed with abundant human and natural resources. The Nigerian petroleum sector has no doubt contributed immensely to economic growth and development of the country. The petroleum sector accounts for over 90% of the country's foreign exchange earnings (Sulaimon 2014). Nigeria is also one of the major key member of Organization of Petroleum Exporting Countries (OPEC).

The Nigerian petroleum sector can also be seen in its domestic demand profile informed by series of prices changes in the past and present time. Also as observed by Onwioduokit and Adenuga (2000), like other nations with similar social economic characteristics, the bulk consumption of petroleum products in Nigeria is in Premium Motor Spirit (PMS), which covers such uses as in vehicles, small electricity generating plants and drives for compressors, Liquefied Petroleum Gas (LPG), which is used largely for household cooking and Dual Purpose Kerosene (DPK) (Household kerosene mostly used in homes and industries to produce insecticides and other pest control products).

Nigeria had, experienced persistent increases in the prices of petroleum products over the years. After trending downwards for 18 years between 1981-1998, price of petroleum products for domestic consumption surprisingly doubled between 1998-2003, and have continued to increase since 1999, a notable year being in 2012, when fuel price was increased to ₦87 due to the partial removal of fuel subsidy, and more so, in 2016 the subsidy for petrol was completely removed which led to the increment of the product to 145 naira per liter. These movements in petroleum prices have had a multiplier effect on other sectors such as transportation, and also on the prices of goods and services, all against the backdrop of minimum wage fixed at ₦ 18,000. (Okafor and Aniche 2015).

Even though, various studies have been conducted on the petrol price increase on Nigerian Economics, these studies are not without observed gaps which this study intends to fill. For example, Ocheni (2015) examined the impact of petrol price increase on the Nigerian economy looking at the implications of such impact in such areas as Balance of Payments and Economic Purchasing Power. The study's narrow focused on looking at the changes in prices of PMS only, Similarly, Amagoh, Odoh and Okuh (2014) studied the impact of subsidy removal on the Nigerian economy. Though disaggregating petroleum products into DPK, PMS and

AGO, the specific impact on the welfare of households was not examined. Perhaps a very close study would be that of Umar and Umar (2013) which focused on the impact of increased price as a result of fuel subsidy reform, while households were divided into three groups based on income level. The study however, like studies of this type, adopt the narrow measure of focusing only on PMS and neglecting other products.

Therefore this paper intends to identifies the void left unfilled by current studies and attempts to fill the gap by investigating the impact of petroleum product price changes, specifically, changes in the prices of Petroleum Motor Spirit (PMS), Liquefied Petroleum Gas (LPG) and Dual Purpose Kerosene (DPK) on the consumption expenditure of the most obvious economic unit on the receiving end.

II. LITERATURE REVIEW

In spite the number of works that examined the increase of petrol price changes on the Nigerian Economy. This paper will focus on the studies the changes of prices of petroleum products and how it affect the welfare of households, based on certain pre-defined objectives between price changes and petroleum products .One of such studies was conducted by Valadkhani (2002) examined the impact of the recent petrol price rises on prices throughout the economy on the sectoral and aggregate price indices in Australia. Among the results is an estimated impact on the consumer price index of 1.8%. Also, the same petrol price shock would have consistently larger price effects in the late 1970s than in the late 1990s. Further, using the 1998-99 Household Expenditure Survey, he finds that the petrol price rises are regressive. Cunado and degracia (2004) investigate the effects of oil price shocks on economic activity and inflation which they are significant but limited only in the short-run. If shocks are transformed in terms of the local currency of the country under study, results provide more significant evidence on the effects of the shocks. Asymmetric response of oil price inflation relationship is found in the cases of Malaysia, South Korea, Thailand and Japan and solely in South Korea if oil-economic growth relationship is considered.

Jimenez and Sanchez (2004) analyzed the effects of oil price changes on real economic activity of the main industrialized OECD countries, using a multivariate VAR analysis with linear and non-linear model specifications. Like Some researchers, however, pointed out that monetary policy's response to oil price shocks caused the aggregate economic fluctuations. Cunnado and Gracia (2005) and Lardic and Mignon (2006) based their argument on the classical supply side effect. An increase in oil price , pushes up production cost leading to a decline in output growth and productivity. It impacts negatively on the trade of oil importer countries. It also leads to increases in money demand to meet extra cost which subsequently creates inflation wage increases, with consequent decline in investment and ultimately in gross decline in domestic product.

Lescaroux and Mignon (2008) in their study investigated the links between oil prices and various macroeconomic and financial variables for a large set of countries, including both oil importing and exporting countries. Both short-run and long-run interactions are analyzed through the implementation of causality tests, evaluation of cross-correlations between the cyclical components of the series in order to identify lead/lag relationships and cointegration analysis. The results highlight the existence of various relationships between oil prices and macroeconomic variables and, especially, an important link between oil and share prices on the short run. Turning to the long run, numerous long-term relationships are detected, the causality generally running from oil prices to the other variables. An important conclusion is relating to the key role played by the oil market on stock markets.

Ibrahim and Unom (2011) analyzed the fuel subsidy and how the issue carried out in October/November 2011 to promote a better understanding that surrounding the subsidy and downstream deregulation debate. The study sets out to: a) provide a brief synopsis of previous government attempts to address the subsidy, b) conduct a stakeholder analysis of potential winners and losers impacted directly and indirectly by the removal of the subsidy, c) briefly review how other countries have dealt with the issue and d) recommend appropriate actions that could lead towards a resolution of the perennial problem.

Umar and Umar (2013) Using the Household Expenditure Survey of 2010, measured the direct welfare impact of higher fuel prices on different socio -economic groups in Nigeria. The analysis is carried out by segregating households into 3 different income groups and the welfare impact due to subsidy cut is measured. The results show that the reduction in welfare due to higher pr ice is larger for the middle 40% compared to the top and the bottom 20%. This is due to the fact that the middle income group has a larger budget share on fuel. Fuel subsidies are found to be costly in protecting poor households due to substantial leakage of benefits to higher income group but the welfare loss for the lower income group due to subsidy cut is somewhat higher due to the smaller size of their income. Sulaimon (2014), Study the demand for petroleum products in Nigeria (especially the PMS and Diesel) has been on the rise for nearly over a quarter of a century ago. It is against this bourgeoning demand that this study investigates the demand for petroleum products in Nigeria. The study employed the Error Correction Model to examine both the short and long dynamics of petroleum in Nigeria. The study also therefore found that price and income elasticity of demand for petroleum product have long run impact on the energy demand in Nigeria. Although, there are short run fluctuations, the impact of the elasticities

on energy demand does not exist in the short run. It is however the recommendation of this study that energy policy in Nigeria should be towards providing long term solution to energy problems. Also, policies geared toward diversifying the country's alternative sources of energy should be formulated and ultimately implemented. It is also the recommendation of this study that the government should restructure and reposition the power sector and other alternative sources of energy so as to reduce the demand pressure on petroleum products which will help foster future growth and energy security in the country.

III. RESEARCH METHODOLOGY

The study area of this research was Zaria Metropolis which was second most populous area after Kaduna Metropolis, the area comprises two local governments that is Sabon Gari and Zaria local government area. Zaria area is located in the northern part of Kaduna state. The choice of these areas in Kaduna state is based on; first, Zaria area ranks next to Kaduna metropolis in terms of commercial activities, industrial presence and with 42 filling stations in which the petroleum products under study were been sold. Also secondly, the selection of the local government areas was based on the population of residents and tertiary institutions in these areas.

Primary data was collected from 400 household heads using stratified random sampling technique, each four district heads of the metropolis serves as a stratum. Data collected include socio-economic characteristics of household heads, prices of petroleum products, preferences of the products etc were soursed. Descriptive statistics was used to analyze socio economic characteristics of household head and to determine the price changes of petroleum products on households welfare. while inferential statistical tools was employed to specifically show how price changes of petroleum products affect the household through increase in prices of petroleum products which causes decrease in demand for the products, and also which have multiplier effect on goods and services. On the other hand, decrease in prices of petroleum products adversely increase the demand for the products in Zaria metropolis.

3.5 Analytical Techniques

Several empirical studies like Ayadi (2005), Eryigit (2009), Davide (2010), and Arinze (2011), Akujobi and Adagunodo (2015) employed various macro-economic variables in cross-country analysis regression examined petroleum product consumption in Nigeria. For instance, Besim (2014) studied the assessment of changes in prices of petroleum product on the general price level. for a single country, Bosnia Herszegovina using Probit for the study and the same methodology was adopted by Bamiro and Boris (2013). However, the methodology of this study will be different which would used both descriptive and inferential statistics. Under descriptive analysis, the study used frequency distribution table and present result on frequency and percentages. Under inferential analysis, the study used a nonparametric chi-square test to find out if petroleum products price changes has a significant effect on households' welfare. And also to test whether there is significant differences in the quantity of the products use among the various end users. The tool will also be used to measure differences in attitudes of households towards the current price changes. The study has also made use of cross tabulation and percentages for analyses. In general chi square (X^2) test is used to find out whether the results obtained from a sample are the likely ones on the basis of some theories or hypotheses. The sample result is termed actual or observed while the result suggested by the theory is test the relationship between the variables of the study. The result was estimated with the aid of SPSS version 20. The chi-square model can be specified as:

$$\chi^2 = \frac{\sum (O - E)^2}{E} \quad \ldots\ldots 3.1$$

Where χ^2 = Chi-square

$\sum$ = Summation

O = Observed value

E = Expected value

3.6 Decision Rule

The hypothesis of the study was tested at 5% level of significance. The decision rule was that if chi-square calculated is greater than the chi-square tabulated, we reject the null hypothesis; otherwise, we accept the null hypothesis.

3.7 Definition of Variables

The variables the researcher will use in the model are as follows:

Educational Attainment: This was used in order to examine the attitude of the users for demanding petroleum products in the state based on their educational level. To find whether there is correlation between levels of

education and Demand, willingness to pay, quantity of product use and so on. Also, this variable will help us have more valid and reliable conclusions.

Income: Household level of income, which can measure the combined income of particular household use to purchase goods and services. It includes every form of income eg salaries, wages etc.This is an important variable in this research so as to analyze product demand/use among different income groups. To find whether there is correlation between levels of income and satisfaction, willingness to pay, quantity of petroleum products used, as in the works of , (Moradkhani .N, Abd Rashid ·Z , Taufiq . H and Anuuar M.N 2005).

Consumption Pattern: can be determine the relative importance (weight) of household monetary expenditure attached to each category of goods and services covered by the harmonize index of consumer prices as use by kpodar (2006). This variable is important in measuring the quantity consumed by household.

Household Demand: Demand refers to the quantity of a good or service that consumer are willing and able to purchase at various prices during a given period of time. And demand in economics is something more than desire to purchase though desire is one element of it. Thus effective demand for a thing depends on desire, means to purchase and willingness to use those means for that purchase. Unless demand is backed by purchasing power or quantity demand which is always expressed at a given price as use by (kpodar 2006).

Standard of Living: is how well or how poorly a person or group of people live in terms of having their needs and wants met, and also the level of wealth, comfort, material goods and necessities available to a certain socioeconomics class in a certain geographical area. (Sanusi 2016)

Price changes: The price changes for purchasing petroleum products in Zaria Metropolis. The income used to purchase petroleum products at a different price depend on prevailing period and time, the price changes took place since when petroleum products was discovered in Nigeria and however, which have multiplier effect on household welfare. Bamiro and Ogunjobi. (2015) . In order to measure the determinants of price changes questionnaire was administered with specified questions asking the responding individual the state level at which they purchase the petroleum products under study per week or month in an average.

Petroleum products: can also be defined as those commodity produced from the processing of crude oil and other liquids at petroleum refineries, from the extraction of liquid hydrocarbons at natural gas processing plants, and from the production of finished petroleum products at blending facilities. The majority of petroleum is converted to petroleum products, which includes several classes of fuels such as Premium Motor Spirit (PMS), Dual Purpose Kerosene (DPK) and Liquefied Petroleum Gas (LPG).According to the composition of the crude oil and depending on the demands of the market, refineries can produce different shares of petroleum products. (Moses 2007).

IV. DISCUSSION OF FINDINGS

It was discovered that 140 (36.8%) households consumed within the bracket of 91 - 120 litres of petrol per week before prices changes which indicated that, large number of litres was consumed before price increase of petrol. And the following trend of consumptions are as follows: 90(23.7%) consumed 61 – 90 litres, 65 (17.1%) consumed 0 – 30 litres,45 (11.2%) consumed 31 – 60 litres and finally 40 (10.5%) consumed over 121litres. This is a clear indication that the prices were low relatively to the current situation and that makes most household consumed many litres of petrol which was one of the three petroleum products that this study examined.

After increase in prices of petrol 238(62.6%) was consumed within the bracket of 0 – 30litres of petrol which indicated that, households reduced their quantity consumption of petrol, because increase in prices lead to decrease in demand for the product. The remaining trend of consumption are 38(10.0%), 50(13.2%), 42(11.0%) and 12(3.2%) households were able to consumed within the bracket of 31 – 60litres, 61 – 90lires, 91 – 120litres, and over 121litres respectively. The consumption of petrol by household at this level after the increase of the product it indicated the choice and level of demand of the product which determine their level of consumption. Even though the price was increase the households were able to buy the petrol at law quantity.

The consumption of gas before price changes shows that 162(42.6%) consumed within the bracket of 21 – 30 kilograms, that shows how higher level of consumption at lower price, while 102 (26.8%) consumed within the bracket of 31 – 40 kilograms and subsequent consumption are 80(21.1%), 27(7.1%) and 9(2.4%) with consumption bracket of 11-20 kilograms, 0 – 10 kilograms and over 41kilogram. This is clear picture of the household trend in Zaria metropolis that consumption of gas was higher at lower price.

However, 212(55.8%) consumed within the bracket of 0 -10 kilograms, after the price of gas increases, this shows that household reduces their consumption of quantity of gas. And also 64(16.9%), 53(13.9%), 48(12.6%) and 3(0.8%) households were able to consumed within the bracket of , 11 – 20kilograms, 21 – 30 kilograms, 31 – 40 kilograms and over 41kilograms. Also the consumption of gas by households at this level after the increase of the product indicated the choice and level of demand of the product which determine the level consumption.

Also the consumption of Kerosene before price changes shows that 197(51.8%) consumed within the bracket of 0 – 30 litres, this indicated higher level of consumption at lower price, while 111 (29.2%) consumed within the bracket of 31 – 60 litres and subsequent consumption are 35(9.2%), 25(6.6%) and 12(3.2%),with consumption bracket of 91 – 120 litres,61 – 90 litres and over 121 litres respectively. This is clear picture of the trend at which the consumption of kerosene was higher at lower price.

Therefore, kerosene is exceptional because 153 (40.5%) of households consumed 0 – 30litres of kerosene after the increase of the product. indeed kerosene is exceptional because the study shows that, even though the price of kerosene increases it does not affect household to reduce their consumption. while 136(36.0%) consumed 31 – 60litres, 39(10.3%) consumed 61 – 90litres, 40(10.6%) consumed 91 – 120litres and 10(2.6%) consumed over 121litres respectively. This shows that the product is the most consumable product by household, even with hiked in price it does not affect their consumption.

The changes in the prices of petroleum product which affect the living standard of household indicated that 151(37.5%) have decrease in consumption, inaccessible good health and lack of qualitative education, all these happen as a result of increase in prices of petroleum products which lead to increase in the price of other goods and services and adversely affected their well being. This clearly shows that 84(20.8) households were at lower level of living standard which lead to their lower level of consumption. 74(18.4) increase in price of petroleum product does not affect their access to good health. 45(11.2%) have access to qualitative education as a result of increase in their income even though increase in price of petroleum product does not affect them. 21(5.2) have increase in consumption, access of good health and qualitative education all these well being, have not being affected by the increase in prices of petroleum product, this is an indication that most of them are rich by implication.

The level of income also affect the demand for petroleum product of household. It is clear that, 289(76.1%) increase their demand for petroleum product as a result of increase in the level of income, while 43(11.3%) reduce their demand for petroleum product as a result of decrease in level of income, and 48(12.6%) their demand for petroleum products does not change in either of the changes increase and decrease.

The first hypothesis, the results reveal that F-calculated value of petrol before and after price changes are (0.556 and 0.440) with corresponding 5% level of significant and F-calculated value of gas before and after price changes are (0.778 and 0.551) with corresponding 5% level of significant and also F-calculated value of kerosene before and after price changes are (0.009 and 0.429) with corresponding 5% level of significant. Therefore we accepted the alternative However the second hypothesis shows that F- calculated value for changes in demand for petroleum products and living standard of household is 0.362 with corresponding 5% level of significance. we therefore accept alternative hypothesis.

The third hypothesis reveal that F- calculated value of demand for petroleum products and level of income is 0.051 at 5% level of significance. Therefore we accept the alternative.

V. CONCLUSION AND RECOMMENDATIONS

This paper examines the petroleum product price changes on household welfare in Zaria Metropolis. The data of 400 households were collected to estimate a price changes for PMS, LPG and DPK using stratified random sampling techniques. The non parametric chi square taste was used to analyze the price changes of petroleum products and household consumption and income. The study concluded that Households' income and spending have both been affected by the rise in petroleum product prices. More so the value of minimum wage compensation will depreciate further (assuming it is finally at N18,000) combined with the increase in inflation. At the same time, the average household's annual spending on goods and services will rise by about N75, 000, while their saving rate dropped sharply. The fall in the saving rate, will erode about half of household present middle-class indigene and further dampen the negative effects that higher prices would ordinarily have had on the economy in the short run. Paying high prices for petroleum product and using less of it will affect the demand for goods and services. The few production industries In Nigeria will face a daunting challenge to stay in business (cost of production will go up and demand will drop). The effects on demand however, have by far the greater potential impact on GDP in the short run. In a perfect world, using less energy has only a small direct effect on production because, out of all the inputs to production (labor, structures and equipment, energy, and other raw materials), energy costs account for a relatively small share of output, but In the case of Nigeria, energy is a major share of output, as organizations have to provide for their own power in houses, such as generators sets etc and are exposed to the market as it relates to energy prices.

The recommendations on this finding are as follows.

a) We believe that the current decline in oil prices in world market and unfolding scenarios present for government a good opportunity to deregulate the pump prices of petroleum produts and allow market forces to determine the prices. As the template show when standards are set, it is possible that market would find refiners that could offer bargain prices that allow them to sell at competitive lower prices than the regulated prices. And if oil prices reverse upward, a scenario that is not expected to be sudden in the near to medium term, Nigerian

consumers could be expected to easily get used to the market driven changes in product price as experienced in other non-regulated sector like telecommunication sector.

b) PMS has become a major utility product in Nigeria across households and firms regardless of economic status. The wide use of power generators (small or large) across households and firms makes its consumption a pervasive content of households and small firms' consumption basket. The wide use in transportation is another direct impact point as costs of transportation tend to have direction proportional relationship to changes in the pump price of PMS in the country. In this regard, this reduction in the pump price of PMS is tantamount to tax rebate to an average household and firm in Nigeria, notwithstanding the size. It could therefore translate in expanded consumption and savings capacity of the economy. The price affect across the wide range of product through the transportation and energy costs saving is expected to translate to some moderation in inflation rate in the near term. The expanded consumption capacity effect could translate to increased demand for varied consumer goods and hence increased sales and profitability of a number of Nigerian.

c) Emphasis on alternative sources of energy such as gas, solar and hydraulic sources. The purposed liquefaction of the Nigerian national gas is a way forward. If effectively implemented the liquefied natural gas (LNG) project has many economic advantages. LNG has minimal transportation cost it is most importantly a potential source of foreign exchange reserve. And moreover, government should use monetary and fiscal measures so as to reduce the rate of inflation in the country.

d) Government should vigorously pursue the revitalization of the railways. If only Nigerians had alternative to road transport, all this noise about fuel hiked would not have been their because most increase in transportation cause multiplier effect on goods and services, but when trains are properly functioning that would reduce cost of transportation and lead to reduction on the prices of goods and services.

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APPENDIX 1

Frequency Table

Gender	**Frequency**	**Percentage**
Male	348	91.6
Female	32	8.6
Total	380	100.0
Age		
18 – 24	110	28.9
24 – 34	204	53.7
35 – 44	45	11.8
50 and above	21	5.5
Total	380	100.0
Marital Status		
Single	105	27.6
Married	271	71.3
Widow	2	0.5
Divorced	2	0.5
Total	380	100.0
Educational Qualification		
Primary Certificate	6	1.6
SSCE/NECO	209	55.0
HND/Bsc	91	23.9
Postgraduate	28	7.4
Quran/Islamic Education	9	2.4
Other Specify	37	9.7
Total	380	100.0
Number of Head in the House		
1 – 5	123	32.8
6 – 10	115	30.7
11 – 15	55	14.7
16 and above	82	21.7
Total	380	100.0
Occupational Status		
Employed	78	20.6
Unemployed	168	44.4
Self employed	112	29.6
Under employed	14	3.7
Total	380	100.0

Source: Field Survey, 2016

4.2 : **Relationship between consumers demand for petroleum product and their level of income.**

Table 4.2 Relationship between consumers demand for petroleum product and their level of income

What is your monthly income		
Variable	**Frequency**	**Percentage**
Less than #20,000	135	35.5
#21,000 - #40,000	75	19.7
#41,000 - #100,000	81	21.3
#101,000 – 150,000	79	19.5
Total	380	100.0
Before increase, how much do you spend for the consumption of petroleum product per week on average.		
Variable	**Frequency**	**Percentage**
Less than #20,000	242	63.7
#4,000 – #7,000	78	20.5
#8,000 – #11,000	27	7.1
#12,000 – #15,000	25	6.6
#16,000 and above	8	2.1
Total	380	100.0
After increase how much do you spend for the consumption of petroleum product per week on average		
Variable	**Frequency**	**Percentage**
Less than #5,000	162	42.6
#6,000 - #11,000	163	42.9
#12,000 - #17,000	32	9.5
#18,000 - #24,000	17	4.5
Above #25,000	2	0.5

Total	380	100.0
How does changes in your level of income affects your demand for petroleum products?		
Variable	**Frequency**	**Percentage**
Increase in demand	289	76.1
Decrease in demand	43	11.3
Unchanged	48	12.6
Total	380	100.0

APPENDIX2

how does changes in your level of income affects your demand for petroleum products? * educational qualification Crosstabulation

Count

		educational qualification			Total
		post graduate	quaranic/islamic education	others	
how does changes in your level of income affects your demand for petroleum products?	increase in demand	18	8	29	289
	decrease in demand	3	0	5	43
	Unchanged	7	1	3	48
Total		28	9	37	380

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.639[a]	10	.245
Likelihood Ratio	14.199	10	.164
Linear-by-Linear Association	.512	1	.474
N of Valid Cases	380		

a. 9 cells (50.0%) have expected count less than 5. The minimum expected count is .68.

what is your monthly income? * before chages in prices of petrol, how many liters do you consumed per week on average? Crosstabulation

Count

		before chages in prices of petrol, how many liters do you consumed per week on average?		
		0-30 litres	31-60 litres	61-90 litres
what is your monthly income?	less than 20,000	25	13	35
	21,000-40,000	18	7	17
	41,000-100,000	15	12	18
	101,000-150,000	7	10	16
	151,000 and above	0	3	4
Total		65	45	90

what is your monthly income? * before chages in prices of petrol, how many liters do you consumed per week on average? Crosstabulation

Count

		before chages in prices of petrol, how many liters do you consumed per week on average?		Total
		91-120 litres	over 121 litres	
what is your monthly income?	less than 20,000	46	16	135
	21,000-40,000	27	6	75
	41,000-100,000	30	6	81
	101,000-150,000	32	9	74
	151,000 and above	5	3	15
Total		140	40	380

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.656[a]	16	.550
Likelihood Ratio	17.147	16	.376
Linear-by-Linear Association	2.103	1	.147
N of Valid Cases	380		

a. 4 cells (16.0%) have expected count less than 5. The minimum expected count is 1.58.

what is your monthly income? * after chages in prices of petrol, how many liters do you consumed per week on average? Crosstabulation

Count

		after chages in prices of petrol, how many liters do you consumed per week on average?		Total
		over 81 litres	6	
what is your monthly income?	less than 20,000	9	0	135
	21,000-40,000	5	0	75
	41,000-100,000	2	0	81
	101,000-150,000	0	1	74
	151,000 and above	1	0	15
Total		17	1	380

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.516[a]	20	.489
Likelihood Ratio	22.243	20	.327
Linear-by-Linear Association	3.102	1	.078
N of Valid Cases	380		

a. 12 cells (40.0%) have expected count less than 5. The minimum expected count is .04.

what is your monthly income? * after chages in prices of petrol, how many liters do you consumed per week on average? Crosstabulation

Count

		after chages in prices of petrol, how many liters do you consumed per week on average?		Total
		over 81 litres	6	
what is your monthly income?	less than 20,000	9	0	135
	21,000-40,000	5	0	75
	41,000-100,000	2	0	81
	101,000-150,000	0	1	74
	151,000 and above	1	0	15
Total		17	1	380

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.516[a]	20	.489
Likelihood Ratio	22.243	20	.327
Linear-by-Linear Association	3.102	1	.078
N of Valid Cases	380		

a. 12 cells (40.0%) have expected count less than 5. The minimum expected count is .04.

what is your monthly income? * after chages in prices of gas, how many kilograms do you consumed per week on average? Crosstabulation

Count

		after chages in prices of gas, how many kilograms do you consumed per week on average?		Total
		21-30 kgms	over 31 lgms	
what is your monthly income?	less than 20,000	33	5	135
	21,000-40,000	20	8	75
	41,000-100,000	21	4	81
	101,000-150,000	27	3	74
	151,000 and above	4	1	15
Total		105	21	380

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.643[a]	16	.551
Likelihood Ratio	14.098	16	.591
Linear-by-Linear Association	2.194	1	.139
N of Valid Cases	380		

a. 8 cells (32.0%) have expected count less than 5. The minimum expected count is .83.