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What does the social welfare Looking for? Weal or scalping

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Abstract
Today, the concept development and growth have regions all over the world. This is not focuses only the wealth of the nation, but, also enlighten the shape of economic components namely, demand, production supply (also services) and consumption towards tremendous changes at domestic and abroad. Objectives of the study focuses the hidden exploitation on strict guidelines in receiving and utilising services of LPG among the households also discusses the problems of LPG consumers and prosperity for commercial LPG consumers among the hotels and mobile stalls. Both primary and secondary data have applied for this study, primary data consists of 80 sample respondents from the selected area and Statistical Review of Global LPG, Petroleum Planning Analysis Cell were the sources for secondary data. Collected data have been analysed by SPSS tools such as Pearson's Chi-square, one way (ANOVA), paired t-test and produced significant highlights. Finally, suggested to the Policy makers for the execution of welfare programmes as to be the fruitful for the weaker section of the society.

Keywords: Domestic, commercial, subsidy, consumption, exploitation

Introduction

Among the major economic components, consumption prevails throughout the world among the individuals and group of living creatures. Because, the economic factor consumption plays a major role among the consumers than the remaining factors such as demand, supply and production. There are different goods and services that have been utilised by the consumer to maximise their satisfaction. But, the scarce of availability sources highly affects the ceiling point of production and consumption of goods in terms of maximise the satisfaction. But, an adjustment in the supply and consumption can gear up to the better lifestyle for future posterity. Consumption is not an independent factor which dependents on demand, supply and price of commodity and other economic factors. Now a day, Liquefied Petroleum Gas (LPG) is sublime as cooking energy consumption by washing-out all other primary energies.

LPG is a byproduct from natural gas deblocking and refining crude oil. Petroleum and natural gas are the major fossil fuels for LPG production. The Genesis of LPG dates back to 1910 that was introduced by an American chemist Dr. Walter Snelling before two years of the first commercial LPG products launched (service@eurotrucksdirect.co.uk, www.eurotrucksdirect.co.uk › news › Blog). A centerpiece of an LPG market is an effective administration having the regulation of market attributes, subsidies, authorising retailers and ensuring a safe and correct procedure. It is significant for both functional market structures, the protection of consumers and supports to attract foreign investments. It considered that it is clean and environmentally friendly commercial source of energy for all sectors. Especially, it supports much to human health directly from harmful smoke inhaling by 2.6 billion biomass consumers which availed at commercial markets with quality prices (energypedia.info, https://energypedia.info › wiki › Liquefie...). LPG has been produced 230 million tons in 2008 and it rose to 274 million tons in 2012 increased at 19 percent. Followed by 2012 result of LPG production, 292 million tons reached in 2015 this was four percent improvement from 2014 revealed by Statistical Review of Global LPG (2016). The trend of LPG consumption at global level increased by 3.7 percent year-on-year which discovered in 2015 at 284 million tons. There was eight million tons distinguished between production and consumption of LPG thereby, LPG producer from US, improved 20 million tons per year in new production from 2010 to 2015. North America was largest LPG producer but Middle East became global supply leader and it alone produced 67 million tons of LPG in 2012 (energypedia.info, https://energypedia.info › wiki › Liquefie...). Thereby, the production from North America was expected to grow again due to entrusting of shale gas sector and it is possible by improvement in refineries for LPG extraction.

LPG in India

Economic components on LPG is increased year-by-year due to various activities enhanced by the present government and to bring economic improvements among the societies and individuals for promoting the standard of living. As a result of this, India became the second largest country in LPG consumption at the world (Sanjay Dutta, 2017) [3]. This reputation is not a result from household sector only other than remaining sectors. Enrichment in consumption of LPG mainly screwed by various government schemes and subsidy provided to improve the socio-economic wealth of rural people. As we know, the present government focuse the rural people to be empowered in major socio-economic component namely 'health' because it is a serious problem among the women in cooking process. The 'Pradhan Mantri Ujjwala Yojana' has been implemented with the objective of providing LPG connection at free of cost and provided subsidy to above poverty line LPG consumers. Subsequently, to spread it throughout the country, 'Give it up' has proclaimed to sacrifice for the better of below poverty line consumers as a result of this, more than one million above poverty line LPG consumers have voluntarily given up the LPG subsidies

(www.livemint.com >Home>Politics>Policy). Therefore, the trend of LPG consumption has increased with ratio of 1000 - 2000 metric tons year-by-year. This has resulted with 15603 metric tons consumed in 2012-2013 and it increased to 16290 tonnes in 2013-2014. In the year 2014-2015 consumption reached 18020 metric tons this is 10 percent growth rate compared to 2013-14 year. Recently, this has increased to 19623 metric Tonnes in 2015-2016 (www.ppac.org.in/). But, more than 60 percent of rural households were still using harmful primary cooking energy such as firewood and its chips. LPG consumption between 1993-94 and 2011-12 shows fast increasing trend in urban than rural. LPG consumption in household sector has reached 19 million ton registering annual growth rate of 10 percent and consumption expected to cross more than 20 million tons in the following years (Sanjay Dutta, 2017) [3].

According to increasing ratio of cumulative LPG consumption, research has been undertaken on demand and consumption aspects. As a result of this, from January to March in 2016 aggregate demand for LPG is calculated at 5.254 million tons increased at 11.28 percent and in the same year march alone recorded highly about 1.835 million tons increased which is 14.16 percent in the year reported by India's Petroleum Planning and Analysis Cell. Anticipated demand for LPG is also calculated that may grow around seven percent to nine percent in the upcoming years (www.platts.com/latest-news/oil/sing...). In the fiscal year 2015-16, according to the expectation, LPG demand rose at 8.6 percent which mean 19.55 million tons. 3.3 percent of demand for LPG has grown in March 2016 due to cheaper than gasoline or diesel and this produced many consumers for auto LPG usage proposed by Macquarie in a research study on India's oil sector. The present government, since obtained power in 2014, has focusing to boost up LPG penetration throughout country so it can be remembered that 2016 was a "Year of LPG Consumers". Increasing pattern of consumption and demand for LPG enriched the production and distribution as much of the growing trend. The data shows, that the increasing productivity gradually fluctuates year by year with the gap of 1000-2000 million tons, as per the productive result in 2013-14, 10032 million tons of LPG has produced but it declined at 9840 million tons in 2014-15. Subsequently, execution of various schemes and economic planning boosted the production upto 10600 million tons in 2015-16 (www.ppac.org.in/). According to 2011 census data, the government has supplied LPG for commercial at 19kg and for domestic at 14.2kg and also 5kg cylinders to fulfill the LPG needs according to the ability of consumers. 35 percent from total population, it means 35 million households have consumed LPG as their primary cooking fuels and while there was 3-4 percent increase of consumers every year (www.petroldieselprice.com/lpg-gas-c...). Thus, about 60 percent of households (17 cr) have became regular LPG consumers and the government is targeting to enrich the data upto 75 percent household to use LPG by supplied more than 17000 distributors for both rural and urban regions (mygov.in/group-issue/increasing-lpg...). The present government decided to ensure 10000 new dealerships throughout the country along with existing dealerships and more than 15 million LPG connections will be done with concession rates for women in below poverty line in 2016-17 fiscal year. So far, such initiation may seem like that the scheme surely develop the rural people but if fact there are number of flaws and difficulties for the rural people but a better convenience to commercial consumers. Hence,

The study aims to discover a set of primary data collected among the hotels and mobile stalls in regard of LPG consumption. And to focus hidden exploitation on strict guidelines in receiving and utilising services of LPG among the households LPG consumers and prosperity for commercial LPG consumption among hotels and mobile stalls.

Methodology

Methodology is a key for the research work gives appropriate result to enact policy and perform further research well. This study has applied necessary tools to bring out significant findings. Both primary and secondary data have been used, secondary data collected after 2008 and upto 2016 to point out the data on energy production, consumption, demand and supply. Primary data is collected from Karaikudi municipality which has highest number of educational institutions and 80 respondents were chosen randomly and classified them as 40 from mobile stalls (snacks stalls -20, fast food stalls - 20) and 40 from hotels (below 20 seats - 10, 21 to 40 - 10, 41 to 60 - 10 and Above 61 - 10). Karaikudi is the biggest municipality of Sivaganga district in Tamilnadu state of India and is administered by the special grade Karaikudi municipality, which covers the area of 33.75 km (13.03 sq mi). Census 2011 has revealed the city had a population of 106,714 with a sex-ratio of 1,000 females for every 1,000 males. The town had a total of 27,504 households and average literacy was 81.48 percent, compared to the national average of 72.99 percent. The town was established in the 19th century. Mahatma Gandhi delivered two speeches at Karaikudi in 1927 and Bharathiyar visited Karaikudi in 1919 to participate in a function. Post-independence, the town registered significant growth in the industrial sector. Karaikudi was constituted as a municipality in 1928 and was upgraded to Grade-II Municipality in 1973, to Selection Grade in 1988 and special grade in 2013. Thus, it was upgraded to a Greater Municipality (Perunagaraatchi) in 2013. The area of municipality is about 13.75 km, comprising the revenue villages of Kalanivasal, Sekkalai kottai, Elappakudi Area, Ariyakudi Area and Senjai. Karaikudi town has two bus terminals namely "Old Bus-stand" and "New Bus-stand", buses that connects the nearby villages and smaller towns terminate at the Old bus-stand and the New bus stand emphasised to link buses for long journey. As of 2011, there were 18 government and private schools in Karaikudi and five colleges in the town. Among these, Alagappa Chettiar College of Engineering and Technology is the oldest college and was established in 1953 and later Alagappa University brought into existence by a special Act of the state government in May 1985 with the objective of fostering research, development, and dissemination of knowledge is leading and moulding the students in advanced educational performance at global level. The study area focuses the Alagappa university as the central point and taken 20 respondents from each direction thus, total of 80 respondents. The analysis part has been classified as study analysis and data analysis. Study analysis formulated with theoretical reference and interview schedule is prepared to collect the data and it has analysed by SPSS tools such as Pearson's Chi-square, one way (ANOVA), paired t-test and produced significant highlights to identify the trend of LPG consumption among the chosen fields.

Freedom in LPG consumption among the Mobile stalls and Hotels

Primarily, the mixture of propane and butane was introduced early 1910 and continuously year by year such petroleum related energy has found by researchers. As a result of this, LPG came to use in 1918 for industrial purpose such as brazing lamps, metal-cutting and blowtorches. But, the commercial LPG was not brought out until late 1920 and later in 1928, LPG was consumed as motor fuel in truck for transport purpose. Further the consumption of LPG began to develop in most significant sectors. Thereby, in 1932, LPG was consumed for cooking and water heating during the Olympic games conducted in Los Angeles (gazeo.com/up-to-date/news/2013/Hist...). Subsequently, LPG consumption has penetrated into household purposes especially, for cooking, heating and nowaday's its significance has spread all over the sectors for various purposes.

Today, in the process of food preparation apart from the households, LPG consumption subdued all other primary cooking energies, but understanding of consumption of primary cooking energy in this fields such as Mobile stalls and hotels, will help us to identify the trend of energy consumption and transition of this from primary to alternatives. Before the birth of LPG in food preparation of this fields, producer has utilised primary energy such as firewood, charcoal, biomass and kerosene, but among these, most preferable energies were kerosene and firewood due to abundant availability and easy mobility. But, kerosene had much priority in the consumption of all seasons because of the absence of climate influence. Kerosene was a significant energy before the introduction of electricity as this is used for lighting purpose on those days. Kerosene and petroleum products became a strong household cooking fuel in the mid of 19th century. Too much of primary cooking energy consumption such as wood, agricultural residues, and animal dung were the cause for health effects, including lung cancer, Chronic Obstructive Pulmonary Disease (COPD), low birth weight, cataracts, pneumonia, and tuberculosis. Thereby, developing countries began to look forward for the pollution free and healthy alternative cooking energy like LPG.

Thus, the LPG consumption has emerged in all food preparing centers including households because, the improvement of socio-economic standard of people provoke them to seek clean cooking energy. Therefore, the demand trend for cooking gives priority to LPG energy as major cooking fuel. In cities and developing areas of villages, districts and states, the occupation of mobile stalls and alternative hotels have been extended to meet the consumers wants. So, the consumption of LPG in both mobile stalls and hotels have been increased every year as increasing the number of hotels and mobile stalls. As a result of this, the trend in LPG consumption is boosting up year by year compared with less increasing ratio in domestic consumption.

Table. (1). Explains the data of LPG consumption in mobile stalls and hotels. Mobile stalls meant, snacks and fast food preparing stalls both are consumes commercial LPG to prepare variety of snacks like samosa, mushroom fry, masala poori, chat items and vadai. In the fast food stall, fried rice, noodles and other food items are also prepared. Thereby, monthly LPG consumption of Mobile stalls and hotels are brought out in table format to identify the usage of LPG consumption.

Table 1: LPG Consumption in mobile stalls (Per month)

No.of. Cylinders	Categories of Mobile Stalls		Total
	Snacks Stall	Fast food Stall	
Below 3	5 (25.0)	1 (5.0)	6 (15.0)
4 - 6	7 (35.0)	11 (55.0)	18 (45.0)
7 - 9	4 (20.0)	4 (20.0)	8 (20.0)
10 - 12	4 (20.0)	2 (10.0)	6 (15.0)
Above 13	0 (0.0)	2 (10.0)	2 (5.0)
Total	20 (100.0)	20 (100.0)	40 (100.0)

Source: Primary data

Note: Figures in brackets are percentage to the total

Table 1 shows the data relate to monthly LPG consumption in mobile stalls. Number of cylinders classified from 1- 13 and above, highly 4-6 cylinders have been consumed in 7 snacks stall out of 20 stalls and 7-9 cylinders in 4 stalls, 10-12 cylinders in 4 stalls have uses but, snacks stall does not cross or reach the 13 and above cylinders in monthly consumption. Thus, one fast food stall consumes below 3 cylinders per month and most of the food stalls consumes 4-6 cylinders as their monthly consumption, but 2 stalls consumes more than 13 cylinders per-month. Total result shows among the 40 respondents, 18 mobile stalls have consumed 4-6 cylinders per month and 2 of them uses above 13 cylinders. Out of 20 snacks stalls, maximum of 7 stalls are consuming 4-6 cylinders permonth, followed by 5 snacks stalls consuming below 3 cylinders and each 4 snacks stalls consumes 7-9 cylinders and 10-12 cylinders respectively. These are snacks stalls found in above 13 cylinders category.

Table 2: LPG Consumption in Hotels (Per month)

No. of. Cylinders	Types of Hotels (Seats based)				Total
	Below 20	21 - 40	41 - 60	Above 60	
Below 10	10 (100.0)	7 (70.0)	4 (40.0)	0 (0.0)	21 (52.5)
11 - 20	0 (0.0)	3 (30.0)	4 (40.0)	0 (0.0)	7 (17.5)
21 - 30	0 (0.0)	0 (0.0)	2 (20.0)	2 (20.0)	4 (10.0)
31 - 40	0 (0.0)	0 (0.0)	0 (0.0)	2 (20.0)	2 (5.0)
41 - 50	0 (0.0)	0 (0.0)	0 (0.0)	1 (10.0)	1 (2.5)
Above 50	0 (0.0)	0 (0.0)	0 (0.0)	5 (50.0)	5 (12.5)
Total	10 (100.0)	10 (100.0)	10 (100.0)	10 (100.0)	40 (100.0)

Source: Primary data
Note: Figures in brackets are percentage to the total

Table.2 explains the monthly consumption of LPG in hotels reveals fluctuations in consumption. Hotels are classified based on the availability of seats with the assumption that each table consists four seats. All the 10 Hotels with below 20 seats consume below 10 cylinders as their monthly consumption. With 21-40 seats 3hotels are using 11-20 cylinders and remaining 7 hotels consumes below 10 cylinders. 41-60 seats, 2 hotels consume the range of 21-30 cylinders and among the remaining 8 hotels 4 of them consumes below 10 cylinders and remain 4 hotels consumes 11-20 cylinders. 5 hotels with above 60 seats are consuming more than 50 cylinders as their monthly consumption. No hotels with above 60 seats are found in below 10 and 11-20 cylinders. Totally, out of 40 respondents, 21 hotels are consuming below 10 cylinders, 7 of them consumes 11-20 cylinders, only one consumes 41-50 cylinders and 5 of them consumes above 50 cylinders as their monthly consumption.

Disputes associated with LPG in domestic consumption

The present government is taking enormous efforts in implementing various suitable schemes and policies for the rural and urban to make unity among the LPG consumers by providing free LPG connection to rural and subsidy to all remains without any partiality. The developmental planning is most appreciable, but in view of economically backward societies, it produced unbearable economic burden in registration for the household purposes which is far away for commercial purpose of LPG.

- **Difficulties in linking of Adhar card with the registration for LPG free connection, new registration and subsidy:** Today, Adhar card is principally need to manage all process with government but, the Adhar card is not such a family identical card, but, it is an individual proof of the citizen. As per the guidelines to get new LPG connection the details of Adhar card is mandatory, in practical, can all individuals registered for the LPG connection with their own Adhar card? it is impossible. Thereby, submission of Adhar card along with other documents are prevented the individuals (which are out of native for various purposes) in using government services.

- **Strict regulations and guidelines for all process of LPG cylinders:** The Indian government formed such general guidelines for the consumption of LPG at domestic level. There is a limit in the number of cylinders that should be consumed by a household in a year, this is not applicable among other LPG consumers. Generally, data shows that a single LPG cylinder in a household is used around 35-70 days therefore, it assumed around 06-08 cylinders will be consumed in a year. But, the LPG suppliers gets instruction that they have to delivered the LPG cylinders at frugalness. It shows that their existing priority only for commercial purpose and not for households.

- **Improper actual price for LPG cylinders:** There is a price variation in subsidised and Non-subsidised LPG cylinders. LPG consumers from different parts of the districts have revealed that the price of LPG per cylinder is varying between Rs.1000-Rs.1200. Thus, improper price of LPG affects the economic power of poor people and they confused about the price and subsidy. But, there is no trouble among commercial consumers.

- **Additional Barrier to domestic consumers:** An initiation of LPG subsidy and favorable schemes to all were welcomed and regular consumers expects that they will be benefited. But, while the Direct Benefits Transfer of LPG had come to practice many economically weaker consumers faces too difficulties in identifying whether they have benefited or not? and to withdraw cash, many rural consumers have to leave their work and standing before banks for various internal process to receive the benefits. This critical condition and exploiting the wealth of weaker consumers which are not necessary for the commercial LPG consumers.

- **Lack of information in getting LPG connection:** Due to poor socio-economic background of rural LPG Consumers, they are unaware of the information in getting LPG connection with necessary documents. Because, many of them may not have the proof of all required documents and their inability to maintain it safely due to high illiteracy rate and other reasons. And the lack of media facilities is also another major cause for the purpose and the data reveals that around 40 percent of rural people are facing problem herewith.

- **Improper subsidy Amount:** Initiation of scheme needs to be appreciated, but the subsidy amount is not clearly stated for beneficiary's knowledge. Especially, consumer who are getting LPG subsidy have to pay Non-subsidised LPG amount, on due date, the benefit will be automatically transferred into beneficiary's bank account. But, still the consumers not able to access the benefits. This is the problem practically faced by the most of household consumers.

- **Trouble in submission of residential proof:** India is a vast country with disparity on regions as rural and urban and many people have been migrating from one place to another. Some of them are leaving their own house to inherit rented home, there is a problem in production of residential proof to submit for the purpose, as per rule, there is one LPG connection for one residential proof. Therefore, there are some difficulties prevailing in getting proof due to the strict rules that the LPG connection only for own home. Thus, domestic consumers need to leave their rights in uptaking of government service. But, this regulation is not strict for commercial LPG Consumers.

- **Problems in general word subsidy:** The present government has provided subsidy for LPG to all but, later its ratio has cut down by the initiation of 'give it up' policy. So, many rural and economically weaker section are happy about receiving subsidy but they are facing conflicts indirectly in fixed amount of subsidised LPG and subsidy in the total amount is not mentioned properly. It means, under the subsidised LPG, what is the price for LPG? and How much allocated as subsidy amounts? are still being as difficult to perceive among rural and economic backward consumers, it exploits domestic consumers indirectly. But, among the commercial LPG consumers, the consumers are getting subsidy properly form the direct intervention of particular company.

- **Future of schemes hidden:** To provide free LPG connection upto five crore rural people, government has proclaimed the scheme in the name of 'Pradhan Mantri Ujjwala Yojana'. There is confusion emerging among the rural poor people that the process of scheme is an introduction to LPG consumption? or perpetually supplies with free of cost? This scheme is welcomed, but the future of this has not revealed unto the knowledge of rural poor people. So, this may be a kind of economic exploitation in future. But, commercial LPG consumers are free from these difficulties.

- **Absence of Standardisation of domestic consumers:** Enactment of subsidy and scheme for the welfare of LPG consumers leads upto now at the separation of LPG provision as subsidised and Non-subsidised. This can spring up socio and economic disparity among the rural and urban regular LPG consumers as poor and wealthy. Because, economic exploitation has been ruling among the Non-subsidised LPG consumers, and fake improvements, economic scalps have indirectly enrolled among the LPG subsidised consumers, thereby, expectation of social improvement may not come forth, but the enrichment of economic components will be soon.

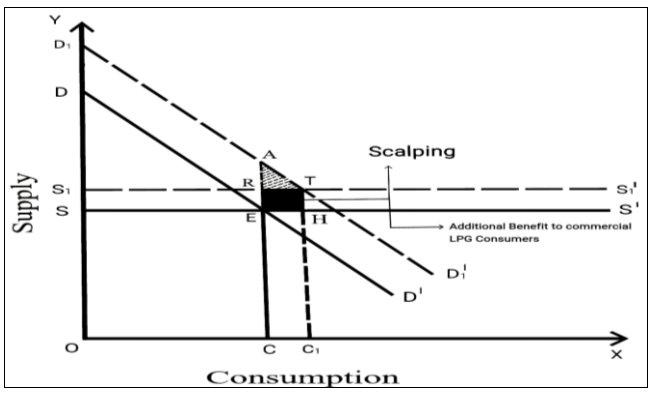
The problems of LPG consumers under the schemes and policies intoduced by the Indian government has not been discovered by the policy makers. Disputes have raised after the implementation of such acts for the improvement of cooking energy. Thereby, a question is raising that, why the government announced 'Subsidy for LPG consumption'? Free LPG connection may be welcomed because the government has aimed to promote LPG consumption among the rural women then, why hidden the importance of subsidy for LPG? Because, no people from rural and who are economically backward involves in struggle and tumult to obtain subsidy and other. This study mainly pointed the problems of schemes associated with LPG and Prosperity and freedom in commercial energy consumption among hotels and mobile stalls.

Analysis

Analysis is a significant part of research study which reveals the depth of facts in the problems choosen. Hence, this study has taken the analysis part and emphasised as study and data analysis. The study analysis has enunciated the real and present trend of LPG consumption among the selected groups by theoretical diagram and the collected primary data is appraised by appropriate statistical tools to expose the research result.

1. Study Analysis

[I] Exploitation and indirect burdens to the rational consumers always regulates their basic rights to consume such goods and services. Thereby, as a focus of this study it needs to enunciate the real problems and prospers of selected groups in association with LPG consumption. So, the analysis part is presented in diagrammatically to reveal the facts in connection with the LPG consumption.



Source: Author's Effort

Fig 1: Changes of Economic Components and it's real Impacts

Figure. 1. Clears about the impact of changes of economic components that leads to the dynamic LPG consumption pattern among selected groups. 'OY' steep axis expresses the supply and 'OX' horizontal axis deals with the consumption of LPG. Supply curve (SS^I) and demand curve (DD^I) are the rigid curves which determines the real consumption of LPG among hotels and households. And also, the supply curve (SS^I) has special character that it separates the consumers groups as above for households and below for hotels. Thereby, when the 'SS^I' and 'DD^I' curves are at rigid position, the consumption of LPG among households are at 'SDE' and among the hotels are at 'SECO'. But, the supply and demand were not constant perpetually due to initiation of various developmental schemes launched by the government to boost up the health and wealth of poor people and also the technical improvements in cooking appliances promote the level of LPG demand among both consumers rather than the level of supply. Hence, the figure indicates clearly that the demand has increased from 'DD^I' to '$D_1D_1^I$, highly than the supply of LPG moved from 'SS^I' to '$S_1S_1^I$'. So, the changes of consumption accumulated among both groups of consumers that points 'S_1D_1T' for households and 'S_1TC_1O' for hotels. Point 'T' created where the 'S_1' and '$D_1D_1^I$' intersects one another. Thereby, consumption level in hotels increased from 'C' to 'C_1', 'S' to 'S_1' and for households increased portion is 'RAT' (lined). Hence, the mid portion 'RTHE' (darked) results shows the exploiting part from households' portion which is being an additional benefit to hotels.

[II] Execution of various policies and schemes depend on such functional relationship that may related to problems or social welfare of the country. Hence, the executed policies and programmes on LPG also depend on some functional relationship that exposed and analysed mathematically to prove whether the given functional relationship are perfect factors for the function or not? Hence, this study accessed consumption function propounded by Economist Keynes in the name of 'Keynes psychological law of consumption'. He has described the concept of consumption function as, consumption does not prevail without function of anything. Thereby, Eco.Keynes determined that consumption is a function of income. Symbolically, $C = f(Y)$. Here, 'C' is consumption, 'Y' is income and 'f ' is the functional relationship. Consumption function indicates the functional relationship between C and Y, where C is dependent and Y is independent variable. C is determined by Y (Jhingan.ML, 2010) [19].

According to keynes --------> $C = f(Y)$

Thus, this study also brings the supply function on distribution of LPG with the effects of three functional factors and formulated symbolically as,

According to study (Author) ----------> $D = f(SW, DD, HH)$

Here, 'D' is distribution of LPG, 'f ' is functional relationship and within the bracket given factors are, 'SW' is social welfare, 'DD' is demand for LPG, 'HH' is human health. The supply function indicates that there is relationship between D and SW, DD, HH, where D is dependent and SW, DD, HH are independent variables. Hence, D is determined by SW, DD and HH. Moreover, the study has formulated mathematical analysis to prove whether these factors are functionally related to distribution of LPG or not?

D = f (SW, DD, HH) ----------> (1)

D = f (SW + DD - HH) ----------> (2)

Equation: 2 shows that it has mathematical symbols (+ and -) between given factors. Positive symbol '+' has been applied between social welfare and demand due to emergence of modern consumers that they like to convert their life based on technology inferences and strong consumption pattern or lifestyle. And also, the negative symbol ' - ' applied between DD and HH due to the cause of affection on human health by primary cooking energy which presently less prioritised compared with other cooking fuels. According to modern consumers, seeking alternated energy for households' purposes is a trend without looking forward their health conditions. Thereby, distribution of LPG is not only dependent factor for human health but also a factor for the reason. Therefore, among the given factors, human health has less significant among the individuals than demand and social welfare. The mathematical symbols have been applied as positive between SW and DD, negative between DD and HH.

D = f (3) (SW (33.33) + DD (33.33) - HH (33.33)) ----------> (3)

Equation: 3 describes the distribution function with the functional relationship by giving numeric value to the factors. Due to three functional variables, the functional relationship 'f ' has been powered by 3 and each functional variable have same value which brings total of 100 if added continually. Hence, the volume of percentage 100 has been divided and empowered to each factor by 33.33 to prove that these factors have much influence in the distribution of LPG. Mathematical analysis executed followed by (Equation:2) excluding symbols.

D = 3 (33.33 + 33.33 - 33.33)

D = 3 (66.66 - 33.33)

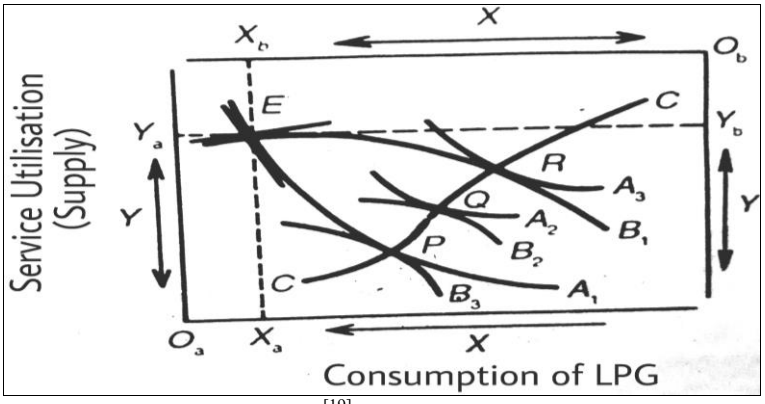
D = 3 (33.33)

D = 3 × 33.33

D = 99.99 (100)

The above simple analysis revelaed that the distribution of LPG is function of social welfare, demand and human health which is proved by the result as D = 99.99 (100). Hence, given factors are the real components to the distribution of LPG among the consumers.

[III] This study tries to bring out the satisfaction level among commercial and non-commercial consumers in LPG consumption. Thereby, moreover this study taken theoretical analysis to find out where the consumers attain equilibrim in satisfaction. This is analysis executed with appropriate factors which was applied in mathematical analysis namely, social welfare, demand and human health.



Source: M.L. Jhingan, 2010 [19], PP: 697-698

Fig 2: Consumers equilibrium in LPG consumption

Figure:2 express the clubbing of supply and consumption of LPG to find out the equilibrium position of the consumers. There are two types of consumers taken as 'O_a' commercial consumers and 'O_b' households' consumers. Horizontal axis 'O_a' and 'O_b' enunciate the level of LPG consumption among them and vertical axis deals with the supply of LPG. Each consumer has three indifference curves which deals with their efficiency in obtaining supply and consumption of LPG. Hence, the figure indicates clearly that there is three set of indifference curves with combined two consumers namely A_1 A_2 A_3 and B_1 B_2 B_3. O_a commercial consumer's indifference curves A_1 A_2 A_3 have set from left to right upwards and O_b household consumer's indifference curves B_1 B_2 B_3 have set from right to left downwards which intersects with opposite of each indifference curves of A group. Each set of indifference curves have been connected with contract curve 'CC'. Hence the intersected points discovered and named as R, Q, and P from right to left downwards. Each indifference curve has different names based on factors given in mathematical analysis. that it is, A_1 = Health of commercial consumers, A_2 = Demand for LPG among commercial consumers, A_3 = Welfare of commercial consumers and B_1 = Welfare of household consumers, B_2 = Demand for LPG among household consumers, B_3 = Health of household consumers.

Among the three sets of combined indifference curves from both consumers, A_1 and B_1 intersects one another and attained the point 'E'. Hence, O_a consumers consumes X_a level of LPG with Y_a level of supply focusing on the health of commercial consumers and O_b consumers consumes X_b level of LPG with Y_b level of supply because significance is given for social welfare. If the result point moved from 'E' to 'R', O_a commercial consumers will consume LPG maximum due to significance of A_3 that says welfare of commercial consumers. But, among O_b household consumers, level of LPG consumption may decline while the level of supply increase. And if the result point moved from 'R' to 'P', O_b households' consumers will get maximum satisfaction at B_3 where the health of households consumers will increase which presently focused by present Government and enacting various schemes and policies to boost the health of women in rural households. But, the level of consumption and supply of LPG has become narrowed due to very less emphasises on the health of commercial consumers. Finally, 'Q' is the equilibrium point that exposes, equal satisfaction of both consumers in consumption and service utilising about LPG due to efforts seeking to fulfil demand of the same.

2. Data Analysis

Data analysis is emphazised in research work to perceive the result whether it is apt to or impact to the society related disputes. Hence, this study evaluates the collected data for the results and it brought out by Pearson's Chi-square test which exposes whether the theme has association or not? ANOVA for, is there variations or not? and paired t-test is to know about congruity between the variables. Results are computed and proceeded by comparing values and pointing the significance by the formulation of hypothesis which means 'A tentative statement'. It is classified as H_o = Null Hypothesis and H_1 = Alternative Hypothesis. H_o points negative and H_1 express positive statement of framed hypothesis.

1. Mobile stalls

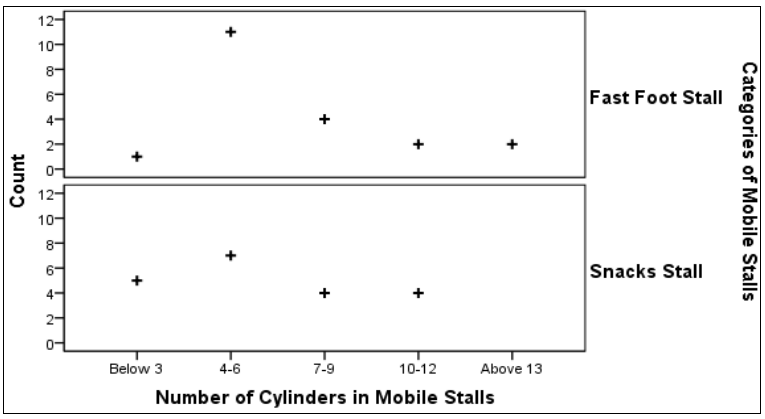


Chart 1: LPG Consumption in Mobile stalls (Per month)

Chart 1. the mobile stalls classified as snacks and fast food preparing stalls. In the first classification with below 3 cylinders, among the 6 mobile stalls, 5 snacks preparing stalls consumes the classified number of cylinders permonth, this shows a smaller number of cylinders used. Out of 40 stalls, 18 stalls consume 4-6 cylinders per month, with 11 from food stalls 7 from snacks stall. Among the 20 respondents in food stalls, only two stalls consume above 13 cylinders per month. No snacks stall is found in the above 13 cylinders category. The overall data shows that the snacks stalls are found mainly in the minimum category usage of cylinders. But, the result of fast food stalls is having great fluctuations due to people's preferences only on the consumption of snacks too compared with food sales stalls.

1.1 Pearson's chi-square test

- H_o = Number of cylinders are unsuitable factor with mobile stalls to identify the consumption of LPG in karaikudi municipality.
- H_1 = Number of cylinders are suitable factor with mobile stalls to identify the consumption of LPG in karaikudi municipality.

Table 3: Test to identify the association between the number of cylinders and mobile stalls in karaikudi municipality

Test	Value	df	Asymp.sig. (2-sided)	Table value	Result
Pearson's chi-square	6.222	4	.183	9.49	Accepted

Table 3. revelas that the result of Pearson' Chi-square test at five percent level of significant is rejecting the alternative hypothesis (H_1) and accepting the null-hypothesis (H_0) because the table value is greater than the calculated value (6.222 < 9.49). Hence, according to framed hypothesis result of this test is, 'number of cylinders are unsuitable factor with mobile stalls to identify the consumption of LPG in karaikudi municipality'.

1.2 Analysis of variance (ANOVA)

- H_o = There is no variations in the consumption of LPG among mobile stalls in karaikudi municipality.
- H_1 = There exists variations in the consumption of LPG among mobile stalls in karaikudi municipality.

Table 4: Test to identify the variations in the consumption of LPG among mobile stalls in karaikudi municipality

Details	Sum of squares	df	Mean square	F	Sig.
Between groups	1.556	4	.389	1.612	.193
Within groups	8.444	35	.241		
Total	10.000	39			

*Significant at 5 percent level

According to table.4, the ANOVA result for finding the variations in the consumption of LPG of the selected area, resulted that 'There is no variations in the consumption of LPG among mobile stalls in karaikudi municipality' at five percent level of significant. Hence, this study accepted null-hypothesis (H_0) and rejected the alternative hypothesis (H_1).

2. Hotels

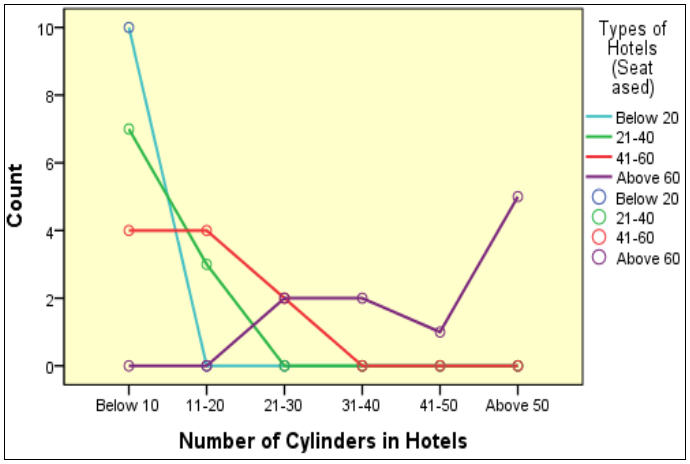


Chart 2: LPG Consumption in Hotels (Per month) (Based on number of seats)

Chart 2. discovered data on LPG consumption in hotels has brought out maximum number of cylinder consumption in the selected area. 40 respondents have been selected from hotels and classified based on availability of seats, it starts from 20 to above 60. 21 hotels consumed below 10 LPG cylinders and especially, hotels which have 41 - 60 seats also fall in this category. The researcher's expectations were that the hotels having maximum number of seats may acquire more cylinders, but the result has showed a different aspect. It is because that, such hotels consume LPG for minimum work related to them and for remaining task was completed with substitute cooking energy like streamer, firewood, charcoal. The data shows clearly that out of 40 hotels, only 5 hotels consumes more than 50 cylinders permonth because, providing subsidy from the particular LPG company is leading them to sustain on LPG consumption and around Rs250 - 350 subsidy amount they are receiving from the total payment of Rs. 1500 which was

fixed very recently. Finally, the data on LPG consumption in hotels are not given as expected but the result in mobile stalls are greater than anticipated because, the Karaikudi municipality is now showing an upward trend in growth of education and establishment of schools and colleges and therefore, hostel accommodation is also emerging for students and workers from within and outside Tamilnadu. So, the demand for LPG among mobile stalls are being high compared to hotels.

2.1 Pearson's chi-square test

- H_o = Number of cylinders are unsuitable factor with the classification of hotels Hseats to identify the consumption of LPG in karaikudi municipality.
- H_1 = Number of cylinders are suitable factor with the classification of hotels seats to identify the consumption of LPG in karaikudi municipality.

Table 5: Test to identify the association between the number of cylinders and classification of hotels seats in karaikudi municipality

Test	Value	df	Asymp.sig. (2-sided)	Table value	Result
Pearson's chi-square	45.714	15	.000	25.0	Rejected

Table 5. revelas that the result of Pearson' Chi-square test at five percent level of significant is rejecting the null-hypothesis (H_0) and accepting the alternative hypothesis (H_1) because the calculated value is greater than the table value (45.714 > 25.0). Hence, according to framed hypothesis result of this test is, 'Number of cylinders are suitable factor with the classification of hotels seats to identify the consumption of LPG in karaikudi municipality'.

2.2 Analysis of variance (ANOVA)

- H_o = There is no variations in the consumption of LPG among hotels in karaikudi municipality.
- H_1 = There exists variations in the consumption of LPG among hotels in karaikudi municipality.

Table 6: Test to identify the variations in consumption of LPG hotels of karaikudi municipality

Details	Sum of squares	df	Mean square	F	Sig.
Between groups	35.000	4	7.000	15.867	.000
Within groups	15.000	35	.441		
Total	50.000	39			

*Significant at five percent level

Table.6 express that the result of consumption variations among the hotels of selected area at five percent level of significant resulted that the level of confidence is above 99 percent. Hence, the study accepted the alternative hypothesis (H_1) and rejected the null-hypothesis (H_0) and resulted that, 'There exists variations in the consumption of LPG among hotels in karaikudi municipality'.

2.3 Paired T-test

An application of t-test has drawn a significant solution in findings of true mean between the variables such as Number of LPG Cylinders and types of Hotels (Seats based) in Karaikkudi municipality.

- H_0 = There is no significant congruity between the number of Cylinders and types of Hotels (Seats based) in Karaikkudi municipality.
- H_1 = There is a significant congruity between the number of Cylinders and types of Hotels (Seats based) in Karaikkudi municipality.

Table 7: Paired T-test on Number of LPG Cylinders and Types Hotels (Seats based) of Karaikudi Municipality

Paired Samples Statistics				
Particulars	**Mean**	**N**	**Std. Deviation**	**Std. Error Mean**
Number of Cylinders in Hotels	2.2500	40	1.75046	.27677
Types of Hotels (Seat based)	2.5000	40	1.13228	.17903

Paired Sample Correlations			
Particulars	N	Correlation	Sig.
Number of Cylinders in Hotels & Types of Hotels (Seat based)	40	.789	.000

Paired Samples Test								
	Paired Differences							
Particulars	Mean	Std. Deviation	Std. Error. Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Number of Cylinders in Hotels – Types of Hotels (Seats based)	-.25000	1.10361	.17450	-.60295	.10295	-1.433	39	.160

Table. 7 exposes a statistical research report of T-test applied to find a real congruity between the variables with five percent level of significant. Result reported that the mean value is about -2.5000 which meant the mean differences of two variables and the standard deviation is about 1.10361 is a finding of differences between the same. The level of significant about .160 > 0.05 which is greater than the significant level reports that there is no significant congruity between the number of Cylinders and types of Hotels (Seats based) in Karaikkudi municipality. Hence, the test has been rejected the alternative hypothesis H_1.

Result and discussion

Weal of LPG supply is a major cause for unlimited consumption for the commercial purpose. Hence, scarce of LPG sources takes place among the domestic consumers. The study revealed that among mobile stalls in the consumption of LPG, there is no suitable factor to identify the consumption of LPG at five percent level of significant due to the specified group of cylinders are not perpetual to such stalls. It may vary place to place and seasons also. And the table:1 shows that there is no more participation in high valued cylinders groups because, the production selling is based on the access of maximum number of consumers. But, there is no sustainable results regarding this due to the living standard of consumers and seasonal variations. The ANOVA result also shows that there are no variations in the consumption of LPG because, snacks and food preparing place are stalls and it can be moved from one place to another. Hence, demand for the product does not horizon.

But, there is suitable and significant result in the association and variations on LPG consumption among hotels. Karaikudi is a municipality and developing city in the sivagangai district. It consists of many educational and job providing institutions so, it is a place for many aspirants to reside. Hence, the resident's access to nearby restaurants or hotels. So, the unlimited consumption of LPG is due to availing facilities to domestic and external consumers. Hence, the study result shows that there is expected confidence in the weal LPG consumption for commercial purpose. And also, the paired t-test resulted that there is no congruity between the number of Cylinders and types of Hotels (Seats based) in Karaikkudi municipality. Because, the consumption of LPG Cylinders is not only based the existence of seats which normally included, availability of cooking equipments, types of food, pattern of cooking and number of consumers etc.

This study not only focuses on the trend consumption of LPG, but it compares the LPG weal and exploitation among the consumers including households by the introduction of new schemes and policies and how much it affects the domestic consumers even those who consumes a smaller number of cylinders. But, the commercial users are not affected to that extent as households. According to the given schemes and policies to domestic LPG consumers, why people need to sacrifice the subsidy to support poor people? if it is, then, what does the government to do for the needy people in this action? then, where does the extra income from the sales of commercial cylinders goes? Sometimes they are charged double. Still many urban and rural people are facing health problems with the usage of primary cooking energy, as they are unable to use the schemes with so many complications.

LPG Consumers (Except this study taken)

Trend of LPG Consumption is still upward and will continue further. Because, LPG is not consumed by food preparing places such as hotels, mobile stalls and households alone. Except these, many fields consume LPG with any barriers but with certain regulations some of the area here below given. They are,

- **Vehicles:** For the transportation purpose, LPG has penetrated to maintain environmental quality and create esthetic of sourrending.
- **Bakeries:** Like the LPG Consumption in food preparing places, bakery also consumes LPG as much of their production.
- **Academic Canteen:** Mess in hostel, Canteen in schools, colleges and hospitals are also using LPG for cooking purpose.
- **Public Auditorium:** LPG consumption is used in public auditorium for the celebration of social ceremonies in their regions.
- **Secondary sector:** Among the three major sectors, secondary sector is also in need of LPG to enhance various performance for economic growth. It may deal production, manufacturing and service.

Conclusion

LPG consumption is prevailing all over the world and it becoming a basic necessity for cooking and for various purpose among the consumers. But, it's production and other economic components are still upward which predicted that the availability of LPG may be or may not be sufficient due to introduction of environmentally friendly cooking fuel. Many developing nations come forward to utilise with the aim of conserving domestic natural resources for future. Thereby, this study explained the significance of LPG and its trend of upward targets to maximise the wants of and minimise the wants of some groups. Abundant supply and freedom of LPG consumption among the commercial LPG consumer is also analysed with original data. Thus, the study finally concludes that there is weal of LPG connections and consumption for commercial purpose and Scalping in connection and service provisions for non-commercial purpose.

Recommendations

Contribution of this study would spring up further research on LPG in various aspects. Hence, by accessing the data result and this study trend, this part has been taken to expose suggestions to make suitable policy for all LPG consumers in sustainable energy development.

- Initiation of odd government developmental steps are always welcome among public. but, the real problems associated with LPG must be cleared.
- Expecting liberalisation in submission of residential proof for obtaining free LPG connection.
- As per the real income of the citizen, size of LPG must be provided in the favour of future demand and supply.
- Future of existing schemes should be open to all.
- Steps should be taken to identify among the rural and urban LPG consumers troubled in consumption. Because, economically weaker section is among the economically wealthy people.
- people who are migrating for their personal purposes (educational and working etc.) must get this service on contract basis.
- The expected subsidy amount should be sustainable.
- Government must supply substitute energy for commercial LPG consumers to increase the supply of LPG for non-commercial consumers.

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