DETERMINANTS OF FEMALE LABOR FORCE PARTICIPATION: THE CASE OF LIBYA

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PARTICIPATION: THE CASE OF LIBYA

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CHAPTER I

INTRODUCTION

The beginning of oil exports toward the end of 1961 brought about a major change in the Libyan economy. From then on the oil industry became the principal bulwark of the economy. Oil now accounts for the greater part of the national income, the bulk of government revenues, and is the mainstay of the balance of payments.

The discovery of oil and the subsequent accumulation of a large volume of financial capital made earlier economic constraints appear less critical. But the accumulation of capital had the effect of itensifying the shortage of trained manpower. This led to a new type of stress under which the Libyan economy was advancing. This situation was best described by The Economist: ". . . Libya lacks . . . planners, administrators, and technicians; the government is forced to compete with wealthy oil companies and other foreign firms for the limited supply of trained people."[1] The shortage of trained manpower, as Rawle Farley points out, "threatened to dampen the advance of the Libyan economy even in the oil sector."[2]

Faced with this situation, the government tried to find solutions

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[1] The Economist, Vol. 215 (London, 1965), p. 1323.

[2] Rawle Farley, Planning for Development in Libya: The Exceptional Economy in the Developing World (New York, 1971), p. 97.

to the shortage of manpower via several approaches. One main approach used was the importation of foreign manpower from many different countries. For example in 1973 foreigners constituted 9% of the total population, but in the same year they made up 22% of the total labor force.[3]

Foreign manpower makes a major contribution to the economic growth of Libya. However, it is not a secure and reliable source of manpower, especially when political and other considerations intervene; the government has, however, recently started to exploit further the country's internal sources of manpower. Women are of these sources of manpower which has a great future potential for Libya. This research views women as a significant potential internal source of manpower.

Nature of the Problem

The changing sex composition of the American labor force has been widely noted and commented on in recent years. In the United States, women supply more of the labor required in industry today in both relative and absolute terms than ever before in history. Many observers predict an increasing reliance upon women in filling job demands in the future.

Historial trends in female labor participation are explained in part by accompanying changes in social and economic organization which have facilitated and encouraged the employment of women. Perhaps the most significant of these changes has been the shift of economic

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[3]Ministry of Planning, General Census: Summaries, Census and Statistics Department (Tripoli, 1973), p. 7.

activity away from the home and the farm. Furthermore, technological changes have reduced the physical demands of production jobs and increased the clerical opportunities within the economy.

In Libya, another significant change has occurred in social attitudes toward the employment of women. Many of the traditional barriers to employment of women were dropped as the result of the rapid growth of education. Oil discoveries accompanied by economic expansion during the last fifteen years have created continually expanding job opportunities in excess of the male labor supply.

These economic, technological, and social changes have affected the patterns of work and employment as well as the sex composition of Libyan labor force. The female component of the labor force, although relatively small compared with that in the United States, has increased remarkably in the last fifteen years, not only in absolute terms but also as a percentage of the total labor force. In 1964 female labor force participation rate was 4%. By 1973 it had increased to 5%. The rate is expected to increase to 5.2% in 1975; 5.7% in 1980; and 7.2% in 1985.[4] A further and more rapid increase would contribute substantially to economic well being in Libya.

There have been several studies of the determinants of the labor force participation of women in the industrialized countries, notably the United States and Canada. A substantial amount of knowledge has been accumulated about the relative and absolute importance of several

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[4] N. Jibril and F. Zuni, The Better Half of Society in Libya (Benghazi, Libya, 1976), p. 17; Committee for Study of Promoting Productivity, Revised Resume of the Report of the Committee for Study of Increasing the Contribution of Women to Economic Activities (Secretariate of Planning, Tripoli, 1977), p. 3.

factors in explaining why women work. There are few similar studies in most of the underdeveloped countries; and in some individual countries, such studies do not exist at all.

Purpose of the Study

Stated in its broadest terms, the objective of the study is to ascertain the most important determinants of the labor force participation of women in Libya. The study attempts to investigate and assess the magnitude and direction of the several factors which might affect the decision of women in Libya to seek employment.

Significance of the Study

Although the historical background provided earlier offers a basis for understanding the factors contributing to the increased labor force participation of women during the last decade or two, it is not adequate for understanding the behavior of this segment of the labor force at the present time. For example, the historical background does not indicate the specific factors which influence the decision of the individual woman to enter the labor force, and thus does not enable us to predict which women will be most likely to seek employment. In addition, we need information concerning the labor force behavior of women for an analysis of the implications of an increasingly female labor force.

In 1979, Hunni ed

The study is the first attempt to investigate the influence of some factors which one might expect to play an important role in determining the labor force participation of women in Libya; it will shed some light on those determining factors and present conclusions

which will help in formulating manpower policies. If factors affecting labor force participation of women in Libya can be uncovered, and particularly if the relationship can be quantified, a basis exists for more or less defined projections of labor force size, given data on population size and composition. Such projects are crucial to long run economic forecasts and to economic planning. In addition, a number of policy issues require proper understanding of the sources of variation in labor force participation.

Hypotheses of the Study

The study tests the hypothesis that decisions of women to seek employment are a function of economic considerations, family composition, and personal factors:

Economic Considerations

1. We would expect labor force participation of women to vary inversely with the amount of family income excluding earnings of the woman.

2. We would expect labor force participation of women to vary positively with unemployment of the family head.

3. We would expect lower labor force participation of women in families owning their homes.

4. We would expect a direct relationship between the number of labor-saving home appliances owned by the family and the labor force participation of women.

Family Composition

1. We would expect greater labor force participation among women in smaller families.[5]

2. We would expect the participation of mothers of children under six years to be less than the rate of mothers of older children.

Personal Characteristics

1. We would expect age of women to be positively related to labor force participation up until the prime working age of women, and thereafter we would expect such participation to drop.

2. We would expect labor force participation to vary directly with the extent of formal education of women.

3. We would expect labor force participation to vary with the marital status of women.

Organization of the Study

The study is divided into seven chapters. In addition to the foregoing, Chapter II describes the state of the Libyan economy. It is necessary for the study of labor force participation to discuss briefly and summarize the state of the economy before and after the discovery of oil.

Although there has been little written about women in Libya, in Chapter III an attempt will be made to describe the status of Libyan women.

Chapter IV will be devoted to a brief discussion of some theories

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[5]Family here means not only the primary conjugal family but also additional relatives, such as aunts, uncles and cousins.

of labor supply and relevant empirical studies.

Chapter V presents the model through which the hypotheses of the study will be examined. It also contains a brief discussion of the procedures that were used to collect the data and how the sample was designed. Chapter VI deals with the analysis of the data. The analysis was designed to identify those variables which best explain the variance of the dependent variable, labor force participation of Libyan women, and to determine the nature of relationships of these variables.

Chapter VII summarizes the major findings of the study and their implications for policy.

CHAPTER II

THE STATE OF THE LIBYAN ECONOMY

The Libyan economy will be described briefly in this chapter, giving special attention to the radical change which has taken place since the discovery of oil. But first mention must be made of changes which have occurred in the population of the country. A census taken in 1964 gave a total population of 1,564,400 of whom 1,515,500 were Libyans and 48,900 non-Libyans. Thereafter, population grew rapidly. In the 1973 census the total population was 2,290,700, made up of 2,088,000 Libyans and 202,750 non-Libyans. The Libyan population had thus increased by 38% while the non-Libyan population had increased by 315%, as shown in Table I.

Introduction

Economic Aspects

A common theme that runs through most of the literature on economic development is the emphasis placed on capital accumulation. Developing countries are normally capital-scarce countries. As an important U.N. report declares,

> if any one scarce factor associated with underdevelopment should be singled out, it would be capital. The final goal of development planning is, therefore, to find the best way of breaking the vicious circle between capital

TABLE I

POPULATION CHANGES IN LIBYA BETWEEN 1964-1973

Item	1964 Census	1973 Census	Absolute Increase 1964-1973	Percentage Increase 1964-1973	Average Annual Rate of Increase
Total Population	1,564,369	2,290,734	726,365	46	5.1
Libyans	1,515,501	2,087,983	572,482	38	4.2
Non-Libyans	48,868	202,751	153,883	315	35.0

Source: Libyan Arab Republic, Ministry of Planning and Scientific Research, Report on Manpower Situation 1974 (Tripoli, 1975), p. 18.

shortage and underdevelopment and to assign the most efficient and optimum rate of capital accumulation.[1]

The notion of capital scarcity has usually been the cornerstone of most economic conceptualizations of underdevelopment. Economic growth requires capital accumulation and the efficient use of available resources. Out of this can come a higher volume of production and a rising per capita income, the two most important indicators of economic development.

It is important to point out, however, as Louis J. Walinsky argues, that growth, "is not quite synonymous with economic development

[1] U.N. Economic Commission for Asia and the Far East, Programming Techniques for Economic Development with Special Reference to Asia and the Far East, Development Programming Technique Series No. 1 (Bangkok, 1960), p. 8.

and is, alone, not quite enough to ensure it."[2] It also is argued by Professor El-Mallakh that while growth:

> stands as the most essential element in development, it is not synonymous with economic development and alone cannot guarantee it. To put it more explicitly, development implies not only growth but also a better distribution of income and a better sectoral balance. It is in these areas that Libya faces her challenge.[3]

Economists who have written about Libya have referred, especially in later years, to the Libyan economy as an "exceptional" case.[4] Indeed as El-Mallakh writes,

> If the economic growth occuring today in Libya were to be described without identifying the country, it would be dismissed most likely as an extremely hypothetical case, too dramatic to be real.[5]

The economic growth of oil-producing countries such as Libya, Kuwait and Saudi Arabia has often been invoked to represent evidence in favor of R. Nurske's theory of "balanced growth" which is based on the assumption of an unlimited supply of money capital.[6] Furthermore these cases of economic growth, as Farley argues, may well force a reexamination of economic growth theory in the traditional sense.[7]

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[2]Louis J. Walinsky, The Planning and Execution of Economic Development (New York, 1963), p. 22.

[3]Ragaei El-Mallakh, "Affluence Versus Development: Libya," in The World Today (Nov., 1968), pp. 475-82.

[4]Farley, op. cit.

[5]R. El-Mallakh, "The Economics of Rapid Growth: Libya," in the Middle East Journal (Summer, 1969), 23, 3, pp. 308-20.

[6]R. Nurske, Problems of Capital Formation in Underdeveloped Countries (Oxford, 1962).

[7]Farley, op. cit., Chapter 10.

For the formulation of national development policies, however, the implications of affluence can be seen in relation to the patterns of decision-making which, as a result of relative capital abundance, are no longer geared to asking "either/or" questions in the context of a shortage of capital. This is not to suggest that "either/or" questions have ceased to be raised in Libya as a result of the discovery of oil. The point we wish to make is that the discovery of oil and the subsequent accumulation of a large volume of financial capital have made the capital constraints much less critical. However, the "either/or" questions must be asked in regard to available manpower, for Libya is a case of economic development thrust upon a country with very limited supplies of labor. Farley points out that,

> The limitations derive from the shortcomings--whatever the reason--of the educational system, the noncorrelations of planned projects with labor and resource availability, and a cultural mores which traditionally disallowed women from even a participant role in the labor force.[8]

Economic Conditions Prior to the Discovery Of Oil

Prior to the discovery of oil the economy of Libya was characterized by the existence of many of the same problems which have afflicted other developing countries: a low level of domestic production and consumption and a chronic trade deficit overcome only by infusions of foreign aid. In Libya there was moreover a lack of exploitable natural resources or potentially fertile areas. For more than eleven centuries Libya was an area of almost unrelieved desolation, except

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[8] Ibid., p. 251.

for a slender strip along the Mediterranean and a few oases where a semi-primitive type of agriculture was carried on while nomads pastured their flocks in the hinterland.

Notable progress in improving conditions in Libya was recorded during the Italian occupation from 1911 to 1942. A good road system was built, some diseases were brought under control and Libya's productivity multiplied as irrigation systems were developed and new crops and agricultural techniques were introduced. It must be recognized, however, that, as the World Bank report stated in 1959,

> the Libyans paid heavily for what the Italians achieved. They were pushed off some of the best farming land in the country, large numbers of their livestock were lost in the fighting (especially in Cyrenica) and their traditional industries suffered severely from competition from Italian products. Moreover, the Italians did little or nothing to prepare the Libyan people for self-government. Education and technical training were neglected, and the Libyans were virtually excluded from administration.[9]

At the time of independence in 1951, then, Libya's economic position was not one to inspire confidence in her future. Within the field of economic development, Benjamin Higgins writes,

> Libya's great merit as a case study is as a prototype of a poor country. We need not construct abstract models of an economy where the bulk of the people live on a subsistence level, when per capita is well below $40 per year, where there are no sources of power and no mineral resources, where agricultural expansion is severely limited by climatic conditions, where capital formation is zero or less, where there is no skilled labor supply and no indigenous entrepreneurship.[10]

Indeed Higgins goes on to sum up the prospect for future

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[9] IBRD, The Economic Development of Libya (Baltimore, 1960), p. 27.

[10] B. Higgins, Economic Development: Principles, Problems and Policies, 1st ed. (New York, 1959), p. 26.

economic development in Libya in the following pessimistic terms:

> Libya combines within the borders of one country virtually all the obstacles to development that can be found anywhere: geographic, economic, political, sociological, technological. If Libya can be brought to a stage of sustained growth, there is hope for any country in the world.[11]

Paul Hoffman, the Managing Director of the United Nations Special Fund, has said that,

> it would be poetic justice if Libya, one of the poorest--if not the poorest--independent country in the world in 1952, became, during the United Nations Development Decade, one of the countries with the most promise.[12]

It was literally true that without foreign assistance, both financial and technical, Libya had no hope of raising her standard of living or even maintaining it at its abysmally low level. Fortunately for Libya foreign assistance was forthcoming either in exchange for Libya's consent to allow her territory to be used for military purposes, or through international aid, especially by the United Nations and its affiliated agencies. It is clear, however, from Table II that there was a considerable deficit of revenues compared to expenditures even if foreign aid is taken into account. The Table shows that a modest surplus was recorded during the period 1953-1958, with the largest surplus of 3,409,000 in Libyan Dinars (L.D.) recorded in 1957-1958. From then on during the pre-oil years, deficits became increasingly large. For example, the deficit more than tripled between 1958 and 1963. The deficit rose from L.D. 3,072,000 in

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[11] Ibid., p. 37.

[12] U.N., Technical Assistance Newsletter, II, 20 (January, 1964), p. 8.

TABLE II

PUBLIC REVENUES AND EXPENDITURES, FISCAL YEARS 1952/53 TO 1962/63*
(IN THOUSANDS OF LIBYAN DINARS)**

	1952/53	53/54	54/55	55/56	56/57	57/58	58/59	59/60	60/61	61/62	62/63
Domestic Revenues	4,881	5,239	5,549	7,061	8,147	9,595	10,269	11,542	15,353	18,882	24,430
External Revenues	1,273	4,013	5,641	6,270	9,979	10,845	6,683	6,821	6,821	6,821	6,821
U.K.	1,110	3,913	3,750	3,750	4,000	4,250	3,250	3,250	3,250	3,250	3,250
U.S.A.	--	--	1,786	2,500	5,714	4,875	3,393	3,571	3,571	3,571	3,571
France	163	--	--	--	--	--	--	--	--	--	--
Loans from U.S.A.	--	--	--	--	--	1,250	--	--	--	--	--
Other	--	100	105	20	265	470	40	--	--	--	--
Total Revenues	6,154	9,252	11,190	13,331	18,126	20,440	16,952	18,363	22,356	25,703	31,251
Adminis. Expend.	6,279	7,621	8,044	9,077	10,313	12,053	15,670	17,844	18,640	28,071	35,432
Development Expenditures	340	612	753	3,901	5,120	4,970	4,354	2,769	9,702	6,385	9,000
LARC***	--	--	--	2,485	4,028	3,851	3,518	1,314	662	--	--
LPDSA	340	612	753	1,416	1,082	1,127	836	609	407	--	--
LAJS	--	--	--	--	--	--	--	846	1,846	1,062	--
DC	--	--	--	--	--	--	--	--	6,717	5,323	9,000
Total Expenditures	6,619	8,233	8,797	12,978	15,433	17,031	20,024	20,613	28,342	34,456	44,432
Deficit of Domestic Revenues	1,738	2,994	3,248	5,917	7,286	7,436	9,755	9,071	12,807	15,574	20,002
Surplus (+) or Deficit (-) of Revenues over Expenditures	-465	+1,019	+2,393	+353	+2,693	+3,409	-3,072	-2,250	-5,986	-8,753	-13,181

*During this period the fiscal year ended March 31.

**Between: 1950-1970 L.D. 1 = $2.80; 1971-1972 L.D. 1 = $3.04; and 1973-1978 L.D. 1 = $3.38.

***LARC = Libyan-American Reconstruction Commission.
LPDSA= Libyan Public Development and Stabilization Agency.
LAJS = Libyan American Joint Services.
DC = Development Council.

Source: Bank of Libya, The Development of Public Finance in Libya 1944-1963 (Tripoli, 1965), pp. 59-60.

1958-1959 to L.D. 13,181,000 in 1962-1963.

Economic Conditions After the Discovery of Oil

The beginning of oil exports toward the end of 1961 constituted a major turning point in the Libyan economy. From then on, the oil industry became the principal bulkwark of the economy. Oil accounted for the greater part of the national income and the bulk of government revenues, and became the mainstay of the balance of payments.

Table III shows that crude oil production rose from 20,000 barrels a day in 1961 to 3.36 million barrels a day in 1970. But in 1970 the government undertook conservation measures which resulted in cutbacks in production, so that total production was reduced to 1.48 million barrels a day in 1975.

Having accounted for only around L.D. 51,000 in the fiscal year 1955/56, the year in which the first oil concessions were granted, oil revenues increased to L.D. 2 million in the fiscal year 1961/62, the year in which production and exports started, rising to L.D. 141.8 million in 1966/67 and to L.D. 1,638 million in 1974 as Tables IV and V show. It should be pointed out that despite the cutbacks in oil production since 1971 (Table III), oil revenues continued to increase. This is explained by large oil price increases started in 1971.

Among the more staggering indicators of the influence of oil discoveries on economic growth in Libya is the per capita gross national product which rose from about L.D. 14 in the early 1950's to L.D. 311.8 in 1967 and to L.D. 638.6 in 1972.[13] For 1967 alone, the

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[13]U. N. Report on Evaluation of Technical Assistance in Libya

TABLE III

CRUDE OIL PRODUCTION (IN MILLIONS OF BARRELS PER DAY)

Year	Quantity
1961	0.02
1966	1.51
1967	1.73
1968	2.60
1969	3.11
1970	3.36
1971	2.75
1972	2.22
1973	2.17
1974	1.52
1975	1.48

Source: IMF: Libyan Arab Republic: Recent Economic Developments, SM/76/173 (August, 1976), p. 9.

TABLE IV

GOVERNMENT REVENUES FROM OIL 1955/56 - 1965/66
(IN THOUSANDS OF LIBYAN DINARS)

Fiscal Year	Oil Revenues	Percent of Increase Over Preceding Year
1955/56	51.0	--
1956/57	62.0	--
1957/58	77.0	--
1958/59	91.0	--
1959/60	97.0	--
1960/61	115.0	--
1961/62	2,000.0	--
1962/63	7,200.0	260.0
1963/64	23,800.0	230.5
1964/65	54,500.0	128.9
1965/66	116,000.0	112.8

Source: Ministry of Petroleum Affairs, Libyan Oil 1954-1967 (Tripoli), p.51.

TABLE V

GOVERNMENT REVENUES FROM OIL 1966/67 - 1974/75
(IN MILLIONS OF LIBYAN DINARS)

Fiscal Year*	Oil Revenues
1966/67	141.8
1967/68	191.0
1968/69	279.4
1969/70	363.4
1970/71	469.1
1971/72	652.3
1972/73	624.6
1973/74	429.5
1974/75	1,638.0

*Until 1972/73 the fiscal year ended March 31. The fiscal year 1973/74 covered only the period April-December, 1973. Since 1974, the fiscal year coincides with the calendar year.

Source: IMF: Libyan Arab Republic: Recent Economic Developments (1972), p. 57 and (1976), p. 52.

per capita GNP increased by 42% over 1966. Thus as El-Mallakh comments, "Despite an admittedly low base, such growth remains extraordinary in both relative and real terms, offering a vivid index of the socio-economic strains within Libya."[14]

Certain economic distortions have been generated as a consequence of the discovery of oil. One obvious result is Libya's complete economic dependence on oil revenues. For example, oil exports amounted to 99.7% in 1969, 99.4% in 1971, and 97.6% in 1974 of the total volume of exports as Table VI indicates. Thus, as Charles Issawi had predicted in 1965, Libya has become "a one-crop economy following the path of those Arab Gulf Sheikdoms, which have become completely dependent on oil."[15]

Apart from crude oil production, Libya's few industries, mainly in, or around Tripoli and Benghazi, are devoted largely to the processing of local agricultural commodities. The past few years have witnessed the introduction of a number of new industries such as cement, textiles, oil refining, and building tiles. However, the high costs of production, the paucity of natural resources other than oil and gas, the small size of the market, and the lack of technical and mangerial skills render future industrial expansion in Libya a very difficult task.

(N.Y.: U.N. TAO/LIB/5, June, 1966), p. 3. Ministry of Petroleum, Libyan Oil 1954-1971 (Tripoli), p. 133; Ministry of Planning, The Three-Year Economic and Social Development Plan in Brief 1973-1975 (Tripoli, June, 1973), p. 20.

[14] El-Mallakh, "The Economics," . . . op. cit.

[15] C. Issawi, "Oil Proves Both Boom and Challenge," in Modern Libya (Spring, 1965), Supplement by Afro-Mideast Economic Bulletin, p. 18.

TABLE VI

COMPOSITION OF LIBYAN FOREIGN TRADE 1968–1974
(IN MILLIONS OF LIBYAN DINARS)

	1968		1969		1970		1971		1972		1973		1974	
	Value	% of total	Value	% of total	Value	% of total	Value	% of total	Value	% of total	Value	% of total	Value	% of total
Imports:	230.2	100.0	241.3	100.0	198.0	100.0	249.4	100.0	341.5	100.0	516.4	100.0	817.7	100.0
Foodstuffs	31.7	13.8	34.2	14.2	44.6	22.6	55.6	22.3	57.1	16.7	96.3	18.6	141.8	17.3
Raw materials	12.2	5.3	12.2	5.1	9.9	5.0	14.1	5.7	17.4	5.1	35.2	6.8	45.6	5.6
Chemicals	11.9	5.2	12.6	5.2	11.4	5.8	15.1	6.1	16.6	4.9	21.2	4.1	29.8	3.6
Manufactured goods	62.9	27.3	56.1	23.2	42.4	21.4	52.0	20.9	31.2	23.8	137.2	26.6	230.7	28.2
Machinery and transport equipment	80.6	35.0	95.5	39.6	58.7	29.6	73.0	29.3	117.8	34.5	183.6	35.6	273.9	33.5
Others	30.9	13.4	30.7	12.7	31.0	15.6	39.6	15.9	51.4	15.0	42.9	8.3	96.0	11.7
Exports:	666.9	100.00	773.7	100.0	844.8	100.0	962.5	100.0	968.0	100.0	1,197.3	100.0	2,446.3	100.0
Crude oil	664.3	99.6	771.6	99.7	841.1	99.5	956.9	99.4	948.2	98.0	1,161.7	97.0	2,388.3	97.6
Natural gas	--	--	--	--	--	--	2.5	0.2	12.4	1.3	17.1	1.4	24.2	1.0
Refined oil	--	--	--	--	--	--	--	--	3.4	0.4	14.9	1.2	32.3	1.3
Other domestic exports	0.8	0.1	0.9	0.1	0.7	0.1	0.5	0.1	2.2	0.2	2.9	0.2	0.7	--
Re-exports	1.8	0.3	1.2	0.2	3.0	0.4	2.6	0.3	1.8	0.2	0.7	0.1	0.8	--

Sources: IMF: Libyan Arab Republic: Recent Economic Developments (1976), p. 61, and (1972), p. 73.

A second economic consequence of oil discovery is that the Libyan economy has been strained in respect to wages and prices which have risen considerably. There has also been agreat deal of speculation in rents and lands. An idea of the resulting inflation can be gained from the fact that prices for some basic items of food have increased by around 53% in the period between 1964-1976 and the overall cost of living during the same period was estimated to have increased by as much as 103%.[16] There is little doubt that the scarcity of labor has contributed to rising wages. However, data on averages are not available. Civil servants' salaries were increased by 25% in 1974 and by between 8% and 15% in 1975. The legal minimum daily wage rate was doubled to L.D. 1.00 in 1970 and subsequently raised to L.D. 1.35 in 1972, L.D. 1.75 in 1974, and L.D. 2.00 in 1975.[17]

Thirdly, in terms of direct employment, the oil sector provided, according to the 1964 census, employment for approximately 12,000 workers out of a total of 66,000 employed by industries and business firms. However, as the World Bank Mission suggested in 1959,

> the actual business of producing and transporting oil is never likely to be a major source of local employment, since oil operations are highly capital intensive. This applies also to oil refining. In Saudi Arabia, for example, where 49 million tons of oil were produced in 1958 and 8 million tons were refined locally, only about 12,000 nationals were employed in the oil industry. Even in Venezuela or Iran, where oil operations are highly developed, the number of workers employed in production and refining is less than 50,000. These figures suggest that Libya should not expect the oil industry to provide direct employment for more than

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[16] Central Bank of Libya, Economic Bulletin (Economic Research and Statistics Division) XVI, 11-12 (Nov.-Dec., 1976). Tables 22 and 23.

[17] IMF: SM/76/173 (August, 1976), op. cit., p. 32.

> a small proportion of its labour force in the foreseeable future--say, about five percent as an outside figure.[18]

Today Libya is a prototype once again, but it is no longer a prototype of a poor country. It is rather a prototype of "economic development with unlimited supplies of (money) capital."[19] What Libya indeed lacks are the human skills associated with an industrial economy.

In terms of the neo-classical analysis of factor proportions, therefore, Libya, as Benjamin Higgins and J. Royer point out,

> should produce commodities utilizing large amounts of capital, substantial amounts of unskilled labor, very little water or natural resources except oil and virtually no human skills. The choice of technology in the production of particular commodities should be guided by the same considerations. But where to find commodities or techniques conforming to this peculiar factor endowment?[20]

Manpower is a crucial constraint on the development of the Libyan economy. Table VII provides an indication of the magnitude of the recent changes in the manpower picture. Perhaps the most striking feature is the extent of and increase in dependence on foreign workers who accounted for one-third of the employed labor force in 1975 compared with less than one-tenth in 1971.

The manpower "dilemma" which Libya faces now was described a decade ago in the following words:

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[18] IBRD, op. cit., p. 62.

[19] B. Higgins and J. Royer, "Economic Development With Unlimited Supplies of Capital: The Libyan Case," in The Libyan Economic and Business Review, III, 2 (Autumn, 1967), p. 7.

[20] Ibid.

TABLE VII

LABOR FORCE AND EMPLOYMENT (IN THOUSANDS AND IN PERCENT)

	1971		1975	
	Persons	Share	Persons	Share
Labor Force:	503.4	100.0	691.2	100.0
Employed, of which:	478.2	95.0	677.1	98.0
Foreign labor	40.0	8.4	223.0	32.9
Unemployed	25.2	5.0	14.1	2.0
Employment by sector	478.2	100.0	677.1	100.0
Agriculture, forestry, fisheries	147.3	30.8	133.1	19.7
Oil, gas extraction			10.7	1.6
Mining, quarrying	18.8	3.9	6.9	1.0
Manufacturing	40.1	8.4	32.9	4.9
Construction	49.7	10.4	152.6	22.5
Electricity, gas, water	8.8	1.8	13.0	1.9
Commerce, banking, insurance	36.3	7.6	56.2	8.3
Transport, communication, storage	41.0	8.6	53.4	7.9
Public administration	136.2	28.5	71.1	10.5
Other services			147.2	21.7

Source: IMF: Libyan Arab Republic: Recent Economic Developments, SM/76/173 (August, 1976), p. 31.

> Libya has . . . two alternatives: . . . to invest unstintingly in Libyan manpower, so as to make Libyans the arbiters of their own destiny over the whole spectrum of human occupations, or to hand over to foreign experts and technicians the levers and steering wheels of modern Libyan economy. In fact, there is no doubt whatsoever that Libyans would never let such a contingency arise.[21]

Development of human resources should be the paramount strategy of Libya's economic development plan and is the means by which Libya can achieve its objective. Implementation of the targets of economic and social planning will depend on the availability of manpower in the right quantity, of the required skills, at the right time.

Recently a number of economists have called attention of the importance of human resources. Professor John Shearer argues that

> Human resources often constitute the key to development. They are the only active factors of production. Other factors of production produce value only as human resources activate them. Natural resources and capital become meaningful as factors of production only as human resources organize, combine, and control their uses.[22]

F. Harbison and C. Myers also point out that human development is a necessary condition for achieving the political, cultural, social, and economic goals of modern nations. They add that if a country is unable to develop its human resources, it cannot develop much else.[23]

In view of the importance and determinant character of human resources, the Three-Year Economic and Social Development Plan 1973-75 has given great importance to the development of national manpower in

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[21] U.N., Report on Evaluation . . ., op. cit., p. 59.

[22] John C. Shearer, "Intra and International Movements of High-Level Human Resources," in J. J. Heaphey (ed.), Spatial Dimensions of Development Administration (Durham, N. C.: 1973), p. 52.

[23] F. Harbison and C. Myers, Education, Manpower, and Economic Growth (N.Y., 1964), p. 26.

order to secure the required increase of Libyan labor. In this respect the plan has suggested, among other things, increases in female labor force participation as a means "to make maximum productive use of the national manpower resources."[24]

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[24]Ministry of Planning, Three-Year . . ., op. cit., p. 22.

CHAPTER III

THE STATUS OF LIBYAN WOMEN

In this chapter the status of Libyan women in general will be described briefly. Published materials and information cannot satisfy the author's desire to give the subject matter the coverage it deserves. To bridge this gap the author relied on the few published and unpublished documents which exist as well as on personal interviews and discussions with persons concerned.

Introduction

The Arab conquest of Libya in 643 A.D. initiated the spread of Islam, the Arabic language, and religious education. The Arabs built a series of mosques which served as religious centers and as schools. The religious schools comprised an elementary level, an intermediate level, and mosque colleges at the highest level. Religious education became institutionalized in Zavias, which were especially constructed houses of worship, of learning, and of training in industrial craftsmanship.

With the rise of the Ottoman Empire in 1551, which expanded to include the North African states, an era of illiteracy developed in the Arab World in general and in Libya in particular. Education under the Ottoman administration had degenerated into rote learning of simple traditional concepts and recitation of the Koran, and into

elementary training in reading and in writing. It was only in the later years (1710-1825) of the Ottoman regime and during the Karamanli (a dissident Turkish family in Libya) era that education spread. This was time of prosperity for the country. The Karamanli, instead of sending tax money back to Turkey, spent it building schools and a strong army. Also the Karamanli utilized the money extracted from ships on the Mediterranean for education and defense purposes. In 1835 the Turks were able to put an end to the Karamanli rule in Libya. In their concern over collecting taxes and sending the funds to Turkey, the Turks tended to ignore local problems including education.

The Ottoman occupation lasted from 1551 to 1911, the year Libya became an Italian colony. The Italians attempted to "Italianize" the educational organization in Libya. Under the Educational Ordinance of 1914, Farley points out, "all teaching in schools was conducted in Italian, except teaching of the Arabic language itself."[1] Libyans were permitted only to enter the elementary level of education while the secondary and other higher levels of education were exclusively for the Italian population. In 1939 there were about 10,000 Libyan students, compared with about 16,000 Italian students. In the same year the total Libyan population was 728,716 while Italians were only 108,419.[2]

At the time of independence in 1951 Libya witnessed some social and economic changes. Socio-economic plans were formulated and implemented, and Libyans, both female and male, showed increasing

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[1] Farley, op. cit., p. 80.

[2] Chia-Lin Pan, "Population of Libya," in Population Studies, 3, 1 (June, 1949), pp. 100-125.

interest in education. In 1952 females enrolled in the Women Teacher's Training Institute and in 1955 the Libyan University was established.

The biggest changes took place with the discovery of oil. The Libyan government became able to spend large amounts of money in all sectors of the economy in general and in health, education, and housing in particular as Tables VIII and IX show. Between 1966 and 1970 the total expenditures on these three sectors amounted to L.D. 424.6 million. The figure was doubled to reach L.D. 847.0 million four years later. As a result of this more females enrolled in schools and their numbers increased as participants in the Libyan labor force.

Women and Society

Libyans are divided in their views with respect to the role which women should play. On one hand, there are those who reject the idea of women enjoying the same political, social and economic rights as men. They argue that women have their peculiar physical and psychological characteristics which make them different from men. They go on to say that if women were to receive equal rights they would be bound to lose a great deal of their peculiar characteristics and abilities to which they are physically adapted. On the basis of this explanation they argue in favor of separate but not equal political, social and economic rights based upon the peculiar characteristics of both men and women.

On the other hand, there are those who argue that women should have the same rights as men. They maintain that granting equal rights to women would not alter their characteristics. Also they suggest distribution of roles between women and men as a way to achieve such equality. Denying equal rights to women, this group continues, creates

TABLE VIII

GOVERNMENT EXPENDITURES, 1966/67-1970/71
(IN MILLIONS OF LIBYAN DINARS)

Fiscal Year	1966/67	1967/68	1968/69	1969/70	1970/71
Ordinary expenditures	112.6	166.4	238.6	199.1	193.8
Ministry of:					
Defense	17.3	11.1	14.2	21.4	33.7
Interior and Municipal Affairs	16.7	25.9	33.2	33.8	30.4
Transport and Communications	10.1	10.3	15.7	15.8	15.1
Public Works	6.0	5.9	7.2	6.2	3.4
Education	20.5	24.5	39.1	42.9	49.9
Health	10.2	12.3	13.9	15.9	19.1
Information	2.1	2.6	4.9	5.5	--
Labor and Social Affairs	4.9	2.6	4.3	3.4	4.2
Agriculture	4.5	4.5	5.4	6.2	6.7
Industry	0.4	1.2	1.1	1.3	1.2
Finance	2.4	2.6	3.4	4.3	5.0
Justice	1.8	2.2	3.5	3.7	3.9
Housing and State Property	6.8	8.9	7.4	6.3	6.0
Subsidies for Public Entities	--	--	--	--	--
Other	8.9	13.1	14.4	32.4	15.2
Special allocations	--	38.7	70.9	n.a.	--
Development expenditures	82.3	119.7	140.4	113.1	146.1
Agriculture	10.0	17.4	14.4	13.2	23.4
Industry	4.9	7.4	7.4	6.3	15.2
Oil	--	--	--	--	--
Transport and Communications	9.3	19.6	24.2	14.5	12.2
Public Works and Electrification	16.9	39.4	38.1	23.6	18.8
Education	9.1	9.6	13.6	7.9	6.6
Health	2.1	5.5	4.9	2.9	4.9
Housing	11.6	17.9	18.2	27.5	34.0
Other	18.4	2.9	19.6	17.2	31.0
Total Expenditures	194.9	286.1	379.0	312.2	339.9

Source: IMF: Libyan Arab Republic: Recent Economic Developments (June 26, 1972), p. 58.

TABLE IX

GOVERNMENT EXPENDITURES, 1971/72-1974
(IN MILLIONS OF LIBYAN DINARS)

Fiscal Year	1971/72	1972/73	1973	1974
Administrative expenditures	223.6	254.0	223.5	430.9
Ministry of:				
Defense	41.5	39.7	42.9	114.6
Interior and Municipal Affairs	35.9	36.3	19.2	29.8
Transport and Communications	7.4	8.3	2.1	3.4
Education and Information	55.3	72.4	19.6	30.6
Health	23.3	27.2	4.9	9.0
Labor and Social Affairs	3.0	3.9	1.6	2.8
Agriculture	7.4	8.9	1.5	3.4
Industry	0.6	0.7	0.7	1.5
Finance (Treasury)	4.8	4.1	3.2	5.2
Justice	4.2	4.8	3.8	5.9
Housing and State Property	5.5	6.4	2.1	4.5
Subsidies for public entities	20.6	24.5	15.3	38.1
Provinces	--	--	82.7	138.4
Municipalities	--	--	9.7	19.1
Other	14.1	16.8	14.2	24.6
Development expenditures	247.6	397.3	413.7	866.0
Agriculture	47.9	61.1	88.9	276.9
Industry	29.2	48.0	63.6	142.5
Oil	15.3	22.9	28.5	90.0
Transport and Communications	25.3	39.2	33.8	87.5
Public Works and Electrification	58.4	62.3	76.6	116.6
Education and Information	17.1	32.7	41.0	121.8
Health	3.7	14.0	9.8	35.3
Housing	39.3	68.6	60.9	150.5
Other	11.4	48.5	10.6	253.9
Total expenditures	471.2	651.3	637.2	1,785.0

Source: IMF: Libyan Arab Republic: Recent Economic Developments (August 3, 1976), p. 51.

a feeling of restlessness and anxiety among women which in turn may affect the family structure negatively. Finally they indicate that a strong and healthy society requires equal rights for all of its members regardless of their sex and race.

The arguments used by each group are strong enough to command considerable support. Yet, the social position of women in a traditional society such as Libya gives the first point of view more support.

Women and Labor Law

In theory, Libyan women enjoy equal rights with men. But in fact very few of them practice their rights. This exists because neither society in general nor women in particular are yet prepared for such a development. Article 5 of the 1969 Constitution states that all Libyans are equal before the law. According to Article 4, work is a right for every able citizen.

Although the Libyan Constitution of 1969 did not mention by name any rights for women, the Constitution of the Conference of Arab Republics (Egypt, Syria, and Libya) of 1971 points out that laws should provide equality among citizens without discrimination based on sex, guarantee the right to work, and protect motherhood, childhood, and family.

The labor law of 1970 devotes some of its articles specifically to working women. The law aims, first, at protecting working women from being exploited by their employers, and, second, at encouraging women in general to seek employment outside their homes. The following are some excerpts from the law: Article 31 stresses the notion of equal pay for equal work: "The employer may not hire an employee at a wage

rate lower than the minimum pay, . . . nor distinguish in pay between males and females if conditions and nature of work are equal." According to Article 43 working women are entitled to pregnancy leave: "A female employee who has spent six consecutive months in the service of an employer may obtain a leave for childbirth with half-pay for a period of fifty days." The article goes on to state that, "A female employee may prolong her absence as a result of an illness (caused by pregnancy or childbirth), . . . provided that the total period of absence shall not exceed three months." Article 96 limits the working hours of women: "Under no circumstances may women be employed for more than 48 hours per week." The same article continues, "Nor may they be employed between 8:00 p.m. and 7:00 a.m. except in (specified cases)." According to Article 97, "A female employee shall be entitled to two additional thirty-minute-intervals during the eighteen months following childbirth in order to be able to foster her child." The article stresses that these two intervals should be considered as part of the working hours and should not result in reduction in pay. Finally, Article 98 of the labor law of 1970 points out that, "an employer employing fifty or more female employees at one location may be compelled to provide a nursery for their children."

The labor law in Libya is similar in some respects but differs in other respects from those of developed as well as underdeveloped countries. Such differences reflect the differences in social values as well as religion.

Women In Islam

Equality is a much-stressed notion in Islam. Islam teaches that

all human beings are equal: the male and the female, the rich and the poor, the employer and the worker, the ruler and the ruled.

Islam does not regard women as inferior beings. It makes both of them equal partners in the business of life. The Holy Koran says:

> O mankind! reverence
> Your Guardian--Lord,
> Who created you
> From a single Person,
> Created, of like nature
> His mate, and from them twain
> Scattered (like seeds)
> Countless men and women.
>
> (IV:1) Nisaa, or The Women

During the pre-Islamic era women in Arabia were indeed treated badly and were looked down upon as inferior beings. They were considered as pieces of property constituting a part of the owner's wealth. A female childbirth was considered so shameful an event that the father should bury her alive. Such an act was said to have been not unusual behavior before Islam.

Islam came to change and improve the condition and position of women. It put an end to the practice of burying female children alive. It condemns such an act. In the words of Koran:

> When news is brought
> To one of them, of (the birth
> of) a female (child), his face
> Darkens, and he is filled
> With inward grief!
>
> (XVI:58) Nahl or The Bee

> With shame does he hide
> Himself from his people,
> Because of the bad news
> He has had!
> Shall he retain it
> On (sufferance and) contempt,
> Or bury it in the dust?

Ah! What an evil (choice)
They decide on?

(XVI:59) Nahl or The Bee

The Koran also indicates that women as well as men should have the benefit of what they achieve. For example, the Book says:

. . . to men
Is allotted what they earn,
And to women what they earn.

(IV:32) Nisaa or The Women

Similarly, it declares:

If any do deeds
Of righteousness,--
Be they male or female--
And have faith,
They will enter Heaven,
And not the least injustice
Will be done to them.

(IV:124) Nisaa or The Women

In various occasions Prophet Muhammad has also called for respect and equality for females. For example, Ibn'Abbās reports that the Prophet once said:

> If a daughter is born to a man and he brings her up affectionately, shows her no disrespect and treats her in the same manner as he treats his son, the Lord will reward him with paradise (Kanz-ul-'Ummāl).[3]

Female education was also stressed by the Prophet. According to Abdullah Ibn Mas'ūd, the Prophet is reported to have said that,

> If a daughter is born to a person and he brings her up, gives her good education, and trains her in the arts of life, I shall myself stand between him and the hell-fire.[4]

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[3]SH. Muhammed Ashraf, The Fifth Book of Islam, "Lessons in Islam" Series, Book V (Kashmiri Bazar Lahore, Pakistan, 1976), p. 8.

[4]Ibid., p. 9.

In spite of the call for their equality, Islam does not ignore the natural difference of function between men and women. While women have the same rights as men, their capabilities and abilities are different from those of men and, therefore, their functions in society are also different. Both are not equally fitted for all tasks. For some tasks women are better fitted, while men are better fitted for others. And every group should do those tasks for which they are better fitted.[5]

Role differentiation is deeply rooted in Islamic societies and non-Islamic societies as well. In studying the causes of the overall differences in annual income between female and male workers, Victor Fuchs concluded that most of the differential could be explained by the different roles assigned to women and men by society:

> Role differentiation, which begins in the cradle, affects the choice of occupation, labor force attachment, location of work, post-school investment, hours of work, and other variables that influence earnings.[6]

Also Paul Brinker and J. Klos point out that,

> If role differentiation, which is deeply rooted in the folkways and mores of society, is the cause of the pay differential, it will be difficult to eliminate by state or federal legislation.[7]

According to Islam, authority and responsibility lie with men not women. The Book says:

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[5] Ibid., p. 17.

[6] V. R. Fuchs, "Differences in Hourly Earnings Between Men and Women," Monthly Labor Review, 94 (May, 1971), pp. 9-15.

[7] P. A. Brinker and J. J. Klos, Poverty, Manpower, and Social Security (Texas, 1976), p. 475.

> And women shall have rights
> Similar to the rights
> Against them, according
> To what is equitable:
> But men have a degree
> (of advantage) over them.
>
> (II:228) Bagara, or The Heifer

The degree of advantage a man has is due to the fact that he only has to work outside the home to support his family. In general, the role assigned to woman is that of housekeeper and the bringing up of children.

In some cases woman may seek employment in the market. According to Ashraf a woman may work outside her home,

> If she is well off and has plenty of leisure, . . . if her husband is poor and the earnings of the family are not sufficient . . . if she does not have many children to look after or her children are grown up.[8]

Although man and woman were assigned different roles, they were required to cooperate with each other. Thus the Koran says:

> It is He Who created
> You from a single person,
> And made his mate
> Of like nature, in order
> That he might dwell with her
> (In love).
>
> (VII:189) Araf, or The Heights

> And among His Signs
> Is this, that He created
> For you mates among
> Yourselves that ye may
> Dwell in tranquility with them
> And He has put love
> And mercy between your hearts.
>
> (XXX:21) Rum, or The Roman Empire

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[8]Ashraf, op. cit., p. 20.

Summing up: With respect to the woman's right to seek employment it should be stated first that Islam regards her role in society as a mother and a wife as the most sacred and essential one. Dr. Gamal Badawi states that, "Neither maids or babysitters can possibly take the mother's place as the educator of an upright, complex-free, and carefully-reared children."[9]

However, there is no decree in Islam which forbids woman from seeking employment whenever there is a necessity for it, especially in occupations which fit her nature and in which society needs her most. Examples of these professions are nursing, teaching and medicine.

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[9]Dr. G. A. Badawi, The Status of Women in Islam (The Muslim Student Association of U.S.A. & Canada, 1976), p. 22.

CHAPTER IV

REVIEW OF THE LITERATURE

In this chapter the relevant literature is reviewed. There are two purposes: first to present a brief discussion of certain theories of labor supply, and second, to review the relevant empirical studies.

Introduction

Many argue that the study of labor force participation is a study of labor supply. For example, William Bowen and T. A. Finegan point out that

> labor supply demands of course on the degree of labor force participation, as reflected in annual hours worked, as well as on the number of individuals participating in the labor force at a point in time.[1]

This study does not deal with variations in hours worked among different groups of participants as much as with differences in labor force participation rates. This means that this piece of research should not be regarded as a comprehensive treatment of all aspects of labor supply.

The conceptual model underlying most of the recent economic research on labor force participation is based primarily upon the theory of choice. Jacob Mincer's "Labor Force Participation of

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[1] W. Bowen and T. A. Finegan, The Economics of Labor Force Participation (New Jersey, 1969), p. 3.

Married Women: A Study of Labor Supply"[2] is an application of the price theory to the study of labor force behavior. Glen G. Cain's Married Women in the Labor Force[3] continues in the same vein. These and similar studies represent an application of Gary S. Becker's article, "A Theory of the Allocation of time."[4]

The general framework for the analysis is the standard economic theory of consumption, according to which the consumption of a commodity is affected both by the changes in its relative price and by changes in income. The price change leads to a "substitution" effect as the rise in the relative price of a good causes the consumer to substitute other goods for it to some extent. A rise in income, on the other hand, causes the individual to increase his consumption of all "normal" goods. In the context of labor supply, Herbert S. Parnes argues that the worker is the consumer and the relevant good is leisure.[5]

The Theory of Labor Supply

On the assumption that leisure time is a normal good, the standard

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[2] J. Mincer, "Labor Force Participation of Married Women: A Study of Labor Supply," in Universities-National Bureau Committee for Economic Research (ed.), Aspects of Labor Economics (New Jersey, 1962), pp. 63-105.

[3] G. G. Cain, Married Women in the Labor Force: An Economic Analysis (Chicago, 1966).

[4] G. S. Becker, "A Theory of the Allocation of Time," in Economic Journal, LXXV (September, 1965), pp. 493-517.

[5] H. S. Parnes, "Labor Force Participation and Labor Mobility," in Ginsburg, Livernash, Parnes and Strauss, A Review of Industrial Relations Research, I (Wisconsin, 1970), p. 3.

analysis of work-leisure choices implies a positive "substitution" effect and a negative "income" effect on the response of hours of work supplied to variations in the wage rate. An increase in the real wage rate makes leisure time more expensive and tends to elicit an increase in hours of work. However, for a given amount of hours worked, an increase in the wage rate constitutes an increase in income, which leads to an increase in purchases of various goods, including leisure time. Thus, on account of the "income" effect, hours of work tend to decrease. In which direction hours of work change on balance, given a change in the wage rate, cannot be determined a priori. It depends on the relative strengths of the "income" and "substitution" effects in the relevant range. The single assumption of a positive income elasticity of demand for leisure time, as Mincer argues, is not sufficient to yield empirical implications on this matter.[6] An empirical generalization which fills this theoretical void, he goes on to say, is the "backward-bending" supply curve of labor.[7] This is the notion that for low rates of pay, the substitution effect is stronger so that at first higher rates of pay induce more hours of work. At some point, however, the "income" effect becomes stronger than the "substitution" effect, so that a further increase in the wage rate normally results in decreased hours of work offered by workers.

The "backward-bending" supply curve of labor is commonly explained with the use of the indifference curve technique. In Figure 1, income

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[6] Mincer, op. cit., p. 63.

[7] Ibid.

is measured on the vertical axis, and leisure is measured on the horizontal axis. The indifference curves I, II and III show combinations of income and leisure that are equivalent to the individual. Higher indifference curves show preferred sets of income-leisure combinations. The income line (HI_1, HI_2, HI_3) shows the income level that the individual can earn by working different numbers of hours at a given wage rate. The slope of the income line is the wage rate (w_1, w_2, w_3). OH represents the maximum number of hours of leisure per day that it would be possible for the individual to work. Some minimum number of hours is needed for eating and sleeping. It is assumed that the individual would seek out, given he or she as a rational economic being, the most preferred combination of income and leisure from all of the combinations that his or her income line permits. Combination A would be preferred at the wage rate w_1 and the individual will work h_1H hours earning an income of I_1' dollars per day. At point A the marginal rate of substitution of leisure for income is equal to the wage rate. A higher wage rate w_2 will shift the income line clockwise to I_2H, increasing the amount of labor supplied to h_2H. A still higher wage rate, say, w_3 will shift the income line to I_3H, inducing the individual to supply h_3H hours of work per day. Points A, B and C and other points located in a similar manner trace out the "backward-bending" shaped labor supply curve SS shown in Figure 2.

The total effect of a wage rate increase on the amount of labor supplied (or leisure demanded) can be divided into an "income" effect and a "substitution" effect. For the increase of wage rate from w_1 to w_2, the "substitution" effect is stronger than the "income" effect.

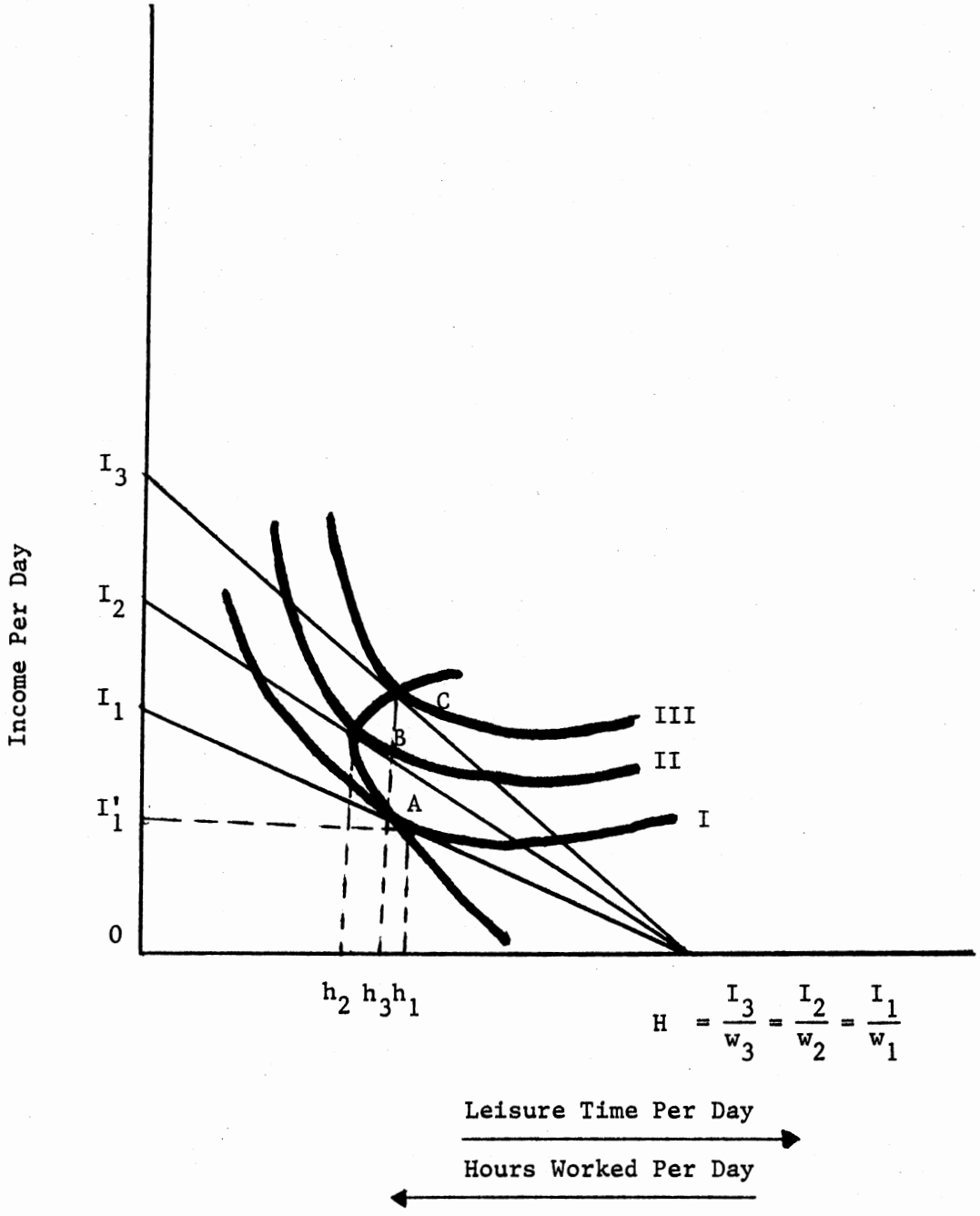

Figure 1. Leisure and the Supply of Labor

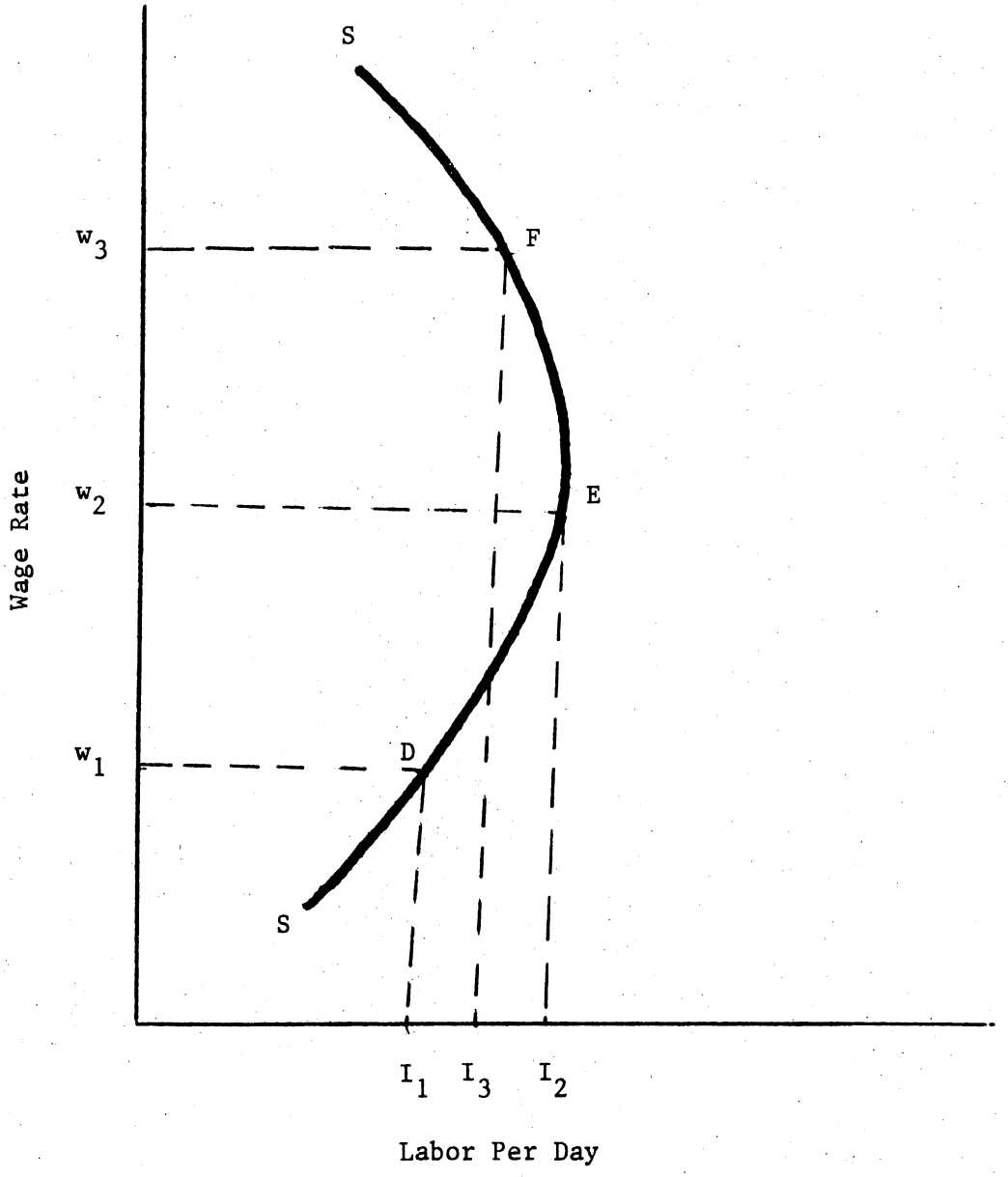

Figure 2. Work and the Supply of Labor

The desire for other goods and services is stronger than the desire for leisure and this induces the individual to substitute income for leisure by working more hours per day. Conversely, the increase in the wage rate from w_2 to w_3 represents the situation in which the "income" effect of the wage rate increase outweighs the "substitution" effect. The individual will increase the amount of leisure and decrease the number of hours supplied per day. When such a process takes place, it makes the labor supply curve upward sloping to the right and then bend upward and to the left.

The foregoing analysis is based on the assumption that the total time an individual has is dichotomized into two categories, work and leisure, as an "exhaustive description of the choices."[8] Work, however, may take place in the market for a money wage or in a non-market sector like the home. The "dichotomization" of time between work and leisure may be sufficient when we deal with the labor supply of adult males. For a male, as Cain points out, "homework may be a negligible part of his activities over the span of his adult life for biological and cultural reasons."[9] Also, adult males' productivity might be higher in the market than at home, and their homework is ordinarily not a barrier to market work.

When we turn to the analysis of the labor supply of adult females, the assumption that market work is the main alternative to leisure becomes inappropriate or at least insufficient. Cultural and biological factors have, at least in the past, made homework the most

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[8] Cain, op. cit., p. 5.

[9] Ibid.

important type of work for the adult female over most of her adult life. According to Mincer, work at home

> is still an activity to which women, on the average, devote the larger part of their married life. It is an exclusive occupation of many women, and of a vast majority when young children are present.[10]

It is, therefore, not sufficient to analyze labor force behavior of females in terms of the demand for leisure, since this work-leisure dichotomy ignores other productive uses of time that are especially important in the case of married women and among young people of both sexes: the production of home goods and services and investment in individual human capital via education and training.

Most of the conventional theoretical analysis of choice between work and leisure centers on the individual rather than the family as the decision-making unit. Everett Johnson Burtt, Jr. argues that

> (theoretical analysis) thus assumes that the individual makes the comparison of disutilities and utilities and that a decision imposed upon him by someone else would not necessarily coincide with the one he would make; freedom to make one's own decision concerning one's own welfare is regarded as the anchor of the labor market. But most workers belong first to family units of two or more persons; job decisions are the product not solely of a comparison of their own gains, but also of the many interpersonal compromises fashioned within the family circle.[11]

Mincer argues that the family rather than the individual is the appropriate unit for analysis of labor supply. He points out that

> Other things equal (including family income), an increase in the market wage rate for some family member makes both

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[10] Mincer, op cit., p. 65.

[11] E. J. Burtt, Jr., Labor Markets, Unions, and Government Policies (New York, 1963), pp. 44-5.

> the consumption of leisure and the production of home services by that individual more costly to the family, and will as a matter of rational family decision encourage greater market labor input by him (her). Even the assumption of backward-bending supply curve would not justify a prediction of a decrease in total hours of work for the particular earner, if wages of other family members are fixed.[12]

Recognition of the family context of leisure and work choices, and of the home-market dichotomy within the world of work, Mincer concludes, "is essential for any analysis of labor force behavior of married women, and perhaps quite important for the analysis of behavior of other family members, including male family heads."[13]

The works of Clarence D. Long, Robert L. Sandmeyer and Larkin B. Warner assert that the family rather than individual is the appropriate starting point for examining decision-making concerning labor force participation.[14]

The 1967 Manpower Report of the President[15] recognizes the family as the decision-making unit with respect to labor force participation. The report states that

> The amount of economic hardship resulting from the fact that a man is not a worker is determined largely by his family responsibilities. Concern centers on the situation of the mature men outside the labor force, many of whom

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[12] Mincer, op. cit., p. 66.

[13] Ibid.

[14] C. D. Long, The Labor Force Under Changing Income and Employment (Princeton, 1958), Chapter 13; R. L. Sandmeyer and L. B. Warner, "The Determinants of Labor Force Participation Rates, with Special Reference to the Ozark Low-Income Area," (Oklahoma State University, April, 1968), p. 51.

[15] Manpower Report of the President (Washington, D.C., 1967).

> are family heads, and on the consequences for the people who would normally depend on them for support.[16]

Another objection which might be raised regarding the micro-economic analysis of labor supply is the apparent contradiction between time series and cross-section behavior of females. In commenting on this matter Mincer states the following:

> Superficially, the cross-sectional behavior of females seems similarly capable of being rationalized in terms of a backward-bending supply response, or at least in terms of a positive income elasticity of demand for leisure. Such views, however, are immediately challenged by contradictory evidence in time series. One of the most striking phenomena in the history of the American labor force is the continuing secular increase in participation rates of females, particularly of married women, despite the growth in real income. Between 1890 and 1960 labor force rates of all females fourteen years old and over rose from about 18 percent to 36 percent. In the same period rates of married women rose from 5 percent to 30 percent, while real income per worker tripled.[17]

Several other points may be raised with respect to the acceptance of a "backward-bending" labor supply curve. First individuals cannot, in the short-run, determine for themselves the number of hours they work; this is an institutional datum which the individual must take or leave.[18] Second, Lionel Robbins had as early as 1930 pointed out the "income" effect and the "substitution" effect of wage increases and had demonstrated that theory provided no basis for predicting which of

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[16] Ibid., p. 132.

[17] Mincer, op. cit., p. 64.

[18] Marlys Ann Knutson, "A Woman in the Labor Force: Factors Affecting Both Her Labor Force Decision and the Time She is Willing To Supply in the Labor Market," (Oklahoma State University, May, 1974), p. 10.

them would predominate.[19] Third, an increase in wage rates may increase labor force participation by attracting people who did not work at the lower wage rates because their reservation price was higher.[20] A final comment on this theory is that it "ignores the fact that (long-run) labor supply is a multidimensional phenomenon and might vary with the wage rate and economic conditions in the short-run as well."[21]

Empirical Studies: U.S.A.

The labor market research that has been published during the 1960's has been characterized by at least one observer as the "new labor economics."[22] It has been distinguished from the "old" by its greater reliance on formal economic theory, its preoccupation with model-building, and its use of more sophisticated statistical methods, particularly multiple regression analysis. The remaining part of this chapter will be devoted to a review of some relevant empirical research on labor force participation.

Mincer's Study. According to Parnes, "The conceptual model underlying virtually all of the recent economic research on labor force

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[19]Lionel Robbins, "On the Elasticity of Demand for Income in Terms of Effort," in Economica (June, 1930), pp. 123-9.

[20]Nicholas Skoulas, "Determinants of the Participation Rate of Married Women in the Canadian Labour Force: An Economic Analysis," (Canada, 1973), p. 11.

[21]Ibid., p. 10.

[22]Robert Evans, Jr., "Discussion," American Economic Review, Papers and Proceedings (May, 1966), p. 596.

participation was formulated by Jacob Mincer."[23] Mincer's model[24] is based primarily upon the standard economic notions of "income" and "substitution" effects. Mincer added three elements to the analysis. One is the observation that labor supply cannot be analyzed solely in terms of demand for leisure, since work-leisure dichotomy ignores other productive uses of time such as the production of home goods and services in the case of married women. Second, Mincer argues that the family rather than the individual is the appropriate unit for analysis of labor supply.

Third, Mincer's labor supply model incorporates an adaptation of Friedman's consumption theory. Mincer observes, as the "permanent income" hypothesis indicates, that the expected long-run (permanent) family income determines the current consumption expenditures. "Transitory" deviations from the permanent income are compensated for by saving or dissaving. But temporary variations in labor force behavior of family members (particularly women), Mincer argues, may be an alternative method of adjusting to transitory changes in income.[25] By doing so Mincer was able to explain the contradiction between time series and cross-sectional evidence of female labor force participation. Parnes points out that

> it is on the basis of these refinements in the theoretical model of labor supply that Mincer has been able to resolve the apparent contradiction between the rising labor force participation rates of married women over time as incomes

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[23] Parnes, op. cit., p. 3.

[24] Mincer, op. cit.

[25] Ibid., pp. 74-5.

> have increased and the fact that the participation rates of married women at a moment of time are inversely related to the incomes of their husbands.[26]

Mincer's hypothesis is that the labor force participation of the wife may be greater, the smaller the permanent income of the husband, and the smaller the current income in relation to the permanent income.

Having established his hypothesis, Mincer tested it against a variety of data. He used cross-section data from a number of metropolitan areas. Data from the Bureau of Labor Statistics' Survey of Consumer Expenditures in 1950 were also used in addition to data from the 1955 and 1957 current population reports of the Census Bureau. The data were restricted to white husband-wife families.

The basic model Mincer used is:

$$M = BY + \gamma W + u$$

where M is the quantity of labor supplied of married women; Y is the potential permanent income of the family; W is the wife's market wage; and u represents other factors or tastes. Later on, Mincer added three more variables: levels of education, economic conditions (unemployment); and the presence of small children.

Mincer's major empirical results can be summarized as follows:[27]

1. Wives' labor force participation rates respond negatively to husband's income; the more husbands earn, the less wives work. In

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[26] Parnes, op. cit., p. 5.

[27] Clarence D. Long, "Comment," in Universities-National Bureau Committee for Economic Research (ed.), Aspects of Labor Economics (New Jersey, 1962), pp. 98-105.

addition, wives' labor force participation rates respond positively to wives' earning power: the more the wife is capable of earning, the more likely she is to work. Moreover, the wives' positive elasticity with respect to wives' earnings is about double their negative elasticity with respect to husbands' income.

2. Wives are more apt to work if husbands' current earnings were below permanent earnings; and that the response of wives' labor force to "transitory" income is stronger than to permanent income.

3. There is a weaker response of the female labor force to income as the educational level of family heads over 35 becomes higher. This is, as it was stated, because better educated husbands have other assets which make it unnecessary for their wives to work if work income is low.

4. The presence of young children in the family weakened the wage effect and strengthened the husband's negative income effect. This was explained by Mincer by saying that "substitutes for a mother's care of small children are much more difficult to come by than those for food preparation or for physical maintenance of the household."[28]

Commenting on Mincer's work, Long raised several points. Long points out that "more is needed than two variables--earnings of husbands and of wives--to explain the labor force behavior of wives in the long-run periods."[29]

According to Long, Mincer's study does not take account of the developments of the behavior of the labor force of black women. Long

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[28]Mincer, op. cit., p. 67.

[29]Long, "Comment," op. cit., p. 103.

noticed that the labor force participation rate of black women has declined since 1900 and especially since 1930.

The case of Negro women, Long argues:

> provides a severe challenge to an econometric model which attempts to unify the explanation of moment-of-time and over-time behavior. A model which purports to explain dynamic increases also carries the obligation of explaining dynamic decreases.[30]

Cain's Study. Another major study on labor force participation was undertaken by Glen C. Cain.[31] His main objective was to study the economic determinants of the labor force participation of married women. The incentive for Cain's study came from the fact that Mincer's study "did not appear to fit the data on nonwhite wives."[32] Most of Cain's research deals with work by all wives in the United States.

The general multiple regression model used by Cain includes the following variables: nonlabor income, potential market wage of husband, potential market wage of wife, the presence of children, and wife's tastes for market work.

Unlike the microeconomic theory of labor supply, Cain views the wife within her family context where she specializes in the production of home goods.

Within this context, Cain points out:

> the market and home productivities and tastes of each family member, along with the family income status, will

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[30] Ibid., p. 104.

[31] Cain, op. cit.

[32] Ibid., p. 2.

determine the allocation among market work, homework, and leisure among all members.[33]

Data for Cain's study were drawn mainly from: (1) 1940, 1950, and 1960 population censuses (aggregate data); (2) two samples of survey (disaggregative) data; and (3) the Scripps Population Foundation's Growth of American Families Study of 2,700 wives and the 1/1,000 sample of the 1960 census.

Mincer's major finding that, for wives, the positive wage effect exceeds the negative income effect was "weakened" by Cain's research "but not overturned." For 1950 with the aggregative data their result was essentially the same, but in 1940 and 1960, unlike Mincer, Cain found out that the income elasticity was sometimes larger than the wage elasticity. With disaggregated data, according to Cain, the wage elasticity was larger than the income elasticity. These results should not be viewed with great confidence because, "the estimation procedures for the wage effect were, by necessity, quite rough."[34]

Three additional results of Cain's work may be mentioned. First, female educational attainment is positively correlated with the labor force participation of wives. Mincer concluded that such relation was statistically insignificant. Second, the effect of unemployment on the labor force participation of wives was consistently negative (although not significantly with nonwhite wives). Third, the presence of children had a consistently negative effect on the labor force participation of wives.

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[33]Ibid., p. 6.

[34]Ibid., p. 117.

The higher levels of participation among nonwhite wives and the lesser importance of children as a deterrent to work was explained in the following terms. First, the prevalence of part-time work among Negro wives tends to overstate the amount of labor supplied by them. Second, "poorer housing conditions, smaller dwelling units and more doubling up of families"[35] induce nonwhite wives to work more in the market and less at home. Third, higher family instability encourages the nonwhite wife to maintain closer relations to the market to guard herself against "low income status and limited chances of obtaining alimony or adequate financial support for her children."[36] Finally, nonwhite husbands may be subject to greater work discrimination than their wives, which leads to some substitution in work between them.

Bowen and Finegan's Study. Much of the research during the 1960's on the determinants of labor force participation "was capstoned at the end of the decade by the appearance of the long-awaited opus by William G. Bowen and T. Aldrich Finegan, The Economics of Labor Force Participation.[37] This book does not only report the authors' original research but also reviews and evaluates much of the other studies on labor force behavior. The authors' main objective is ". . . explaining as fully as possible the factors which determine the labor force participation of specific population groups."[38]

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[35] Ibid., p. 119.

[36] Ibid.

[37] Parnes, op. cit., p. 1.

[38] Bowen and Finegan, op. cit., p. 4.

Data for their study was derived mainly from: (1) 1940, 1950 and 1960 Censuses; (2) a 1/1,000 sample of the 1960 Census (disaggregate data); and (3) the Current Population Survey 1949-65. They used ordinary least squares regression to estimate the relationship between labor force participation and earning power, nonlabor income, labor market, unemployment, and tastes.

Their empirical findings are many. The following includes and summarizes only those findings which are relevant to the female.

1. The labor force participation of wives is negatively related to the family income (excluding the wife's earnings), and positively related to the wife's earnings.
2. Wives' labor force participation is negatively related to the presence of children in the family. Age of children decides the amount of time which the mother is willing to supply.
3. Number of years of schooling completed by women is positively related to their market supply of labor.
4. Wives of unemployed husbands are more likely to seek employment in the market which implies the existence of an "additional worker" effect. But, the net effect of overall unemployment had reduced the overall participation rate of wives and husbands which implies that the "discouraged worker" effect dominates.

Among the major contributions made by Bowen and Finegan is that they "extend the econometric study of labor supply to cover subgroups of the population which heretofore have received little or no attention in published work."[39]

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[39]Belton M. Fleisher, "The Economics of Labor Force

Empirical Studies: Canada

Studies investigating the determinants of the labor force participation of women in Canada have now appeared. But these studies "are limited in number and less extensive than the similar studies undertaken in the United States."[40] Three main studies will be reviewed.

Allingham's Study. John D. Allingham[41] conducted his research on women who work to assess the relative importance of age, education and marital status for participation in the labor force. Concluding his study the author states the relative importance of the three variables in the following order: first, marital status; second, education; and lastly, age.

Although age is of least importance, it affects the participation rates of single and married women differently. The author points out that

> Within each of the educational groups of single females, age is roughly related in an inverse manner to participation. The older the women, the less likely they are to participate even with education controlled.[42]

For the married females, within each of the educational groups the highest participation rates relate to those between 40-54 years old. At these ages labor force re-entry occurs, after the prime child-

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Participation: A Review Article," in Journal of Human Resources, 6 (Spring, 1971), p. 140.

[40] Skoulas, op. cit., p. 32.

[41] J. D. Allingham, Women Who Work: Part 1, The Relative Importance of Age, Education, and Marital Status for Participation in the Labour Force (Ottawa, 1967a).

[42] Ibid., p. 22.

bearing-and-care years have passed. The lowest participation rates pertain to women between 60-64 years old. For married women this older age has a greater impact on participation than does education.

Allingham and Spencer's Study. In a second study John D. Allingham and Byron Spencer[43] tried to investigate the influence of age, education, child-bearing status, and residence on the labor force behavior of married women.

The data which have been used are from the 1961 Census of Canada. A multiple regression model was used, and the results may be summarized as follows: 1. The youngest group of wives is much more likely to be in the labor force than is the oldest group. 2. The wife's education was found to have a marked effect on her labor force behavior: "the better educated a woman, the more likely it is that she will be either working or looking for work."[44]

Using the husband's education as a proxy for his income (the higher the educational level the higher the income level), the study concludes that "a wife is less likely to be in the labor force, the higher her husband's income."[45]

With respect to the child status, it was pointed out that for all married women "the absence of children is a very strong incentive to be in the labour force whereas the presence of young children (those

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[43] J. D. Allingham and B. G. Spencer, Women Who Work: Part 2, Married Women in the Labour Force: The Influence of Age, Education, Child-Bearing Status, and Residence (Ottawa, 1968).

[44] Ibid., p. 14.

[45] Ibid.

less than six years) provides a strong deterrant to entry."[46]

According to this study, the residence variable has the weakest impact on the labor force behavior of married women. It was found that wives living in the larger centers are more likely to be in the labor force.

Spencer's Study. Bryon G. Spencer[47] undertook a micro-study of the labor force behavior of married women in Toronto metropolitan area. The author's main purpose was to study the important factors determining the labor force of married women. The sample survey on which the analysis was based was conducted in Metropolitan Toronto. In order to analyze the survey data a linear probability function was estimated incorporating a number of dummy variables.

Spencer's findings are generally consistent with previous studies, but include additional factors. Child status (presence of young children); income of husband; education of the wife; and the unemployment of the husband variables behaved as theoretically expected. In addition, the study presents two findings. First, he found that "women born outside Canada or the U.S. are more likely to be in the labour force."[48] Second, the study points out that "married women of the Jewish faith are found to be significantly less likely to be in the labour force

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[46] Ibid.

[47] B. G. Spencer, "Determinants of the Labour Force Participation of Married Women: A Micro-Study of Toronto Households," in Canadian Journal of Economics, VI (Feb.-Nov., 1973), pp. 222-38.

[48] Ibid., p. 237.

than are married women of other faiths."[49]

Empirical Studies in the Less Developed Countries (LDCs)

In general and unlike the case in industrialized countries such as the U.S.A. and Canada, labor force participation studies in the LDCs--particularly those of females--are few in number and not comprehensive in coverage because data and information are limited or not available. In addition, the emphasis is different as the next study indicates.

However, a major study was undertaken by James L. McCabe and Mark R. Rosenzweig[50] to examine the relationship between fertility and labor force participation of women. Puerto Rico was taken to be the case and the study was based on a family production function in which the family choice variables such as desired family size and the hours the mother works are jointly determined by a common set of exogenous variables.

The authors argue that, although several empirical studies indicate an inverse relationship between female economic activity and fertility, such inverse association does not seem to be as strong in rural as it is in urban areas. "In fact, in some rural studies," the study suggests, "birth rates are positively correlated with female economic activity."[51]

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[49] Ibid.

[50] J. L. McCabe and M. R. Rosenzweig, "Female Labor-Force Participation, Occupational Choice, and Fertility in Developing Countries," in Journal of Development Economics, 3 (1976), pp. 141-60.

[51] Ibid., p. 141.

The authors also show that in less developed countries the choice variables available to the households may be greater than those available to the households in industrialized countries. For example, the author points out that:

> rather being relegated essentially to the mother, as in the case in Europe and United States, a great deal of child-care responsibility will be accepted by relatives and older children in the LDCs. Moreover, unlike the industrialized nations, a large portion of the female labor force in LDCs is (sic) employed in retailing and cottage-industry occupations in which on-the-job child care is commonplace. Thus, differences in occupational (child-rearing) compatibility may play an important role in fertility decisions and in the choice of the wife's occupation.[52]

Factors determining female economic activity differ between societies and to a certain extent reflect the prevailing values and norms. For example,

> the length of the period of breast feeding, which may be partially a cultural phenomenon, will influence the substitutability between the wife's time in child-rearing and the purchased input of domestic help.[53]

Thus, the study argues, if the substitutability between the wife's and the other person's time (domestic servants and adult relatives) in child-rearing is greater than the substitutability in non-child-services production, this could result in child-rearing in these societies taking relatively less of the mother's time at higher levels of women's wages.[54] In such cases, the demand for domestic servants and adult relatives' time will increase. Also, the low rates of return

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[52] Ibid., p. 142.

[53] Ibid., p. 144.

[54] Ibid.

to education, the low probability of market employment of older children, and the compatibility of female's occupations with child-rearing, which characterize some developing societies, may result in a significant substitution of older children's for wife's time in child-rearing. Thus child services become less intensive in (less restrictive of) the wife's time in such situations.

For some occupations, the study suggests, mothers may allocate some of their working time to child-care without significantly affecting their productivity. The study gives women in Africa as an example where

> mothers frequently carry children on their backs while they are engaged in retail or agricultural activities. In this case, at least at the margin, children may not be very intensive in the wife's time . . . .[55]

Thus, the study argues that time intensity of child-rearing and compatibility of occupations with the mothers' production of child services are major factors which must be considered in determining the relationship between female labor force participation and fertility.

The multiple-regression model used in their study is tested using (1) household data from the 1970 Puerto Rico Public Use Sample, and (2) an intercountry cross-section sample. An empirical finding of their study is that an increase in the female wage rate is not only positively correlated with family size but also increases the amount of work performed by women (inside and outside the home). In addition, they found that the women's educational level appears to have a

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[55]Ibid., p. 145.

negative effect on all three variables.

Second, the authors found that an increase in the predicted wage of wife does not decrease the hours worked by the husband. However, it was found that an increase in the wage rate of the husband

> not only significantly raises family size and induces the wife to enter a more compatible occupation, but also significantly decreases the number of hours she works. Thus, subvention of male wages would appear both to increase family size and to inhibit the labor-force participation of wives.[56]

Finally, they found that

> the predicted ratio of service to total female nonagricultural laborers is a very important variable in explaining differences in aggregate birth rates and urban child-women ratios across countries. The coefficients for this variable have the hypothesized positive sign and are statistically significant at the same critical level in both the birth rate and child-women ratio regression.[57]

A Concluding Remark

In the light of the previous discussions of labor supply theories and empirical works, it is evident that for the developed countries (particularly U.S.A. and Canada) the subject of female labor force behavior has received a great deal of attention. Still it remains the subject of several controversies. In the developing countries, among them Libya, the study of the determinants of female labor force behavior is in its early stages. Empirical work on the subject is very limited. The author was inspired by this challenge to undertake his current research to contribute to the field of female labor force

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[56] Ibid., p. 153.

[57] Ibid., p. 158.

participation viewed as a significant potential internal source of manpower in Libya, and to help reduce the areas of controversy.

CHAPTER V

METHOD OF ANALYSIS AND SOURCES OF DATA

The purpose of this chapter is to present the model through which the hypotheses of the current study are tested. It also includes a discussion of the procedures that were used to collect the data. For the reader's convenience the hypotheses of the study will be restated below.

Theoretical Model

The working woman explains her employment as a need for additional income to maintain a desired standard-of-living, to meet the pressure of family debts, or to deal with unusual family expenditures. The basic hypothesis of this study is that the woman's decision to participate in the labor force is a function of interrelated demographic, economic, and other social factors. Specifically,

LFP_w = f (transitory income, permanent income, wealth, non-market wages, earning potential, demographic factors).

Various variables were used in this study to serve as proxies for these theoretical factors included in the female labor force participation function. The unemployment of the family head, for example, is a proxy for a transitory drop in income. Major labor-saving home appliances and home ownership were used as proxies for wealth. Number

of children under six years of age serves as a proxy for the non-market wage. The education level of the woman proxies her earning potential. Size of family and marital status of the woman provides data for demographic factors. Also the same variables can be put into economic, family, and personal groups.

Accordingly our study tests the following hypotheses:

Economic Considerations

1. We would expect labor force participation of women to vary inversely with the amount of family income excluding earnings of the woman.

2. We would expect labor force participation of women to vary positively with unemployment of the family head.

3. We would expect lower labor force participation of women in families owning their homes.

4. We would expect a direct relationship between the number of labor-saving home appliances owned by the family and the labor force participation of women.

Family Composition

1. We would expect greater labor force participation among women in smaller families.

2. We would expect the participation of mothers of children under six years to be less than the rate of mothers of older children.

Personal Characteristics

1. We would expect the age of women to be positively related to

labor force participation up until the women reach the prime working age; thereafter we expect these variables to be negatively related.

2. We would expect labor force participation to vary directly with the extent of formal education of women, the married woman being less apt to participate in the labor force than the single woman.

3. We would expect labor force participation to vary with the marital status of women.

In testing the stated hypotheses the following general model was our basic framework. (Thre regressions actually used were equations (6) and (7) given below.)

$$LFP_w = a + b_1UH + b_2HO + b_3AC + b_4AW + b_5EW + b_6MS + b_7NA + b_8SF + B_9IE + U \quad (1)$$

Where the variables are defined as follows:

Dependent Variable:

LFP_w: Female labor force participation.

Explanatory (independent) Variables:

UH: Unemployment of the family head.

HO: Home ownership.

AC: Age of children.

AW: Age of woman.

EW: Educational level of woman.

MS: Marital status of woman.

NA: Number of major labor-saving home appliances owned by the family.

SF: Size of the family.

IE: Income of the family excluding woman's earnings.

U: An error term.

The explanatory variables, UH, HO, NA, and IE, deal with the economic considerations; the variables, AW, EW, and MS, concern the personal characteristics of woman herself; and the variables, size of family (SF) and age of children (AC), measure the family composition. The EW is considered as an economic variable as well as personal. These explanatory variables selected to be included in this research are based on the empirical findings of previous studies discussed in Chapter IV, "Review of the Literature," and on the logic of expected labor force behavior of women in Libya.

Data and Its Relation to the Theoretical Model

The Concept of Work. In developed countries such as the United States and Canada money wages are paid on an hourly or piece rate basis. In Libya the case is different. Money wages in Libya are paid on a daily basis, the work-day being defined as eight hours of work. Therefore, the questionnaire used for this study does not include, for example, questions about the number of hours a woman works per day or week. Such questions were not asked not because they are irrelevant for some studies, but because in Libya the majority of working women in fact work full time, full time being 48 hours per week.

Another major difference is that in Libya some women in some families work in the home producing goods or services for others. Therefore the questionnaire was designed in a way to take into account these differences.

For instance, three questions were asked to decide whether the woman is a participant in the labor force or not: "Do you work outside your home in return for wages?"; "Do you produce services or/and goods for others inside your home in return for wages?"; and "Do you work for a family-owned business?" If the answers to any of these three questions were "yes" the woman was considered a labor force participant, otherwise not.

To some people this may raise some concern when it is compared with the formal definition of the concept of the "labor force." In the United States the "labor force" is defined as the sum of the numbers of persons classified as "employed" plus the number classified as "unemployed" (those who are not "at work" but who are looking for work). Since our questionnaire does not include questions to account for the "unemployed," it appears as if we had left out those women who were not at work but who were looking for work. This is not the case. The question whether the woman was looking for work or not was eliminated due to the fact that the demand for female workers is so high that there is no significant unemployment of women. The government is devoting much effort to increasing female labor force participation, so that most shifts are from "not in the labor force" directly to "in the labor force, employed." In a country such as Libya with a large portion of its manpower coming from foreign sources, the question of whether "looking for work" or not, particularly with respect to women, becomes of minor importance. For the purpose of this study, if the woman was staying at home and not "at work" it was assumed that she was not looking for work.

Unemployment of Family Head. The husband was considered as family head if the woman was married. The father (or oldest brother) was considered as the head of the family if the woman was single. Family head was considered unemployed if he was not at work but looking for work.

Home Ownership. Home ownership refers to a situation where the family owns its home and does not pay rent. In Libya the state provides low-income families with ready-built homes or with free-interest loans to build their homes. In return these families are required to pay back the cost of the homes or the loan on long-term monthly payments. Such monthly payments still in fact constitute a financial burden on the budget of these families. Therefore, families living in such homes were treated as if they were not owning but renting their homes.

Age of Children. We defined the child status of the family as having one of the following as an attribute: no children, number of children under six years of age, number of children aged 6-15 years, and number of children over sixteen years of age.

Age of Woman. For most of the Libyan persons law sets the lower age limit for gainful employment and social custom sets an upper limit. In keeping with these constraints, we examined labor force participation of women aged 15 years and over.

Educational Level of Woman. The educational level of woman was divided into three categories. The first category includes those women with education level equal to or lower than high school. It

includes the levels of elementary, middle, and high school. The second category includes those women with an educational level higher than high school. It includes university level of education or higher. The third category was made up of women who had no schooling.

Marital Status of Women. Single woman refers to a never-married woman. Married woman refers to the case where the woman is married now or was married in the past (includes divorced or widowed women).

Number of Appliances. Refers to the total number of major labor-saving home appliances. Such appliances are: refrigerator, range, vacuum cleaner, dishwasher, washing machine, dryer and sewing machine.

Family. A family is defined as a number of individuals bound together by legal or extra-legal ties, who pool their resources and make joint decisions concerning expenditures and allocation of time of each individual member. The "economic family" is taken as the "family unit" in the current study. The "economic family" is defined as "a group of two or more persons living together and related to each other by blood, marriage or adoption."

Size of Family. Refers to the total number of persons related by blood, marriage or adoption to the family who live with the family.

Other Family Income. Denotes total family income in 1977 less the earnings of the working woman. Thus it includes the earnings of other family members as well as property income and transfer payments. The income of the family was calculated on an average monthly basis. This procedure was adopted after we found that it was easier and more

manageable for the correspondents to report the total family income on a monthly rather than on a yearly basis. Also the earnings of the working women were taken on a monthly basis because it was much easier and more accurate for them to state how much they earned per month. Then the monthly earnings of the woman were subtracted from the total monthly income of the family and the "family income excluding woman's earnings" variable (IE) was obtained. The IE variable was multipled by 12 to convert it to a yearly basis. Thus the IE variable includes earnings of other family members, as salaries and wages; property income, as rent and the like; and transfer payments such as public financial assistance and private (especially from relatives) financial assistance.

The question of how much income a family actually has is a source of concern to the researcher in regard to both the rich and the poor in Libya and in other countries as well. Both the rich and the poor may underestimate their incomes but for different reasons. On one hand, poor families tend to understate their income in order to qualify for public financial assistance. On the other hand, rich families tend to understate their incomes for tax considerations and for fear of stimulating new governmental redistributional measures. The researcher must be aware of these limitations when dealing with the family income variables.

Econometric Model

The technique used is multiple regression analysis in which we subdivided each of the dummy variables (LFP_w, UH, HO, AC, AW, EW, MS) into two or more characteristics, assigning a "one" value when a

particular characteristic was present and a "zero" value when it was absent. This enabled us to discover the relative importance of each of the factors"[1] determining the Libyan female labor force behavior.

The analysis of a woman's labor force participation decision for this study, as for other recent studies undertaken,[2] employed a dummy (binary) dependent variable, LFP_w. When this variable is valued at unity the woman "is in the labor force" and when it is valued at zero the woman "is not in the labor force." This allowed us, as indicated by Knutson and Schreiner, to interpret the results "in the form of a probability statement as to whether the woman is expected to be part of the labor force."[3]

Two separate multiple regression equations were used. One equation was used for single woman data, the other equation was used for the married woman data. This procedure was adopted in order to account for the marital status of women as a variable, and to include the age of children variables only in the equation for married women. The age of children variables were obviously inappropriate for the single woman equation since in Libya, single women (never married) do not have children.

For the married women the equation is as follows:

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[1]Allingham and Spencer, Women Who Work, . . . op. cit., p. 12.

[2]Ibid.; Marlys Knutson and Dean Schreiner, Analysis of Factors Influencing Women's Labor Force Participation Decision, Research Report P-723, October, 1975, Agricultural Experiment Station, Oklahoma State University; Bowen and Finegan, op. cit.; Thomas A. Mahoney, "Factors Determining the Labor-Force Participation of Married Women," in Industrial and Labor Relations Review, 14, October, 1960-July, 1961, pp. 563-77; Spencer, op. cit., pp. 222-38; and Skoulas, op. cit.

[3]Knutson and Schreiner, op. cit., p. 2.

$$LFP_m = a + b_1UH + b_2HO + b_3AC + b_4AW + b_5EW + b_6NA + b_7SF + b_8IE + u \quad (2)$$

For the single woman the equation is as follows:

$$LFP_s = a + b_1UH + b_2HO + b_3AW + b_4EW + b_5NA + b_6SF + b_7IE + u \quad (3)$$

Description of the Variables:

The dependent variable in this study was a dummy variable for labor force participation of the woman.

LFP = 1, if the respondent was working at the time of interview.

0, otherwise.

The main objective of the current study was to investigate the effect of the explanatory variables, whose descriptions will follow, on the female labor force participation in Libya.

(1) Unemployment of Family Head: UH

UH = 1, if the family head is unemployed.

0, otherwise.

One would expect that the woman with a family head not working would be more likely to be in the labor force than a woman with an employed family head.

(2) Home Ownership: HO

HO: 1, if the family owns the home it lives in.

0, otherwise.

One would suppose, and recent studies seem to support, that women in families owning their homes would be less likely to be in the labor force than women whose families do not own their homes.

(3) Age of Children: AC

AC1 = 1, if children are under 6 years of age.

0, otherwise.

AC2 = 1, if children are between 6-15 years of age.

0, otherwise.

AC3 = 1, if children are over 16 years of age.

0, otherwise.

Generally, most of the empirical studies indicate that the presence of young children is a definite deterrent to the labor force participation of the mother.

(4) Age of Woman: AW

AW1 = 1, if the woman is under 25 years of age.

0, otherwise.

AW2 = 1, if the woman is between 25-34 years of age.

0, otherwise.

AW3 = 1, if the woman is between 35-44 years of age.

0, otherwise.

AW4 = 1, if the woman is between 45-54 years of age.

0, otherwise.

AW5 = 1, if the woman is over 55 years of age.

0, otherwise.

This variable enters the analysis with the hypothesis that the probability of women being in the labor force increases to the prime working age of women and then begins to drop.

(5) Education of Woman: EW

EW1 = 1, if the woman has some schooling and an education level equal to or less than high school.

0, otherwise.

EW2 = 1, if the woman has an education higher than high school level.

0, otherwise.

EW3 = 1, if the woman has no schooling.

0, otherwise.

Most previous studies indicate that the level of education is positively related to labor force participation. The higher the level of education of the woman the higher the probability that she will be in the labor force.

(6) Number of appliances owned by family: NA

NA = actual number of major labor-saving appliances owned by the family.

The hypothesized relationship concerning this variable is based on the premise that labor-saving home appliances, such as washers, dryers and vacuum cleaners, etc. are more likely to encourage the woman to be a participant in the labor force.

(7) Size of Family: SF

SF = actual members of the family.

The inclusion of this variable was to determine if the total number of family members would affect the likelihood of the woman being in the labor force, the hypothesis being that the larger the size of family the lower the probability of her presence in the labor force.

(8) Income of family excluding the woman's earnings: IE

IE = average 1977 amount of income of all family members except the respondent.

The major component of this variable is the husband's income, in the case of the married woman, or the father's income in the case of

the single woman. However, some of the other members of the family may be working and contributing to the family's income. There may also be other related adults living with the family who contribute to the total family income. In this respect, it was hypothesized that the higher the income of the family the less the probability that the woman will be in the labor force.

Having specified the classes of each dummy variable we can now insert them into equations (2) and (3), so that we now have equations (4) and (5):

For the married woman:

$$LFP_m = a + b_1UH + b_2HO + b_3AC1 + b_4AC2 + b_5AC3 + b_6AW1 + b_7AW2 + b_8AW3 + b_9AW4 + b_{10}AW5 + b_{11}EW1 + b_{12}EW2 + b_{13}EW3 + b_{14}NA + b_{15}SF + b_{16}IE + u \quad (4)$$

For the single woman:

$$LFP_s = a + b_1UH + b_2HO + b_3AW1 + b_4AW2 + b_5AW3 + b_6AW4 + b_7AW5 + b_8EW1 + b_9EW2 + b_{10}EW3 + b_{11}NA + b_{12}SF + b_{13}IE + u \quad (5)$$

The estimation and interpretation of equations (4) and (5) is fairly straightforward, but a few points deserve comment. First, to include all of the dummy variable classes which we identified for any explanatory variable would cause the moment matrix of the regressors to be singular. In other words the $(x'x)$ matrix--where x represents the matrix of independent variable values--is singular, the $(x'x)^{-1}$ matrix does not exist, and so the $\hat{b}$ vector (estimated coefficients) cannot be estimated. There are several possible constraints that can be imposed to estimate our regression equations. One technique

commonly practiced which is "a very favorable one to use"[4] is to omit one of the classes for each of the dummy variable groupings. Thus, one of the dummy variables is dropped from each group in both equations (4) and (5) and the equations become:

For the married woman:

$$LFP_m = a + b_1UH + b_2HO + b_3AC1 + b_4AC2 + b_5AW1 + b_6AW2 + b_7AW3 + b_8AW4 + b_9EW1 + b_{10}EW2 + b_{11}NA + b_{12}SF + b_{13}IE + u \quad (6)$$

For the single woman:

$$LFP_s = a + b_1UH + b_2HO + b_3AW1 + b_4EW1 + b_5NA + b_6SF + b_7IE + u \quad (7)$$

Second, when a dummy dependent variable is used to represent female labor force participation in Libya, a heteroscedastic error term results. In consequence, although the least squares estimators of the coefficients are unbiased, their variance (standard errors) are not.

In their study, William Bowen and T. Finegan used ordinary least squares with a dummy dependent variable. The authors attempted to calculate more accurate standard errors and compared them with their standard errors obtained from ordinary least squares. In the final analysis, Bowen and Finegan concluded that the difference between the two sets of standard errors was of a moderate size.[5] Commenting

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[4]F. Larry Leistritz, The Use of Dummy Variables in Regression Analysis, Ag. Econ. Misc. Report No. 13 (Technical), Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo, North Dakota, p. 3.

[5]Bowen and Finegan, op. cit., pp. 644-48.

on the biasness in the least squares standard errors, Bryon G. Spencer also points out that although the direction of the bias is not known, "in a similar study which attempted to correct for the bias, it was found that the standard errors were slightly overestimated."[6]

In a major study for the U. S. Department of Labor, Malcolm Cohen, Samuel Rea, and Robert Lerman were interested in examining the labor-force participation of various categories of labor as a function of several socioeconomic-demographic variables.[7] In all their regressions, the dependent variable was a dummy, taking a value of one if a person is in the labor force, zero if he or she is not. The regressions were estimated using ordinary least squares. The authors attempted to correct for heteroscedasticity in some of their regressions but found that the corrected standard errors of the estimates did not differ materially from those obtained without correction for heteroscedasticity. Perhaps this was due to the size of the sample. Because of the large sample size, the estimated t values may be tested for statistical significance by the usual ordinary least squares procedure even though the error term takes dichotomous values.

The third point concerns prediction. Since the expected value of the dependent variable--LFP--is interpreted as a probability, its range is confined to the interval from 0 to 1. However, the predicted value of the dependent variable is a point on a straight line and,

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[6]Spencer, op. cit., p. 226.

[7]M. S. Cohen, S. A. Rea, and R. I. Lerman, A Micro Model of Labor Supply, BLS Staff Paper 4, U. S. Department of Labor, 1970.

therefore, its range is from $-\infty$ to $+\infty$. In other words, the conditional probability of LFP may not fall within the range 0 to 1. However, Spencer points out that "there are very few instances in which conditional probabilities in fact go outside the permitted range."[8] Also, Skoulas indicates that "the assumption (of 0 to 1 range) seems to be common practice and to be accepted as a reasonable one for the majority of cases."[9]

The Sample Survey

The type of data used in this study was disaggregated cross-sectional data; that is, information on the labor force status and other characteristics of individual women at a moment of time. Such disaggregated data provided information on a very large number of individual women and had the advantage of permitting us to classify them according to a variety of socioeconomic characteristics, ranging from the woman's own education to the size and composition of her family, to the number of major appliances owned and so on. Bowen and Finegan indicate that disaggregated cross-sectional data is "magnificant, precisely because it does allow us to work at the level of the individual household, to cross-classify the data in a variety of ways not permitted by the published census tabulations, and to make use of multiple regression techniques."[10]

As also stated by Bowen and Finegan, the metropolitan area "is

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[8] Spencer, op. cit., p. 226.

[9] Skoulas, op. cit., p. 162.

[10] Bowen and Finegan, op. cit., p. 33.

probably the best empirical approximation to the 'local labor market' of economic theory,"[11] and this was the justification for selecting Tripoli City--the largest metropolitan area in Libya--as the field for this study.

The sample survey on which the current analysis is based was conducted in Tripoli City from July to November, 1977. Area sampling was used throughout the field work. Area sampling is, as Leslie Kish points out,

> A practical listing procedure that accommodates good frames for selecting dwellings. The dwellings serve as sampling units for persons, families, or for other populations that can be associated with dwellings . . . .[12]

The boundaries for the area of the population covered by the survey were limited to the official city limits of Tripoli. Within these limits we excluded areas definitely known to contain no dwellings; such as parks, stadiums, schools, etc. Furthermore, we excluded from the survey areas containing government office buildings, military reservations, college dormitories, etc.

The survey population was further restricted to only female Libyan nationals over 14 years of age. Personal interviews were carried out by trained females to avoid the difficulties which might have occurred if the interviews were conducted by males. These interviewers were selected from female teachers from schools within the areas selected or nearby. Although the questions included in the questionnaire of the present study were designed to be simple and

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[11] Ibid.

[12] L. Kish, Survey Sampling (New York, 1965), p. 301.

precise in meaning and wording, the female interviewers were instructed about the exact definition of the questions and data they should be after. In addition, the purpose of the study and its implications for the respondents were stressed and explained in details for these interviewers. After each day a random number of the answered questionnaires were looked over to check on the quality of the interviewer's work.

Data were collected by personal interviews from a random sample of 800 households. The city of Tripoli was divided into twenty (20) large sections or areas. Out of these twenty areas ten (10) areas were randomly selected. Then each of the selected areas was divided into 200 blocks. From these 200 blocks a random sample of twenty (20) blocks were selected. All dwelling units in each of the selected blocks were listed and a random sample of four (4) dwellings from each block were selected. The sample of 800 households provided a wide variety of labor market data on 1,957 women fifteen years of age and over. This total number of women was distributed between 665 single and 1,292 married women.

The Assumption of Independence

The present study assumed independence in the labor force decision-making of each single or married woman. However, since there were 655 single and 1,292 married women sampled from 800 households, there must have been more than one married woman in a number of the households surveyed and two or more women, married or single, in many households. Clearly when more than one woman is present in a household, the decision of one to work is likely to be related to the decisions of others. Such labor force decisions would not likely be

independent, and future studies should be directed toward determining what and how much difference in the labor force decisions occurs between the one-woman household and the multiple-woman household.

The presence of multiple-women households in countries such as Libya is explained by several factors. In Libya, as is the case in similar societies, the extended family (rather than the conjugal family as in the United States) is the common practice. Religion is also a factor since Islam permits a man to have up to four wives. In the majority of Libyan families, however, the man has only one wife. There is also a strong sense of social and religious responsibility on the part of sons and daughters to take care of their elderly parents. Therefore, it is not surprising to find more than one married woman living in one household. They may be the father's wife; father's sister; his son's wife; his widowed daughter; and/or his divorced daughter. Further study is needed on the effect of the extended family on women's labor force decisions.

CHAPTER VI

ANALYSIS OF DATA

This chapter discusses the empirical results obtained by using the multiple regression techniques outlined in the preceding chapter. The analysis is designed to identify those variables which best explain the variance of the dependent variable--female labor force participation--and to determine the nature of relationships of these variables. An attempt will also be made to discuss the empirical findings in conjunction with the postulated hypotheses and compare them with previous studies. The analysis will be carried out as follows: first, regression results for married women, and second, regression results for single women.

Regression Results: Married Woman

Table X contains the regression results for the married women. The value of F-statistic is 56.019, which shows that there is a high and statistically significant relationship between the dependent variable and the independent variables. The coefficient of multiple determination (R^2) is 0.36317. To some it may appear that the explanatory power of the regression is rather low. But in view of the large sample size, this R^2 is still significant on the basis of the F-test. A low R^2 is usually expected in cross-section data due to the fact that other factors may be neglected which create a large random

TABLE X

REGRESSION RESULTS: MARRIED WOMAN EQUATION

Explanatory Variable	BETA's (B's)	STD ERROR	t-ratio
Constant term	.33659	.04741	7.0988
Unemployment of family head (UH)	.27394	.03105	8.8227
Home Ownership (HO)	-.01084	.02520	-0.4299
Age of Children (AC):			
Under 6 years old (AC1)	-.21163	.03683	-5.7459
Between 6-15 years old (AC2)	-.01576	.03569	-0.4143
Age of Woman:			
Under 25 years old (AW1)	.15034	.05741	2.6185
Between 25-34 years old (AW2)	.31235	.05641	5.5368
Between 35-44 years old (AW3)	.18325	.04755	3.8537
Between 45-55 years old (AW4)	.19150	.03952	4.8450
Education of Woman:			
Education at less than high school (EW1)	.14782	.03590	4.1172
Higher than high school (EW2)	.51680	.04935	10.4729
Number of major appliances owned (NA)	-.02316	.01243	-1.8638
Size of family (SF)	-.00490	.00288	-1.6977
Income of family (IE) (1000's)	-.05487	.00642	-8.5507

R-Squared (R^2)	=	0.36317
F-Statistic	=	56.019
Theoretical $F_{13, 1277, 0.01}$	$\tilde{=}$	2.17
Number of observations	=	1,292

element. The R^2 obtained in the current study is higher than R^2's reported by other similar studies.[1]

The test of significance is based on the t-ratio which is given in Tables X and XI. A t-value represents the ratio of the estimated coefficient (BETA) to its estimated standard error (STD ERROR). All tests of significance carried out in the present study are conducted at the five percent (two-tail tests) level of significance, unless otherwise indicated.

Unemployment of Family Head

In this study the labor force behavior of married women (LFP_m) in Libya was found to have a positive and statistically significant relationship with the variable (UH), unemployment of family head. The magnitude of the coefficient indicates that the married woman with a family head not employed is 27.394% more likely to be in the labor force than the married woman with a family head in the labor force. This empirical finding is consistent with the "additional worker" hypothesis in labor economics.

Studying the determinants of labor force behavior of married women in Toronto (Canada), Bryon Spencer found that the married woman "is much more likely to be in the labour force if the husband is not."[2]

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[1] See, for example: McCabe and Rosenzweig, op. cit., pp. 141-60; Cohen, Rea, and Lerman, op. cit.; Spencer, op. cit., pp. 222-38; and Reuben Gronau, "Leisure, Home Production, and Work--the Theory of the Allocation of Time Revisited," in Journal of Political Economy, 85, 2 (Dec., 1977), pp. 1099-1123.

[2] Spencer, op. cit., p. 233.

He also found that "a wife is more likely to be in the labour force if her husband were unemployed more than one week than if he were not; the effect is especially strong if he were unemployed for less than two months."[3]

Bowen and Finegan found that labor force participation rate "is much higher for wives of unemployed men than for the wives of the employed men."[4] But, surprisingly, Cohen, Rea and Lerman in their study for the U. S. Department of Labor found that wives with husbands not in the labor force are less likely to be in the labor force than wives with husbands in the labor force.[5]

Bowen and Finegan interpret the longer hours worked by women whose husbands are not in the labor force "as reflecting some shift of relative responsibilities for home tasks and market work between the wife and the husband, an intra-family substitution effect."[6] This interpretation may hold in societies such as the United States. However, in Libya where there are the traditional social values concerning the roles of women and of men, a "shift of relative responsibilities" does not occur. The reasons are more surely economic: families in which the head of the family does not work are likely to have a lower level of income than families in which the family head does work. The lower level of family income in turn usually leads the women to seek employment.

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[3] Ibid., p. 234.

[4] Bowen and Finegan, op. cit., p. 148.

[5] Cohen, Rea, and Lerman, op. cit., pp. 75-6.

[6] Bowen and Finegan, op. cit., p. 154.

Home Ownership

Our empirical results indicate that there is negative but not statistically significant relationship between labor force participation of married women in Libya and home ownership (HO). The negative sign of the coefficient is consistent with our postulated hypothesis and its value of -.01084 means that the married woman in a family owning its home is about 1.084 percent less likely to be in the labor force than a married woman in a family not owning its home, but this result could be due purely to chance.

In the study of the determinants of the participation rate of the married woman in Canada, Skoulas did find a negative and statistically significant relationship (-0.035) between the labor force behavior of the married woman and home ownership.[7]

This empirical finding indicates that home ownership increases the demand for homework and consequently reduces the probability that the married woman will be in the labor force. However, in the current study the magnitude of the coefficient of this variable (HO) might have been affected in the same direction by the relatively stronger tastes for housework of the married woman who lives in an owned home, and the family's accumulated assets for which the variable HO serves as proxy.

Investigating the effect of home ownership on labor force participation, Bowen and Finegan and Cain found that in the United States home ownership is statistically insignificantly related to the labor

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[7]Skoulas, op. cit., p. 70.

force participation of the married woman.

Age of the Children

The child status variable AC has an important bearing on the labor force participation of the married woman in Libya. The value of the coefficients for the child variable categories indicates that there is a negative and statistically significant relationship between labor force participation of the married woman and the presence of children under 16 years of age. The reference category (omitted from the regression model) represents the married woman with no children under 16 years of age. The empirical findings reveal that the presence of younger children in the preschool age or children six to 15 years of age has a strong and negative impact on the labor force participation of the married woman. For instance, the coefficient of -.21163 attached to the variable "AC1"--children under six years of age present--means, holding all other factors constant, the probability of participation in the labor force by the married woman with children under six years of age is smaller by about 21 percent as compared with the base (reference) category (no children under 16 years old). Such strong negative effect of children under six years old is reasonable since children in preschool age need more attention and care which increases the need for mother to stay home.

The married woman with children between six and fifteen years of age, AC2, is 1.576 percent less likely to be in the labor force than her counterpart with no children under 16 years old. Children in this age category seem to be a barrier to the labor force participation of their mothers, but not as strong a barrier as the presence of

preschool children.

The empirical findings of our study are consistent with those of other similar studies and they confirm the postulated hypotheses that the age of children does exert a significant and negative effect on the decision of the married woman to participate in the labor force. For example, on the basis of the Bowen and Finegan analysis of participation rates of women in eight different types of family (characterized by age of children), they show that (a) it is the presence of children under six years of age that exercises the strongest inhibiting effect on labor force participation; and (b) children six to thirteen years old also dampen labor force participation, but by not nearly as much as the younger children.[8] Empirical studies conducted by Marlys Knutson and Dean Schreiner and Bryon Spencer reported similar results.[9]

Age of the Married Woman

One would expect that, other things equal, the age of the married woman is significantly related to her participation in the labor force. Our analysis supports this view. The reference (base) category is the married woman aged over 55 years (AW5). Thus, married women in the age categories: less than 25, 25-34, 35-44, and 45-55 are 15.034, 31.235, 18.325, and 19.150 percent, respectively, more likely to be in the labor force than married women over 55 years of age. The peak of the labor force participation probability by married women, 31.235

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[8]Bowen and Finegan, op. cit., pp. 96-103.

[9]Knutson and Schreiner, op. cit., p. 9; and Spencer, op. cit., p. 236.

percent, occurs in the age group 25-34 years. Thereafter, the labor force participation of married women declined sharply with respect to the age group of 35-44 years old, and rose to a second peak although lower than the first peak (19.150 percent) with respect to the age group of 45-55 years. Our empirical findings here are in agreement with previous studies[10] and consistent with the postulated hypotheses that age of the woman is positively related to her labor force behavior up to the prime working ages, and negatively related especially after the second peak (ages 45-55) is passed.

Level of Education

The level of education of the married woman also has a strong influence on her labor force participation. The better educated a woman, the more likely it is that she will be in the labor force. The probability that a woman in the most highly education group (EW2) (higher than high school) will be in the labor force is about 52 percentage points greater than for a woman having no schooling (EW3) (our reference category). The probability declined with respect to the lower level of education. For instance, the probability that a married woman with educational level equal to or less than high school (EW1) will be in the labor force is about 15 percent higher than for a married woman having no schooling.

There is considerable evidence that supports our findings and postulated hypothesis that labor force behavior of a married woman is

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[10]Bowen and Finegan, op. cit., pp. 108-14; Spencer, op. cit., p. 231; and Allingham and Spencer, op. cit., p. 14.

statistically significant and positively related to the level of educational attainment. Bowen and Finegan find a positive relationship between years of schooling and labor force participation.[11] Educational attainment may be expected to reflect an individual's potential earnings, and thus constitute a measure of the substitution effect. It is also argued that educational attainment measures some of the nonpecuniary advantages of working, since the higher the education the greater the access to more pleasant and more prestigious jobs.[12]

Allingham and Spencer observed that the wife's education is statistically significant and positively related to her labor force behavior. Interpreting their results they point out that this observation

> reflects partly the tendency of a more highly educated wife to achieve greater personal 'fulfillment' by playing an active role in the labour force, partly her relatively greater 'marketability' resulting in large measure from her advanced education, and partly her 'opportunity cost'--the amount of income foregone if she is not in the labour force.[13]

Number of Major Appliances

The number of major appliances owned by the family was found to be statistically significant and negatively related to the labor force

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[11]Bowen and Finegan, op. cit., pp. 53-62, 114-27, 254-60, 296-304, 413-15. See also their "Educational Attainment and Labor Force Participation," in American Economic Review, LVI, 2 (May, 1966), pp. 53-62.

[12]Bowen and Finegan, "Educational Attainment and Labor Force Participation," op. cit., p. 53.

[13]Allingham and Spencer, op. cit., p. 14.

participation of the married woman.[14] This empirical finding contradicts our postulated hypotheses. However, this negative relationship between major appliances owned by the family and labor force participation of married women is explained as follows: major appliances are considered as an indication of the family's wealth and income. Major appliances increase with the increase of family wealth and income. And it was found in this study that income of the family excluding earnings of the woman is negatively related to labor force participation of the married woman. Therefore, it was not surprising to find a negative association between number of appliances owned by the family and female labor force behavior.

Size of Family

The coefficient of the variable (SF) size of family is statistically significant and carries a negative sign indicating that the larger the family the less the probability that the woman will be in the labor force.[15] Housekeeping and homemaking responsibilities of the married women in Libya tend to increase with the size of family unit, thus increasing the value of her presence in the home. Empirical evidences in similar studies are mixed. On one hand, a number of studies using the United States data found supporting evidence to the negative relationship between the size of family and the labor force behavior of the married woman.[16] On the other hand,

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[14]Significant at 10% level of significancy (two-tail test).

[15]Significant at 10% level of significancy (two-tail test).

[16]See, for example: Mahoney, op. cit., pp. 563-77.

studies using Canadian data found that female labor force participation is positively related to family size.[17] These differences in empirical results may reflect, among other things, the socio-cultural differences among these societies.

Other Family Income

One might expect to find that the married woman is less likely to work the greater the family's income (not including her earnings), other things equal. The empirical evidence obtained in the current study shows that the likelihood of a married woman in Libya participating in the labor force is inversely related to the amount of family's income excluding her earnings.

Our empirical findings confirm our postulated hypothesis and are consistent with results of similar studies. For example, Bowen and Finegan found that family income exercises a strong, clear and consistently negative effect on the labor force participation of the married woman.[18] Similarly, Spencer found that beyond the $6000 level of income the wife is less likely to be in the labor force the greater her husband's income.[19] He concluded that it is "clear that there exists a very strong income-earning motive explaining the labour force participation of married women.[20] The formal economic theory of

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[17]Bryon G. Spencer and D. C. Featherston, Married Female Labour Force Participation: A Micro Study, Special Labour Force Studies, Series B, No. 4 (Ottawa, 1970), pp. 46-64 and p. 84.

[18]Bowen and Finegan, Economics of, . . . op. cit., pp. 319-22.

[19]Spencer, op. cit., p. 227.

[20]Ibid.

household behavior provides the main basis for the inverse relationship between the labor force behavior of the married woman and the amount of other family income. It is assumed that the married woman's freedom from the labor market (leisure time) is a normal good, the demand for which can be expected to rise with family income (positive income elasticity).

Regression Results: Single Woman

Table XI which shows the regression results for the single woman differs in some respects from Table X. First, age of children categories were not included in Table XI because of the assumption that the single woman (never married) does not have children of her own. Second, the age of woman categories over 25 years of age were not included either because there were few observations concerning the woman over 25 years of age and never married. Third, with respect to the education of the single woman it was found sufficient to deal only with the level of education which is higher than high school.

Table XI contains the regression results for the single woman. The value of F-statistic is 17.262. It shows that there is a high and statistically significant relationship between the labor force participation of the single woman (dependent variable (LFPs) and the explanatory variables. The correlation coefficient of the multiple equation (R^2) is .15555. The low value of R^2 should not be a cause of concern because as stated previously a low R^2 is a typical and expected feature of cross-section regression analysis involving individuals as observations.

TABLE XI

REGRESSION RESULTS: SINGLE WOMAN EQUATION

Explanatory Variable	BETA's (B's)	STD ERROR	t-ratio
Constant term	1.28079	.10150	12.6189
Unemployment of family head (UH)	.22097	.03916	5.6423
Home ownership (HO)	-0.03185	.03935	- 0.80925
Age of woman:			
Under 25 years old (AW1)	-0.24235	.05630	- 4.3044
Education of woman:			
Higher than high school	.04312	.04311	1.0001
Number of major appliances owned (NA)	-0.09216	.02340	- 3.9388
Size of family (SF)	-0.02073	.00667	- 3.1064
Income of family (IE)	-0.01325	.00543	- 2.4369

R-Squared (R^2)	=	0.155555
F-Statistic	=	17.262
Theoretical F_{7}, 656, 0.01	=	2.64
Number of observations	=	664

Unemployment of Family Head

Unemployment of the family head was found to be statistically significant and positively related to the labor force participation of the single woman. The coefficient of this variable (UH), .22097, indicates that the probability of the single woman with an unemployed family head being in the labor force is about 22 percent higher than

her counterpart with an employed family head. This finding is consistent with results for married women discussed previously, as summarized in Table X.

Home Ownership

With respect to the single woman in Libya, it was found the home ownership (HO) has insignificant influence (although it carries the negative sign as in the case of the married woman) upon her decision to participate or not in the labor force of the single woman. This may be explained by saying that some single working women in Libya may own homes but for social reasons they do not live in them by themselves. Therefore, the majority of single working women live either with their fathers or older brothers, who usually take care of housing problems for their single working daughters and sisters.

Age of the Single Woman

The age of the single woman was found to be statistically significant and, for those under 25 years of age, was found to be negatively related to the labor force behavior of other single women. The coefficient of this variable (AC1) is equal to -0.24235 meaning that, holding all other factors constant, the probability of participation in the labor force by the single woman under 25 years of age is smaller by about 24 percent as compared with the single woman over 25 years of age. The negative relationship between the single woman under 25 years of age and her labor force participation probably is the result of a combination of factors. One factor may be the greater willingness of the parents to help support their single daughter while she is

under 25. Another possible explanation for the negative inverse relationship between single women under 25 years of age and labor force participation is that some of them may still be enrolled in school.

Education of the Single Woman

The education of the single woman was found to play an insignificant role in her decision to participate in the labor force. This may be due to the fact that in Libya, the majority of the single women are under 25 years of age and still live with their fathers or older brothers who may, for religious and social reasons, not encourage them to participate in the labor force. Another possible explanation is that the majority of single women under 25 years of age may still be enrolled in schools.

Number of Major Appliances

Major appliances refers to those labor-saving home appliances owned by the family. In the current study it was found, not as hypothesized, that labor-saving home appliances are statistically significant and negatively related to the labor force behavior of the single woman in Libya. The magnitude of the coefficient is -0.0921. Although this empirical finding does not support our respective hypothesis, it should not raise any concern since home appliances may be considered as proxy for wealth. And it was found in the current study that income of the family, which constitutes a large part of the wealth, is statistically significant and negatively related to the labor force participation of the single woman. Therefore, it was not surprising, as the case for the married woman, to find a negative

association between the number of appliances owned by the family and female labor force behavior.

Size of Family

As in the case of the married woman, the size of family is statistically significant and negatively related to the labor force participation of the single woman. The magnitude of the coefficient of the variable is -0.02073. This empirical finding supports the stated hypothesis. Not only for married women but also for the single women as well housekeeping responsibilities tend to increase with the size increase of the family, thus increasing the value of her presence in the home. Other things being equal, the family size can be expected to affect family expenditures and create economic pressures for employment of the single woman.

Other Family Income

It seems reasonable to hypothesize the likelihood of female participation in the labor force will be inversely related to the amount of the family income excluding her earnings. Our empirical result obtained in the current study supports such hypothesis. It was found that the income of the family excluding the single woman's earnings is statistically significant and negatively related to the labor force participation of the single woman. The magnitude of the coefficient of this variable is -0.01325. As has been seen (in the case of the married woman), the rationale offered for this hypothesis by formal economic theory is that leisure is a "normal" good which therefore has a positive income elasticity.

Married and Single Women Compared

Comparing the empirical results of the single woman with those of the married woman, Table XII indicates that: (1) Home ownership; age of woman (under 25); number of major appliances owned; and size of family have stronger negative effects on the labor force participation of the single woman than the married woman. (2) Unemployment of family head; level of education (higher than high school); and income of family excluding the woman's earnings have stronger impact on the labor force participation of the married woman than the single woman. Also Table XII shows that single women have higher probability of being in the labor force than the married women.

Summing up, the empirical evidence obtained in the present study supports the postulated hypotheses--except for the number of appliances (NA)--, and all the explanatory variables introduced into the equations, except home ownership (HO) and education for single women, appear to have a significant effect on determining the labor force status of women in Libya.

TABLE XII

MARRIED AND SINGLE WOMEN COMPARED

Variable	BETA For Married Women	BETA For Single Women
Constant term	0.33659	1.28079
Unemployment of family head (UH)	0.27394	0.22097
Home ownership (HO)	-0.01084	-0.03185
Age of woman:		
Under 25 years (AW1)	0.15034	-0.24235
Education of woman:		
Higher than high school (EW1)	0.51680	0.04312
Number of appliances (NA)	-0.02316	-0.09216
Size of family (SF)	-0.00490	-0.02073
Income of family (IE)	-0.05487	-0.01325
Mean of dependent variables	0.34752	0.66767
R-squared (R^2)	0.36317	0.15555
F-statistic	147.530	24.4619
Number of observations	1,292	664

CHAPTER VII

SUMMARY, CONCLUSIONS, EVALUATION, AND IMPLICATIONS

Summary

This chapter summarizes the major findings of the current study and their implications for policy. The purpose of this study has been to ascertain the most important determinants of the female labor force participation in Libya. The study investigated and assessed the influence of several economic and social factors on the female labor force behavior, and education was found to be a crucial factor.

Chapter I presented the nature, the purpose, the significance, and the hypotheses of the study. The state of the Libyan economy before and after the discovery of oil was described in Chapter II. Chapter III dealt with the status of the Libyan woman in general. Certain theories of labor supply and the relevant empirical studies were reviewed in Chapter IV. The econometric model through which the hypotheses were tested and a discussion of the data were presented in Chapter V. A discussion of the empirical findings of the current study has been furnished in Chapter VI.

Conclusions

This study was designed to focus on a number of socioeconomic

explanatory variables in the development of an econometric model for the explanation of female labor force behavior in Libya.

The empirical findings of this study confirm most of the stated hypotheses. Many of these findings also are consistent with the findings of the other similar studies reviewed in Chapter VI. However, there are differences which exist between our current study and those similar studies. Among the major differences are the specification of the econometric model and the interpretation of the empirical results.

With respect to the married woman the analysis indicates that unemployment of family head and especially the educational level of the married woman are statistically significant and positively related to her labor force participation. Age of the children, number of labor-saving home appliances, size of family, and other family income were found statistically significant and negatively related to the labor force behavior of the married woman in Libya. Home ownership was not statistically significant. The analysis also indicates that the age of the married woman is significantly related to her labor force participation. The age of the married woman is positively related to her participation in the labor force until the prime working age of women (25-34) and then, except for a minor peak at ages 45-55, begins to drop.

With respect to the single woman in Libya, it was found that both home ownership (though negative) and the level of education (though positive) have insignificant influence upon the decision of the single woman to participate in the labor force. As noted in Chapter IV, the great majority of single women are under age 25 and are either still in school or are still living with their parents who may for social and religious reasons discourage them from participating in the labor

force. This contrasts with the strong significance of education in the case of married women.

The age of the single woman was found to be statistically significant and positively related to labor force participation except for those under 25 years of age. As is the case of the married woman, the analysis indicates that labor-saving home appliances, size of family, and income of family excluding woman's earnings are statistically significant and negatively related to the labor force participation of the single woman in Libya.

Assessing the relative influence, the empirical results indicate that home ownership, age of woman (under 25), number of labor-saving home appliances, and the size of the family have stronger negative effects on the labor force behavior of the single woman than the married woman. Unemployment of family head, level of education (higher than high school), and other family income have a stronger impact on the labor force participation decision of the married woman than the single woman. In addition, it was found that the single woman has a higher probability of being a participant in the labor force than the married woman.

Generally speaking, the empirical evidence supports the postulated hypotheses. The main exception was labor-saving home appliances where it was found that they are negatively related to the labor force behavior of women. This did not confirm the initial hypothesis. On the other hand, all the socioeconomic explanatory variables included in the model, except home ownership, were found to have a significant influence on labor force participation decision of married women in Libya.

Evaluation

The research of the 1960's has furnished the basis for a substantially improved understanding of the labor force. "From a policy point of view," Parnes argues, "perhaps the most notable achievement has been the final laying to rest of the three-decade controversy over the 'additional worker' theory."[1] Women tend to participate in the labor force, not as temporary additional workers because of the business cycle, but because of conscious long-run decisions to enter the labor force and to stay in the labor force as permanent workers whenever possible.

On the theoretical level, the labor force participation model originated by Mincer[2] and refined by other scholars has proved, as Parnes indicates, "to be a useful tool of analysis; statistically, the use of multiple regression techniques has permitted a much clearer view of the separate effects of intercorrelated variables than had previously been possible."[3]

Since the current study is concerned with the analysis of female labor force participation in a single labor market, Tripoli, caution should be exercised in generalizaing to other labor markets with different compositions of population, employment opportunities, or cultural and social backgrounds. Nevertheless, the general findings of this study were remarkably consistent with the findings of similar

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[1] Parnes, op. cit., p. 31.

[2] Mincer, op. cit., pp. 63-97.

[3] Parnes, op. cit., p. 32.

labor force participation studies, even though the societies studied are different in many respects.

Implications

The current analysis has shed light on the socioeconomic factors which affect the decision of a woman to participate in the labor force in Libya. Furthermore, the empirical findings of the study have quantified the impact of these factors on the female labor force participation. The study shows that some factors, such as other family income, push labor force participation by women down. But there are other factors such as trends toward smaller families and especially higher education, which have a strong and highly significant effect in pushing female labor force participation up. For the married woman, education is the single most important determinant of female labor force participation in Libya. The probability that a married woman with education higher than high school will be in the labor force is about 52 percentage points greater than for a married woman who has no schooling.[4] The strong positive relationship between the labor force participation of woman and her educational level puts much emphasis on the role of education to lessen the acute shortage of manpower in Libya.

The significance of education is emphasized by many authorities. Professor John C. Shearer points out that formal education, "is, perhaps, the most significant of these means /of developing human

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[4]See p. 90.

knowledge and skills] and that most susceptible to measurement."[5]

Education as a means of human resource development is an old concern. Economists have long been aware of the importance of human resource development. Adam Smith in his book, The Wealth of Nations, pointed to the significance of education.[6] He treated human resources as a type of fixed capital. He argued that the acquisition of talents during education contributes significantly to the individual's welfare as well as to the nation's welfare.

Alfred Marshall viewed money capital invested in human beings as the most valuable of all capital.[7] He pointed out that, "the wisdom of expending public and private funds on education is not to be measured by its direct fruits alone."[8] There are indirect benefits to the society as a whole as well as direct benefits to the individual.

In more recent years economists have again called attention to the importance of human resources, and particularly to investment in education. Professor Shearer emphasizes the fact that human capital is the key to development.[9] Harbison and Myers also point out that human resource development is a necessary condition for achieving the

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[5]Shearer, op. cit., p. 177.

[6]Adam Smith, An Inquiry Into The Nature and Causes of The Wealth of Nations, Cannan (ed.) Book II (New York, 1937), pp. 265-66.

[7]Alfred Marshall, Principles of Economics, 8th ed. (London, 1930), p. 564.

[8]Ibid., p. 216.

[9]Shearer, op. cit., p. 177.

political, cultural, social and economic goals of modern nations.[10]

It is significant that the International Bank for Reconstruction and Development (IBRD) Mission recommended in 1959 that Libya should put much emphasis on improving "education and training, strengthening the organization of government and bringing about the institutional changes that are needed, particularly in agriculture, to ensure that capital can be used more fruitfully."[11]

In accordance with these recommendations, education in Libya was made free for all Libyan students at all levels of education. Students studying at local universities receive allowances of $100.00 per month and are also eligible for free health care.

Table XIII includes the total number of students in Libya in 1958/59; 1967/68; and 1972/73. It is clear from the Table that the female segment of population is making striking progress in education. In 1958/59, female students represented only 16 percent of the non-vocational student population. But in 1967/68 and 1972/73 females constituted 28 percent and 39 percent of the non-vocational students, respectively. Change will likely continue and should continue until there are approximately as many women as men in each category and level of education.

In addition to the positive effect of education, this study has suggested that the presence of young children constitutes a major barrier to the gainful employment of the married women. The same

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[10] Harbison and Myers, op. cit., p. 13.

[11] The Economic Development of Libya, op. cit., p. 84.

TABLE XIII

NUMBER OF STUDENTS IN LIBYA
1958/59; 1967/68; 1972/73

	1958/59	%	1967/68	%	1972/73	%
Level of Education:						
Primary: Total	98,063	--	248,731	--	451,928	--
Male	81,625	83	173,650	70	261,693	58
Female	16,438	17	75,081	30	190,235	42
Preparatory: Total	5,058	--	26,414	--	54,744	--
Male	4,876	96	24,277	92	42,016	77
Female	182	4	2,137	8	12,728	23
Secondary: Total	1,581	--	5,995	--	10,908	--
Male	1,536	97	5,257	88	8,918	82
Female	45	3	738	12	1,990	18
Teachers' Institutions: Total	1,676	--	5,254	--	10,990	--
Male	1,401	84	2,986	57	6,903	63
Female	275	16	2,268	43	4,087	37
University: Total	342	--	2,522	--	8,220	--
Male	331	97	2,245	89	7,129	87
Female	11	3	277	11	1,091	13
Subtotal:	106,720	--	288,916	171*	536,790	86*
Male	89,769	84	208,415	72	326,659	61
Female	16,951	16	80,501	28	210,131	39
Vocational: Total	718	--	909	27*	3,375	271*
Total of All Students	107,438	--	289,825	170*	540,165	86*

Source: Ministry of Education, General Statistics on the Development of Education in Libya 1958/59-1972/73 (Tripoli, Libya), pp. 3-5 (in Arabic).

*This is the percentage increase over the previous time period.

conclusion was reached by the Committee For the Study of Promoting Productivity in Libya which recommended increasing the number of nurseries and kindergartens in accordance with the Labor Law of 1970. This law requires each employer of more than 50 female workers to provide a nursery for the children of the working woman.[12] But I would strongly recommend that such regulations should be applied not only to the private sector but also the expanding public sector. The Committee also recommended that both the Labor Law and the Civil Service law should allow for the employment of women on a part-time basis to encourage them to work and take care of their children also.[13]

The study of the working woman in an Islamic country cannot be concluded without again reminding the reader of the relevant views of Islam with respect to the working woman. Such a reminder is necessary since Islamic thought will in fact be taken into account by the policy makers.[14]

As indicated in Chapter III, a fundamental principle of Islamic thought is that woman is a being equal to man:

> O mankind! reverence
> Your Guardian-Lord

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[12]Committee for Study of Promoting Productivity, Revised Resume of the Report of the Committee for Study of Increasing the Contribution of Woman to Economic Activities (Secretariate of Planning, Tripoli, 1977), p. 30.

[13]Ibid., p. 31.

[14]In this presentation, the author relied heavily on Muhammad Qutb, Islam, The Misunderstood Religion (International Islamic Federation of Student Organization, 1974), pp. 90-131. Muhammad Qutb is a respected and devoted Islamic scholar.

> Who created you
> From a single Person,
> Created, of like nature,
> His mate, and from them twain
> Scattered (like seeds)
> Countless men and women; . . .
>
> (IV:1) Nisaa, or The Women

Thus men and women are quite equal to each other in their origin, their abode, as well as in their place of return and as such are entitled to similar and equal rights. Men and women are also equal in their rights to the satisfaction of their material wants including similar rights to hold property, and to dispose of it as they should wish. They are equally free to buy and sell, mortgage, give in lease, bequeath, or exploit property for his or her own benefit:

> From what is left by parents
> And those nearest related
> There is a share for men
> And a share for women,
> Whether the property be small
> Or large,--a determinate share.
>
> (IV:7) Nisaa, or The Women

> And in no wise covet
> Those things in which God
> Hath bestowed His gifts
> More freely on some of you
> Than on others: to men
> Is allotted what they earn
> And to women what they earn.
>
> (IV:32) Nisaa, or The Women

What is said confutes the allegation that Islam accords woman only a secondary status or that she should be treated as subservient to man or that her role is of no importance.

But after acknowledging an equal status as human beings for both men and women, Islam does, however, differentiate between men and women with regard to their special functions in life. Role (or

function) differentiation is based on physiological, biological, and psychological differences between men and women.

The Islamic attitude toward men and women is quite in line with human nature. Thus it effects equality between them where there is a natural ground for it, and it differentiates between them where such differentiation is but natural.

Accordingly what has been said earlier may be reiterated. Development of human resources should be the paramount strategy of Libya's economic development plan. This involves more and better education and training of both men and women, and it involves greater use of women in all industries and particularly in occupations and industries previously closed to women.

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APPENDIX I

A TRANSLATION FROM THE ARABIC TO THE ENGLISH OF THE QUESTIONNAIRE USED IN TRIPOLI CITY, LIBYA (JULY-NOVEMBER, 1977)

Garyunis University

College of Economics and Commerce

Benghazi

Determinants of Female Labor Force Participation: The Case of Libya

"A Questionnaire"

Prepared by

ALI M. ELHUNI
Faculty Staff Member in Benghazi,
Currently Ph.D. Candidate
Oklahoma State University
Stillwater, Oklahoma USA

In The Name of God,

The Beneficent, The Merciful

Dear Sister,

Today there is no doubt that the Libyan woman plays an important educational and economic role. With respect to her educational role, the woman in Libya tries to raise a well behaved and well balanced family.

In the economic sphere, women today are considered an essential part of the manpower which carries out the socio-economic developmental projects. The importance of the working woman, her increasing labor force participation rate, and her future potential as an internal source of manpower stimulated me to study and investigate this subject.

This study will be submitted to the Faculty of the Graduate College of Oklahoma State University in partial fulfillment of the requirements for the Degree of Doctor of Philosophy.

The success of this study depends on so many factors. One of the basic factors is the cooperation and willingness of the women to answer the following questions to the best of their knowledge. Providing the necessary data for this study will be appreciated very much. Here I would like to stress the point that such data will only be used for the purpose of this study.

With my thanks and respect,

Ali M. El Huni

1. What is your nationality?

   Libyan_____

   Others_____

2. What is your birth date?_____

3. How old are you?_____

4. What is your marital status? (Check the correct answer)

   *Never married (single)_____

   *Married _____

   *Divorced _____

   *Widowed _____

5. If married (divorced or widowed), do you have children under 16 years of age?

   *Yes_____

   *No_____

6. If you have children under 16 years, how many and how old are they?

Children	Age
*First child	_____
*Second child	_____
*Third child	_____
*Fourth child	_____
*Fifth child	_____
*Sixth child	_____
_____	_____
_____	_____
_____	_____

7. What is your educational level?

*No schooling _____

*Some elementary school _____

*Finished elementary school _____

*Some middle school _____

*Finished middle school _____

*Some high school _____

*Finished high school _____

*Some college (university) _____

*Finished college (university) _____

*Others _____

8. Do you work outside your home in return for wages?

*Yes _____

*No _____

9. Do you produce service or/and goods for others inside your home in return for wages?

*Yes _____

*No _____

10. Do you work for a family-owned business?

*Yes _____

*No _____

11. If you work, how much are your monthly earnings?

_____

12. How many persons related by blood, marriage or adoption to the family live with your family? _____

13. Who is the head of the family?

*Husband _____

*Father _____

*Oldest brother _____

14. Is the head of your family working?

*Yes_____

*No_____

15. Is the head of your family looking for work?

*Yes_____

*No_____

16. What is the average monthly income of all members of your family including your earnings (if you are working)?

*Wages and salaries of all working members including yours: _____

*Property income (such as rent) _____

*Public financial assistance _____

*Private (relatives) financial assistance _____

*Other sources of income _____

17. How many labor-saving home appliances does your family have?

Type	Number
*Refrigerator	_____
*Range	_____
*Vacuum cleaner	_____
*Dishwasher	_____
*Cloth-washing machine	_____
*Cloth-drying machine	_____
*Sewing machine	_____

18. Information concerning the home of family: (check the correct answer).

*The home is owned (no rent is paid) _____

*The home is rented from others _____

*The home is provided by the State in return for monthly payments _____

*The home is built by government free interest loan in return for monthly payments _____

APPENDIX II

A Copy of the Original Questionnaire

in Arabic

جامعة قاريونس
كلية الاقتصاد والتجارة
بنغـازى

استقصـاء حـول العوامـل التى تحـدد مشـاركة المـرأة الليبية فى القـوى العـاملة

إعداد : علي محمد المرغني
عضو هيئة التدريس بالكلية والموفد حاليا
لتحضـير الدكتوراه فى الاقتصـاد بجـامعة
ولاية اوكلاهوما ـ الولايات المتحدة الامريكية


بسم الله الرحمن الرحيم

الاخت الفاضلـــة :

لاشك ان المراة الليبية اليوم تقوم بأدوار تربوية واقتصادية غـاية فى الاهمية . ففى المجال التربوى تسعى المراة دائما وتبذل قصارى جهدها من اجل تنشئة اسرة قوامها الاخلاق والفضيلة .

اما فى المجال الاقتصادى فالمراة الليبية اليوم تعتبر جـزءا اسـاسيا ومهما من قطاع القوى العاملة الذى يقع على عـاتقه مهمة تنفيذ مشـاريع التنمية الاقتصـادية والاجتمـاعية . لقد كـان لأهمية المراة وتزايد نسبة مشاركتها فى القوى العاملة الدافـع الكبير لى فى اختيار هـذا الموضـوع لدراستى .

هذه الدراسة هى موضوع رسالة البحث العلمى التى سوف اقدمها للحصول على درجة الدكتوراه فى الاقتصاد من جامعة ولاية اوكلاهومـا ـ الولايات المتحدة الامريكية .

ان نجاح هذه الدراسة يعتمد على عدة عوامل اهمها تعاون المراة الليبية فى الاجابة على مجموعة الاسئلة المرفقة . وبقدر ما ارجو من الجميع التعاون فى تزويدى بالمعلومات والاجابات الضرورية لهذا البحث ، احب ان أؤكـد للجميع ان هذه المعلومات وهذه الاجابات سوف لن تستعمل الا لغرض هذا البحث فقط .

مع شكرى وتقديرى ارجو من الله التوفيق ،،،

على محمد الهونى

السـؤال رقـم (١)

مـا هـي جنسيتـك ؟

* ليبيـــة ــــــــــــــــــــــــــــــــ

* غير ليبيـــة ــــــــــــــــــــــــــــــــ

السـؤال رقـم (٢)

مـا هو تاريخ ميلادك ؟

ــ

ــ

السـؤال رقـم (٣)

مـا هو عمرك بالسـنوات ؟

ــ

ــ

السـؤال رقم (٤)

مـا هي حالتك الاجتماعية ؟

(ضعي علامـــة ✓ امام كـــل اجابة صحيحة)

* غير متزوجـــة (عازبة) ــــــــــــــــــــــــــــــــ

* متزوجـــة ــــــــــــــــــــــــــــــــ

* مطلقـــة ــــــــــــــــــــــــــــــــ

* ارملـــة ــــــــــــــــــــــــــــــــ

السـؤال رقـم (٥)

* لـو كنت متزوجـة (مطلقة او ارملة) هل لك اطفال اقـــل من ١٦ سنة من العمر ؟

* نعـم ـــــــــــــــــــــــــــ

* لا ـــــــــــــــــــــــــــ

السـؤال رقم (٦)

اذا كانت الاجـابة على السؤال رقـم (٥) " نعم " أى عدك اطفال اقل من ١٦ سنة من العمر ، كم عدد هم وما هي اعمارهم ؟

الطفل	العمـر
* الطفل الاول	ـــــ
* الطفل الثاني	ـــــ
* الطفل الثالث	ـــــ
* الطفل الرابع	ـــــ
* الطفل الخامس	ـــــ
* الطفل السادس	ـــــ
ـــــ	ـــــ
ـــــ	ـــــ
ـــــ	ـــــ

السـوء ال رقم (٧)

مـــا هو مستواك التعليمي ؟

(ضعـي اشارة ✓ امام المستوى التعليـمي المناسب لك)

* بـــدون تعليم ـــــــــــــــــــــــ

*في المرحلة الابتدائية ـــــــــــــــــــــ

* استكملت المرحلة الابتدائية ـــــــــــــــــــــــ

*في المرحلة الاعدادية ـــــــــــــــــــــــ

* استكملت المرحلة الاعدادية ـــــــــــــــــــــــ

*في المرحلة الثانوية ـــــــــــــــــــــــ

* استكملت المرحلة الثانوية ـــــــــــــــــــــ

*في المرحلة الجامعية ـــــــــــــــــــــــ

* استكملت المرحلة الجامعية ـــــــــــــــــــــ

غيره ـــــــــــــــــــــــــــــــــ

السـوءال رقم (٨)

هل تعملين خارج منزلك مقابل اجـــــر ؟

* نعم : ـــــــــــــــــــــــ

* لا : ـــــــــــــــــــــــ

السوءال رقم (٩)

هل تقومين باعمال انتاجية او خدمات داخل منزلك للغير مقابل اجر؟

* نعم : ـــــــــــــــــــــــ

* لا : ـــــــــــــــــــــــ

السـؤال رقـم (١٠)

هل تعملين في مشروع تجارى خـاص باسرتك ؟

* نـعـم : ______________________

* لا : ______________________

السؤال رقـم (١١)

لـو كانت الاجابة على الاسئلة (٨) ،(٩) ، و(١٠) " نعم"
اى تعملين ، فما هو الدخل الشهرى الذى تحصلين عليه ؟

____

____

السـؤال رقـم (١٢)

كم عدد الافراد الاقارب سواء بالدم بالزواج او بالتبني
الذين يقيمون اقـامة دائمة مع اسرتك ؟

____

____

السؤال رقـم و(١٣)

من هو رب الاسرة ؟

* الزوج ______________________

* الاب ______________________

* الاخ الاكبر ______________________

السـؤال رقـم (١٤)

هل رب الاسـرة يعمل ؟

* نـعـم : ______________________

* لا : ______________________

السوءال رقم (١٥)

اذا كانت الاجابة على السوءال رقم (١٤) "لا" اى رب الاسرة لا يعمل ، هل رب الاســـرة يبحث عن عمل ؟

* نعم : ــــــــــــــــــــــــــــــ

* لا : ــــــــــــــــــــــــــــــ

السوءال رقم (١٦)

ما هو متوســط الدخل الاجمالي الشهرى لجميع افراد اسرتك متضمنا دخلك انـــــت ان كنــت تعملين ؟

* اجور ورواتب افراد الاسرة العاملين ــــــــــــــــــــ
* دخل الاسرة من العقارات مثل الايجار ــــــــــــــــــــ
* مساعدات مالية اجتماعية من الدولة ــــــــــــــــــــ
* مساعدات مالية خاصة من الاقارب ــــــــــــــــــــ
* مصادر اخرى للدخـــل ــــــــــــــــــــ

السـؤال رقـم (١٧)

كم عدد الادوات المنزلية الكهربائية التي تمتلكها الاسرة ؟

النوع	العدد
* ثلاجـة	ــــــــ
* فرن (بوتاجاز) كهربائي	ــــــــ
* مكنسة كهربائية	ــــــــ
* غسالة مواعين كهربائية	ــــــــ
* غسالة ملابس كهربائية	ــــــــ
* جفافة ملابس كهربائية	ــــــــ
* آلـة خياطة كهربائية	ــــــــ

السؤال رقم (١٨)

معلومات عن المنزل التي تسكن به اسرتك ؟

(ضعي علامة ✓ امام الاجابة الصحيحة)

* المنزل ملك خاص (بدون ايجار) ــــــــ
* المنزل مستأجر من الغير مقابل اجرى شهرى ــــــــ
* المنزل حكومي مقابل اقساط شهرية لتملكه ــــــــ
* المنزل انشأ بواسطة قرض من المصرف مقابل اقساط شهرية ــــــــ

VITA 2

Ali Mohamed El-Huni

Candidate for the Degree of

Doctor of Philosophy

Thesis: DETERMINANTS OF FEMALE LABOR FORCE PARTICIPATION: THE CASE OF LIBYA

Major Field: Economics

Biographical:

Personal Data: Born in Abulmatamir, Behaira, Egypt, November 24, 1943, the son of Mr. and Mrs. Mohamed Elgaddafi El-Huni.

Education: Received Bachelor of Arts degree in Accounting and Business Administration from the University of Libya in June, 1966; received a certificate in Training Administration in July, 1969, and a certificate in Managerial Skills Development Program in August, 1969, from the University of Connecticut at Hartford; received the master of Public and International Affairs with emphasis on economic and social development from the Graduate School of Public and International Affairs, University of Pittsburgh, 1971; completed requirements for the Doctor of Philosophy degree at Oklahoma State University in December, 1978.

Professional Experience: Deputy Head, Personal Administration Section, Ministry of Industry, Tripoli, Libya 1966-1968; Instructor, National Institute of Public Administration, Tripoli, Libya, 1968-1969, 1972-1973; Instructor (Assistant Lecturer), University of Benghazi, College of Economics and Commerce, Benghazi, Libya, 1973.