

A Historical Analysis of the Progression of Edible Oil and Ghee Industry in Lyallpur

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ABSTRACT

Edible oil plays a significant role in human lives as the human body requires a moderate amount of fats on daily basis. This study examines the development of the edible oil and ghee sector in the Lyallpur district during early three decades after the independence of Pakistan. The oil business in Lyallpur was instigated both by private entities and the government, making it one of the country's most prominent industries during 1947-1977. This business bolstered the prominence of the vegetable ghee and edible oil sector and significantly contributed to the overall economy of Pakistan, particularly in Lyallpur. The Study examines whether the steps taken by the Governments for the growth of edible industry were adequate or not and how this industry improved during 1947-1977. Qualitative research has been employed to arrive at a logical and reasoned conclusion by using primary and secondary sources. This study highlights that the oil and ghee industry had encountered obstacles in achieving rapid growth due to the ambiguous strategies used by governments instead of government of Ayub Khan. Significant levies on the production of oil and additional taxes on the importation of industrial machinery and raw materials caused hurdles. This study suggests that the government should earmark a dedicated budget for the said business and machinery and industry sectors should be granted import rebates and exemptions from taxable revenue.

Key Words: Lyallpur, Edible Oil, Vegetable ghee, Economic Development, Industrial Growth

1. Introduction:

Cooking oil and Vegetable ghee are processed substances that generally extracted from plants or animal fats, which is specially treated to be suitable for cooking, baking, and frying. Additionally, the oil uses in culinary tasks such as meal preparation, enhancing taste, creating salad dressings, and serving as a dip for bread. It is referred as edible oil and exists in liquid state at normal/room temperature. On the other hand, certain oils possess minimal fat content while others have a high fat content so some oils containing saturated fats, such as palm oil, coconut oil and palm kernel oil, can solidify.

It is essential to employ a suitable method when utilizing edible oil because the human body requires a moderate amount of fats on daily basis. Fats are classified into three categories such as saturated fat, monounsaturated fat, and polyunsaturated fat. The Food and Drug Administration advised that the human body should ingest no more than 10% of saturated fat, and between 20-35% of polyunsaturated and monounsaturated fats (DHHS, 2005) because excessive consumption of fats have detrimental effects on the human body and can contribute to elevated levels of blood LDL content and causes risk factor for cardiovascular disorders (Clarke, Frost, Collins, Appleby & Peto, 1997). Coconut oil, palm oil, and palm kernel oil include saturated fats, whereas olive, peanut, canola, soy, and cotton-seed oils usually deliberated healthier options due to their unsaturated fats (Mensink, Zock, Kester & Katan 2003).

Edible oil changes its properties when heated and maintains its desirable qualities at room temperature, but becomes undesirable when exposed to higher temperatures so it is necessary to select oil that can withstand high temperatures. However, when it stored in a cool and dry environment, it exhibits increased stability and viscosity, in spite of its ability to liquefy at ambient temperature. The shelf life of these oils is based on their saturation and unsaturation levels and varies with as per the properties of its raw material. Monounsaturated fats, such as macadamia oil, are able to store for approximately one year while soybean oil can be maintained for six months whereas walnut oil should only be stored for more than three months (Kochhar, Parkash, Henry and Jeya 2009).

Some notable and readily accessible edible oils and fats are apricot kernel, almond, basil, avocado, Brazil nuts, cashew, canola, castor, coconut, cocoa, corn, cotton-seed, hazelnut, flaxseed, hemp, mustard, lard, olive, peanut, palm, rapeseed, safflower, rice bran, sesame, sunflower, soybean, vegetable blend and walnut oils as well as tallow mutton and beef fats. The most widely produced vegetable oils globally are soybean, palm, rapeseed, peanut, sunflower, cotton-seed, coconut, palm kernel, and olive oils.

Oil extraction can be extracted by following three main types:

- Extracting chemicals using hexane as a solvent and it is known as chemical solvent extraction.
- Extracting by pressing it using expeller press/cold press by applying lowest temperature to avert the oil from heating up
- Decanter centrifuge

Additionally, these methods, oils can be extracted using mechanical means such as ram press, crushing, Ghani, screw press, mowrah butter, deodorization and hydrogenation. The edible oil further can be refined by many methods, including distillation, neutralization degumming, deacidification and dewaxing, bleaching, winterizing, addition of preservatives, deodorization, and filtering.

The edible oils could be recycled for utilization as animal feed, fuel and biodiesel, soaps, and in various industrial applications. Vegetable oils, like cooking oil, can also be utilized as ingredients in the production of various items such as skin diseases repellent soaps, candles, skin products, perfumes, cosmetic products as well as drying oils. Furthermore, in the production of paints and wood treatment products, the preservation of wood boat hulls, insulation in the electronic engineering and in biodegradation, oils can also be added. It also employed in the production of environmentally degradable hydraulic fluid and lubricant. The oils utilized in recycling method are generally referred as UVO (used vegetable oil), RVO (recycled vegetable oil), WVO (waste vegetable oil) or as yellow grease.

2. Historical Background of Oil Extraction:

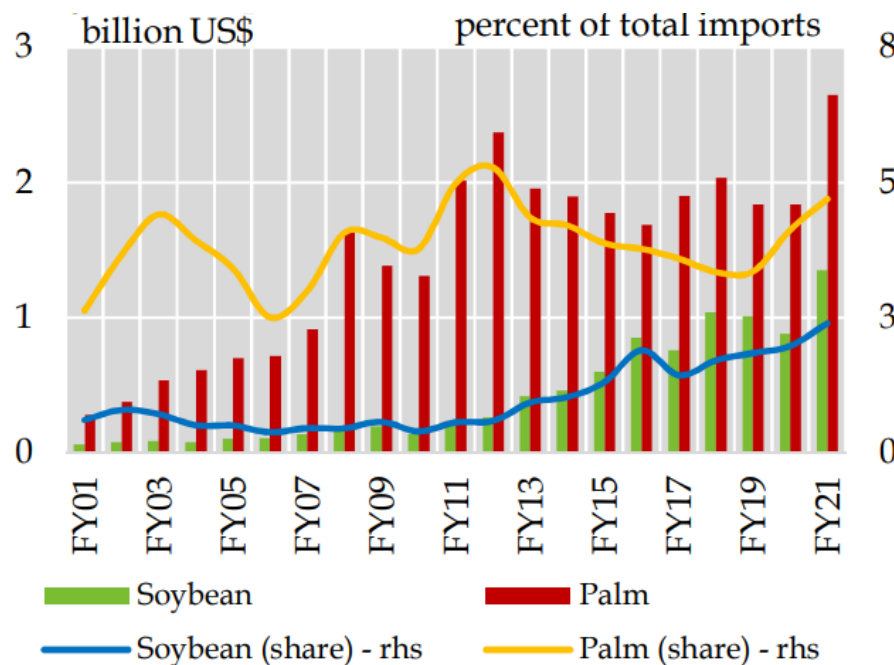
Vegetable oil is a lipid derived from a plant, specifically a triglyceride (Thomas, 2002) that is derived from various plant components or their seeds. Archaeologists had discovered a kitchen dating back around 4,000 years and found compelling evidence of the use of sizable rock slabs for the production of hickory nut oils. It also indicated that olive oil was discovered in Palestine between 6000 BC and 4500 BC (Galili, 2014). According to Thomas (2002), several types of seeds and oils including poppy-seed, linseed, rapeseed, safflower, almond oil, sesame seed, as well as cotton seed had been utilized in Central Asia and Middle East from ancient times, specifically during the bronze era. European olive oil production started in 3000 BC while Chinese soy oil production introduced in 2000 BC.

Initially, China, Egypt, Greece, and Rome originated efforts to enhance oil extraction and employed a conical stone, mortar and pestle, or even their own feet to pulverize vegetables. The pulverized substance was thereafter placed in shallow, level wicker baskets and then flattened using a lever to extract the oil. In 1600s, a stamping press in Holland was invented with the purpose of making refinements and then in 1750, John Smeaton invented a roll mill and then V. D. Anderson invented first screw press in 1876 (Hoffman, 1989). However, fats were first obtained from glycerol in 1780 and then in 1911, cottonseed oil was introduced to the market. Similarly, Soybean oil extraction in China was started during the 1930s, whereas canola production commenced in the mid-1970s. In the 20th century, corn oil became commercially accessible around 1960s following the industrial revolution.

3. Consumption of Oil in Pakistan:

Pakistan's economy specifically relies on agriculture and the country is producing cotton majorly. Cottonseed is the primary source for extraction of edible oil in the country. Pakistan was ranked fourth in terms of cotton production in 2017 (Iqbal, 2017) while at seventh number in 2023 (Statista, 2023). Pakistan efficiently utilized its cotton resources for oil extraction and cloths manufacturing. Additional source for edible oil included sunflower, rapeseed and canola. However, cottonseed holds approximately 10 to 12% oil content in it, while in rapeseed it is around 32%, and in sunflower it is about 37%. The country had endeavored to enhance domestic oil production, but the demand surpassed the growth rate. The truth is that current production of edible oil/cooking oil is insufficient to meet domestic demand and resultantly a significant sum of foreign exchange is still being utilized to import soybean and palm oil.

In Financial Year 2021, Pakistan's imports of palm and soybean amounted to US\$ 4 billion, representing a 47 percent increase compared to the previous year. This growth was significantly higher than the average annual growth rate of 12.3% during the past 20 years. The increase might be somewhat attributed to the upward trend in global commodity prices but the surge in palm and soybean imports is not a recent occurrence. The aggregate imports of palm and soybean had exhibited upward trend over the past two decades that increased to 7.1 percent of the overall imports in FY21 from 3.2 percent in FY01. As per the reports of Pakistan Bureau of Statistics, the trend in imports during 2001-2021 was as follows:



Source: Pakistan Bureau of Statistics

The edible oil required in 2002 was 1.55 million tons, while only 620,000 tons were produced domestically per year in Pakistan. Approximately 930,000 tons of edible oil was needed to import as the nation’s per capita edible oil consumption was 11 kg. Sunflower seeds had higher oil content so 172,800 hectares of sunflowers were planted in 1998–1999 in the country but farmers reduced their plantation to 117,360 hectares as a result of rising machinery costs and falling pricing. Therefore, 1.132 million tons of soybean and palm oil were imported in 2010 and in 2012 it fell to 1.067 million tons, resulting in a reduction in imports from \$1.298 billion to \$1.068 billion.

In 2017, Pakistan had emerged as 3rd largest importer of edible oil and the survey released on January 21, 2017 revealed that Pakistan had surpassed China and India as the 3rd largest importer of edible oil. In a symposium on edible oil, Westbury Group's Chief Executive Rasheed Jan Mohammad stated that, "Pakistan's annual import of crude and refined cooking oil had surged to 2.6 million tons while annually imports 2.2 million tons of oil seeds. Approximately 75% of country's needs were met by imports and the remaining portion was satisfied by domestically produced oil. Oil was mostly imported from Malaysia, Indonesia, North America, and Brazil and approximately 30% of imports consisted of taxes that traders paid at Pakistan's maritime ports so there is need of streamlining the tax system." (Express Tribune, 2017)

4. Edible Oil and Ghee Industry in Lyallpur:

On the inception of country, fewer oil and ghee mills were present in Pakistan. These sectors were centered in Sindh and Punjab, mostly located in Karachi, Lahore, and Lyallpur. In Lyallpur, the industries produced primarily cotton for crushing and these seeds were used in an antiquated method of making oil. After that, the extraction of oil was started using local machinery at Lyallpur and Karachi with the method of hydrogenation.

Pakistan had few manufacturers prior to partition and the major portion of oil came from Bombay, Okha, Calcutta, and Amritsar. The country had faced a significant problem when investors and businessmen made investments in every aspect of life, but very few of them moved their operations from India to Pakistan while a large number of investors moved to India from Pakistan. In Lyallpur, the founder of Delhi Cloth Mills founded cooking oil industry, which was already operating in Lyallpur before the division under the name of Ganesh Oil Mills. Before the partition, it was the only oil mill in Lyallpur that produced ghee.

In the early years, migrant businessmen founded Bengal Oil Mills, an oil unit in Karachi, as there was dire need of industry to meet country's need for edible oil. Muhammad Ali Jinnah inaugurated the unit and remarked that, "I am delighted to be here today to officially inaugurate the Bengal Oil Mills. I want to say that each newly established mill or factory represented progress towards achieving economic stability of nation and the well-being of citizens. All refugees are not agriculturists so the only manner in which these people could be set on their feet

again was the rapid industrialization of the country which would give new avenues of work for them” (Jinnah.pk, 2017).

Bengal suffered from the similar problems so rapeseed were exported by Bengal Oil Mills to East Pakistan since only they had begun to alter cotton and rapeseed to create cooking oil. In 1960, the Bengal Oil Industry built a hydrogenation machine, as it was still extracting oil from seeds using antiquated methods. The industry flourished during Ayub Khan’s era and Bengal Oil Mills’ partners launched their own business under the names Burma Oil Mills and Bengal Oil Mills.

Bengal Oil Mills paved way for the establishment of the ghee business in Punjab. Industries were established in Punjab throughout the 1950s. Sheikh Fazal-ur-Rehman installed oil plant in Lyallpur, Sadiq Soap and Oil Mills in Rahim Yar Khan, and Wazir Ali Industries in Lahore were established during the decade. Sheikh Fazal-ur-Rehman Oil industry at Lyallpur was the first industry to undertake the establishment of an oil mill and a Vanaspati Plant. The Chairman of Rehman Group possessed exceptional skills in assessing seed and oil content, despite being visually impaired and the company quickly rose to become a leading producer of cottonseed oil and Vanaspati ghee.

Sadiq Soap and Oil Mills in the early 1950s had low oil production capacity so unilever acquired the possession of mill and commenced the large-scale manufacture of Dalda Vanaspati ghee (Dalda, 2017), which remained a famous brand both before and after the Partition. Similarly, Wazir Ali Industries, formerly known as Hyderabad Khopra Mills, was established before partition for crushing of coconuts and extracting Cottonseed Oil, but in 1954, the Packages group of Lahore acquired this industry and the production of Tullo cooking oil was initiated (Iqbal, 2017).

In the first five-year plan, the government established aims to enhance the growth of the oil seeds and oil manufacturing sectors and provided a special subsidy. An announcement was made for the modifications agriculture field and researchers provided specialized training to farmers. They recommended cultivating oilseeds such as rapeseed, mustard, sesame, coconut, and cotton and imparted them the latest farming methods. The year 1947 to unveiling of this plan in 1955, the data on the quantity of oilseeds was available and the average potential oil yield was provided.

The table below provides figures on the total landed area dedicated to cultivating oilseed crops and the quantity of oilseeds as well as the estimated maximum oil yield:

Acreege under oil seed crops, and production of oilseeds average 1948-49 to 1954-55			
Crops	Acreege (thousands acre)	Available oil seeds(1) (thousands tons)	Oil equivalent (thousands tons)
Rapeseed and Mustard	1624	272	95
Sesame	200	33	12
Coconut	44	55(2)	9
Cotton	3205	537	70
Total	4873	897	186
Notes: (1) After allowing for seed and other uses. (2) Weight of husked ripe coconuts.			

Source: First five year plan

In 1955, Lyallpur was able to make vegetable oil, which accounted for 19.1% of the whole production and this was due to the abundance of cotton seeds in the city. The city made efforts to enhance its productivity by implementing measures in cultivation of cotton, rapeseed, and mustard crops and it had a prominent industry known as the Sheikh Fazul-ur-Rehman oil industry, but it was not the exclusive producer of oil. Lyallpur was comprised of villages so the smaller scale producers from different regions of the districts used old methods for extractions of oil by Kohlus. The Kohlus were small-scale oil producers and they extracted oil by crushing oil seeds as the total Kohlus in 1955 was 100,000, with approximately 12.9% residing in the villages of Lyallpur (GOP, 2016). The overall oil production in the country was 220,000 tons, with approximately 42,000 tons being produced in Lyallpur.

The entire production of vegetable ghee in the country was 14,000 tons that was derived from six factories and Lyallpur made an equivalent contribution compared to other factories. The oil production in small and cottage industry produced 30,000 tons, with a value of 48 million rupees. The government announced its intention to increase the capacity from 14,000 tons to 45,000 tons until the 1960 by investing 5.6 million rupees, while the capital amounted to approximately twenty million rupees. (Paksitan, 1955)

The targeted outcome was not advanced by the government so the government of Ayub Khan took several measures for upsurge of industry. The Ayub Agricultural Research Institute (AARI) was instituted in 1962 that played a significant role in enhancing oil seed production in Lyallpur. The institution initiated research on advanced strategies to maximize oil yield in oil seeds (AARI, 2016). Agricultural University also modernized cotton crop growing which had founded the top part of Pakistan's economy (Tariq, Nisar, & Iqbal, 2023). Lyallpur emerged as the leading hub soon after addition of AARI and innovations occurred in the cultivation of several oil seeds, including rapeseed, mustard, peanut, sesame, and linseed. Lyallpur had expanded into highly promising sectors including agriculture and oil plants in response to increased production demands. After that, an oil seed research center was established in Lyallpur and the institution introduced multiple novel types of oilseeds, such as:

Raya Anmol	Faisal Canola	Faisal Soybean
Khanpur Raya	FH-331	Til-89
TH-3	Faisalabad-83	Punjab Sarsoon (canola variety)
TS-6	TS-5	

Source: AARI

The cultivation of these specific kinds of seed had led to the increase in the oil content and oil seeds as well. This significant contribution of oil seed cultivation had resulted in the growth of the oil industry in Lyallpur. The following date pertained to the progress made in the cultivation of oilseed cultivars at ORI Lyallpur:

Summary of Varieties/Hybrids of Oilseed Crops Developed in ORI Lyallpur					
Institution	Sunflower	Soybean	Rapeseed	Mustard	Sesame
ORI	1	3	4	2	4

Source: Oil Seed Research Center, Faisalabad

The Faisalabad Oil Seed Research Institute, Ayub Agriculture Research Institute, National Institute Biotechnology and Genetic Engineering (NIBGE), and University of Agriculture collaborated to enhance the quality of oilseed in the 1970's, 1980's and 1990's.

Another step was taken to enhance the Oil and Ghee industry was the establishment of the Pakistan Vanaspati Manufacturers' Association (PVMA). In 1961, the association started its working with the objective of expanding the number of industries, amending some regulations,

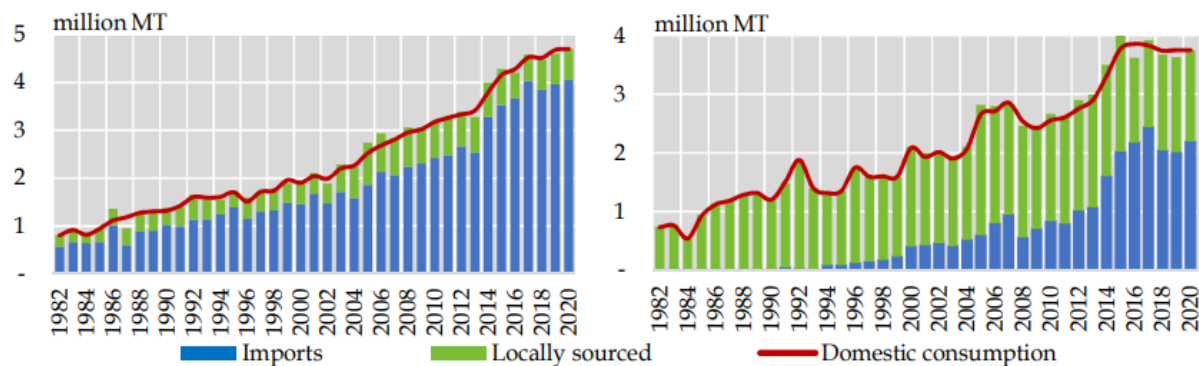
and providing a forum for oil businesses. At earlier it was consisted of 7 members but the Association demonstrated significant progress and jumped up-to 117 enterprises in 2017 that produce Vegetable Ghee/ Cooking Oil as members. These factories approximately paid Rs.120 billion to the government each year as Custom Duty, Federal Excise Duty, and Income Tax. PVMA had enhanced its operations and strived to meet the demands of Pakistan as well as exporting oil to neighboring nations such Afghanistan and the Central Asian States.

There was a consistent establishment seen for new industries in Punjab, largely due to the involvement of Sindhi firms which increased investments in Punjab. New established industries included Hyderi Ghee Mill, Asif Ghee Mill, E. M. Oil Mill, Habib Oil Mills, Maqbool Company ltd., Haroon Oil Mill, Bengal Oil Mill ltd., Burma Oil Mill ltd., Wazir Ali Industry, Suraj Ghee Mill, Kohinoor Oil Mill Limited, Sh. Fazal Ghee Mill, Sargodha Oil Mill, Fazal and Sons Vegetable Oil Mill, A&B Oil Mill (Multan), Morafco Ghee Mill, United Ghee ltd., Punjab Oil Mill, Universal Oil Mill, Crescent Oil Industry, Hilal Oil Mill, Associated Industries Limited, KakaKhel Oil Mill, Chiltan Ghee Mills and Dargai Oil Mills (PVMA, 2016).

Various industries developed in Lyallpur during the 1960s and 1970s and the region began to established prominent brands. United Industries Limited launched Kashmir cooking oil and ghee in 1962 that remained a prominent brand in Pakistan. Kakakhel industries, Punjab oil products, Morafco industries limited, Madni ghee mills, and A & B oil industry also emerged in the same time. Lyallpur significantly impacted on the oil sector during Ayub era.

In five-year plan, President Ayub Khan mandated to the enhancement of oil seeds. AARI conducted research on enhancing the production of oil and oil seeds and by utilization of research and fertilizers, Lyallpur had emerged as the most prolific city for oilseed cultivation. Later on the region emerged as a hub for the cultivation and study of oil and oilseed crops. During the decade of 1960s, the oil sector in Lyallpur remarkably increased 250% compared to the 1950s. A multitude of novice investors embarked on the production of vegetable/edible oil and soap and the region initiated the exportation of oil to Afghanistan and nations in Central Asia. In 1960's, around 9.79 million rupees were injected into the economy of Pakistan (GOP, 2016). Lyallpur served as an exemplary model for other cities of the country and also exported meticulously regulated oil to other nations.

The research facilities provided to Lyallpur helped to introduce several novel oil seed varieties in the 1970s as well. The new varieties included Raya Anmol, Khanpur Raya, Punjab Sarsoon (a canola variety), Faisal Canola, FH-331, Faisalabad-83, and Faisal Soybean. These products were abundant in oil content that ultimately resulted in a significant boost to the oil industry. By 1977, Lyallpur had around twenty major conglomerates, a few small-scale oil enterprises, and a significant number of Kohlus that fostered the economic contribution of the city. The region was augmented as the demand increased, in spite of this the required amount of oil and ghee was not produced in the country. The demand and supply of edible oil and oil seed meal in the country can be witnessed in the following graphs:



Source: Foreign Agriculture Service, United States Department of Agriculture

Conclusion:

The research conducted on the development of the edible oil and ghee industry in Lyallpur from 1947 to 1977 revealed the notable changes and expansions. The edible oil and ghee industry significantly impacted on the economic growth of Lyallpur and made a substantial contribution to the region’s wealth and employment possibilities. The historical data clarified that the edible oil and ghee industry made significant progress in terms of manufacturing processes, infrastructural development, and market expansion as well as oil mills, advanced refining techniques, and the incorporation of innovative technology. The industry was facilitated by government policies and actions, including subsidies, tax incentives and the establishment of infrastructure that fostered atmosphere for entrepreneurs and investors and resulted in upsurge of the number of enterprises and the total level of competitiveness within the industry. It was crucial to recognize the obstacles encountered by the business in this timeframe, including as

market pricing and competition from imported oils. These challenges stimulated to develop and grow the durability of this sector in Lyallpur. In spite of development of industry in the region as well as in the country, the country did not meet its necessities from these mills as the consumption of edible oil was increased with the span of time.

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