

PROGRESS AND PROBLEMS IN THE ECONOMIC DEVELOPMENT OF LIBYA

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At the time of independence, the per capita income in Libya was estimated to be about £L 11 (\$30) per year.¹ At that time, the outlook for the future was bleak, and economic experts were urging Libya to attempt to capture a larger share of the foreign aid handouts of other countries. Two and a half decades later, the situation was very different. The successful exploration, production, and exportation of petroleum had vastly transformed the economy and provided a major impetus to growth. No longer was Libya dependent upon foreign aid.

Everybody acknowledges and is pleased with Libya's rags to riches story. But while everybody agrees that the Libyan economy has grown phenomenally, few people know how much. Similarly, everybody realizes that petroleum has solved many of Libya's former problems. Nevertheless, there are still many people who do not properly realize the new problems which petroleum has brought to the forefront. This paper, therefore, describes the progress which Libya has undergone and some of the new problems with which Libya is confronted. While some of the observations are, admittedly, normative, the objective is to give new insights into what is happening in the economy. New insights may, in turn, yield a better development of Libya.

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¹ Benjamin Higgins, *Economic Development ; Principles, Problems and Policies* (New York : W.W. Norton & Company, Inc., 1959), p. 23.

The Overall of Growth :

Economists usually use national income measures to determine the well-being of an economy. While there is a dearth of statistics on many aspects of the Libyan economy, there are available fairly reliable national income figures which enable the impact of petroleum-induced growth to be analyzed. Gross domestic product (GDP) is a commonly utilized concept which measures the value of output attributable to factors of production supplied to the Libyan economy, irrespective of whether the owners of these factors of production are foreigners or Libyan nationals. The first serious attempt to derive (GDP) estimates by economic sectors was by the Libyan Central Statistics Office with the assistance of a Mission from the International Bank for Reconstruction and Development.² These figures provide a base for comparison because at that time, 1958, the influence of petroleum exploration was only marginal. More recently, the Census and Statistical Department of the Ministry of Economy and Trade has determined figures for 1964, 1965 and 1966 which reflect the impact of petroleum.³ In addition, estimates of net factor income from the rest of the world have been calculated for the years 1957-1966.⁴ These latter figures enable the derivation of gross national product (GNP), since GNP—a measure of the output attributable to factors of production owned by *Libyan* citizens, irrespective of whether these factors are utilized inside or outside the country — is simply the sum of GDP and net factor income from abroad. Since Libya's payment (mainly profits and wages) to foreign factors of production (mainly foreign petroleum

2 See International Bank for Reconstruction and Development, *The Economic Development of Libya* (Baltimore : The John Hopkins Press, 1960) pp. 371-372.

3 See Kingdom of Libya, Ministry of Economy and Trade, Census and Statistical Department, *Estimates of Gross National Product of Libya 1964 - 1966* (Tripoli : Census and Statistical Department, July, 1967).

4 *Ibid.*, p. 3 for 1964-1966 figures and for 1957-1965 figures, Ministry of Planning and Development, Division of Economic and Social Affairs, Statistics and National Accounts Section, «National Accounts : The Petroleum Sector», Statistical Paper No. 15 prepared by Arthur G. Auble (Tripoli : Ministry of Planning and Development, August 2, 1966), (Mimeographed), pp. 1-5. As Dr. Auble realized, his calculations were only concerned with payments by concession holders. The Census and Statistical Department's figures are more recent and cover the entire economy and are therefore considered to be more reliable.

capital and foreign workers) is much greater than its receipts from Libyan factors of production employed abroad, the net factor income from abroad is a negative number, and GNP is correspondingly lower than GDP.

Compound rates of growth for GDP, GNP, population and per capita GNP for the eight years between 1958 and 1966 are presented in Table 1. Notice that between 1958 and 1966, GDP has grown from £L 52.2 million to £L 538.7 million, a tenfold increase in eight years which is equivalent to a compound rate of growth of 33.9 percent per year. Since substantial payments are made to foreign factors of production, the annual compounded rate of growth of GNP has been slightly lower at 30.5 percent. Making allowance for population changes yields a per capita rate of growth of GNP of 26.2 percent per year. Very few countries can lay claim to such a high rate of growth.⁵ Libya is one of the fastest — if not the fastest — developing countries of the world today.

Table 1 indicates that the average income for each Libyan was approximately £L 250 in 1966, and that this figure had been increasing at the rate of 26 percent per year. While the standard of living is definitely increasing at a very rapid rate, there are a number of reasons why it would be incorrect to conclude that everyone's welfare is increasing at a 26 percent rate. The following is a list of these reasons in the order of their relative importance.

⁵ A. J. Meyer has pointed out that per capita incomes in Kuwait increased from \$ 200 to \$ 1000 in less than a decade. See A. J. Meyer, **Middle Eastern Capitalism; Nine Essays** (Cambridge, Massachusetts : Harvard University Press, 1959), p. 2. Libya's per capita GNP was \$ 200 in 1960, and as indicated in Table 1, it was \$ 722 in 1966. All indications are that Libya will match Kuwait's phenomenal growth even though Libya's population is four times as large.

TABLE 1
COMPOUNDED RATES OF GROWTH (1958-1966) OF GROSS
DOMESTIC PRODUCT, GROSS NATIONAL PRODUCT,
POPULATION, AND PER CAPITA GROSS NATIONAL
PRODUCT.

	Millions of £L					Annual Compounded Rate of Growth 1958-1966
	1958 ^a	1964 ^b	1965 ^b	1966 ^b	Change 1958-1966	
Gross Domestic Product	52.2	337.1	426.9	538.7	486.5	33.9
Less Net Factor Payments To Foreigners	1.0	79.7	83.5	107.9	106.9	
Gross National Product	51.2	257.3	343.4	430.8	379.6	30.5
Population	1,279,081	1,564,369	1,617,557	1,672,553	393,472	3.4
Per Capita GNP						
£L	40	164	212	258	218	26.2
\$U.S.	112	459	594	722	610	26.2

^a GDP for 1958 is from International Bank for Reconstruction and Development. **The Economic Development of Libya** (Baltimore : John Hopkins Press, 1960) p. 371. Net factor payments to foreigners for 1958 is from Ministry of Planning and Development, Division of Economic and Social Affairs, Statistics and National Accounts Section, "National Accounts: The Petroleum Sector," Statistical Paper No. 15 prepared by Arthur G. Auble (Tripoli : Ministry of Planning and Development, August 2, 1966), p. 5 (Mimeographed.)

^b National income figures for 1964-1966 are from Kingdom of Libya, Ministry of Economy and Trade, Census and Statistical Department, **Estimates of Gross National Product of Libya 1964-1966**. (Tripoli : Census and Statistical Department, July, 1967), pp. 3-6.

1. Inflation. The figures in Table 1 are given in the prices of the indicated year. But prices have not been constant. Excessive aggregate demand aided by an expanding money supply has resulted in inflation.⁶ Thus, the rate of growth in real GNP is lower. Unfortunately, there is no suitable index number which is readily available to measure the degree of inflation. There is a cost of living index for Tripoli, but it is only applicable to households of Libyan wage earners whose monthly salaries are less than £L 40. Since many of the goods which are consumed in the country originate from Tripoli, this index may be looked upon as a minimum rate of inflation.⁷ With the assumption that rent figures of the original sample are applicable, this cost of living index has risen by 6.1 percent in 1965, 13.6 percent in 1966 and 6.3 percent in 1967. It is probable that the general rate of inflation is slightly higher than the average of these figures, most likely at about 9 or 10 percent per year.⁸ Allowing for such a rate of inflation would leave a real per capita growth of GNP of about 15 percent per year. Thus, even after making rough but conservative adjustments for the impact of inflation, Libya is still developing at a very rapid pace.

2. Income distribution. Table 1 indicates that the average GNP per person was £L 258 (\$U. S. 722) in 1966. Unfortunately, the distribution around this average is highly skewed. The vast majority of Libyans subsist on a figure which is far below the average. A few

6 For an explanation of the causes, but not the degree of inflation, see National Bank of Libya, The Economic Research Department, *Inflation in Libya* (Tripoli : Poligrafico Libico, March, 1961).

7 The argument for using the index numbers of Tripoli as a minimum measure of the increasing cost of living as a whole is given in Bank of Libya, *Tenth Annual Report of the Board of Directors* (Tripoli : Poligrafico Libico, 1966), p. 25.

8 The rate of inflation does not affect all sectors of the economy in an equal manner. Inflation in the construction industry has been particularly acute. This means that more and more of the government's developmental budget, which is mainly for infrastructure, is being expended for inflationary increases instead of real output. With the present construction of the coastal road, the gas plant at Marsa el Brega, the Idris Housing Project, and new pipelines, the inflationary pressure on this sector will be even greater. To combat inflation, the government has imposed credit restrictions, created a state general reserve to absorb some of the petroleum revenues, and allowed liberal importation of goods and skills.

Libyans have become very rich during the oil boom, while the multitude has only achieved meager advancements in its standard of living. The government receives a great deal of the oil wealth in the form of royalties and taxes, and one of its main problems is to devise ways of distributing the money to the people, while at the same time creating the basis for the economic advancements of the future.

3. Low base period. The base period of 1958, from which the growth rates were calculated, yields a high rate of growth which will not be maintained in the future. By 1958, oil exploration had begun, and thus, some of the induced growth had occurred. Nevertheless, compared to the impact on GDP when petroleum was actually exported, the 1958 figures are low. As the economic base becomes larger, the ability to maintain the high compounded growth rate becomes more difficult. For example, GDP was only 22.1 percent greater in 1965 than in 1964 and only 20.7 percent greater in 1966 than in 1965. Both these figures are well below the long run growth rate of 33.9 percent. Although future percentage increases of one year over the other will yield a slower rate of growth, Libyan oil is in very strong demand and the prospects are good that the rate will still be very high.

4. Underestimation of income. In underdeveloped countries, it is more difficult to measure national income. "It is probable that the conventions used in the calculation of national income overstate the rate of growth of real income in a backward economy experiencing economic development; this is so mainly because the subsistence sector generally diminishes and occupational specialisation and exchange increase."⁹ While Libya's modern sector is definitely expanding rapidly, the degree of underestimation of income in 1958 and the consequent overestimation of the rate of growth will not be large. As will be illustrated, the majority of Libya's growth has occurred in the petroleum industry, the one sector which has been measured with the greatest accuracy.

⁹ Peter T. Bauer and Basil S. Yamey, *The Economics of Under-developed Countries* (Chicago : The University of Chicago Press, 1957), p. 21.

The Rate of Growth by Sectors :

The breakdown of GDP according to industrial origin is presented in Table 2. The figures for 1958, which illustrate the pre-petroleum structure of the economy, show that agriculture accounted for approximately one quarter of the total output (26.1 percent); followed by other services which consist mainly of ownership of dwellings (15.7 percent); trade (14.0 percent); government services (12.8 percent); and manufacturing (11.3 percent). These five sectors accounted for 70 percent of the total output. Mining and quarrying

TABLE 2
GROSS DOMESTIC PRODUCT, BY SECTORS, AT FACTOR
COST AND CURRENT PRICES,
1958, 1964-1966.

Economic Activity	Gross Value Added in Million £L						Annual Compounded Rate of Growth 1958-1966
	1958		1964	1965	1966		
	Percent of total	Amount	Amount	Amount	Amount	Percent of total	
Agriculture	26.1	13.6	22.7	22.9	24.6	4.6	7.7
Mining & Quarrying	6.9	3.6	175.4	233.6	309.5	57.5	74.5
Manufacturing	11.5	6.0	11.5	12.8	14.1	2.6	11.3
Construction	3.4	1.8	14.9	23.9	35.5	6.6	45.2
Electricity and Gas	1.5	0.8	1.3	1.4	1.5	.3	8.2
Transportation	5.6	2.9	14.8	17.2	20.3	3.8	27.5
Wholesale and Retail Trade and Storage	14.0	7.3	24.8	27.5	33.3	6.2	20.8
Banking & Insurance	2.5	1.3	5.0	6.4	8.1	1.1	25.7
Public Administration & other Government Services	12.8	6.7	32.1	44.2	52.2	9.7	29.3
Other Services	15.7	8.2	34.6	37.0	39.6	7.4	21.8
Gross Domestic Product	100.0	52.2	337.1	426.9	538.7	100.0	33.9

a Value added for 1958 is from International Bank for Reconstruction and Development, *The Economic Development of Libya*, (Baltimore : John Hopkins Press, 1960), p. 371.

b Value added for 1964-1966 is from Kingdom of Libya, Ministry of Economy and Trade, Census and Statistical Department, *Estimates of Gross National Product of Libya, 1964-1966* (Tripoli : Census and Statistical Department, July, 1967), p. 3.

(which includes petroleum), transportation, construction, banking, and electricity and gas comprised the remaining 30 percent.

By 1966, the percentage contributions of the various sectors had been drastically changed by the overwhelming impact of petroleum. Mining and quarrying alone now accounted for 57.5 percent of the total output. Agriculture, which was formerly the source of 26.1 percent of output, now only yielded 4.6 percent, and all other sectors had similarly decreased in relative importance. These changes attest to the predominant weight which the petroleum industry now has in the economy.

Although the percentage contribution of all non-petroleum sectors has declined, this does not mean that they have failed to expand. Quite to the contrary, many sectors achieved very impressive rates of growth. As Table 2 illustrates, between 1958 and 1966 all sectors except electricity and gas, agriculture, and manufacturing had compound rates of growth which were greater than 20 percent per year. By far the fastest rate of growth was in the petroleum sector (74.5 percent). Construction was next with a 45 percent rate, while the services varied between 20 percent and 30 percent. Agriculture only increased by 7.7 percent per year and manufacturing, 11.3 percent. Making allowances for inflation, it is evident that the directly productive activities of agriculture and manufacturing have increased by only a very small amount.

The Contribution of Petroleum :

The preceding figures indicate that the Libyan economy has significantly changed since 1958. Yet, it would be useful to know how much of that growth is directly and indirectly attributable to the petroleum companies, and what Libya's position would have been if no oil had been discovered. A model indicating the changing contributions of the various segments of the economy has been developed by Dr. Arthur G. Auble of the Ministry of Planning and Develop-

ment.¹⁰ A slightly modified model of Dr. Auble's ideas is presented herein because it indicates the changing origin of Libya's national income and the probable direction of the economy in the future.

Auble was interested in estimating the impact of petroleum expenditures during the intervening years when there were no estimates for GDP. Direct contributions by concession holders were relatively easy to calculate because accurate reports were in government files.¹¹ The indirect contribution from drilling, pipeline construction, transportation, catering, greater governmental expenditures as the result of increased petroleum income, and other petroleum-induced services was more difficult to calculate. The amount of concession holder local expenditures for services was known for the years 1957 to 1965. By assuming that the ratio of local service expenditure to total petroleum-induced and indirect product for 1964 would remain the same throughout the intervening years, Dr. Auble was able to estimate the approximate indirect contribution. More recent information indicates that this ratio did not remain constant. Rather, the ratio declined, and this conclusion is logical when one considers that during its initial years, the petroleum industry had few linkages with the traditional economy and only provided a small amount of revenue to the govern-

10 Ministry of Planning and Development, *op. cit.*, pp. 7-9.

11 Nevertheless, how to handle a company which incurred a loss posed a difficulty. Auble correctly pointed out that the value added technique (sales minus inputs) was not applicable when there were firms who were not yet exporting oil and who were making a loss (the majority of firms during the intervening years). The only suitable alternative was the technique of summing the payments to factors of production (wages, rent, interest, profits, and depreciation). But even under this method, there is a dilemma of what to do with losses. To consider them as having a negative impact on value added is tantamount to subtracting the wages, rent, interest, and depreciation which have already been included as value added. For this reason, Dr. Auble did not subtract losses from his figures. Auble added only the profits of firms with profits. The Census and Statistical Department subtracted losses and criticized Auble's technique because even firms with profits have prospecting losses which are offset by the profits of production. Nevertheless, one must remember that Auble was dealing primarily with the intervening years when profits were the exception. To be completely accurate, the imputed value of prospecting work should be known for all companies, but unfortunately such information is not readily available. Fortunately, however, there is not a large difference between the two techniques of handling losses. The official Census and Statistical Department's figures are used for 1964 and onwards, but it is felt that Dr. Auble's figures at least make a partial adjustment for value added through investment and represent a truer picture prior to that time.

ment. Therefore, an alternative assumption has been proposed; that concession-holder local expenditures for services presented 100 percent of the indirect and induced contribution during and prior to 1958¹² and declined in a linear fashion until it reached the 1964 ratio. This assumption enables the traditional sector value added for 1957 and 1958 to be calculated as a residual. Then, the contribution of this traditional sector which was not attributable to the petroleum industry can be estimated by using Auble's assumption that the economy would have grown at a rate of four percent per year in the absence of petroleum. The petroleum indirect and induced product could then be calculated as residuals for 1964, 1965 and 1966, since the total GDP was known for those years. Finally, the same figures for the intervening years were calculated on the basis of the former assumption of a linearly changing ratio.¹³ The resulting breakdown of the contribution to GDP by origin is presented in Table 3, with a graphical representation in Figure 1.

As can be seen from Table 3 and Figure 1, up until 1962, the contribution of sectors which were stimulated by petroleum development accounted for the major increases in GDP. Starting in 1963, the direct contribution by petroleum concession-holders became the major source of Libya's GDP increases. This situation should continue because Libyan exports in 1967 increased remarkably and expectations for the future remain high. As more firms begin exporting, and as present exporters increase their volume, the direct contribution will increase even further. As more exports and profits are made, the government's share of the direct contribution in the form of taxes will increase. In 1965, over one-half of the direct contribution to GDP by concession-

12 Only part of the concession-holder local expenditures represents value added since some of the costs consist of inputs not attributable to the Libyan economy. Nevertheless, even in 1958 there were some indirect linkages. The assumption of a 100 percent ratio, therefore, is equivalent to saying that these other linkages were equal in value to the cost of the inputs.

13 Local service expenditures were £L 42.4 million or 34 percent of the 1964 induced and indirect contribution. The linear equation used to get the ratio for the intervening year was $Y = 100 - .11X$, where Y is the ratio and X is the year ($X_0 = 1958$).

TABLE 3
GROSS DOMESTIC PRODUCT, (IN MILLIONS OF £L), 1958 - 1966
BY SOURCE OF CONTRIBUTION

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Gross domestic product in 1958 increased by 4% per year.	39	41	43	44	46	48	50	52	54	56
Gross value added by petroleum concession-holders	2	3	3	6	9	27	96	162	217	291
Gross value added by sectors stimulated by petroleum development	3	8	10	25	35	67	79	123	156	192
Approximate Gross Domestic Product.	44	52	56	75	90	142	225	337	427	539

* 1957 - 1963, Ministry of Planning and Development, Division of Economic and Social Affairs, Statistics and National Accounts Section «National Accounts : The Petroleum Sector.» Statistical Paper No. 15 prepared by Arthur G. Auble (Tripoli : Ministry of Planning and Development, August 2, 1966), p. 5 (Mimeographed). 1964-1966 value added by concession holders is from Kingdom of Libya, Ministry of Economy and Trade, Census and Statistical Department, Estimates of Gross National Product of Libya, 1964-1966 (Tripoli : Census and Statistical Department, July, 1967) p. 16.

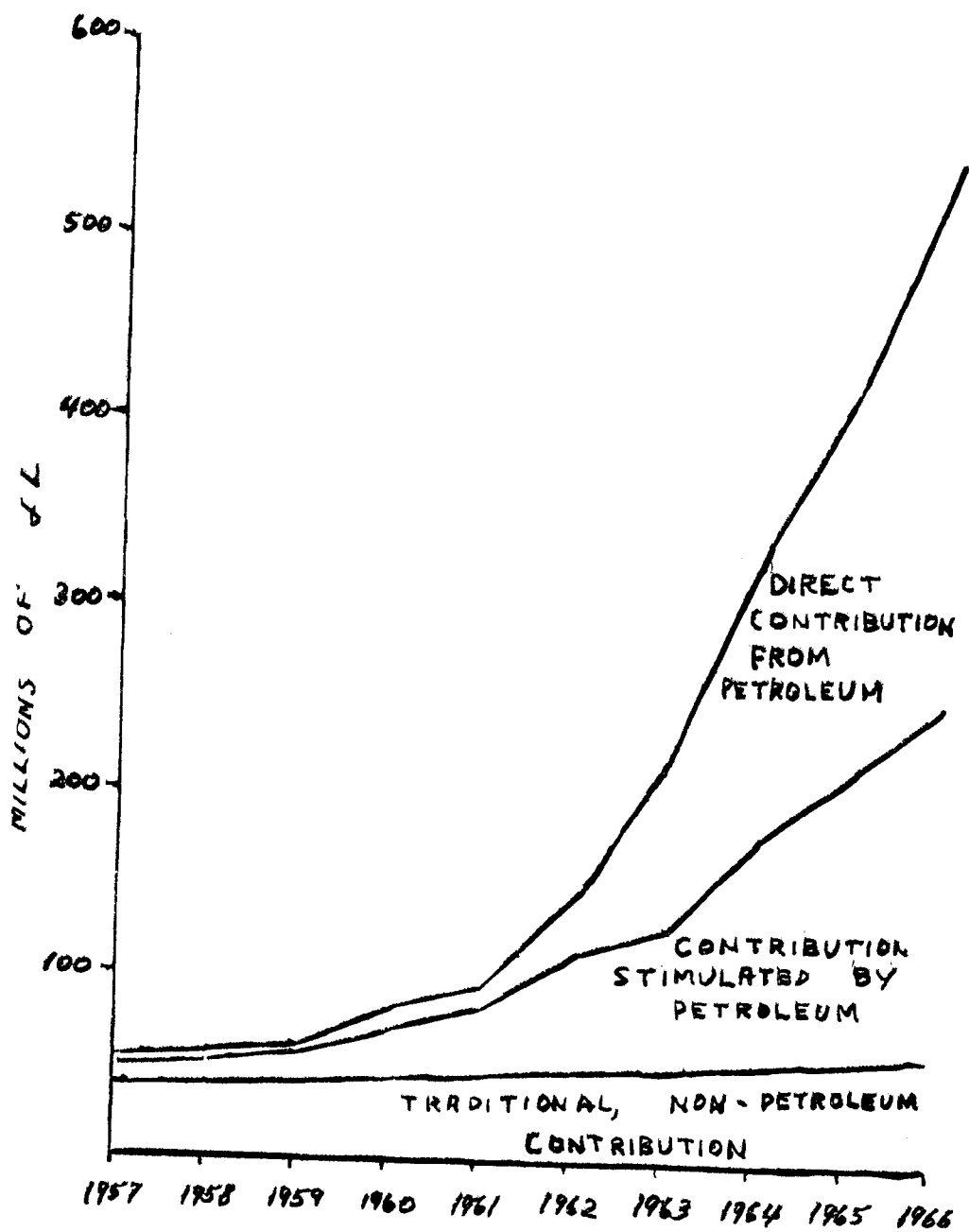


Fig. 1

holders consisted of taxes charged by the government of Libya. The government has used such revenues to vastly expand its services and to finance its huge development plans. These revenues and expenditures have become so large that the non-petroleum sectors are now primarily stimulated through the government's participation. It is true that the petroleum industry has few direct linkages with the rest of the economy. Indirectly and primarily through the revenues which it supplies to the government, however, the impact of petroleum permeates the whole economy.

The new problems

The receipt of abundant revenues was not automatically a panacea for all of Libya's economic problems. Indeed, the situation is now much better, but there are still troublesome problems requiring consideration. The most crucial problem relates to manpower. Merely a decade ago, the supply of labor was considered adequate, and capital and natural resources were considered to be the major inhibiting variables, given the factor proportions of that time. Today, natural resources, with one exception, are still generally considered to be insufficient, but the relationship between capital and labor has been reversed. Capital has become abundant while labor has become scarce.

It is very evident that Libya lacks the requisite number of skilled workers. The large number of skilled foreign workers and the continued requests of employers for educated workers attests to this fact. What is not so clear, however, is if there is really a shortage in the *number* of workers. There is abundant evidence that the labor force is not utilized to its utmost capacity and that if greater utilization were achieved, the shortage would be alleviated. In many offices, one can readily see employees who have insufficient work to keep them busy.¹⁴ Government departments are frequently the most notorious in this

14 Frequently these same offices have other employees, usually of higher rank, who are overworked. Sometimes this overwork is the result of their failure to develop their subordinates and to delegate authority. Another difficulty, however, is the low quality of the subordinates.

respect because they are reluctant to declare a worker as being redundant. Nevertheless, the government is aware of this problem, because it recently passed a law which stops ministries from hiring any more workers with the exception of university graduates. A second example is the frequent observation of the traditional labor-intensive techniques of work. A substitution of capital for labor or new methods which yield higher rates of labor productivity would enable fewer workers to achieve the same or greater output. In certain respects, this change is occurring in the agricultural sector. New machines and other labor-saving devices are releasing farmers from many of their former chores. Some farmers are thereby able to expand their production or undertake non-farm employment. A third indication is the large number of people who reported themselves as being unemployed during the population census of 1964. The majority of these people were unskilled and new to the labor force; they desired a wage-paying job, although they were not sure of what type of job for which they were qualified.¹⁵ The observation of many people who appear to be idle tends to substantiate the census figures. Finally, womanpower is a labor resource which has hardly been touched. But social values towards the role of females is rapidly changing, and the future labor force will undoubtedly be composed of a larger percentage of women.

All four of the preceding examples illustrate that there is still room for greater utilization of indigenous human resources. What the four examples do not illustrate is whether the favorable restructuring of the labor force which is occurring in the economy will enable Libyans to eventually dispense with their dependence upon foreign technical workers and to operate the economy solely on the basis of their own labor resources. In other words, there is definitely a shortage of workers in the skilled categories, but *it is still not clear whether Libya is really lacking an adequate total number of workers*. Libya's impressive educational and training programs may soon satisfy most requests for skilled workers,

15 This is the main finding of my article "Unemployment and Underemployment in Libya." *The Libyan Economic and Business Review*, Vol. 11, No. 2, (Autumn, 1966). In a fast changing society like Libya, unemployment has probably been considerably reduced since 1964.

and improved techniques may soon decrease the requirements for unskilled workers. Urgent research is required to determine whether Libya's current manpower problem is simply a short-run lack in skills or more perplexing, a long-run deficiency in numbers.

Research into manpower problems such as the quality versus quantity debate is very important because of the bearing which the findings would have on policy formulation. Businessmen, developmental planners and governmental administrators all must make decisions in spite of the fact that only partial information is available. More reliable research findings would enable decision-makers to devise sounder policies based upon facts instead of assumptions. Consider, for example, the following questions which require more thorough research.

1. Should Libya be promoting population growth or lower rates of fertility? If there is really a long-run shortage in the number of domestically available workers, then perhaps population growth should be promoted through family allowances, low maternity costs, or greater income tax exemptions. Alternatively it may be wise to allow a relatively high degree of immigration.¹⁶ If, on the other hand, the manpower shortage is only temporary, then a more moderate rate of population growth may be of greater benefit to Libyans and Libya alike. This latter policy, if it contained birth control measures, would meet social opposition.

2. Is migration to the urban areas beneficial or harmful to

¹⁶ Immigration of females would be particularly beneficial because there is a dearth of single females as compared to single males. **The General Population Census, 1964** shows that for every five single males over the age of eighteen, there is only one single female over the age of sixteen. The large number of single males is counterbalanced by a large number of middle-aged widows. This finding arises from the tendency of males to marry girls who are much younger than themselves. Many males therefore die before their wives, leaving many widows in the society. So long as males are content to wait several years before marrying, and so long as females continue to marry at a young age, then the social problems associated with the large discrepancy between single males and females are unlikely to be troublesome. In the future, however, females will probably remain in school longer and young males with greater petroleum wealth will probably want to get married earlier. For statistics according to age and marital status, see Kingdom of Libya, Ministry of Economy and Trade, Census and Statistical Department, **General Population Census, 1964** (Tripoli : Census and Statistical Department, 1966) pp. 27-29.

the economy? A frequently heard argument is that such migration should be restricted, because the urban areas cannot handle the large influx of people. Both Benghazi and Tripoli have shantytowns which are problems to the municipal authorities.¹⁷ Yet these housing conditions may be no worse than what the migrants formerly had in the rural area. The only definite disadvantage is the greater health hazard associated with closer living. People migrate in order to get better jobs, public services, potable water, increased social life, and other amenities associated with development. To oppose people's natural tendency to migrate may, therefore, be equivalent to opposition to citizens bettering themselves.

3. Will agricultural output decline as a result of migration ? That such a decline will occur is a second reason generally given to oppose migration.¹⁸ The output of some crops such as olive oil has declined, but it is also true that crops such as oranges and groundnuts have increased. Table 2 indicates that the total agricultural output (in current prices) has grown by only about four percent per year since 1964. Because this rate is below the rate of inflation of agricultural products, it tends to indicate that agricultural output has fallen. Nevertheless, the debate is not closed because agricultural statistics are still rough, and the impact of heavy capital investment in agriculture was only beginning to be felt after 1966.

4. How many farm workers are needed? The substitution of capital for labor on farms will mean either that farmers can expand their scale of operations or else that they will be relieved of much of their farm work. Probably both changes will occur, and the natural

17 For a description of the impact of migration on Tripoli, see Robert S. Harrison, «Migrants in the City of Tripoli, Libya,» *The Geographical Review*, (July, 1967), pp. 397-423.

18 It should be noted that a person who uses this argument to oppose migration is supporting the sentiment that agricultural resources must be fully employed in spite of the fact that subsidization may be required from other sectors. The viewpoint of the development planner would be somewhat different : how to utilize each factor of production such that its marginal productivity is no less than elsewhere in the economy. This later objective would maximize total output of the economy, and it would not necessarily achieve full utilization of all agricultural resources.

tendency will be for some farmers to seek non-farm employment while others will operate larger farms. The subsidiary question is then raised regarding the most economical size of farm for the optimal number of farmers. Obviously, there is no single optimal size because the size will vary according to the type of crops planted, local terrain, soil conditions, availability of water, distance to markets, and so forth. Yet in many places the National Agricultural Settlement Authority—an autonomous government agency patterned after the former Italian settlement organizations—is developing the Italian demographic farms without any modification to their size. The Italians were using Libya as an outlet for their surplus labor from southern Italy, and the demographic farms were consequently designed to be labor intensive. With present-day Libya experiencing migration, manpower shortages, and mechanization of farm, there is likely to be a decline in the number of farmers, and one wonders whether the present size of farm is too small. If so, then some type of land reform policy which facilitates the consolidation of farms would be very beneficial.

5. How should the construction of houses be distributed between rural and urban areas? Sixty percent of the Idris Housing Project's 100,000 houses is supposed to be destined for the rural areas.¹⁹ If there is migration, consolidation of farms, or changes in jobs, then it is going to be very difficult to plan where to locate houses. In addition, a house is a very personal possession, and it is uncertain what the reaction Libyans will have to the planned housing. A pilot sociological study of the new town of el Marj would be very useful in assessing the possible attitudes of citizens to the larger Idris Housing Project. A socio-economic study would be useful in assuring that houses are located in the correct places.

Besides the problems associated with manpower, Libya has a prob-

¹⁹ The Idris Housing Project was planned as 100,000 houses within five years for £L 400 million, yielding an average cost of £L 4,000 per housing unit. The contract for the first 9,200 housing units was for £L 52.68 million or about £L 5,700 per unit. If this per unit cost is typical of the rest of the project — inflation will probably make it larger— then the total cost will be exceeded by a large amount. The project will also take longer than five years to complete.

lem associated with money. Many people would not call it a problem because it is one of what to do with the massive oil revenues which the government has accumulated. As Higgins and Royer have demonstrated with very liberal estimates of labor productivity and labor force growth, it will be impossible to invest seventy percent of the oil revenues—as provided in a constitutional rule—with oil exports greater than two billion barrels per day.²⁰ In the spring of 1968, Libya was exporting about 2.5 million barrels per day, and the rate expected for the end of 1969 is 3.5 million barrels per day. Higgins and Royer suggested that the government could do three things with the resulting new wealth.

1. Invest as much as possible in the non-oil sector so that a base is established for self-sustained growth when oil reserves are depleted.
2. Achieve a better distribution of wealth and greater welfare for citizens through a consumption of the potential capital.
3. Control inflation by restricting the amount domestically invested and consumed by either conserving the oil in the ground or investing excess revenues abroad.

To date, the Libyan government has shown no intention of restricting exports and keeping oil in underground storage. It has invested heavily through its developmental plan, and it has allowed a large expansion of public and private consumption. It has also accumulated substantial foreign reserves. Part of these reserves were given away as Libya's assistance to the United Arab Republic, Jordan, and Syria following the Middle East war of 1967 ; Libya has now given foreign aid whereas it was formerly a recipient. Regarding the other portion of the foreign assets, Libya has the problem of wisely investing them. Thus, Libya must have sound planners who can strike a proper balance between foreign aid and portfolio investment in the external economy, subsidized consumption and capital investment in the

20 Benjamin Higgins and Jacques Royer, «Economic Development with Unlimited Supplies of Capital : The Libyan Case.» *The Libyan Economic and Business Review*, Vol. 111, No. 2, (Autumn, 1967), p. 24.

domestic economy, and revenues allocated to the external and domestic economies.

Conclusions :

Petroleum has been the most important economic event in the modern history of Libya. It has caused and stimulated a growth which was unforeseen at the time of independence. It has also given the Libyan government and people the opportunity to restructure their economy and society so as to perpetuate their standards of living.

Petroleum first affected the Libyan economy indirectly, through exploration, drilling and construction of pipelines. Later when oil was exported, the national income directly attributable to the oil industry quickly overshadowed the non-oil segments. Indeed, the non-oil segments will grow no faster than the petroleum sector so long as they remain largely a function of oil exports. The government's primary problem is to develop some other type of economic activity outside of oil so that the non-oil segments can continue to expand irrespective of whether or not oil revenues are received. In achieving this end, the government is confronted by the shortage of skilled manpower.

Changes have occurred so rapidly in Libya that it is difficult for the policy-maker to ascertain exactly what is happening. Under these conditions, decisions must be made on the basis of assumptions, and if an assumption is wrong, then so will be the decision. Uncertainty still surrounds many problems such as the unresolved ones mentioned herein. Investigation into them should be given top priority because only then will the planner be assured that his assumptions are correct. Higgins and Royer concluded their extremely useful research by saying that "When in doubt, educate."²¹ While they did not say what type of education is most useful to Libya, it is true that all types would yield high returns. But perhaps an equally useful maxim for the development planner would be "When in doubt, research".

21 Ibid., p. 30.