POPULATION MOVEMENTS AND POPULATION PRESSURE IN JORDAN, LEBANON, AND SYRIA

CHARLES ISSAWI AND CARLOS DABEZIES[1]

THE presence of three quarters of a million Arab refugees in the surrounding Arab countries lends particular interest to a study of population movements and population pressure in Jordan, Lebanon, and Syria. Very little data are, however, available on the subject. Published birth and death rates are misleading, and do not convey even an approximate idea of the magnitudes involved. In none of the three countries studied in this article has more than one census been taken, and in Jordan there has not been any census of population.

The figures in Table 1, are taken from available censuses and estimates. The estimated rates of increase may be compared with more reliable figures calculated for some of the neighboring countries in Table 2.

Although these figures involve a wide margin of error, the general picture of a rapid population growth which they give is undoubtedly correct. It may also be stated that this rate of growth is not likely to slacken in the next few years. For the general improvement in health conditions which has taken

Table 1. Population and rate of increase in Jordan, Lebanon, and Syria.[1]

COUNTRY	CENSUS OR ESTIMATE		RECENT ESTIMATE		ESTIMATED ANNUAL INCREASE (Per Cent)
	Year	Numbers (in 000's)	Year	Numbers (in 000's)	
Jordan			1948	400	—
Lebanon	1932 (Census)	855	1947	1,186	2.2
Syria[2]	1932 (Est.)	2,801	1947	3,340	1.2

[1] Sources: U. N. Statistical Office: Population and Vital Statistics Reports, 1949. S. B. Himadeh *Economic Organisation of Syria*, Beirut, 1936.
[2] Excluding Sanjak of Alexandretta from 1932 figure.

[1] Both the authors of this article are with the Division of Economic Stability and Development in the Department of Economic Affairs of the United Nations. The views expressed in this article are, however, entirely personal and do not necessarily reflect those of the United Nations or any other organization.

Country	Per Cent Annual Increase Between Two Last Censuses	Gross Reproduction Rate	Net Reproduction Rate
Cyprus	1.7	—	—
Egypt	1.8	3.11[1]	1.44[1]
Palestine	—	3.26[2]	1.80[2]
Moslems	—	4.76[2]	2.95[2]
Turkey	1.1	—	—

[1] Kiser, Clyde V.: The Demographic Position of Egypt, a paper in Demographic Studies of Selected Areas of Rapid Growth. New York, The Milbank Memorial Fund, 1944, p. 119. (The figures refer to 1937.)
[2] Loftus, P. J.: Features of the Demography of Palestine. Population Studies, Cambridge, 1948, II, No. 1, p. 92. (The first set of figures refers to 1931, the second to 1945.)

Table 2. Measures of growth in other countries of the Middle East.

place during the last thirty years, and which has recently been accelerated by the introduction of new weapons against diseases, is likely to bring down death rates, especially infant mortality rates. Birth rates, on the other hand, may remain at their present high level, since the economic and social structure of these countries tends to favor a high birth rate. The small decline in the birth rate of the Moslem population of Palestine in the interwar period, and the decrease in the proportion of children to women of child-bearing age in Egypt, may indicate that a slight decline in fertility has set in, but this will hardly be enough to offset the expected decline in death rates, and is most unlikely to exceed it. Perhaps the most important single factor bringing down the birth rate is the movement from the countryside into the towns, which has been taking place in most of the Middle Eastern countries during the last 20 years.

Emigration. Until the First World War, there was a relatively large scale emigration from Lebanon and Syria, averaging 15,000 per annum between 1900 and 1914.[2] This flow was directed at first to Egypt, and then to North and South Amer-

[2] Although no separate figures are available, it is certain that Lebanon accounts for at least half, and perhaps as much as two-thirds, of these totals.

ica. In the 1920's emigration to the United States was sharply curtailed, but this was compensated by increased emigration to South America and West Africa, the average for 1923–1926 being 14,000. During the depression period, however, further restrictions were imposed by the countries of immigration, and the annual outflow fell to 2,000 in 1931–1933, at which low level it remained until the end of the Second World War. Recently emigration has once more increased, amounting to 4,000–5,000 for Lebanon alone in 1950, but unless the present restrictions on immigration are lifted, emigration can absorb only a small part of the natural increase of the population of these countries.

Immigration. During the inter-war period, immigration into the region by far outweighed emigration. The principal influx was that of the Jews into Palestine, but several tens of thousands of Armenians and Assyrians, from Turkey, Iran and Iraq, settled in Lebanon and Syria. Many of the Armenians, however, left these countries for Soviet Armenia between 1945 and 1947. The recent fighting in Palestine has resulted in the displacement of about 750,000 Arabs, many of whom have found refuge in neighboring countries. Table 3 shows the number of refugees in each country and the proportion of refugees to the original population.

Table 3. Number and distribution of refugee Palestine Arabs, 1949.

Country	Number of Refugees	Percentage of Total	Percentage Addition to Original Population
Northern Palestine	280,000	39	60
Gaza Strip	190,000	26	240
Lebanon	100,000	14	8
Syria	75,000	10	2
Jordan	70,000	10	17
Egypt	7,000[1]	1	—
Iraq	4,000	1	—
Total	726,000	100	
Israel	31,000		

Source: United Nations Economic Survey Mission for the Middle East: Final Report, 1949.

[1] These refugees have since been moved into the Gaza Strip.

An Estimate of the Extent of the Population Pressure

Owing to the predominance of agriculture in the national economies of the Arab countries, the problem of population pressure should be studied primarily as the relation between the numbers of persons employed in agriculture and available agricultural resources.[3]

Two main lines of inquiry are open. The first method involves an estimate of the average income of farmers, which is then compared with the levels prevailing in other regions of the world, or with the levels that could conceivably be attained in Arab countries by the optimum utilization of available natural resources.

The second method requires an estimate of the size of the plot that can be worked by a fârm family working full-time on the farm with a minimum of hired labor, and using modern tools in a reasonable measure, depending on the capital resources of the country, the nature of the crops and the characteristics of the soil. It is then possible to estimate the number of people who could be supported by the available land under those conditions and compare them with the actual farm population, in order to ascertain whether there is a deficiency or a surplus of population. In the latter case it is also necessary to inquire whether subsidiary farm occupations, such as livestock and poultry and temporary employment in non-agricultural occupations, are adequate to maintain the standard of living or whether the inadequate land resources result in "disguised unemployment" and in low levels of living of the farmers.

The second method was applied in the present paper because of the difficulties of estimating farm incomes, owing to inadequacy of statistical data. Estimates of the "lot viable" in

[3] Throughout this paper it has been assumed that there is no excess population in the towns and that the urban population is fully employed in industry, transport, commerce and services. This assumption is not quite correct, since it is known that there is considerable underemployment in the towns and some unemployment. Thus, in the summer of 1950, it was estimated that there were some 40,000 unemployed in Lebanon. In Egypt, unemployment has been estimated at 200,000–300,000.

Palestine before partition,[4] modified to take account of differences in agricultural yields among countries, were employed to calculate the size of the "lot viable" in Lebanon, Syria, and Jordan, care being taken to compute separate estimates for irrigated and non-irrigated land. Although the adjusted figures are very rough estimates, they do not seem out of line with what one would expect in the light of the known characteristics of the agricultural economies in these countries. Table 4 summarizes the results obtained.

The main conclusions that emerge from this table can be stated briefly:

In Lebanon there is a great congestion on the land. The number of families engaged in farming is about twice as high as that which the present cultivated area could adequately support. The situation is aggravated by the uneven distribution of landed property and the relatively high rents paid to absentee landlords. On the other hand, farmers derive a considerable additional income from tourist traffic, work in non-agricultural activities, and remittances from abroad.

Table 4. Actual number of farm families and estimated numbers that could be supported at an adequate level of living on cultivated and cultivable area in the three countries.

Country	Actual Farm Population (Families)	Number that Could Be Adequately Supported on Present Cultivated Area (Families)	Number that Could Be Adequately Supported on All Cultivable Area (Families)
Lebanon	120,000	68,000	100,000
Syria	340,000[a]	360,000	840,000
Jordan	37,000[b]	41,000	57,000

a If nomads are included this figure becomes about 390,000.
b Including semi-nomads, assumed to earn half their livelihood from agriculture. The total farming, semi-nomadic, and nomadic population, amounts to about 55,000 families.

[4] *See* Appendix I for a detailed description of the estimates and discussion of their limitations.

The bringing into cultivation of all cultivable lands and the irrigation of all irrigable lands would still not suffice to absorb all the present rural population. Moreover, although productivity can be considerably raised, it is unlikely to increase at a rapid rate in the immediate future.

Hence it may be safely stated that Lebanon must increasingly rely on non-agricultural activities to absorb its growing population.

In Syria the cultivated area is about sufficient to support the present farming population, but the very uneven distribution of landed property and the high level of rents paid to absentee landlords reduces by about two fifths the amount of income left in the hands of the farmers. Unlike Lebanese farmers, Syrian farmers cannot rely on any considerable addition to their incomes from non-agricultural sources. The result is that Syrian farmers subsist at a very low level of living.

The extension of irrigation and the bringing into cultivation of all cultivable lands would, however, make it possible for Syria to absorb a population about twice as large as the present combined farming and nomadic populations of the country.

The cultivated area of Jordan seems just about sufficient to maintain the present farming population, but here too high rents absorb a large proportion of the produce of the soil and depress the level of living. The extension of irrigation in the Jordan valley would bring under cultivation enough land to absorb all the nomadic and semi-nomadic population of that country.

It remains to add a few words about the Arab countries not covered in this article. Both Northern Palestine and the Gaza Strip are greatly congested and offer hardly any possibilities of resettlement. The Arabian Peninsula has, throughout history, been unable to maintain its population out of its own resources and has always been a center of emigration. The discovery and exploitation of oil, with all the benefits that it has conferred, has not fundamentally altered the situation.

Egypt has a large excess population, which is growing faster than the national income.[5] On the other hand Iraq offers enormous possibilities. Its fertile soil and abundant water, if properly used, can support a population far larger than the present 5,000,000. The irrigation and flood control works required for this purpose are not very expensive, relative to the areas to be brought under cultivation, and could be easily financed out of the country's rapidly increasing oil royalties. A loan of $12,800,000 from the International Bank for Reconstruction and Development is being applied for this purpose and it may be confidently stated that the country's economic future is hopeful.

APPENDIX I

THE "LOT VIABLE"—METHODS AND LIMITATIONS OF ESTIMATES

The Sustenance Area. It is evident that the area required to support a farmer and his family is the result of a number of natural, technical, economic and social factors. It varies according first, to region, climate and availability of water; secondly, to the methods of farming and to the extent that livestock can supplement the income derived from agriculture; and thirdly, according to the social and political structure of the countries, and more specifically the standard of living assumed, the extent of fragmentation of holdings, the relative prices received and paid out by farmers, the contributions required from farmers towards non-farm sectors, such as taxes or rent, or conversely, the availability to farmers of additional sources of income from employment in non-agricultural activities such as public works, or as in Lebanon, from remittances from relatives abroad.

Thus, no satisfactory definition in advance can be found on which it would be safe to base an estimate of the "lot viable" of the cultivator. This must be discovered by experience; by a system of trial and error in the different sections of each of the countries, taking into account the complex factors mentioned above.

The "Lot Viable" in Palestine. To the best of our knowledge, no reliable studies exist as to the subsistence areas in Arab countries, based on careful and realistic appraisal of the many variables men-

[5] Issawi, C.: Population and Wealth in Egypt, Milbank Memorial Fund *Quarterly*, January, 1949, xxvii, No. 1, pp. 98–113.

tioned in the opening paragraph of this section. On the other hand, the question has received careful attention in Palestine, both from the Mandatory Government and from Jewish economists.

The SURVEY OF PALESTINE[1] summarizes a number of opinions on the question of the "lot viable." Sir John Hope-Simpson, reporting in 1930, made the most careful analysis of this question and concluded that the "lot viable" is no less than 13 hectares[2] on unirrigated land, unless considerable capital enabled the tenant to maintain a dairy herd of foreign or cross-breed animals, in which case in the richer tracts the holding may be possibly, but questionably, reduced to 10 hectares. Where irrigation is available and when dairying is possible, the holding may be reduced to 4 hectares, of which 2 are irrigated. When plantations of citrus and bananas are established the "lot viable" may be placed at 1.5 to 2.0 hectares.

The reasoning underlying these estimates must be clearly pointed out. The "lot viable" was assumed to be an area of average fertility, to be cultivated by Arab farmers employing modern agricultural methods. Whenever possible farmers would use modern implements on a co-operative basis, or would hire them for basic agricultural operations. As to labor, it was posited that farmers would use outside labor only at peak periods of harvesting, but would otherwise furnish, together with other members of their families, all the labor required.

Under these assumptions, the net income of the family would be in the neighborhood of £P 100 per year (or about $480), at pre-war prices, which may be taken as sufficient to maintain a reasonable standard of living in relation to the social and economic conditions then prevailing in Palestine, and without any additional income from outside. But it should be pointed out that taxes, rent, and interest have not been deducted, nor has supplementary income been added.

Although the sustenance area of unirrigated land was estimated at 10 hectares under optimistic conditions, it seems preferable to use figures nearer the upper limit given by Sir John Hope-Simpson, in order to approximate average conditions in Arab Palestine. Therefore, in what follows the size of the sustenance area in that country is assumed to be 12 hectares for unirrigated land and 2.5 hectares for irrigated land.

[1] A SURVEY OF PALESTINE. Prepared by the Government of Palestine for the Anglo-American Committee of Inquiry, Jerusalem 1946, Vol. II, p. 272–289.

[2] One hectare is equal to 2.471 acres.

The "Lot Viable" in Arab Countries. In the absence of comparable studies for Arab countries, the results for Palestine were adjusted by means of weighted averages of indices of agricultural yields in Lebanon and Syria, as a percentage of yields in Palestine. Averages of yields in several consecutive years were used to approximate the "typical yields" for each country's produce. The following products were selected as representative of each group:

Unirrigated fruits: olives and grapes
Winter cereals: wheat and barley
Winter legumes and vegetables: lentils and "kersenneh"
Summer crops: melons and tomatoes
Irrigated produce: tomatoes, bananas, onions, garlic, and cucumbers

Two different systems of weights were used to derive average yields: first, the values of each group of crops in Palestine in 1943 and 1944; secondly, the schedules of production in two representative Arab farms in Palestine.

The estimates give in the first instance index numbers of physical production for a given area. These in turn were used to derive index numbers of the area of land necessary to maintain a given level of production. Separate computations were made for irrigated and non-irrigated land. The final results are shown in the following table:

	Index Number of the Area of the "Lot Viable"			*Estimated Area of the "Lot Viable" (Hectares)*		
Unirrigated Land	*Palestine*	*Lebanon*	*Syria*	*Palestine*	*Lebanon*	*Syria*
First Weighting System	100	58	71	12.0	7.0	8.5
Second Weighting System	100	60	71			
Irrigated Land[1]	100	60	110	2.5	1.5	2.5

[1] Based on first system only.

Data on Jordan being insufficient even for a rough approximation, it has been assumed that the lot viable in that country is equal to that of Palestine, i.e. 12 hectares of unirrigated land and 2.5 of irrigated.

Comments. It should be plain from the preceding sections that the figures of the "lot viable" shown above are only very rough estimates of the magnitude of the variable, without any attempt at precision.

It is recognized that any computation based on countrywide averages is apt to be misleading, and that objections to the basic assumptions, as well as to the statistical techniques, may be raised.

1. Insofar as countrywide yields were used as an indicator, it may be assumed that they reflect differences in soil fertility, rainfall, and methods of cultivation. They are, however, subject to uncertainty because of the unreliability of the estimates of area and production from which yields were derived. Reliability also varies between crops and between countries: it is probably greatest for cereals and smallest for orchard crops. But yields are also affected by the proportion of irrigated land and the proportion of each crop that is grown under irrigation. As to the proportion of irrigated land, it happens that there is little spread between the percentages for Palestine, Lebanon, and Syria. The rough-and-ready assumption that certain crops are wholly grown on unirrigated land and certain others wholly grown on irrigated land is valid only as a first approximation. Most garden vegetables and potatoes may be, and are in fact, grown on either type of land. Differences in the degree of irrigation of each crop among countries certainly exist and average yields thus become more misleading.

2. The systems of weighting can be defended on purely empirical grounds as showing comparable results. Each of them, however, may be objected to on theoretical grounds.

3. The Palestine estimates of the "lot viable" are again open to criticism on many grounds. They are optimistic as they assume a net return to the average farmer far beyond that which he can expect in actual practice. An investigation made in five Arab villages in Palestine in 1944 (SURVEY OF PALESTINE, Vol. 3, p. 1,208) shows that the size of the average lot was 6.3 hectares per family (not consolidated) and the return therefrom only £P 105 at 1944 prices, which would be equivalent to some £P 33 to 40 (about $150) at pre-war prices, out of which rent, taxes, and interest were paid, as well as wages to hired labor at harvest time. This latter figure should be compared with the net income of £P 100 at pre-war prices which resulted from the estimates of the "lot viable." Thus, agricultural pursuits alone cannot support the average farm family at anything like an adequate level of living under the existing social and economic conditions.

4. It is obvious that a realistic appraisal of living conditions of

farm life must take into account the income accruing from such occupations as livestock and poultry, from employment in non-agricultural occupations, as well as the costs of taxes and rent.

Estimates of these magnitudes are unfortunately even less reliable than those for agriculture proper. However, in the five Arab villages in Palestine referred to above, the farmers received only 62 per cent of their incomes from agriculture proper; 18 per cent from livestock and poultry; and the remaining 20 per cent from non-agricultural sources.

Some indications are given in the country appendices of the order of magnitude of the variables in the several Arab countries based on the opinions of persons familiar with economic and social conditions in the area.

APPENDIX II

DATA AND ESTIMATES FOR LEBANON

No recent official breakdown of the population of Lebanon into rural and urban is available, but in 1932 about one-third of the population lived in towns with over 10,000 inhabitants. This proportion has increased somewhat since that date, and it may be assumed that at least 40 per cent of the total population is now urban. Another 10 per cent of the population, although living in the larger villages, is not directly engaged in agriculture. This leaves a farming population of just over 600,000.

Assuming that the average Lebanese peasant family consists of 5 persons, the number of farming families is 120,000.

The total cultivated area of Lebanon is 280,000 hectares. It has been estimated that this could be increased to 395,000 hectares,[1] but this estimate seems very optimistic since the only land at present uncultivated consists either of rocky mountain slopes or regions of low rainfall in the plains. Of this total, 53,000 hectares are irrigated. The projects at present under way, or for which the necessary preliminary plans have been made, will raise this figure to 80,000 hectares. It has been estimated that the total irrigable area is 124,000 hectares.[2]

It has been assumed that the "lot viable" for a family of peasant

[1] *See* Appendix Table A.
[2] Sir Alexander Gibb: Report on the Economic Development of Lebanon.

proprieters is 7 hectares of unirrigated land, and 1.5 hectares of irrigated land.[3]

The number of families that could be adequately supported on the present cultivated area is therefore:

Non-Irrigated Area	33,000
Irrigated Area	35,000
Total	68,000

The completion of the irrigation works now in hand would raise the total number of families that could be supported on irrigated land to over 50,000.

The bringing into cultivation of all cultivable land and the irrigation of all irrigable land would change these figures as follows:

Non-Irrigated Area	20,000 Families
Irrigated Area	80,000 Families
Total	100,000 Families

Needless to say, the cost of the irrigation works required to irrigate 124,000 hectares would be very considerable. Similarly much capital investment would be necessary for the terracing and other work required to bring the uncultivated rainfed zones into cultivation.

The following explanations and qualifications are necessary:

1. *Size of Farm Population.* The assumption that about 15 per cent of the rural population is engaged in occupations other than farming is based on the opinion of well-informed students of Lebanese village life.

2. *Size of Family.* The size of the average Palestinian family is just over 6. In Lebanon, however, a figure of 5 is nearer the truth, first because, on the whole, Lebanese families are smaller than Palestinian; and secondly, because the relatively large-scale emigration from Lebanon reduces the average size of the family living on the farm.

3. *Lot Viable.* The figures adopted (7 hectares of unirrigated land and 1.5 hectares of irrigated) represent an absolute minimum, since they are based on conditions in Arab Palestine, which were appreciably worse than those in Lebanon.

[3] *See* Appendix Tables B and C.

4. *Livestock.* Sir John Hope-Simpson's estimate of the "lot viable" assumed that the farmer was able to maintain a dairy herd. The number of livestock in Lebanon is somewhat smaller, in relation to the total population, than that of the Arab section of Palestine. Relative to the *farming* population, however, the difference is not very great.

5. *Income from Non-Agricultural Activities.* This is derived from three main sources:

a. Tourist trade;
b. Seasonal or occasional work in industry or public works;
c. Remittances from emigrants.

The first item must be excluded in this study, since it has already been allowed for by the deduction of 15 per cent of the rural population (*see* Note 1, above). It is however probable that the tourist traffic does indirectly increase farmers' incomes. The amount derived from the other two items combined may represent an addition to the farm income of 40 to 50 per cent. For purposes of comparison, it is worth noting that in the Arab sector of Palestine income from non-farming activities (excluding remittances) represented 20 per cent of farm income in 1944.[4]

6. *Rents Paid to Landlords.* Almost half the total area of Lebanon, including some of the richest agricultural land in the country, is owned by a few large landlords. The share of the net produce accruing to the landlord can be put at a minimum of 50 per cent. This means that at most 75–80 per cent of the net produce of agriculture remains in the hands of the farmers. The deduction which should be made to take account of this item however does not offset the addition made under note 5, above.

7. *Increase in Productivity.* There is undoubtedly much room for an increase in productivity, since yields in Lebanon are relatively low. This is partly due to natural conditions, such as the irregularity of the rainfall and the stony and shallow nature of much of the soil. It is also partly due, however, to the inefficiency of the techniques used. If productivity can keep pace with population, i.e. increase at an annual rate of about 1.5 per cent, a remarkable result will have been obtained. In other words, an increase in productivity cannot by itself be relied upon to solve the population pressure.

The conclusion to be drawn is that the figures calculated above represent the *maximum* possible number of farmers who can live on the land; and that even if all the irrigable land in Lebanon is brought under irrigation there will remain a relatively large surplus of rural population.

[4] SURVEY OF PALESTINE, Vol. III, p. 1208.

APPENDIX III

DATA AND ESTIMATES FOR SYRIA

The most recent estimate of the Syrian population puts the urban population at 1,003,000, and the rural population at 2,041,000. There are also some 300,000 nomads. The latter should be left out of any calculations regarding the present congestion on the land, since their flocks graze on lands which are not at present cultivated.[1] The extension of the cultivated area would, however, encroach on much grazing land; hence the nomads should be included in any study of Syria's long-term absorption capacity.

Assuming that the average Syrian peasant family consists of 6 persons, the number of rural families is 340,000. The inclusion of the nomads raises this figure to 390,000.

The total cultivated area of Syria is about 2,314,000 hectares.[2] The total cultivable area is put at 5,680,000 hectares[3] but this figure is probably too high. Of the cultivated land, about 297,000 hectares are irrigated, and it is estimated that the minimum total irrigable area is about 600,000 hectares.[4]

It has been assumed that the "lot viable" for a family of peasant proprietors is 8.5 hectares of unirrigated land, and 2.5 hectares of irrigated land.[5]

The number of families that could be adequately supported on the present cultivated area is therefore:

Non-Irrigated Area	241,000
Irrigated Area	119,000
Total	360,000

The bringing into cultivation of all the land at present uncultivated and the irrigation of all irrigable land would change these figures as follows:

Non-Irrigated Areas	600,000 Families
Irrigated Areas	240,000 Families
Total	840,000 Families

[1] Insofar as some of the semi-nomads practice cultivation, however, they use a certain amount of agricultural land.
[2] Al Majmua al Ihsaia al Suria 1948.
[3] *Ibid.*
[4] Sir Alexander Gibb: Report on the Economic Development of Syria.
[5] *See* Appendix Tables B and C.

As for Lebanon, the extension of cultivation, both in irrigated and unirrigated areas, requires a large capital expenditure and irrigation works and agricultural machinery.

The following explanations and qualifications are necessary:

1. *Size of Farm Population.* It has been assumed that all the rural population is engaged in farming.

2. *Size of Family.* It has been assumed that the average Syrian family is about the same size as the average Palestinian, i.e. 6.

3. *Lot Viable.* The figures adopted (8.5 hectares of unirrigated land and 2.5 hectares of irrigated) are based on the Palestinian standard of living, which was somewhat higher than the Syrian.

4. *Livestock.* The livestock population of Syria is larger, in relation to the total population, than that of the Arab section of Palestine. A large proportion of the animals, however, belong to the nomads and hence do not affect the economy of the farming population.

5. *Income from Non-Agricultural Activities.* In Syria this is negligible, and probably represents a maximum addition of 5 to 10 per cent to the farmers' incomes.

6. *Rents Paid to Landlords.* An even larger deduction must be made under this heading than in Lebanon. The following figures on the distribution of land are available:

	Under 10 Hectares	*10–100 Hectares*	*Over 100 Hectares*	*State Owned*
Total Area Owned	1,158,000	2,626,000	2,313,000	1,816,000
Percentage of Total	15	33	29	23

Insofar as the State lands are cultivated, they are mainly farmed by large landlords. Assuming, therefore, that half the lands lying in the 10–100 hectare category are cultivated by their owners and the rest by tenants, it is probable that rent is paid on about two-thirds of the land of Syria. Rents average about 60 per cent of the produce. In other words, only about 60 per cent of the total produce remains in the hands of the rural population.

7. *Increase in Productivity.* There is even more scope for an

increase in productivity in Syrian agriculture than in Lebanon, for natural conditions, are, in general, more favorable and technical methods less advanced. Here too, however, it may be taken that the increase in productivity is not likely to outstrip the growth in population and that such an increase cannot be relied upon to absorb any excess rural population.

The conclusion to be drawn is that the present cultivated area of Syria would suffice for its present rural population if the latter retained all the produce of the land. As has been seen, however, about two fifths of the produce is taken by city-dwelling landlords.

The cultivable area of Syria is, however, sufficient to absorb a large increase in population.

APPENDIX IV

DATA AND ESTIMATES FOR JORDAN

Figures regarding the population of Jordan are very scanty, but a total of 400,000 is generally admitted. It has been estimated that about 70,000 persons live in the towns (Amman, Irbid, Salt, and Kerak). Of the remaining 330,000, it has been assumed that 150,000 are settled; 140,000 are semi-nomads and 40,000 are nomads. It has also been assumed that the semi-nomads derive half their income from agriculture, and therefore need half as much land as the settled population.

Assuming an average family of 6, the total number of families engaged in agriculture would be:

Settled	25,000 Families
Semi-nomad	12,000 Families
Total	37,000 Families

It has been assumed that the "lot viable" for a family of peasant proprietors is similar to that of Palestine, i.e. 12 hectares of unirrigated land, and 2.5 hectares of irrigated. The total cultivated area of Jordan is put at 400,000 hectares, of which 26,000 are irrigated.[1]

[1] Warriner, Doreen: LAND AND POVERTY IN THE MIDDLE EAST. Oxford University Press, 1948.

The total number of families that could be adequately supported is, therefore:

Non-Irrigated	31,000 Families
Irrigated	10,000 Families
Total	41,000 Families

The total cultivable area is put at 450,000 hectares.[2] The additional area which could be brought under irrigation is estimated at 37,000 hectares.

The total number of families that could be adequately supported in Jordan is, therefore:

Non-Irrigated	32,000 Families
Irrigated	25,000 Families
Total	57,000 Families

No figures are available regarding the distribution of landholdings, hence no attempt has been made to compute the percentage of total farm income which is absorbed by rent, but it is very unlikely that this is below 25 per cent.

No great adjustment seems to be necessary under the heading of income from livestock, since, as in Syria, most of this belongs to the nomads. Income from non-agricultural occupations, however, is relatively high. It consists of the pay of the Arab Legionnaires and income from work on road making and other public works.

The conclusion to be drawn is that the cultivated area in Jordan is sufficient to support the present farming population. The execution of irrigation schemes in the Jordan would make room for an additional 20,000 families, or about 120,000 persons. This would be just sufficient to enable the nomads and semi-nomads to settle down to agricultural life.

[2] Ionides, M. G.: Jordan Valley Irrigation in Transjordan: *Engineering*, September 13, 1946, London.

Appendix Table A. Cultivated and cultivable areas of Jordan, Lebanon, and Syria. (Thousand hectares.)

Country	Year	Cultivated			Cultivable	Grand Total
		Non-irrigated	Irrigated	Total		
Jordan	1938[1]	214	26	440	—	—
	1946[2]	174	26	400	50	450
Lebanon	1942[3]	—	—	176	—	—
	1943[3]	—	—	169	—	—
	1946[4]	195	30	225	180[a]	405
	1947[5]	186	44	230	30	260
	1948[6]	195	44	239	200	439
	1948[7]	227	53	280	115	395
Syria	1942[3]	—	—	1,495	—	—
	1943[3]	—	—	1,487	—	—
	1945[8]	1,969	237[b]	2,205[c]	—	—
	1946[4]	2,006	284	2,290	3,360	5,650
	1947[9]	2,017	297	2,314	3,366	5,680

[a] Described as follows: "The bringing into cultivation of these lands would be very expensive."
[b] Could be increased to 600,000 hectares.
[c] Includes about 700,000 hectares fallow.
[1] Palestine Partition Commission Report.
[2] Warriner, Doren: Land and Poverty in the Middle East; Ionides, M. G.: Jordan Valley Irrigation in Transjordan.
[3] Recueil de Statistique de la Syrie et du Liban 1942–3.
[4] Recueil de Statistique de la Syrie et du Liban 1945–7.
[5] Sir Alexander Gibb: Report on the Economic Development of Lebanon.
[6] Republique Libanaise: Recueil des Statistiques Generales 1947–8.
[7] Government estimate.
[8] Sir Alexander Gibb: Report on the Economic Development of Syria.
[9] Al Majmua al Ihsaia al Suria 1948.

Appendix Table B. Crop yields in three middle east countries.

Crop	Average Yields in Quintals Per Hectare 1942–1945			Average Value of Crop in Palestine in 1943 and 1944 (£P 000,000)
	Palestine	Lebanon	Syria	
Cereals	1	1.33	1.8	
Wheat	4.3	6.3	7.4	16
Barley	4.6	5.8	8.5	9
Kersenneh	5.1	8.7	6.4	2
Lentils	4.4	8.8	4.9	2
Fruits				
Olives	9.6	24.9	9.8	23
Grapes	27.6	43.5	46.8	16
Melons	92.9	71.6	78.9	8
Bananas	105.0	109.5		6
Others				
Tomatoes	79.8	134.3	56.2	19
Cucumbers	80.6	148.7	115.2	5
Potatoes	123.5	71.2	45.6	20

Source: F.A.O. Yearbook of Food and Agricultural Statistics.

Appendix Table C. Livestock population in four middle eastern countries.[1] (In thousands.)

	PALESTINE (1943)[a]	LEBANON (1946)	SYRIA (1946)	JORDAN (1947)
Cattle	219	24	376	60
Sheep	225	21	3,260	238
Goats	315	500	1,257	304
Camels	33	2	47	2
Horses	17	8	110	6
Mules	7	6	49	3
Donkeys	105	26	232	25
Pigs	12	1	—	—
TOTAL	933	588	5,331	638
Poultry				385

[1] Including nomad-owned livestock.
[a] Arab-owned.
SOURCE: FAO Yearbook of Food and Agricultural Statistics.