Essays on The Structure of the Jewish Economy in Palestine and Israel

Robert Szereszewski

THE MAURICE FALK INSTITUTE FOR ECONOMIC RESEARCH IN ISRAEL

The Maurice Falk Institute for Economic Research in Israel, affiliated to the Kaplan School of Economics and Social Sciences, is an independent nonprofit organization whose purpose is to encourage research, with particular emphasis on the economy of Israel.

ABOUT THE AUTHOR

Robert Szereszewski was born in Poland in 1936 and came to Israel in 1949. He obtained his M.A. degree at the Hebrew University of Jerusalem, and his Ph.D. (1964) from the London School of Economics. He taught at the Hebrew University in the departments of Economics and African Studies. His publications include Structural Changes in the Economy of Ghana, 1891-1911 (1965) and articles on the economic growth of African states. Robert Szereszewski volunteered for military service shortly before the Six Day War and was killed in the battle for Jerusalem on June 5, 1967.

ABOUT THE BOOK

This book includes a discussion of the constancy of the economic structure in terms of industrial distribution of national product, manpower, and capital. It also presents detailed estimates of the national product and capital stock of the Jewish economy in Palestine. Finally, the book includes a fragment which was to be the opening of Szereszewski's projected book. It gives a glimpse of the neglected social and economic history of the pre-Zionist era.





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Jerusalem, June 1968

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PREFACE

Robert Szereszewski was born in Poland in 1936. He spent much of his early childhood in German-occupied Warsaw, and was later deported to Berlin. In 1946, he reached Italy en route for Palestine. He finally came to Israel in 1949 and was educated at the Ben Shemen Youth Village and the Ohel Shem High School at Ramat Gan.

After obtaining an M.A. in economics (1961) from the Hebrew University of Jerusalem, and a Ph.D. (1964) from the London School of Economics he joined the Department of Economics at the Hebrew University and gave a graduate course on economic development; at the same time he was on the staff of the University's new Department of African Studies and lectured on the economics of West Africa.

Robert Szereszewski's major field of interest was economic growth, focussing on underdeveloped countries. He was particularly interested in the economics of West Africa and in 1963 he went on a Ford Foundation grant to Ghana where he collected the data for his doctoral thesis on "Structural Changes in the Economy of Ghana 1891–1911."

In 1965 he began research on the economic history of mandatory Palestine, at the Falk Institute. His interests now gravitated towards the problems of Israel's economic growth. This study was already beyond its take-off stage—he had finished collecting and digesting the basic data by early 1967. Brimming with ideas, insights, and novel interpretations, he hoped to write a book which would integrate the economic, social, and political aspects of the process which transformed a backwater of the Ottoman Empire into a modern, rapidly growing economy.

But these hopes were not to be fulfilled. Robert volunteered for military service shortly before the Six Day War and was killed in the battle for Jerusalem on the evening of June 5, 1967.

Robert Szereszewski was original in his approach and way of thought. His ideas were bold and unconventional and an argument with him was always a stimulating intellectual encounter. It is no accident that his friends often mention his views on Israel–Arab relations, a field in which it is all too easy to fall back on clichés. Robert staunchly refused to accept the current oversimplifications, and tried instead to get at the root of the problem and lay bare the causes of mutual hostility and distrust.

Perhaps no words can better describe Robert's approach to his work than those in which he mourned his teacher, Amotz Morag:

He was a man who thought of economics as part of the social sciences; of economic analysis as a means of achieving results meaningful in human terms. He was particularly concerned with the social implications of all economic theory and debate.... He realized that in scientific research, especially in the social sciences, external criteria cannot be ignored; that value judgements must be made in sifting the conclusions of economic research. ... He had a very clear conception of the better society that he wanted to see in Israel, a vision governed by ideals of individual liberty, equal opportunity, the fair distribution of wealth, and social and ethnic equality. It was this vision that guided him in his choice among different social and economic solutions, and he did not hesitate to cross the line many an economist is afraid to overstep—the line between the theories of resource allocation and income distribution.

The Hebrew University and the Falk Institute have lost an outstanding teacher and a brilliant scholar, and his colleagues, a devoted friend.

The present book is based on Robert Szereszewski's latest work and consists of three self-contained essays written during various phases of the research. The leading essay, "The Jewish Economy in Palestine and the Structure of the Economy of Israel," was originally given as the 1966 Bonné Memorial Lecture and was due to appear in a forthcoming volume of *Scripta Hierosolymitana*. It deals with an important issue which has puzzled many observers of the economic development of Palestine and Israel. This is the constancy of the economic structure in terms of the conventional measures—the industrial distribution of national product, manpower, and capital. By applying input-output technique, Robert Szereszewski shows that, despite the *prima facie* impression to the contrary, the economy did undergo a marked change in structural inter-dependence.

The two other essays were conceived and written as technical appendixes to the study on Palestine and were completed as drafts early in 1967. They consist of detailed estimates of the national product and capital stock of the Jewish economy in Palestine. These estimates provide, for the first time, continuous series of two major economic measures for the quarter-century covering the mandatory period. Because of the inadequacy of the basic data, the series had to be built up from bits and pieces of evidence. Szereszewski's detailed discussion of the many and varied sources that he explored will be invaluable to future students of the period. The significance of the series for the study of the country's economic growth is considerable. Combined with the official Israeli series that begin in 1950, they give a bird's eye view of a process now stretching over a period of more than 40 years. They also add greatly to our knowledge of the mandatory period itself; they reveal, for instance, the remarkable growth that occurred in the middle and late 1920s.

The fragment with which this volume closes was written as the first part of the introductory chapter of Robert Szereszewski's unfinished book. Though it is only a first draft, written some time in early May 1967, we felt that it should be included in the book, since it bears the stamp of his unconventional approach and gives a glimpse of the neglected social and economic history of the pre-Zionist era.

Miss Varda Lasser was Dr Szereszewski's research assistant. Her unsparing devotion was of invaluable help in preparing this book for publication.

H. B.

OTHER PUBLICATIONS BY THE AUTHOR

- "The Inter-Sectoral Structure of the Economy of Ghana," Economic Bulletin of Ghana, VII (No. 2, 1963), 12-29.
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Co-author of:

- A Study of Contemporary Ghana, eds. W. Birmingham, I. Newstadt, and E. N. Omaboe (London: Allen and Unwin, 1966).
- Symposium on African Economies, eds. P. Robson, and D. Lury (London: Allen and Unwin, 1967).

Unpublished:

"The Incidence of State Budget Expenditure by Income Group 1960/61" (M.A. thesis, The Hebrew University, 1961; Hebrew).

A summary of the thesis appeared in Ministry of Finance, Seventh Report on State Revenue 1960/61, Part A (Jerusalem: 1961; Hebrew). The whole will be published as part of a collection of selected master's theses based on studies in public finance carried out under the guidance of Professor Amotz Morag.

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THE JEWISH ECONOMY IN PALESTINE AND THE STRUCTURE OF THE ECONOMY OF ISRAEL: 1936–1951–1958 ¹

1. Introductory

The present-day economy of Israel has its origins in the economic structure developed by the *Yishuv*, the Jewish community of Palestine, over seven decades of settlement which preceded the establishment of the State in 1948. This economy was originally a set of separated and fragmented enclaves, which eventually, under the impact of the massive inflow of people and capital in the mandatory period, the economic strategy of the Zionist movement, and the pressure of external events, congealed to a definable economic organism.

This paper is an attempt to analyze some aspects of the pattern of structural change of this economy by comparing three input-output tables, for the years 1936, 1951, and 1958. These summarize the available information on the inter-sectoral aspects of the growth of the Jewish economy in Palestine and Israel and cover a period of 22 years, during which the population expanded from the 371,000 people who made up the *Yishuv* in 1936 to 2 million (including 217,000 non-Jews) in Israel in 1958. Real net domestic product per head of population increased over the period by about 125 per cent.² The main purpose of the paper is to discuss

¹ This article is an expanded version of a paper read to a meeting in memory of the late Professor A. Bonné held at the Eliezer Kaplan School of Economics and Social Sciences, The Hebrew University, on February 7, 1966. I am very grateful to Dr Ruth Klinov-Malul and the other participants in the meeting for helpful remarks, and to Miss V. Lasser for assistance in the preparation of the material. Professor S. Kuznets and Dr H. Barkai kindly commented on an earlier draft. All remaining defects are definitely mine.

² Per capita net domestic product at 1958 prices was IL 663 in 1936, IL 1,106 in 1951, and IL 1,501 in 1958.

Aggregate product figures from Tables 1, 2, and 3. (The 1958 national product was converted to domestic terms by adding net factor payments to the rest of the world from p. 139, Table 74, of Levy and Others cited below.)

Population from Table 9 in the next essay for 1936, and from CBS, Statistical Abstract of Israel 1966, No. 17, p. 20, for 1951 and 1958.

Price change from 1951 to 1958 is the implicit gross domestic product price

the extent of structural change between 1936 and 1958, using 1951 as a set of 'control' figures; this follows from the relative weakness of the 1951 data. A distinction is drawn between conventional measures of economic structure, and the inter-sectoral dimension contributed by input-output tables. It is shown that between the terminal years the conventional indicators yield a high degree of stability, whereas a clear trend of change is visible in the inter-sectoral relationships. These apparently contradictory results are reconciled, and we conclude with some afterthoughts on the possible meaning of the inter-sectoral changes observed here in processes of economic growth.

In the following section we present our basic sources, the three inputoutput tables. The tables are aggregated into four sectors; this high level of aggregation was enforced by data constraints and some inherent differences in the organization of the economy before and after the establishment of the State. Section 3 deals with conventional comparisons of structure. Section 4 analyzes the inter-sectoral dimensions of change, and in Section 5 we carry out a reconciliation exercise. The relevance of some of the results to a general theory of growth is pointed out in the concluding remarks.

2. The data

The macro-economic data of the Jewish economy of Palestine were first set out by A. L. Gaathon in a comprehensive *tableau économique* for the year 1936.^a Gaathon's study is based on the presentation of the economy in terms of input and output flows, and is in fact an independently conceived input-output model. After a number of adjustments, it can easily be turned into a conventional table of inter-sectoral flows for Palestine from which a sub-table for the Jewish economy is immediately derivable. This benchmark enables us to analyze the main structural features of the Jewish economy of Palestine as it was in 1936, and to carry out a

index from Emanuel Levy and Others, Israel's National Income and Expenditure: 1950-1962 (Special Series No. 153; Jerusalem: CBS, 1964), pp. 14-15, Table 6. Price change from 1936 to 1951 as follows: 1936-49, Table 9 in the next essay; 1949-50, A. L. Gaathon, "National Income," Encyclopaedia Hebraica, VI (1957; Hebrew), 738, Table 9; 1950-51, A. L. Gaathon, Survey of Israel's Economy 1951 (Technical Paper No. 1; Jerusalem: CBS and Falk Project, 1959), p. 24.

³ Ludwig Gruenbaum (Gaathon), National Income and Outlay in Palestine 1936 (Jerusalem: Jewish Agency Economic Research Institute, 1941).

FABLE 1.	Input-Output	Table for th	he Jewish	Economy:	1936
		(LP thousand	()		

Output	Agricul-	Manu-	Construc	- Serv-	Total	Const	umption	Non-	Ex-	Gross	Total	Total
Input		ing		500 1	mediate	Private	Public	Pales- tinea	-strod	forma- tionb	demand (6)	output (5)+(11)
	(1)	(2)	(3)	(4)	(2)	(9)	(2)	(8)	(6)	(01)	(10) (11)	(12)
1. Agriculture	321	429	1	1	750	882	I	1	825	1,062	2,769	3,519
2. Manufacturing	151	1,091	1,361	245	2,848	4,103	I	971	729	530	6,333	9,181
3. Construction	1	I	I	I	1	I	I	I	1	5,325	5.325	5,325
4. Services	291	887	992	1,199	3,369	9,409	539	137	1,490	555	12,130	15,499
Subtotal	763	2,407	2,353	1,444	6,967	14,394	539	1,108	3,044	7,472	26,557	33,524
Non-Jewish Palestinea	76	I	200	874	1,150	900	4560	I	I	1,151	2,507	3,657
Importsa	231	2,169	1,076	821	4,297	3,685	I	I	I	1,565	5,250	9,547
Indirect taxes	154	240	115	066	1,499	1,254	1	I	I	88	1,342	2,841
Depreciation	555	320	T c	1,372	2,247	I	l	I	I	ł	I	2,247
Net domestic value add	ed 1,740	4,045	1,581	866'6	17,364	1	p686	I	I	I	686	18,353
Total input	3,519	9,181	5,325	15,499	33,524	20,233	1,984	1,108	3,044	10,276	36,645	70,169
a Excludes factor serv	ices.											

^b Includes land purchases and government investment for use in Jewish economy.

Calculated as a residual by deducting Jewish from total public consumption.

d Jewish value added originating in government.

Source: See text, pp. 4-6.

comparison with the Israeli economy of 1958, a year for which a detailed input-output table is available.⁴

Input-output data exist for yet another year, 1951, in the form of a 9-by-9 table prepared by Gaathon, and included in his survey of the Israeli economy for that year.⁵ This source requires more complicated adjustments, both conceptual and statistical, in order to make it consistent with the national accounts for 1951. We have at our disposal, therefore, three sets of inter-sectoral accounts: one for the Jewish economy in Palestine in 1936, and two for the economy of Israel.⁶

Table 1 is a sub-system of the Palestine input-output table for 1936, constructed from Gaathon's sectoral accounts. The Jewish economy is here implicitly defined as the sum of establishments under Jewish ownership and control, including non-resident Jewish ownership; this amounts to a domestic concept of coverage, from the point of view of a hypothetical geographical entity of Jewish Palestine, isolated territorially from the non-Jewish resident elements-the government and the Arab (and other non-Jewish) economy. Transactions with these elements are defined as a particular type of foreign trade, which only happens to occur within the same political unit. The Jewish economy sells goods and services to the non-Jewish economy of Palestine as an additional export flow, and buys from it goods and services alongside those imported from abroad. Factor services are excluded, in order to conform to the domestic notion of activity, so that returns to Arab labor and rent paid to Arab landlords are implicitly included in the Jewish sphere of activities. We have included, however, value added by Jewish employees of the Government of Palestine, and it is entered as an input of domestic value added delivered to Jewish public consumption. This implies the view that the Jewish employees of the government formed a special enclave, devoted to the supply of public consumption services to the Jewish sector. The high degree of allegiance of Jewish civil servants to the Yishuv and their concentration in posts and spheres of activity connected specifically with the Jewish population are the rationale of this decision. Jewish public

⁴ Michael Bruno, Interdependence, Resource Use and Structural Change in Israel (Special Studies No. 2; Jerusalem: Bank of Israel Research Department, 1962).

⁵ A. L. Gaathon, Survey of Israel's Economy 1951, op. cit. A similar input-output table was prepared by Gaathon for 1950 [Israel's Economy in 1950 (Special Series No. 1; Jerusalem: CBS, 1952; Hebrew)], but the 1951 exercise is more reliable and better documented.

⁶ The non-Jewish component of the economy of Israel should account for about 5 per cent of domestic product.

Output	Agricul- ture	Manufac- turing	Construc- tion	Services	Total inter-	Const	umption	Exportsa	Gross	Total final	Total
Input					mediate output (1) through	Private	Public		forma- tion	demand (6) through (9)	(5)+(10)
	(1)	(2)	(3)	(4)	(2)	(9)	(2)	(8)	(6)	(01)	(11)
1. Agriculture	17.9	5.9	1	I	23.8	40.7	1	5.4	11.7	57.8	81.6
2. Manufacturing	5.3	52.7	60.2	14.7	132.9	138.5	8.7	10.8	7.2	165.2	298.1
3. Construction	I	1	1	I	1	1	1	1	177.0	177.0	177.0
4. Services	4.6	16.6	21.3	13.3	55.8	222.3	17.9	7.0	10.1	257.3	313.1
Subtotal (1. through 4.)	27.8	75.2	81.5	28.0	212.5	401.5	26.6	23.2	206.0	657.3	869.8
Importsa	7.6	60.2	13.2	8.4	89.4	35.6	2.6	I	24.5	62.7	152.1
Indirect taxes	2.4	7.5	1.8	13.5	25.2	53.5	ı	1	0.8	54.3	79.5
Subsidies	ı	I	I	-0.2	-0.2	-6.2	ı	-1.2	I	-7.4	-7.6
Depreciation	2.5	7.1	1.4	14.5	25.5	I	2.5	I	I	2.5	28.0
Net domestic value added	41.3	148.1	1.67	248.9	517.4	1	99.1	ı	1	1.66	616.5
Total input	81.6	298.1	177.0	313.1	869.8	484.4	130.8	22.0	231.3	868.5	1,738.3

Source: See text, pp. 6-8.

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consumption is supplemented by services supplied by government over and above the value added by Jewish employees; this is entered as input from the non-Jewish sector of the economy. Jewish municipal services are also included, but services rendered by the national institutions ⁷ and other quasi-public bodies are implicitly included in the private uses of output.

Taxes paid out by the Jewish sector are taken as transfer out-payments, with indirect taxes being entered among the primary inputs, as mark-ups on transactions.

Table 1 has, therefore, a somewhat unusual feature, in that an additional component of final demand has been introduced (sales to the non-Jewish economy) and an additional primary input (purchases from it). The last item includes also government investments considered by Gaathon as benefiting or serving the Jewish economy.

The four sectors into which the economy has been divided in this and the following tables are agriculture, including irrigation works, manufacturing, including mining and electricity generation, construction, and a residual sector which includes all services activities, private and public, and the ownership of dwellings.

Table 2 sets out the input-output relationship of the economy of Israel in 1951. The table was constructed in three stages: first, the data of Gaathon's 1951 study were used—with some adjustments—to construct a matrix of input-output coefficients. A final bill of goods and the primary inputs were then inserted, the aggregates being derived from the standard national accounts tables of Israel; ⁸ the sectoral allocation was then worked out from the Gaathon table and, in the case of the investment column, from the national accounts. Lastly, the network of sectoral output flows was reconstructed by projecting the final bill of goods on the inverted matrix of input coefficients.

This procedure does not, of course, yield a table of the same level of cohesion and reliability as the other two, but it seems that the major flaws are not due so much to problems of presentation as to the situation of the economy itself in 1951. The economic structure of that year was distorted by strong inflationary pressures, and by the disparity between controlled and black or 'gray' market prices.

The most clearly visible instance of distortion brought about by the

⁷ The Jewish Agency for Palestine, the Zionist funds (Jewish National Fund, Foundation Fund), and the Vaad Leumi (National Committee, the representative body of the Yishuv).

⁸ Levy and Others, op. cit.

Output	Agricul-	Manufac	- Constru	tc- Serv-	Total	Consu	mption	Exports	Gross	Total	Total
/	ture	turing	tion	ices	inter-				capital	final	output
/					mediate	Private	Public		forma-	demand	(5)+(10)
/					output				tion	(9)	
Input					(I)					through	
/					through					(6)	
/	(1)	(0)	(3)	(4)	(4)	(4)		10/	107	1017	1117
	1.1	1-1	101	1-1	(0)	(0)		(0)	(6)	(nr)	(11)
1. Agriculture	144.0	148.7	0.1	1.4	294.2	304.0	0.2	109.2	108.7	522.1	816.3
2. Manufacturing	122.3	517.8	193.4	144.5	978.0	784.0	50.9	168.8	93.6	1.097.3	2,075.3
3. Construction	ı	ı	1	4.7	4.7	28.0	12.0	I	517.2	557.2	561.9
4. Services	47.5	217.1	82.2	445.7	792.5	1,218.2	78.4	202.4	33.5	1,532.5	2,325.0
Subtotal (1. through 4.)	313.8	883.7	275.7	596.2	2,069.4	2,334.2	141.5	480.4	753.0	3,709.1	5,778.5
Unspecified stocks	I	-18.5	ī	I	-18.5	I	I	1	18.5	18.5	I
Imports	54.6	405.6	13.8	169.8	643.9	68.9	123.7	I	189.6	382.2	1,026.1
Indirect taxes	33.5	116.7	37.2	126.9	314.3	233.9	23.3	I	22.5	279.7	594.0
Subsidies	-27.9	-37.4	-0.5	-1.9	-67.7	-36.1	-0.2	-56.0	-0.1	-92.4	-160.1
Depreciation	56.1	82.6	3.6	134.3	276.6	1	10.2	I	I	10.2	286.8
Net value added	386.2	642.6	232.1	1,299.6	2,560.5	I	387.6	I	I	387.6	2,948.1
Total input	816.3	2,075.3	561.9	2,325.0	5,778.5	2,600.8	686.1	424.4	983.6	4,694.9	10,473.4

TABLE 3. Input-Output Table for Israel: 1958^a

(Special Studies No. 2; Jerusalem: Bank of Israel Research Department, 1962), pp. 36-37, Table II-2, and pp. 54-56, Table III-2.

dual price structure is the very low share—6.7 per cent—of agriculture in total domestic value added. 1951 was a bad agricultural year, but the valuation of output at controlled prices is clearly responsible for a downward bias. At 1957 prices, the 1951 share of agriculture in net domestic product was 8.2 per cent.⁹ Nevertheless, it would not be sensible to avoid altogether the use of one more set of data; we shall therefore include 1951 in the comparisons, using the data to supplement the 1936–58 conclusions.

The 1958 table is an aggregation of the Bank of Israel input-output table, to conform to our definitions of the four sectors (Table 3). The only adjustment made was to route via the services sector the value added originating directly in exports and private consumption. It should be noted that the 1958 table refers to the national and not to the domestic economy.

In all three tables import flows are assessed at the official rate of exchange; under the conditions of disequilibrium in the foreign exchange market persisting in 1951 and 1958 this is far from being an ideal rod for measuring the share of imports in the total volume of resources. It is well known that at this period, and particularly in 1958, indirect taxation performed an important task in the foreign exchange market in Israel by increasing the effective rate of exchange over the official one, thus diminishing the level of excess demand for imported goods. Import and export flows are accordingly revalued in many presentations of the national accounts, net import taxes being added to the import flow valued at the official rate of exchange, and subsidies on exports to the export flow. It seems, however, that for our purpose such an adjustment is not warranted: this function of indirect taxation was much more widespread in 1958 than in 1951, a year in which administrative restrictions were predominant; what is more, the relative burden of import taxation in 1936, which was entirely based on the usual fiscal and protectionist (mainly fiscal) considerations, was very close to that of the 1950s.¹⁰ In

- A.L. Gaathon, Capital Stock, Employment and Output in Israel: 1950–1959 (Special Studies No. 1; Jerusalem: Bank of Israel Research Department, 1961), p. 102, Table B-1.
- ¹⁰ In 1936 the Jewish economy paid out LP 1.4 million in customs duties on imports of LP 9.5 million (Table 1), which comes to 14.7 per cent. In 1958 net import taxes came to IL 153.5 million (Bruno, *op. cit.*, pp. 36-37, Table II-2), or 15 per cent on imports of IL 1,026.1 million (Table 3). A broader definition of import taxation includes the excise on fuel, raising the figure to IL 227.7 million; substituting refined for crude fuel in the import bill (Bruno, *loc. cit.*) we get a tax burden of 21.8 per cent.

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any case, this problem relates to only one dimension of analysis, the resources-uses alignment of the economy; it does not affect other aspects of economic structure, or does so only indirectly.

3. First comparisons

The first round of comparisons presented here relates to the conventional indicators of economic structure: the resource-use scheme, the sectoral

	Abs	olute fig	ures	1	Per cent	
	1936	1951	1958	1936	1951	1958
	(LP thou- sand)	(IL n	nillion)			
Resources						
Gross product at factor cost ^a	20,600	644.5	3,234.9	56.2	74.2	68.9
Net indirect taxes	2,841	71.9	433.9	7.8	8.3	9.2
Subtotal: Gross product						
at market prices ^a	23,441	716.4	3,668.8	64.0	82.5	78.1
Imports of goods and services	9,547	152.1	1,026.1	26.0	17.5	21.9
Purchases from non-Jewish						
sector of Palestineb	3,657			10.0		
Total	36,645	868.5	4,694.9	100.0	100.0	100.0
Use of Resources						
Private consumption	20,233	484.4	2,600.8	55.2	55.8	55.4
Public consumption	1,984	130.8	686.1	5.4	15.1	14.6
Net capital formation	8,029	203.3	696.8	21.9	23.4	14.9
Depreciation	2,247	28.0	286.8	6.2	3.2	6.1
Subtotal: Domestic						
resource use	32,493	846.5	4,270.5	88.7	97.5	91.0
Exports of goods and servicesb	3,044	22.0	424.4	8.3	2.5	9.0
Sales to non-Jewish sector						
of Palestine ^b	1,108			3.0		
Total	36,645	868.5	4,694.9	100.0	100.0	100.0

TABLE 4. Resources and Their Use: 1936, 1951, and 1958

a Domestic product in 1936 and 1951; national product in 1958.

b Excludes factor services in 1936 and 1951.

SOURCE: Tables 1, 2, and 3.

structure of domestic product and employment, and some data relating to the size and sectoral composition of the capital stock.

Table 4 sets out the resource-use pattern of the three years under investigation; the figures are derived from the input-output tables.

The table presents total resources and their uses. A simple adaptation converts the data into resources at the disposal of the economy (the subtotal line in the resource-use part of the table) provided by the gross domestic product at market prices (i.e. including net indirect taxes) and the import surplus. In 1936 the total import surplus supplied 27.9 per cent of the resources available for domestic use; the surplus incurred with the rest of the world supplied 20 per cent of resources available, the corresponding figures for 1951 and 1958 being 15.4 and 14.1 per cent, respectively. In 1936 the level of dependence on the import surplus-from abroad and from the non-Jewish economy of Palestine-was significantly higher than in the 1950s. The most important features of change in the pattern of domestic resource use are the decline in the share of net investment and the very steep increase in public consumption. As mentioned in the previous section, the share of public consumption in 1936 is understated but even so there is ample scope for the assertion that in the 1950s public consumption claimed a very much higher proportion of resources at the disposal of the economy than in the mid-1930s. The 1936 accounts disclose a gap between the import surplus and net capital formation, i.e. there was a dissaving of the order of 3 per cent of disposable resources. No dissaving is observable in our other two years, although for 1958 revaluing imports at effective exchange rates would yield an import surplus that exceeds net investment. In general, we can perceive in the 1936 accounts some of the main structural features of the economy of Israel, resulting from the crucial function of the import surplus in the economy. The high shares of investment in 1936 and 1951 are surely related to the rhythm of immigration-80 per thousand of Jewish population in 1936 and 132 per thousand in 1951-whereas 1958 is a year of relatively low immigration (15 per thousand) and a more 'normal' pattern of activity.11

Turning now to the sectoral structure of domestic product and employment, we present the relevant figures in Table 5. The sectoral structure of domestic product (national product for 1958) shows only one significant change in comparing 1936 and 1958, the increase in the share of agriculture. This development is connected with the existence of the Arab sector in the economy of Israel, but it should be noted that the relative importance of agriculture in Israel has been declining recently, and had fallen below 10 per cent by 1964.¹² The shares of manufacturing and construction are practically the same. The 1951 picture is rather different, with a

¹¹ CBS, Statistical Abstract of Israel 1966, No. 17, p. 91, Table D/3.

¹² Bank of Israel, Annual Report 1965, p. 25, Table II-9.

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depressed share of agriculture and a very high proportion of activity in construction, reflecting the stress of mass immigration and its absorption in the early years of the State. The share of manufacturing was also rather high in 1951; this sector had achieved a tremendous rate of expansion during World War II, accounting in 1945 for 37 per cent of the national income of the Jewish economy.¹³ The results of this expansion are still

	19	36	19	51	19	58
	Net domestic product	Employ- ment	Net domestic product	Employ- ment	Net national product	Employ- ment
Agriculture	9.5	21.4	6.7	16.1	13.1	17.9
Manufacturing	22.0	20.1	24.0	23.4	21.8	23.7
Construction	8.6	9.4	12.8	9.9	7.9	9.8
Services	59.9	49.1	56.5	50.6	57.2	48.6
All sectors	100.0	100.0	100.0	100.0	100.0	100.0
Absolute totals ^b	18.4	156.5	616.5	496.3	2,948.1	655.1
Index of inequality	25.4	1	18.8	3	17.2	2

TABLE 5.	Product ^a and	Employment,	by	Sector:	1936,	1951,	and	1958
		(per cen	t)					

^a At current factor cost. Value added of public consumption is included in services.

^b Product in LP or IL million; employment in thousands.

- ^c The absolute sum of the differences between the two columns. See also text p. 12. SOURCE: Product—Tables 1, 2, and 3.
 - Employment—1936: Gur Ofer, The Service Industries in a Developing Economy: Israel as a Case Study (Jerusalem and New York: Frederick A. Praeger with the Bank of Israel, 1967), p. 88, Table 4.6.

1951: A. L. Gaathon, Capital Stock, Employment and Output in Israel: 1950–1959 (Special Studies No. 1; Jerusalem: Bank of Israel Research Department, 1961), p. 104, Table C-1 (for total, manufacturing, and agriculture); *idem, Survey of Israel's Economy 1951* (Technical Paper No. 1; Jerusalem: Central Bureau of Statistics and Falk Project, 1959), p. 282, Table 24–7 (for construction). Services as residual.

1958: Bank of Israel, Annual Report 1962, p. 146, Table VIII-5 (for total, agriculture, and construction); Michael Bruno, op. cit., p. 256 (for manufacturing), and p. 257, Table C-2 (for public utilities—broken down into water and electricity and added to agriculture and manufacturing, respectively, according to p. 57, Table III-2). Services as residual.

¹³ P. J. Loftus, National Income of Palestine 1945 (Jerusalem: Government Printer, 1948), p. 18.

evident in the early years of the State, in spite of the fact that the structure of prices under the then prevailing conditions of repressed, or partially repressed, inflation did not favor manufacturing: taking 1955 as base (100), the general level of gross domestic product prices was 46 in 1951, while the index of manufacturing prices stood at 38.¹⁴ At 1955 prices, the 1951 share of manufacturing would be 29 per cent.¹⁵ 1951 is therefore a rather special year in that, in addition to specific price distortions, it is still influenced by the aftermath of the industrial boom of the war years. 1936 and 1958 are 'normal' years in these respects, although the relative stability in the sectoral shares of the domestic product could have been influenced by long-term shifts in relative prices, on which information is not available at present.

The variations in the sectoral deployment of labor are also rather small; the general trend of change, coupled with the shifts in domestic product structure, yields a trend of decrease in the differences of relative productivities (sectoral product shares divided by employment shares) of the four sectors. Following Kuznets, we apply a measure of inequality to the relative products of labor getting the results shown in the last line of Table 5 which indicate a trend of decrease in the inter-sectoral disparities that conforms to the findings of Kuznets in his study of quantitative characteristics of economic growth.¹⁶

The last comparisons presented here relate to the capital stock of the economy: the aggregate capital-output ratio, and the sectoral deployment of the stock. The data for the State period are those of Gaathon's standard study on the subject;¹⁷ for 1936 we shall use an estimate produced by M. Benensohn, relating to 1937.¹⁸ This is a highly impressionistic

- ¹⁴ Unpublished data kindly supplied by Dr A. L. Gaathon.
- ¹⁵ The share of agriculture in 1951 at 1955 prices would be 8 per cent, still a rather low figure. It should be added that the share of construction in the 1951 product might be somewhat overstated.
- ¹⁶ Simon Kuznets, "Quantitative Aspects of the Growth of Nations II. Industrial Distribution of National Product and Labor Force," *Economic Development* and Cultural Change, V (supplement to No. 4, July 1957), 45-49.
- 17 Capital Stock, Employment and Output in Israel: 1950-1959, op. cit.

¹⁸ M. Benensohn, Balancing the National Economic Budget (Tel Aviv: School of Law and Economics, 1938; Hebrew). Benensohn was a Palestinian economist active in the 1930s. The publication quoted above presents a set of macro-economic figures for the Jewish sector of Palestine in 1937. The national income estimate agrees well with Gaathon's 1936 figure. Benensohn's figures were published before Gaathon's but they are intuitive estimates rather than rigorous systems of accounts. For a

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estimate and the concepts used leave much to be desired, but the national income total agrees rather well with that of the detailed Gaathon study, and the capital stock estimates look plausible, although they have been derived in a very crude way.¹⁹ Table 6 compares the capital–output ratios and the sectoral composition of the capital stock in 1936 and 1958.

TABLE 6.	Stock of Fixed Reproducible Capital, by Sector,
and	l Capital-Product Ratio: 1937 and 1958

(per cent)	
------------	--

	1937	19.	58
		Gross	Net
Agriculture	21.9	21.7	22.1
Manufacturing	17.9	18.7	16.6
Constructiona	0.5		
Services	59.7	59.6	61.3
Dwellings	54.6	40.5	40.5
Other	5.1	19.1	20.8
Total	100.0	100.0	100.0
Total stock in LP or IL million	47.6	7,5266	5,8926
Capital-producte ratio	2.6	2.5	2.0

^a 'Basic capital' of the building industry. In the modern statistics construction equipment is included in industrial equipment.

b Converted to 1958 prices by implicit price index for capital formation. The sectoral composition is that shown in the source at 1957 prices.

Net domestic product.

SOURCE: Capital stock—1937, M. Benensohn, Balancing the National Economic Budget (Tel Aviv: School of Law and Economics, 1938; Hebrew), passim.

1958, A. L. Gaathon, Capital Stock, Employment and Output in Israel: 1950-1959, op. cit., pp. 96, 97, Table A-6, and p. 92, Table A-3 (price index).

Product—Tables 1 and 3. Net factor payments to rest of the world in 1958 from Emanuel Levy and Others, *Israel's National Income and Expenditure: 1950–1962* (Special Series No. 153; Jerusalem: CBS, 1964), p. 139, Table 74.

comparison of aggregate private consumption figures in the two estimates, see Gruenbaum (Gaathon), op. cit., pp. 43-44.

¹⁹ An alternative set of capital stock estimates for the pre-State years is available: those of A.W. Duesterwald-Doroth in "The National Wealth of Israel," *Israel Economic Bulletin*, VI (supplement to No. 5/6, February-March 1954), and "National Wealth," *Encyclopaedia Hebraica*, VI (1957; Hebrew), 740-44. Some of these figures, however, seem overstated.

The comparison excludes 1951 owing to statistical difficulties following from the fact that the capital stock estimates for the 1950s are given at 1957 prices. It is not clear whether the Benensohn estimate should be compared with the net or gross concept of capital stock, as used by Gaathon; to resolve this doubt both data are included in Table 6. The sectors follow as closely as possible the definitions followed in the inputoutput tables; the stock of dwellings has, however, been separated from the residual services item owing to its specific importance.

Although the crude nature of the 1937 estimates should be kept in mind, Table 6 yields some striking similarities between the capital structure of the economy in 1936 and 1958, particularly according to the gross concept of capital. The one significant difference is the share of dwellings in the capital stock of services; in 1936 dwellings accounted for over 90 per cent of the item, and in 1958 for only two thirds. This should be attributed to a large extent to the general development of infrastructure in Israel and also to the fact that the Israeli economy 'internalized' considerable amounts of capital employed in services which in the 1930s were outside the Jewish sphere of activities; this applies to both infrastructure and fixed capital (mainly buildings) employed in commerce, administration, catering, and other services.

4. Inter-sectoral relationships

The first round of comparisons shows quite clearly the considerable degree of similarity between the Jewish economy of Palestine in 1936 and our two snapshots of the Israeli economy—for 1951 and specifically 1958. In spite of the lapse of time, territorial expansion, a huge inflow of people and resources from abroad since the establishment of the State, the growth in real income per capita, institutional and social changes, and the absorption of the Arab economic sector, it might be said that the Israeli economy of 1958 displays a high degree of structural similarity to the Jewish sector of the economy of Palestine of the mid-1930s. Even the degree of urbanization is rather similar: in 1936, 78 per cent of the Jewish population lived in localities defined as urban. At the end of 1958 the percentage of population in urban settlements was 76 per cent for the population as a whole and 82 per cent for Jews only.²⁰

Nevertheless, it should be remembered that so far we have not utilized the special type of information provided by the input-output tables, whose

²⁰ Jewish Agency, Statistical Handbook of Jewish Palestine 1947 (Jerusalem: Department of Statistics, 1947), p. 37 (for 1936); CBS, Statistical Abstract of Israel 1958/59, No. 10, pp. 14–15, Table 8 (for December 1958).

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availability after all provided the rationale for choosing the years of comparison. Our purpose now is to trace additional dimensions of structural change between 1936 and 1958, through the use of information on the network of inter-sectoral transactions.

The first inquiry will relate to the pattern of import use in the domestic economy: to what extent are imports of goods and services channeled directly to the final uses-consumption, investment, and exports-as opposed to being used indirectly via the production system of the economy. In 1936, 41 per cent of the external purchases of goods and services were used as input by the four sectors (45 per cent of imports from abroad) and 59 per cent went directly to the components of final demand; in 1951, 59 per cent of the imports were used as input; and in 1958, 63 per cent. The trend was, therefore, toward indirect utilization of imports as inputs to the production process. This trend was certainly reinforced, or at least stimulated, by fiscal policy and by the administrative management of imports (both during the world war and after 1948), and certainly involved large-scale departures from an optimum pattern of resource utilization governed by the principle of comparative advantage. We do not intend, however, to evaluate the results in terms of criteria of optimality, but merely to register the pattern of structural change. The figures show that, to a continuously growing extent, the local production matrix mediates between import flows and final demand, thereby increasing in importance as a part of the whole input-output system. The process is complemented by the increase in the weight of local purchases (purchases from the four sectors of production) in the aggregate final bill of goods: 72.5 per cent in 1936; 75.7 per cent in 1951; and 79.0 per cent in 1958.

These indicators refer to the relationships between the matrix of production and the final demand of the economy; they do not project the intensity of inter-sectoral relationships, the degree of contact between the sectors themselves. This dimension of the structure of an economy can be measured in a simple way by the following approach. Take the output row of a sector in an input-output table. The output of the sector can be channeled as input to other sectors or to the sector itself, in which case it is used inside the production matrix, and it can flow directly to the columns of final demand. The ratio of intra-matrix sales to total output will be an index of the 'matrix orientation' of the given sector. The formal presentation of the index is as follows: let m_i be the output of sector *i* delivered inside the matrix, and f_i the output delivered to the bill of final demand; the total output of sector *i* thus consists of $m_i + f_i$; the value of the index will be $m_i / (m_i + f_i)$ and will range between zero,

when all output is delivered to final demand $(m_i = 0)$, and unity, when all output is sold inside the matrix $(f_i = 0)$. Aggregating the intra-matrix sales and the deliveries to final demand for all the sectors, we obtain an overall index for the economy, being the weighted average of the individual indexes; the weights are the relative shares of the sectors in the total output of the economy.

Let the aggregate sale within matrix be $\sum_{i=1}^{n} m_i$, and the ag-

gregate deliveries to final demand $\sum_{i=1}^{n} f_i$; the aggregate index will then be

$$\frac{\sum_{i=1}^{n} m_i}{\sum_{i=1}^{n} (m_i + f_i)}$$

multiplying and dividing the magnitudes summed up in the numerator by the respective total sectoral outputs $(m_i + f_i)$, we obtain

$$\frac{\sum_{i=1}^{n} \frac{m_i}{m_i + f_i} \cdot m_i + f_i}{\sum_{i=1}^{n} (m_i + f_i)},$$

where the right-hand side of the expression represents the weighting system. The aggregate index will also range from zero (when all m_i are zero) to unity (when all f_i are zero); it is invariant to the degree of sectoral aggregation, as long as the intra-sectoral transactions (the main diagonal of the production matrix) are listed and the basic data from which the table was constructed are given. It can be said to reflect the degree of integration of the production system or the internal complexity of the economy. More general problems connected with the conceptual meaning of the index will be considered in a later section; meanwhile it will be treated as a simple measure of integration or economic complexity and it will be termed the 'complexity index'.²¹

²¹ Indexes of this type were presented by H. B. Chenery and P. G. Clark in Interindustry Economics (New York: John Wiley, 1959), pp. 205-206. See also Bruno, op. cit., for a discussion of the phenomenon of interdependence, the

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The value of the index for the three years is shown along the diagonal of Table 7 (going down from left to right) and shows a clear trend of increase in the degree of interdependence between the four sectors of the economy, or, in other words, in the complexity of the economic system. Over the years the proportion of transactions inside the production matrix increased from one fifth to over one third of the total output of the four sectors. On the background of the relatively high degree of stability shown by the other indicators, it becomes clear that the structure of intersectoral flows is the main dimension of change in the development of the Jewish economy in Palestine and in Israel.

The presentation of the index as the weighted average of sectoral indexes shows that it is shaped by changes in the matrix-orientation of the different sectors, and by the composition of the aggregate output of the economy. On a more fundamental level, however, it will be molded by the two elements which determine the map of flows in an input-output system: the matrix of input coefficients and the vector of final demand for outputs produced by the sectors.²² An overall increase in the index can result from an increase in the density of the matrix, the degree of interdependence dictated by the technology of the system, or from a change in the bill of final demand which will assign more weight to the more integrated sectors, and consequently will yield a larger flow of intersectoral transactions. Changes in the value of the complexity index over time should therefore be attributed to both matrix influences and influences stemming from changes in the structure of final demand.

These two factors should now be isolated, and the contribution of each to changes in the degree of complexity assessed. This can be done in the following way. Let us take the change of the index from 0.244 in 1951 to 0.358 in 1958 (Table 7). Presumably, changes in both factors—the matrix of coefficients and the structure of demand—occurred between the two observations. Let us now construct a new, synthetic, input-output system with the matrix of 1951 and the demand structure of 1958. This is done by multiplying a final demand vector (demand for output of domestic sectors only) of the level and composition of 1958, by the

full presentation of the 1958 data, and a summary comparison with the original Gaathon table for 1951. For helpful clarification of the meaning of the index I am indebted to E. Sharon and D. Levhari.

²² E. Kleiman in an article reviewing Bruno, op. cit. ["Interdependence of the Production System," The Economic Quarterly, X (No. 37-38, March 1963; Hebrew), 79-89].

inverted matrix of input coefficients—the Leontief matrix—of 1951. In this exercise we obtain the pattern of output flows produced by the sectors in order to satisfy the demand requirements of 1958 on the basis of the technology of 1951. This synthetic system has, of course, its own complexity index, which can be compared with those of 1951 and 1958. Comparison with the 1951 index gives us the demand effect on the

Effect of demand pattern	Effect of matrix				
	1936		1951		1958
1936	0.208		0.224		0.353
	Ļ				
1951	0.222	\rightarrow	0.244		0.366
			Ļ		
1958	0.200		0.225	->	0.358

TABLE 7. Complexity Indexes: 1936, 1951, and 1958(per cent)

SOURCE: Figures along the left-to-right diagonal, directly from Tables 1, 2, and 3. Other figures computed from the underlying worksheets.

complexity of the economy: it shows us the effect of change in demand only, the matrix being kept constant. Conversely, comparison with 1958 discloses the matrix effect, since we compare two structures having the same pattern of demand. It should be noted that in this formulation the demand effect is defined on the basis of the initial matrix, and the matrix effect, on the basis of the demand pattern in the second period. The two effects can be calculated on either base; this is yet another instance of the index-number problem.²³ In the following analysis we have adopted the former definition of the effects, but the results were controlled by the alternative computation.

Using this method we can analyze the pattern of change of the complexity indexes between 1936, 1951, and 1958, isolating the two sets of factors. This is done in Table 7, which sets out the actual changes in complexity over the three years, in terms of the possible matrix and demand changes. The table consists of the array of complexity indexes resulting from the possible combinations between the three matrices and

²³ I owe this point to M. Fraenkel.

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the three patterns of final demand. The rows of the table are computed by straightforward application of the different matrices to the demand vectors of the base year; the columns, by applying the given matrix to demand vectors constructed according to three different patterns and the level of the year of the matrix. The main diagonal of the table represents the *actual* indexes of our three years. Our calculation of the two effects is traced out by arrows.

From 1936 to 1951 the index rose by 17 per cent; about 7 per cent of this can be attributed to the demand effect, and 10 per cent to the matrix effect. Between 1951 and 1958 the increase is 47 per cent, with a negative demand effect of 8 per cent and the offsetting matrix effect accounting for an increase of 59 per cent.

Over the whole period the index increased by 72 per cent, the influence of demand was negative (-4 per cent), and the changing production system made for an increase of 79 per cent. The main factor behind the growing complexity was, therefore, the great increase in the degree of interdependence displayed by the production system.²⁴

	1936	1951	1958	
Agriculture	21.7	34.1	38.4	
Manufacturing	26.2	25.2	41.7	
Construction	44.2	46.0	49.1	
Services	9.3	8.9	25.6	

TABLE 8. Share of Total Input Purchased Inside Matrix, by Sector: 1936, 1951, and 1958 (per cent)

SOURCE: Tables 1, 2, and 3.

This can be perceived clearly from a general view of Table 7: the complexity indexes increase continuously, and from 1951 to 1958 very strongly, along the rows, i.e. with the changes in the matrix of production. A very different trend is displayed along the columns: a small increase from 1936 to 1951, and a decrease thereafter. The alternative definition of the two effects would also ascribe the dominant influence to changes in the system of coefficients.

²⁴ Intra-sectoral transactions account for about 37 per cent of the complexity index of 1936, and 54 per cent of that of 1958. To a large extent, therefore, the complexity of the system reveals itself in intra-sectoral interdepedence, at least at the present level of aggregation.

An indication of the increasing interdependence of the economy can be seen in Table 8, which presents the share of inputs purchased inside the production matrix by the four sectors in 1936, 1951, and 1958. Between 1936 and 1951 there are two cases of slight decrease in the share of inputs obtained within the matrix: in manufacturing the share dropped from 26.2 per cent to 25.2 per cent, and in services from 9.3 per cent to 8.9 per cent. Over the whole period, however, there is a clear trend of intensifying inter-sectoral and intra-sectoral contacts.

The figures of Table 8 raise two interesting questions: first, the weight of which primary inputs of the economy declined as a result of the increased share of intra-matrix transactions? Second, to what extent was the matrix of coefficients affected by relative price movements?

The first question can be reduced to the problem of the share of value added in the total input of the sectors, versus all other purchased inputs. Between 1936 and 1951 the share of value added increased in all four sectors declining in all four from 1951 toward 1958. Comparing 1958 with 1936 we find that only in construction was the share of value added higher in 1958 (41.3 per cent) than in 1936 (29.7 per cent).25 It is tempting to relate inversely the changes in the value-added intensity of a sector with the changes in its level of technical sophistication, assuming that the use of purchased inputs-local and imported-and of capital services (depreciation) imparts to the sector the benefits of division of labor and the differentiation of economic activity. Thus, an increase in the weight of local purchases at the expense of imports points toward an increase in the economy's degree of integration without necessarily implying a change in the process of production. But if the increase is at the expense of the value-added component, a case can be made-abstracting from the problems of aggregation-that the given sector has become a more sophisticated and differentiated part of the economic system. This is admittedly only a very tentative line of thought, but it yields a plausible result: between 1936 and 1951 the economy did not experience significant processes of modernization and technical change and the growth of output was mainly nourished by increasing the utilization of capital installed during the 1930s; contact with the external world was also severely restricted. In the 1950s, on the other hand, the Israeli economy ex-

²³ We might mention that the 1936 figure seems to be rather understated, in comparison with other information available for the 1930s. It was adopted by Gaathon from a study of the Jewish Agency Economic Research Institute [Gruenbaum (Gaathon), op. cit., p. 82].
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perienced a revival of trade and investment, at the same time absorbing more advanced techniques and patterns of production.

The second point can be tested - though only in a rather crude way for the 1951-58 segment. The problem is whether the matrix changes which reshaped the economy over the period were brought about by shifts of relative prices, or by real developments. The test attempted here relates to the inner composition of the matrix.26 Looking at the input columns of the four sectors in 1951 and 1958 it is possible to detect a general increase in the weight of inputs originating in services, and a decrease in the weight of manufacturing inputs; this trend holds true for three of the four sectors; in agriculture the reverse happened-the weight of services inputs went down, and that of manufacturing inputs increased. No other trends in the structure of inputs within the matrix can be observed: construction does not supply intra-matrix inputs, and the weight of agricultural inputs shows contradictory movements in the two main observations. We are left, therefore, with an increase in the weight of services and a decline in the weight of manufacturing inputs. The trend of relative prices, however, acted in a different direction: between 1951 and 1958 manufacturing prices rose relatively to prices of services,²⁷ thereby implying that the intra-matrix realignment was predominantly real.

5. Inter-sectoral changes and overall stability

It should now be instructive to attempt to match the results of the intersectoral analysis with the data of Table 5, which showed the sectoral structure of the product and reflected a high degree of stability. A first step in this direction is moving from a presentation of product figures (net value added generated in the sectors) to output. It is clear that the intensification of contacts between and within sectors makes for an increase in the total volume of output flows of the economy for any given bill of final demand. This, of course, will increase the volume of changes in the output structure of the economy.

An illustration of this tendency is given by the following exercise: suppose that the economy had to satisfy the final demand of 1958 on the basis of the production matrices of 1936 and 1951, what would be the resulting total output flows of the four sectors? The answer is IL 4,639 million and IL 4,788 million, respectively. The original 1958 figure was IL 5,779 million. We can abstract here from shifts in the pattern of

²⁶ This point was suggested—at the Kaplan School meeting—by M. Kurtz.

²⁷ Unpublished data supplied by Dr Gaathon.

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demand, since the matrix influence was found to be the dominant factor of integration in the economy.²⁸ The extent of intensification of the network of output flows leads us to expect considerable changes in the sectoral structure of output and this expectation is by and large fulfilled, as shown in Table 9, which sets out the relevant data for the three years.²⁹

First, the magnitude of sectoral shifts in Table 9 is considerably higher than in Table 5. The overall shift from 1936 to 1958, measured as the absolute sum of percentage shifts between the distributions, was 20.0 points, whereas in Table 5, relating to the product figures, it amounted to only 7.2 points. The magnitude of output shifts is greater than that of product in all sectors except agriculture. Moreover, a pattern of change is visible. The

()				
	1936	1951	1958	
Agriculture	10.2	8.4	13.2	
Manufacturing	26.6	30.7	33.6	
Construction	15.4	18.2	9.1	
Services	47.8	42.7	44.1	
All sectors	100.0	100.0	100.0	

TABLE 9. Output,^a by Sector: 1936, 1951, and 1958 (per cent)

^a Value added of public consumption is included in services. SOURCE: Tables 1, 2, and 3.

share of manufacturing shows a consistent and significant increase, from 26.6 per cent in 1936 to 33.6 per cent of total output in 1958. The share of construction declines from 1936 to 1958, even though it peaks in 1951. We can also venture to state that the share of services declined, in spite of the increase from 1951 to 1958; this follows from the considerable difference between the 1936 and 1958 figures, keeping in mind that the 1958 data include the overgrown public services of the State period. As mentioned above, only agriculture shows a smaller change in weight in terms of output than in terms of product. Taking the increase in the share of manufacturing and the decrease in construction and services as the main features displayed in Table 9 we can conclude that a trend of

²⁸ This should not be taken to mean that the pattern of demand was constant, only that changes in it had no strong effect on the extent of inter-sectoral integration.

²⁹ The output figures of Table 9 include the value-added element of public consumption, and are therefore comparable to those of Table 5.

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normalization is visible over the years: the high share of construction and services in total economic activity are some of the stronger peculiarities of the economy of both the *Yishuv* and Israel and reflect the dominating impact of immigration and the inflow of capital.

The considerable changes in output structure should, however, be reconciled with the very stable product structure of the economy. What made possible the coexistence of these two phenomena which *prima facie* seem contradictory? The answer should be sought in the variable that connects the two distributions, namely the behavior of the share of value added in the output of the four sectors.

As mentioned above, the share of value added in the inputs of all the four sectors (with value added generated in public consumption included in services) increased between 1936 and 1951; from 1951 to 1958 the share declined in all four sectors, leaving only construction with a higher value-added intensity than in 1936. The weighted average of the

	1936–58	1936-51	1951-58	
Agriculture	1.07	0.86	1.24	
Manufacturing	0.78	0.94	0.83	
Construction	1.55	1.26	1.23	
Services	1.04	1.05	0.98	
All Sectors	1.00	1.00	1.00	

TABLE 10.	Changes in Relative Value-Added Intensity,	1
	by Sector: 1936-1951-1958	

^a Defined as $\frac{v_{it}/v_{io}}{V_t/V_o}$

where v_{io} and v_{it} are the share of value added in output of sector *i* in the years *o* and *t*, respectively; V_o and V_t are the share of value added in the whole economy in the years *o* and *t*.

SOURCE: Tables 1, 2, and 3.

value-added shares (i.e. the share in the output of the whole economy) was 53 per cent in 1936, 63 per cent in 1951, and 48 per cent in 1958. The general trends, however, conceal a considerable difference in the shifts in sectoral value-added intensity relative to the changes in the economy as a whole. Table 10 presents the changes in the *relative* value-added intensity of the sectors between 1936 and 1951, 1951 and 1958, and

1936 and 1958, i.e. the sectoral changes divided by the change for the whole economy.

Using the figures of Table 10 and those of Table 9, we can formulate an explanation of the relative stability of the product structure of the economy as evident in Table 5. Let us take the first column of Table 10, the 1936-58 movements. The figures indicate that one sector, manufacturing, became considerably less intensive in terms of value added than the rest of the economy, the construction sector greatly increased its relative intensity, and agriculture and services registered small increases. Apart from agriculture, these movements run counter to the changes in output structure, reducing the increase in the weight of manufacturing and increasing that of services and above all construction. On the other hand, the increase in the share of agriculture in terms of output is magnified in terms of value added. Table 10 is therefore the connecting link between Tables 5 and 9; the stability in the sectoral product shares results from a relative 'dilution' in the value-added content of the sector which is on the increase in output terms (manufacturing) and an 'enrichment' of services and construction. Given Tables 10 and 9 the derivation of Table 5 becomes a simple arithmetic exercise, in which the only discrepancies between expected and actual product shares are due to rounding.

Now, a word on the methodology of this procedure. We started from a given set of output data, derived directly from the input-output tables, and explained their consistency with the sectoral structure of product. The explanation was based on the pattern of change of the input coefficients of the four sectors. The problem of relative prices was not introduced, but it is doubtful whether it should have been. As long as we cannot trace changes in input composition, or more specifically in value-added intensity, to movements in relative prices, the transformation from output to product data cannot be carried out in a form different from that used here, admittedly rather neutral as to the causal factors behind the changes outlined in Table 10.

On the other hand, it is possible to tackle the basic data directly, either output or product (in this case, owing to statistical constraints, the product data), and try to explain their behavior in terms of price movements. This is feasible for the 1951–58 period, at 1957 or 1955 prices. This would mean abandoning the usual working assumptions of input-output economics, which tend to avoid the problem of relative prices.³⁰ In fact, the

³⁰ In Section 4 we briefly introduced the price element, but only in order to test the structure of the production matrix itself.

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computations at constant prices show some distinct shifts between 1951 and 1958, which are to a large extent neutralized by contrary price movements.³¹ Output figures are not available, so we cannot test the product-output transformations. Nevertheless, two points should be remembered in assessing the explanatory power of relative prices. First, the constant-price figures show a rather violent break between 1951 and 1952, recouping in 1952 most of the stable features of the current-price series. What is more, the data do not stretch before the 1950s, leaving us only current-price figures for the comparison with 1936. The long sweep comparisons of structure have to depend on output and product figures at current prices (and should perhaps do so in order to avoid index-number pitfalls, even if price indexes did exist).

6. Concluding remarks

The conclusion of this paper is that the network of inter-sectoral and intra-sectoral relationships provides the main dimension of structural change in the longer view of the Jewish economy of Palestine and of Israel. More specifically, the matrix of production has become more dense and integrated, particularly since 1951, resulting in a much larger flow of transactions per unit of final demand. The process of production has become much more indirect, or, one might say, roundabout. This roundaboutness relates to the degree of interdependence in production between and within the sectors of the economy. It can be said to be a horizontal (or spatial) measure of economic complexity, in a way similar to the intertemporal (or vertical) roundaboutness that is related to the formation of capital and the subsequent integration of past output flows (congealed as capital) and current output. Economies, like social systems generally, tend to develop by way of increased differentiation and integration, by the creation of a new and more complex network of relationships between units of production, sectors and regions, and present and past activities. As has been pointed out by Leontief, the degree of articulation of an input-output system can be considered a measure of economic development: "The larger and the more advanced an economy is, the more complete and articulated is its structure An underdeveloped economy can now be defined as underdeveloped to the extent that it lacks the working parts of this system."32 Even if cross-section comparisons

³¹ For a product breakdown at 1957 prices, see A. L. Gaathon, Capital Stock, Employment and Output in Israel: 1950–1959, op. cit., p. 102, Table B-1.

³² Wassily Leontief, "The Structure of Development," Input-Output Economics (New York: Oxford University Press, 1966), p. 49.

of complexity are beset by difficulties resulting from meta-structural differences (resources, demographic conditions, institutional differences, cultural traits), the time-series version of this hypothesis should be accepted.

The data for the Jewish economy of Palestine and Israel, which over the 22 years under consideration show that real domestic per capita product grew at an average yearly rate of 3.8 per cent,³³ strongly agree with this view of the process of economic development. There is, however, one further consideration, clearly relevant for the Palestine-Israel case. To the extent that an economy can change its basic resource endowments over time-by changing its area or its regional alignment, undergoing great demographic changes, changing the level of capital stock relative to the volume of output, or considerably altering the scale or pattern of foreign trade-to that extent we can expect new influences to bear on the structure, and the relationship growth-towards-increased-complexity to be affected.34 As a general hypothesis it can be argued that an exogenous influx of new resources into the system and the widening of international contacts would exercise an opening influence, reducing parametrically, as it were, the tendency to growing inter-sectoral complexity, and vice versa.35 The Jewish economy in Palestine experienced several strong realignments of this type after 1936: the claustrophobic experience of World War II and the foreign trade restrictions of the early years of independence made for a denser pattern in the economy; the territorial expansion of the Jewish economy into formerly Arab resources after 1948, the process of mass immigration, the huge volume of capital imports and the progressive normalization of external trade can be presumed to have exerted opening influences. The data suggest that on the whole, and particularly in the 1950s, the trend toward increased complexity-the more normal, according to our view, concomitant of economic growth-held the upper hand.

³⁵ On this, see R. Szereszewski, Structural Changes in the Economy of Ghana 1891–1911 (London: Weidenfeld and Nicolson, 1965), p. 96. We there define 'opening' as exogenous increases in the resource-base of the economy or equivalent developments provided by new opportunities of foreign trade. The underlying assumption is of 'balanced growth' of different types of resources, or shifts in the pattern of activity (or the level of technology) which would correct imbalances and bottlenecks.

³³ See above, p. 1, note 2.

³⁴ This, of course, is analogous to the influence of meta-structural factors in crosssection comparisons.

ESTIMATES OF THE DOMESTIC PRODUCT OF THE JEWISH ECONOMY OF PALESTINE: 1922–47

1. Introductory

The series of the net domestic product of the Jewish economy of Palestine (at current prices) presented here consist of the integration, adjustment, and interpolation of existing estimates for the post-1936 period, and their extrapolation back to 1922. The available estimates include the key work of A. L. Gaathon for 1936—the first and most original and detailed construction of the national accounts of mandatory Palestine—and five estimates produced by the government statisticians, G. E. Wood (1939, 1942, 1943) and P. J. Loftus (1944, 1945).¹ Gaathon and Loftus presented their figures by national sector, so that the Jewish economy appears explicitly in the accounts. The Wood estimates had to be broken down in order to extract the Jewish component. The 1945 estimate was projected forward to 1947, and on a changed basis (the Jewish sector of the economy of Palestine becoming the economy of Israel) through 1948 ² toward 1949. This ensures continuity with the standard national accounts series of Israel, which starts in 1950.³

Gaathon's 1936 estimate serves as a benchmark for the pre-1936 extrapolations, and also for the remaining prewar years. Scrutiny of this estimate also elucidated some of the conceptual problems of the whole

- ¹ Ludwig Gruenbaum (Gaathon), National Income and Outlay in Palestine 1936 (Jerusalem: Jewish Agency Economic Research Institute, 1941); G.E. Wood, Survey of National Income of Palestine (Palestine: Government Printer, 1943), and Palestine, Office of Statistics, General Monthly Bulletin of Current Statistics, IX (No. 8, August 1944), 342–45; P. J. Loftus, National Income of Palestine 1944 (Palestine: Government Printer, 1946); idem, National Income of Palestine 1945 (Jerusalem: Government Printer, 1948).
- ² [For 1948 the available estimates for Israel and for Jews only are practically identical (see p. 51), presumably owing to the lack of information on the non-Jewish economy in this war year. Ed.].
- ³ Emanuel Levy and Others, Israel's National Income and Expenditure 1950–1962 (Special Series No. 153; Jerusalem: CBS, 1964), and annual issues of CBS, Statistical Abstract of Israel, since 1965.

exercise, i.e. the definition of the Jewish economy and its relationships with the other sectors of economic activity in Palestine. The Gaathon accounts are built round sectoral input and output figures, and are easily integrated into a formal input-output table. This has been done—after several adjustments of the original figures—in terms of nine sectors of activity: agriculture, manufacturing, construction, and services—Jewish and non-Jewish—and the Government of Palestine.⁴

A sub-system for the Jewish economy was derived from the general table for Palestine, by four sectors of activity: agriculture, manufacturing (including handicrafts), and construction, with services as the residual sector. The relations of this sub-system with the rest of the economy were entered as if they were an additional category of foreign trade. The Jewish economy is defined as the sum of establishments under Jewish ownership and control, including non-resident Jewish ownership. External transactions-with non-Jewish Palestine and with the rest of the world-are limited to goods and non-factor services, so that incomes of Arab laborers and rent paid out to Arab landlords are included within the Jewish sphere, i.e., we use the domestic rather than the national concept of product. Value added by Jewish employees of the government within the country (as opposed to soldiers serving abroad during World War II, etc.) is, however, regarded as product of the Jewish sector, and not as factor services delivered 'abroad': the Jewish employees of the government are regarded as an integral part of the economic mechanism of the Yishuv.

Having analyzed the 1936 figures and clarified the main conceptual issues we prepared the most difficult—and problematical—part of the exercise: the pre-1936 extrapolation. After initial scrutiny of the data, it was decided to project the product figures back to 1922, the year in which the Mandate for Palestine was approved by the Council of the League of Nations (July) and the first census of population was carried out in Palestine (October). The extrapolation was carried out from 1936 through three years which we studied in much greater detail: 1931, 1927, and 1922. The first of these was the year of the second census of population, which supplied detailed information on the industrial and occupational distribution of the Arab and Jewish populations.⁵ For 1927 and 1922 our own

⁴ See the first essay in this book, pp. 4, 6 and Table 1.

⁵ E. Mills, Census of Palestine 1931, Vol. I: Report; Vol. II: Tables (Government of Palestine, 1933). The estimates of employed labor force were derived from the census by Gur Ofer, The Service Industries in a Developing Economy: Israel as a Case Study (Jerusalem and New York: Frederick A. Praeger with the Bank of Israel, 1967), p. 88, Table 4.6.

(and necessarily rather crude) estimates of employed labor force were constructed. For the intervening years, annual product data were interpolated for the four sectors of activity. The post-1936 figures consist of an extrapolation of the 1936 estimates toward 1939. Thereafter, the Loftus figures and other estimates are used, with some adjustments.

The following sections are devoted to a detailed presentation of the methods of estimation. Section 2 covers the prewar benchmarks: 1931, 1927, 1922, and 1939. In Section 3 the methods of interpolation used to complete the 1922–39 series are presented. Section 4 deals with the war years, and Section 5 with the projection toward the Israeli series. The estimates are summarized and converted to constant (1936) prices and growth rates are worked out in Section 6. Finally, Section 7 includes an attempt to check the results by a comparison with the available monetary data.

2. The prewar benchmarks

The 1936 net domestic product of the Jewish economy of Palestine, as given in the Gaathon estimate adjusted in our input-output formulation,⁶ adds up to LP 18,353 thousand, or LP 49 per capita. Its sectoral composition is shown in Table 1.

	Prod	uct	Employment per cent	Relative productivity
	LP thousand	Per cent		(2)÷(3)
	(1)	(2)	(3)	(4)
Agriculture	1,740	9.5	21.4	0.44
Manufacturing	4,045	22.0	20.1	1.09
Construction	1,581	8.6	9.4	0.91
Services	10,987	59.9	49.1	1.22
All sectors	18,353	100.0	100.0	1.00

TABLE 1. Net Domestic Product and Employment, by Sector: 1936^a

^a Figures in this and subsequent tables refer to the Jewish economy of Palestine, unless otherwise specified.

SOURCE: Product—L. Gruenbaum (Gaathon), National Income and Outlay in Palestine 1936 (Jerusalem: Jewish Agency Economic Research Institute, 1941), adjusted for the input-output formulation used by us. See also the first essay in this book, Table 1 and text, pp. 4, 6.

> Employment—Gur Ofer, The Service Industries in a Developing Economy: Israel as a Case Study (Jerusalem and New York: Frederick A. Praeger with the Bank of Israel, 1967), p. 88, Table 4.6.

⁶ This is described in the preceding essay, pp. 2-4, and set out there in Table 1.

The 1931 estimate

The first benchmark estimate before 1936 is for 1931. It is based on output estimates for the four sectors of activity, converted into product figures mainly on the basis of 1936 relationships. Agricultural output is given by four categories: mixed farming, citrus, citrus investment, and mixed farming investment. The output of mixed farming-which includes all agricultural production on current account except citrus-was estimated by computing the output per employed person as given in three different sources: the 1936 and 1927 censuses of Jewish agriculture, and the 1930 census of Zionist Organization settlements.7 The figures were converted to 1931 prices by the government index of wholesale prices; the three figures (LP 44, LP 50, and LP 46) were averaged and projected on Jewish agricultural employment as given in the 1931 census. Citrus output (at producer prices) was extrapolated from 1936 using the yearly export figures, adjusted for the growing share of Jewish producers.8 The 1936 output was computed from total agricultural output, by deducting output used as investment and the output of mixed farming as given in the 1936 census.9 Investment in mixed farming was entered using an investment series produced by the Jewish Agency which includes investment in mixed farming.10 These data, however, cannot be taken to represent agricultural

- ⁷ For the results of the 1936 and 1927 censuses see D. Gurevich and A. Gertz, *Jewish Agricultural Settlement in Palestine* (Jerusalem: Jewish Agency Department of Statistics, 1938; Hebrew), pp. 26, 59, and *idem, Jewish Agriculture and Agricultural Settlement in Palestine* (Jerusalem: Jewish Agency Department of Statistics, 1947; Hebrew), pp. 57–58. In the source, the output figures from the 1936 census were converted to 1937 prices and presented as referring to 1937. The 1930 census of Zionist Organization settlements refers to 1929 and appears in Jewish Agency, *Report and General Abstracts of the Censuses of Jewish Agriculture, Industry and Handicrafts and Labour Taken in 1930* (Jerusalem: Department of Statistics, 1931; Hebrew).
- ⁸ The figures are 37 per cent for 1931 compared with 60 per cent for 1936. See Gurevich and Gertz, op. cit. (1947), p. 64.
- ⁹ Computed in this way, the 1936 output of citrus at producer prices comes to 54 per cent of Jewish citrus exports. A similar calculation for the whole of Palestine [based on data in Montague Brown, "Agriculture," *Economic Organization of Palestine*, ed. S. B. Himadeh (Social Science Series No. 11; Beirut: American University of Beirut, 1938), p. 143] yields 48 per cent. Gurevich and Gertz, *op. cit.* (1938), p. 27, mention a mark-up of the order of 50 per cent of the export price f.o.b.
- ¹⁰ See D. Horowitz, *The Economy of Palestine and Its Development* (rev. ed.; Tel Aviv: Dvir for Mosad Bialik, 1948; Hebrew), pp. 19, 24, 62, 77, 97, for the components of the series, which covers the 1930s. The mixed farming figure

output channeled to investment: they include also equipment, construction works, etc. The series, however, was used to extrapolate from 1936 that part of investment in mixed farming which originates in agricultural output. Investment in citrus plantations was taken from the Jewish Agency data, without adjustments.¹¹ Total agricultural output adds up to LP 1,460 thousand, consisting of (in LP thousand) 614, 190, 56, and 600 for mixed farming, citrus production, mixed farming investment, and citrus investment, respectively.

Value added—the product of agriculture—is computed by applying to aggregate output the net product–output coefficient of 1936.

The product of manufacturing in 1931 is derived from two censuses of Jewish manufacturing carried out by the Jewish Agency: 1930 (covering 1929) and 1933.¹² These supply us with employment data, and with aggregate figures of gross value added at market prices. The 1933 value added per employed person converted to 1931 prices by an index of Jewish industrial wages and adjusted to an annual increase in productivity of 8 per cent is practically identical with the 1929 figures converted to 1931 prices.¹³ It was projected on Jewish employment in manufacturing as in 1931, and adjusted for industrial excises and for a depreciation coefficient deduced from the 1936 accounts. The product of manufacturing is estimated at LP 1,416 thousand.

for 1931 was taken from *idem*, *Palestine Facts and Figures* (Tel Aviv: Jewish Agency Economic Department, 1947), p. 407, as the average of the 1930 and 1931 figures. This series is highly correlated (R=0.87) with the expenditures of the Palestine Zionist Executive and the Jewish Agency on agricultural settlement; investment in mixed farming in the 1920s and 1930s was computed from a regression equation calculated for the 1930s (I=14.4+2.98A) which relates mixed farming investment (I) to the outlays on agricultural settlement (A), for which figures are available for the whole period.

¹¹ The equipment content of citrus is taken care of at the stage of conversion from output to product figures.

¹² Jewish Agency, Report and General Abstracts 1930, op. cit.; Jewish Agency, Directory of Jewish Industry and Handicrafts in Palestine (Tel Aviv: P. Kruglak, 1934; Hebrew). (Based Upon the 5th Census of Jewish Industry Carried out by the Department of Trade and Industry of the Jewish Agency and Brought up to April 1934.) The 1933 census is summarized in S. B. Himadeh, "Industry," Economic Organization of Palestine, ed. S. B. Himadeh, op. cit., pp. 242-43, Table VI.

¹³ Labor productivity (at constant prices) in manufacturing should have been practically unchanged between 1929 and 1931, with a heavy increase toward 1933. This is indicated by figures for electricity consumption and mechanical power installed per employee.

The output of construction was supplied by a general index of Jewish construction activity during the mandatory period,¹⁴ on which the absolute 1936 figure was projected to yield yearly estimates of output. The product–output ratio was not taken directly from 1936: the Gaathon accounts show a rather low figure of 29.7 per cent. Other sources use a ratio of 50 per cent, and in 1931 we compute the net product of construction with a product–output ratio of 40 per cent.

The three commodity-producing sectors thus account for a net domestic product of LP 2,564 thousand. The services component was added after experimenting with two alternatives. One estimate of net product originating in services was prepared on the basis of the relative productivity of services (the product share divided by the employment share) in 1936 and 1939, projected on the 1931 employment share.

	Prod	luct	Employment per cent	Relative productivity
	LP thousand	Per cent		(2)÷(3)
	(1)	(2)	(3)	(4)
Agriculture	722	11.3	22.1	0.51
Manufacturing	1,416	22.3	23.8	0.94
Construction	426	6.7	8.7	0.77
Services	3,798	59.7	45.4	1.31
All sectors	6,362	100.0	100.0	1.00

TABLE 2. Net Domestic Product and Employment, by Sector: 1931

SOURCE: Product, see text, pp. 30-32. Employment, Gur Ofer, loc. cit.

The alternative, direct, estimate of product was based on the employment figures of the 1931 census, the 1930 census of Jewish labor, in which wage incomes and rent outlays were given, and the 1931 census of Jewish wholesale and retail trade.¹⁵ Value added in trade was estimated on

- ¹⁴ The main sources of the index are Horowitz, The Economy of Palestine and Its Development, op. cit., pp. 96-97, and I. J. Karpman, Housing and Mortgage Credit in Palestine (Tel Aviv: Tversky, 1946; Hebrew), p. 165. The pre-1924 values of the index were estimated from figures of activity and employment of Solel Boneh in 1923 and 1922.
- ¹⁵ Jewish Agency, Report and General Abstracts 1930, op. cit., p. 70, Table 69, and p. 71, Table 70 (wages); p. 75, Table 74 (rent); (all from Part III of the Census). Jewish Agency, "Census of Retail and Wholesale Trade, Department of Statistics of the Jewish Agency, 1931," Statistical Bulletin, No. 23 (1932; Hebrew).

the basis of trade turnover; the share of net rent in total product is based on the share of gross rent in labor incomes (adjusted for outlays on maintenance of dwellings and taxation, as in 1936); other service incomes are reflected by various categories of wage income. The first estimate yields a net product figure of LP 3,224 thousand, and the second yields LP 3,798 thousand. The first estimate amounts to 85 per cent of the second, and a product figure derived from it will amount to 91 per cent of the alternative product figure. We decided to adopt the second, direct, estimate of services.

Table 2 summarizes the sectoral product estimates for 1931, supplemented by the sectoral distribution of Jewish employment, derived from the 1931 census of population. The table includes a computation of relative productivities.

The 1927 estimate

Our next benchmark is 1927. Agricultural output was entered from the 1927 census of Jewish agriculture. The output of citrus is included in the census at f.o.b. prices and was converted to producer prices by multiplying the census value by 50 per cent. Investment in citrus orchards was extrapolated from the investment series of the 1930s, using a physical index of new planting,¹⁶ and the available information on rural wages. Investment in mixed farming was computed as in 1931, by projecting the 1936 figure on the investment series available for the 1930s using the regression on yearly outlays on agricultural settlement. Total output yields the net product figure, applying the 1936 product–output aggregate coefficient for agriculture.

The output of Jewish manufacturing in 1927 is based on the first census of industries carried out by the government in 1928, for the year 1927.¹⁷ The census did not distinguish between the two national sectors of the economy, but various Jewish sources put the Jewish share in the total 1927 output of the manufacturing industries of Palestine (assessed by the census at LP 3.89 million), at 60 per cent.¹⁸ This amounts to LP 2.3

- ¹⁶ Data on yearly planting in the Jewish and non-Jewish sectors are available in Jewish Agency, *Statistical Handbook of Jewish Palestine 1947*, eds. D. Gurevich, A. Gertz, and A. Zanker (Nizan) (Jerusalem: Department of Statistics, 1947), p. 179. This publication will henceforth be referred to as *Handbook*.
- ¹⁷ Palestine, Department of Customs, Excise and Trade, First Census of Industries 1928 (Jerusalem: Government Printer, 1929).
- ¹⁸ See, for example, Alfred Michaelis, "Economic Palestine in 1935: Present Position and Future Prospects," *Palnews Economic Annual of Palestine 1935*,

million. This is, admittedly, only an order of magnitude, but it agrees quite well with the output figure of the Jewish Agency's 1930 (1929) industrial census—though there were apparently considerable differences of coverage between the two sources—and with our own estimates for the 1920s discussed below (pp. 42–44). Net product was computed using the 1929 ratio of value added to output (see Table 12). Adjusting the census concept of value added (which is gross of depreciation and includes excises) we obtain the net product of manufacturing.

The output of contruction is given by the general index of Jewish construction activities described above. The product-output coefficient applied here is that of 1931 (40 per cent).

	Pro	oduct	Employment per cent	Relative productivity
	LP thousand	Per cent		(2)÷(3)
	(1)	(2)	(3)	(4)
Agriculture	744	15.9	26.5	0.60
Manufacturing	998	21.3	19.0	1.12
Construction	133	2.8	8.7	0.32
Services	2,812	60.0	45.8	1.31
All sectors	4,687	100.0	100.0	1.00

TABLE 3. Net Domestic Product and Employment, by Sector: 1927

SOURCE: Product, see text, pp. 33-35. Employment, own estimate.

The product of services is estimated using the 1931 relative productivity of services and our own estimate of the sectoral structure of employment in 1927.¹⁹ Applying the relative productivity (1.31) to the share of services in employment (45.8 per cent), the share of services in net domesttic product works out at 60.0 per cent; this figure, deduced from our 1927 estimate of employed labor force, is almost identical with the 1931 share, based on the 1931 census, so that a direct application of the 1931 product share of

eds. E. Ben-Horin, P. Arnsberg, A. Michaelis (Tel Aviv: Palnews, 1935), p. 74. ¹⁹ This is based on agricultural employment as in the 1927 census; estimated Jewish employment in the 1928 (1927) census of industries, as derived from an estimate of Arab industrial employment in an unpublished memorandum submitted by the Jewish Agency to the Royal Commission on Palestine in 1937 ("Memorandum on the Economic Structure of Palestine," p. 11); an estimate of average employment in construction based on Karpman, *op. cit.*, and a projection of employment in services from the more detailed 1922 estimate discussed below, p. 38.

services would yield almost the same result as the computation based on relative productivity.

The 1927 estimate is summarized by sector in Table 3. The severe recession of 1926–27, which worked primarily through a reduction in the volume of construction, is clearly brought out by the data (cf. Table 6).

The 1922 estimate

The 1922 exercise, which provides the initial benchmark for our series, was rather more complicated, and the estimates are liable to a higher margin of error. The main source for agricultural data is the 1922 census of Jewish agriculture, the first after the war. The census does not, however, supply any data on output, either physical or in value terms, apart from the production of milk.20 The figures which do appear refer to the agricultural population, the stock of cattle, poultry and working animals, and the pattern of land use, with detailed information on plantations (citrus, almonds, vineyards, etc.). The output of mixed farming was estimated by using the output breakdown of the 1927 census, by main items of mixed farming, projecting on 1922 with the help of various physical indicators of capacity given in the 1922 census, and finally recalculating at 1922 prices. The following illustrates some of the estimates. The output of field crops and vegetables was assumed to be determined, under the conditions of the considerable land reserve of the period, by agricultural employment and the number of working animals.²¹ The indexes (1927= 100) of these two factors for 1922 are 48 and 53. Taking 50 as an average, output in 1922 at 1927 prices was entered as half the 1927 output of field crops and vegetables, and the resultant figure was revalued at current prices using the government index of wholesale prices. The indicators available for dairy and poultry farming are milk output and the size of the poultry flock; the 1922 indexes are 27 and 21, respectively. Here the figure of 25 was adopted; the same procedure was followed for other branches of agriculture. It should be noted that the range of predictions given by the pairs of indicators is rather narrow. For orchard farming included in the mixed farming category and for citrus, the projection was based on land area figures. Investment in citrus was very small in 1922 and was ignored; investment in mixed farming was computed following

²⁰ Gurevich and Gertz, op. cit. (1938), Tables section, p. 45 and (for milk production) p. 68.

²¹ Agricultural employment was derived from agricultural population using the 1927 ratio.

the procedure adopted for the previous estimates. Value added was again assumed to be related to aggregate agricultural output by the coefficient implied in the 1936 Gaathon estimate. This probably results in a downward bias by 1922, when the pattern of Jewish agricultural production was simpler and less dependent on external inputs, but unfortunately there seem to be no firm grounds for a specific correction. It is hoped that the output figures, which could be overstated—being based on gross data of capacity, under conditions of increasing utilization of capacity—help to correct the bias.

An estimate of manufacturing output is available for 1922, or rather 1921/22; it puts the output value at LP 500,000.22 The source of this estimate is, apparently, the capital stock data of the census of trade and industry carried out by the Palestine Economic Society in Jerusalem, Jaffa and Tel Aviv, Haifa, Safed, and Tiberias.23 This estimate refers to manufacturing industry and handicrafts, and the output figure seems to be rather severely understated. Two main adjustments were considered necessary: first, to the capital stock figures; and second, to the capitaloutput ratio implicit in the estimate. In the first case, the figures were purged of non-manufacturing elements (trade and other services) and inflated for coverage, using data on industrial investments given in an article by M. Novomeysky and the capital stock figures of the 1923 census of manufacturing industry.24 The capital stock, which was put at LE 600,000 in the original Palestine Economic Society tabulations, was reduced to LE 471,000 by eliminating the services component; adjusted for coverage, the final result is LE 752,000.25 The capital stock was then disaggregated into manufacturing and handicrafts, using employment data from the Palestine Economic Society census and the capital-labor ratios in the two spheres, as given in the 1930 (1929) census of Jewish

²² Jewish Agency, Handbook, op. cit., pp. 220-21.

²³ "A Statistical Survey of Trades Industries and Liberal Professions at Jaffa and Tel Aviv," Bulletin of the Palestine Economic Society, No. 2 (October 1922),
42; Part II: Jerusalem and Part III of this census appear in later issues of the Bulletin, respectively, No. 3 (July 1923), 51 and No. 4/5 (May 1924), 49.

²⁴ M. Novomeysky, "The Industries of Palestine—Its Condition and Prospects," Bulletin of the Palestine Economic Society, No. 4/5 (May 1924), 9-31. For the 1923 census see Palestine Zionist Executive, The Third Count of Jewish Manufacturing Industry in Palestine (Jerusalem: Department of Research and Statistics, 1927; Hebrew). This source, like all the Jewish censuses of manufacturing before 1930, does not include output figures.

²⁵ The Egyptian pound was the legal currency of Palestine from the British conquest until 1927. The rate of conversion was LE 0.975/LP 1.

manufacturing.²⁶ Having estimated the capital stock manufacturing, we obtain an output figure using the 1929 ratio of capital to output. The resulting output estimate, revalued to Palestine pounds, is LP 688,000. An alternative estimate, based on the extrapolation of the 1929 output of industrial manufacturing on the basis of a wage-bill index (index of daily wages of Jewish urban workers multiplied by an index of employment in manufacturing—both series extracted from various sources and completed by own estimates) yields a very similar figure of LP 693,000. The average of the two, LP 691,000, was adopted. The output of handicrafts (LP 348,000) was entered according to the wage-bill method only, as the capital stock figures from the Palestine Economic Society census looked very dubious. The net product of manufacturing was arrived at from the output figures, using the product–output coefficients of 1929 for industrial manufacturing and handicrafts, adjusted for depreciation (see Table 12).

	Prod	uct	Employment per cent	Relative productivity	
	LP thousand	Per cent		(2)÷(3)	
	(1)	(2)	(3)	(4)	
Agriculture	321	14.3	23.4	0.61	
Manufacturing	491	21.9	21.6	1.01	
Construction	313	13.9	16.9	0.82	
Services	1,121	49.9	38.1	1.31	
All sectors	2,246	100.0	100.0	1.00	

TABLE 4. Net	Domestic 1	Product and	Emplo	yment, b	y Sector: 1922
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SOURCE: Product, see text, pp. 35-38. Employment, own estimate.

The output of construction is once again given by the building-activity index, which was pushed back past 1924 (the first year of the standard data on Jewish construction) using the available information on the activities of the building enterprises affiliated with the Histadrut: the Jewish Cooperative Labor Association and Solel Boneh (which took over the JCLA in 1924).²⁷ The output and employment data of these enter-

²⁶ It should be pointed out that the definition of handicrafts deducible from the Palestine Economic Society data is establishments employing no more than two workers other than the owner, whereas the 1929 definition is given by a total employment of four people.

²⁷ H. Viteles, "The Jewish Co-operative Movement in Palestine," Bulletin of the Palestine Economic Society, IV (No. 1, June 1929), 126-29.

prises, which were the dominant factors in the Jewish building industry, enable us to project the construction index back to 1922.²⁸ Net product was computed through an adjusted coefficient, to take care of the relatively higher proportions of road-making and other public works carried out in the Third Aliya period;²⁹ the product-output ratio was taken to be 50 per cent, against the 40 per cent used for 1927 and 1931.

As in 1927, the share of services is given by an employment estimate and the 1931 relative productivity of services. The employment estimate rests on the 1922 figure of agricultural population (and the 1927 populationemployment ratio), the employment data from the Palestine Economic Society census of manufacturing, adjusted for the omission of establishments outside the five towns, the 1922 labor census for employment in construction, and the 1916-18 census of the Jewish population of Palestine.30 This source, which includes employment data, was the basis of the estimate of employment in services: total employment in services computed by analyzing the census tables was related to the census population³¹ and the resulting ratio applied to the 1922 Jewish population, as given in the first mandatory census of Palestine.32 The resulting employment share is 38.1 per cent, which, when multiplied by the relative-productivity factor of 1931, yields a share of services in domestic product of 49.9 per cent. This concludes the estimate, which is summarized in Table 4.

The 1939 estimate

The last prewar benchmark is for 1939. Gaathon produced an estimate of the Jewish component of the 1939 estimate of national income made

- ²⁸ The 1922 estimate is based on the share of Histadrut construction employment in total Jewish employment in construction (45 per cent); for 1924 we have an estimate of the Histadrut output share (30 per cent); for 1923 the average (37.5 per cent) was entered.
- ²⁹ [This term refers to the customary loose division of immigration into 'waves' (Aliyot); between the world wars there were the Third Aliya (1919-23), the Fourth (1924-26), and the Fifth (1931-36). Ed.].
- ³⁰ Palestine Office of the Zionist Organization, Census of the Jews of Palestine, Vol. I: Judea; Vol. II: Samaria and Galilee (Jaffa: 1918-19; Hebrew).
- ³¹ An employment estimate by sector, derived from the 1916-18 census, is given by A. Nizan, "Manpower Structure of the Israel Economy," *The Economic Quarterly*, III (No. 9-10, October 1955; Hebrew), 58-66. It was, however, regarded desirable to construct the estimate from the original material.
- ³² J. B. Barron, *Report and General Abstracts on the Census of 1922* (Jerusalem: Government Printer, n.d.).

by Wood: LP 17,242 thousand out of LP 30,242 thousand for Palestine as a whole.³³ There are no special adjustments to be made to Wood's estimate, which generally appears to conform to the domestic concept of income adopted here. The only omission seems to be agricultural investment output. We therefore add to Gaathon's figure—which can be considered as based on Wood's coverage—value added originating in investment in mixed farming, according to the investment series used for the earlier years. This is a rather notional adjustment, amounting to LP 55 thousand. The net domestic product of the Jewish economy will therefore total LP 17,297 thousand.

The next step consists of the sectoral breakdown of net domestic product. The product of agriculture is obtained by extrapolating three of the 1936 components of output: no citrus investment figures are available for 1939. The output of mixed farming is extrapolated by a series for sales of Tnuva,³⁴ the marketing organization of the economy's labor sector. In the 1930s Tnuva was already the dominant factor in the marketing of mixed farming produce of the Jewish economy (milk and dairy products, eggs, poultry, vegetables, and fruit other than citrus), and its sales should be a good index of the output trends of mixed agriculture. Citrus output was extrapolated on the basis of export proceeds. These two items, together with agricultural output, which was converted to product terms by applying the 1936 ratio.

Net product of Jewish manufacturing is estimated from value added data quoted in Wood's study and information available from Ater's 1947 compilation; ³⁵ the underlying source is the 1939 census of manufacturing carried out by the government. The value added of the Jewish sector is taken to include the enterprises enumerated as Jewish in the census, plus 90 per cent of the value added of the concessions (the foreign-owned enterprises operating in Palestine on the basis of special agreements with the government—companies supplying electricity and utilizing the natural resources of the country: the minerals of the Dead Sea and salt). The percentage conveys the order of magnitude of Jewish control or ownership of this group. Depreciation is taken care of through the use of a

³³ L. Gruenbaum (Gaathon), "The National Income of Israel," Shivat Zion, Vol. I (Jerusalem: 1950; Hebrew), p. 278. See also A. L. Gaathon, "National Income," Encyclopaedia Hebraica, Vol. VI (1957; Hebrew), 729–39.

³⁴ Obtained from Tnuva reports.

³⁵ Wood, op. cit., pp. 21-22; M. Ettinger (Ater) (ed.), Book of the Economy of the Yishuv 5707-1947 (Tel Aviv: Vaad Leumi, 1947; Hebrew), pp. 20-22.

ratio deduced from the 1936 accounts; no adjustment is required for excises. It is necessary, however, to improve the coverage; the value added of Jewish handicrafts, as estimated by Wood, and 50 per cent of value added by garages (not covered by the government census) are therefore included.

The net product of construction is entered from Ater; ³⁶ this estimate agrees well with the indication given by our index of construction activity.

The contribution of services is the residual, reached after deducting the product of the three commodity-producing sectors from the total product of LP 17,297 thousand.

Table 5 sums up the 1939 estimate.

TABLE 5. Net Domestic Product and Employment, by Sector: 1939

	Product		Employment per cent	Relative productivity	
	LP thousand	Per cent		(2)÷(3)	
	(1)	(2)	(3)	(4)	
Agriculture	1,552	9.0	20.8	0.43	
Manufacturing	4,020	23.2	21.3	1.09	
Construction	1,050	6.1	7.9	0.77	
Services	10,675	61.7	50.0	1.23	
All sectors	17,297	100.0	100.0	1.00	

SOURCE: Product, see text pp. 38-40. Employment, Ofer, loc. cit.

3. The 1922-39 interpolation

Having obtained five estimates of the net domestic product, for the years 1922, 1927, 1931, 1936, and 1939, we enter the year-to-year figures by interpolation. Separate interpolation exercises are carried out for the four sectors of activity, and the resulting yearly estimates are given a sectoral breakdown.³⁷

The net product of agriculture is obtained from a series of agricultural output, which includes the four components of agricultural activity which formed the benchmark estimates: mixed farming production, mixed

³⁶ Ettinger (Ater), op. cit., p. 23.

³⁷ [The services computation and the product-output ratios used are summarized in Table 12. Ed.].

farming output used as investment, citrus production, and citrus investment. The interpolation of net product by this series implies the use of the 1936 product-output ratio throughout. Mixed farming production for the years between 1922 and 1927 is entered by grafting the yearly fluctuation of receipts of the basic agricultural tax of Palestine-the osher (tithe)-from its 1922-27 trend, on the trend of output growth between the 1922 and 1927 observations. The osher of the 1920s was a tax on gross agricultural output, at current prices, and its fluctuations round the trend (adjusted for a change in the tax rate during the period) can be considered a reasonable indicator of the composite effect of price variations and changing weather conditions.³⁸ The grafting of these fluctuations on the 1922-27 trend of output reflects the assumption that the yearly fluctuations of the output value of Jewish agriculture were affected by the price and weather factors governing the general agricultural conditions of Palestine. The 1929 figure is a contemporary estimate,³⁹ 1928 is an average of the 1927 and 1929 figures. From 1930 onward Tnuva sales are used as indicators of output.

Investment out of mixed farming output is given by the projection of the 1936 investment figure on the series of total mixed farming invesment; the same method was used for the benchmark estimates. Citrus output for 1923–26 is projected from 1927 according to an index of yearly export of citrus. The same index is used to project the 1927 output forward to 1939. Until 1929 this interpolation is based on the 1927 benchmark; from 1930 we switch to the 1936 base. From 1930 onward the export index is adjusted for changes in the Jewish share of total citrus exports. For investment in citrus plantations in the 1930s, estimates given by Horowitz are used; the series is adjusted from 1936 onward, in order to reconcile it with Gaathon's 1936 estimate; ⁴⁰ it is extrapolated backward into the 1920s through an index of new citrus plantings in the

- ³⁸ For osher receipts see K. Grunwald, "The Government Finances of the Mandated Territories in the Near East," Bulletin of the Palestine Economic Society, VI (No. 1, May 1932), 49–50. The osher rate was reduced in 1925 from 12 per cent of gross agricultural output to 10 per cent.
- ³⁹ N. Tishby (director of the Jewish Agency Department of Industry) to A. Ruppin, March 15, 1931 (Ruppin files at the Central Zionist Archives, S-55/138).
- ⁴⁰ D. Horowitz, The Economy of Palestine and Its Development, op. cit., p. 62; the Gaathon figure for citrus investments in 1936 is available from Ludwig Gruenbaum (Gaathon), Outlines of a Development Plan for Jewish Palestine (Jerusalem: Jewish Agency Economic Research Institute, 1946), Appendix, Table 3.

Jewish economy.⁴¹ This is a physical index, and it is inflated by an index of Jewish agricultural wages.

This completes the estimation of agricultural output, which is then converted to net product figures using the 1936 ratio.

The net product of industrial manufacturing is projected from 1922 toward 1927 on the basis of a weighted index of wage bill and capital stock obtained from the different censuses of Jewish manufacturing in the 1920s.⁴² These sources include employment data and figures for capital invested in the establishments; they do not carry information on output. The capital data of these inquiries have, of course, to be treated with caution as there is no information on the methods and the concept of capital used. We assume that the figures approximate current valuations of the invested capital. This assumption should not be too far-fetched, considering that the greater part of Jewish manufacturing industry existing in 1926 actually appeared during the five years for which the index is applied. Price movements were not too severe, tending downwards-the strong upward trend of the index should thus be immune from an overstating price effect.⁴³ The wage-bill index is obtained from employment figures of the censuses of Jewish manufacturing, applied to an index of nominal wages. This is constructed from data on daily wage rates of Jewish urban labor in 1922 and 1926, interpolated by the food component of the cost-of-

⁴² For summary figures of the three censuses (referring to November 1923, July 1925, and July 1926), see "Current Topics—Census of Jewish Industry," *Palestine and the Near East*, No. 8 (November 5, 1926), 297; and Palestine Zionist Executive, op. cit.

The 1922 base is built from the Palestine Economic Society census discussed earlier (pp. 36-37). The 1924 figures are interpolations based on capital and employment in Tel Aviv industries, for which yearly data are available. See Y. Siemann, "On the Economic Structure of Tel Aviv," *Mischar Wetaasia*, IV (No. 3-4, March 1, 1926; Hebrew), 77-78, and W. Preuss, "On the Productivity of Tel Aviv," *Mischar Wetaasia*, IV (No. 10, June 10, 1926; Hebrew), 279-80. The foreast and here are an endergy of the productive of the production of the production of the production of the production of the productivity of Tel Aviv," *Mischar Wetaasia*, IV (No. 10, June 10, 1926; Hebrew), 279-80.

⁴³ The figures used here are as follows:

	Capital stock	Price index
	(LE thousand)	(1936=100)
1922	695	114.6
1923	967	119.7
1924	1,200	106.7
1925	1,641	101.4
1926	1,849	99.5

The price index is for industrial equipment prices and is shown for the whole period 1922–47 in Table 3 of the next essay.

⁴¹ Jewish Agency, Handbook, op. cit., p. 179.

living index, the assumption being that the average level of wages between the two benchmarks was constant in terms of food. The 1922 and 1926 figures are weighted averages computed from frequency distributions.⁴⁴ The capital stock is assigned a weight of 0.4 in the index, and the wage bill a weight of 0.6; the output index can be considered a rudimentary production function formulated at current prices. The computed output for 1926 agrees well with the 1927 estimate, based on the government's 1928 (1927) census of industry. The net product of industrial manufacturing is derived from the the output figures through the cofficient of the 1930 (1929) census of Jewish industry, adjusted for depreciation. The 1923 output of handicrafts is derived from that of industrial manufacturing according to the 1922 proportion. The figures for 1924–26 are based on a linear interpolation of the handicrafts-manufacturing ratio between 1923 (which uses the 1922 ratio) and 1929. Value added is computed according to the 1929 handicrafts coefficient.

From 1927 onward the distinction between the two components of manufacturing is abandoned, and composite estimates of output are used, from which net product figures are derived. The 1928 output is a projection from 1927, using a wage-bill index constructed from data on wages and employment.⁴⁵ For 1929, the census results are used as the basis of the estimate.⁴⁶ The 1930 and 1932 figures are also wage-bill extrapolations, from 1929 and 1931, respectively.⁴⁷ For 1933 an industrial census is available.⁴⁸ and for the other years—apart from 1938—output

- ⁴⁴ Histadrut, *Report to the Third Congress of the Histadrut* (Excutive Committee, 1927; Hebrew).
- ⁴⁵ For wages from 1927 on see Horowitz, *Palestine Facts and Figures, op. cit.*, p. 314; and Palestine, Office of Statistics, *Statistical Abstract of Palestine 1939* (Jerusalem: Government Printer, 1939), p. 98, Table 108. Industrial employment in 1928 is taken as 1927 *plus* the 1928 addition as given by H. Frumkin, "The Labour Situation Today and Future Prospects," *Mischar Wetaasia*, VI (No. 12, October 1928; Hebrew), 239–40.
- ⁴⁶ Jewish Agency, *Report and General Abstracts 1930, op. cit.*, pp. vi-viii and pp. 24-25, Table 29 (data from Part II of the Census of Jewish Industry and Handicrafts). All census value added figures had to be adjusted to take account of depreciation and excise.
- ⁴⁷ The per cent increase in employment in 1930 is taken as represented by Tel Aviv [N. Lehman, "The Worker in Tel Aviv," *Mischar Wetaasia*, VIII (No. 14, July 15, 1930; Hebrew), 192a-192b]. The 1932 increase is available from M. Nemirovsky and W. Preuss, *The Economic Situation in Palestine at the End of 5693 (1933)* (Tel Aviv: Davar, 1933; Hebrew), p. 46.
- ⁴⁸ Jewish Agency, "Fifth Census of Jewish Industries and Handicrafts, 1933," Directory of Jewish Industry and Handicrafts in Palestine, op. cit., pp. 22-36

estimates are quoted in the literature ⁴⁹ and net product is entered using the product-output ratio of 1936. The 1938 output of manufacturing was estimated according to the index of industrial production introduced by the Jewish Agency Department of Statistics in 1938; the index starts from October 1938, and net product was computed by a projection from 1939, according to the behavior of the index in the three last months of 1938 and 1939.⁵⁰ For this purpose the net product of manufacturing of the 1939 benchmark estimate had also to be converted into output terms.

The yearly figures of value added originating in construction are entered using the construction output series mentioned in the preceding section (p. 32). The product-output ratio used in 1931 (40 per cent) is kept constant for all earlier years, with an upward adjustment (to 45 per cent) for 1923. Between 1931 and 1936, the decrease in the ratio toward the Gaathon estimate (29.7 per cent) is spread evenly over the years. The 1939 ratio, as given by a comparison of the available figure of value added and the output estimate given by the construction series, is 52.5 per cent. This is similar to the ratio appearing in Wood's 1939 estimate of the national income of Palestine. The increase from 29.7 per cent toward 52.5 per cent is spread evenly over the years between 1936 and 1939.

We are now left with the services component. This is done by adopting certain assumptions about the behavior of the share of services between the benchmark years. It should be clear that this leaves us a considerable range of possibilities in constructing the estimates; the policy, however, has been to adopt the more conservative assumptions, i.e. those which, within the bounds given by available information on the sectoral deployment of labor and on the relative productivity of services, will—on the whole—tend to reduce the yearly fluctuations of activity given by the three commodity-producing sectors. These fluctuations are still marked in the final series, even considering the openness of the Jewish economy of

and p. 33, Table III, cited in S. B. Himadeh, "Industry," Economic Organization of Palestine, ed. S.B. Himadeh, op. cit., p. 244, Table VII.

⁴⁹ For 1934 and 1935 see Erwin Wittkowski, "The Development of Industry in 1937," Palnews Economic Annual of Palestine 1938, Vol. IV, ed. Heinrich Cohn (Tel Aviv: Palnews, 1938), p. 39. The estimates originated with the Jewish Agency. The 1937 figure is taken from M. Benensohn, Balancing the National Economic Budget (Tel Aviv: School of Law and Economics, 1938; Hebrew), p. 14.

⁵⁰ Jewish Agency, "The Production Index—The Situation of Industry in June-July 1940," Bulletin of the Department of Statistics, No. 17 (September 1940; Hebrew), Table 1.

Palestine and its small size. It seems, therefore, that the services estimates do not unduly distort the net product series. The key assumption is that the share of services in net product is depressed in boom years, and increases in years of depression; in other words, that it behaves inversely to the share of construction.⁵¹ Further, it is assumed that this is achieved primarily through the fluctuations of the share of services in total employment. We emphasize again that these assumptions are used only within the bounds of choice given by the benchmark data and other information.

	Agriculture		Manuf	acturing	g Construction		Services as	
	Output	Product	Output	Product	Output	Product	of total product	
1922*	649	321	1,039	491	625	313	49.9	
1923	693	343	1,111	525	359	162	49.9	
1924	959	474	1,467	691	668	268	49.9	
1925	1,278	632	2,052	962	1,834	735	49.9	
1926	1,349	667	2,192	1,022	759	304	54.9	
1927*	1,503	744	2,300	998	332	133	60.0	
1928	1,441	712	2,498	1,084	306	122	59.9	
1929	1,887	933	2,511	1,091	472	189	59.9	
1930	1,624	803	2,859	1,241	826	331	.59.8	
1931*	1,460	722	3,133	1,416	1,065	426	59.7	
1932	2,086	1,031	3,451	1,560	1,331	505	57.7	
1933	2,986	1,476	5,352	2,419	3,661	1,313	55.4	
1934	3,099	1,532	7,104	3,157	5,325	1,801	55.4	
1935	3,489	1,725	8,593	3,819	7,655	2,431	56.0	
1936*	3,519	1,740	9,102	4,045	5,325	1,581	59.9	
1937	3,883	1,920	8,500	3,778	3,994	1,490	60.5	
1938	3,029	1,498	8,507	3,780	2,796	1,255	61.0	
1939*	3,138	1,552	9,046	4,020	2,000	1,050	61.7	

TABLE 6. Output and Net Product, by Sector: 1922–39a (LP thousand)

^a Benchmark years are marked by an asterisk. Product-output ratios for manufacturing and construction and a summary of the services share computations are shown in Table 12.

SOURCE: See text pp. 40-46.

⁵¹ This inverse relationship with construction did not hold in the war years, because of the particular conditions which depressed the volume of construction. Still, wartime prosperity did depress the share of services.

The product share of services was 49.9 per cent in 1922; 60.0 per cent in 1927; 59.7 per cent in 1931; 59.9 per cent in 1936; and 61.7 per cent in 1939 (Table 12). The 1922 share is held constant over the relatively mild 1923 depression and the 1924-25 boom years; from 1925 it is raised toward the 1927 figure, inserting the average (54.9 per cent) in 1926. Between 1927 and 1931 we adopt a straight-line interpolation; the difference between the services share in these two years is minute, and the procedure amounts to interpolation of net product through the commodityproducing sectors. The difference between 1931 and 1936 is also extremely small, but these are two independent estimates, and the share of services can be broken down into the employment share and relative productivity: 45.4 per cent and 1.31, respectively, in 1931; 49.1 per cent and 1.22, respectively, in 1936. An estimate for 1935 puts the share of services employment at 45.9 per cent,52 implying a considerable increase in 1936, presumably connected with the end of the Fifth Aliya boom in the autumn of 1935. We assume the 1931 employment share for 1932-34, and enter 45.9 per cent for 1935. For the relative productivity of services, it is assumed that the 1936 figure holds over all the Fifth Aliya period, i.e. back to 1933, averaging it with that of 1931 for the 1932 estimate. This procedure yields the 1931-35 figures shown in the last column of Table 6. The general effect is to reduce the impact of the boom of the first part of the decade, and to reduce the effect of the onset of the depression in 1936. The share of services in the 1939 estimate is 61.7 per cent, and the lack of any pertinent information together with the relative uniformity of economic conditions over the period make for a straight-line interpolation of the share between the two benchmarks.

This completes the 1922–39 estimates. Table 6 summarizes the yearly output and net product figures for agriculture, manufacturing, and construction, and the estimated share of services in net product.

4. The war years

The compilation of the estimates for the war years started with an adjustment of the Loftus figures for 1944 and 1945.⁵³ Adjustments were entered only in the services sector.⁵⁴ Half of the income received by Jewish Pales-

⁵² Z. Abramovitch, "Mechanics of the Jewish Economy," Palestine and the Middle East, IX (No. 9, September 1937), 431.

⁵³ Loftus, op. cit. (both the 1944 and the 1945 books).

⁵⁴ In an adaptation of the Loftus accounts, Gaathon reduced the net product of Jewish agriculture by 14 per cent in 1944 and by 17 per cent in 1945. He did this by replacing the Loftus figures by estimates of value added originating in

tinian soldiers was deducted from the 1944 figure; this is to allow for incomes of soldiers serving abroad (no such adjustment is required for 1945). In both years net income from abroad is deducted in order to conform to the domestic concept of activity. Finally, a major adjustment is applied to income originating in dwelling services. The introduction of rent control during the war froze rents in Palestine; given the general price movements, this resulted in a huge disparity between actual controlled rent and the equilibrium level of rent which would have balanced supply and demand.55 The Loftus estimates include income originating from the supply of dwelling services at the controlled level of rent; they are therefore considerably understated. This is corrected by assuming that the net product of dwelling services in real terms changed between 1936 and 1944-45 in proportion to the changes in the real stock of dwellings of the Jewish economy; this was estimated in conjunction with the capital stock figures (see the next essay). The net product of dwellings is then recomputed to current prices using the Jewish Agency index without its rent component.56 No further corrections seem required.

For the first four years of war separate estimates were made for the three commodity-producing sectors and for the share of services. Net product of agriculture in 1943, 1942, 1941, and 1940 is computed for two components. Product originating in mixed farming (including investment activities) is extrapolated back from 1945 by the index of Tnuva sales: the 1945 benchmark is the Loftus figure for all agriculture *minus* an estimate of the contribution of citrus, based on the Loftus output figure and on information on the input structure of citrus production.⁵⁷ We

mixed farming. These do not, however, include value added reflecting output used as investment or value added in citrus farming; the latter was positive even during the years of heavy losses to grove owners. Gaathon's corrections appear in Gruenbaum (Gaathon), "The National Income of Israel," *Shivat Zion, op. cit.*, p. 271.

⁵⁵ As a result of this development people living in leased premises acquired an asset: the discounted stream of the differences between equilibrium and controlled rents. This asset very soon became marketable, its value finding expression in the key-money paid for leased premises.

⁵⁶ Jewish Agency, Handbook, op. cit., p. 318. Without the adjustment, the net product of dwelling services would have come to 4 per cent in 1944-45; the adjustment assigns to it a weight of about 13 per cent—the 1936 weight was 11 per cent.

⁵⁷ L. Pinner and B. Shor, "Citriculture," *The Economy of Palestine in the Transition Period* (Tel Aviv: Jewish Agency Economic Research Institute, 1946; Hebrew), p. 126.

adopted the contemporary view that during the war the Jewish share in the total citrus production of Palestine was 50 per cent. The citrus net product series was carried over the earlier years, and together with mixed farming yielded the net product of agriculture.

						-
	1940	1941	1942	1943	1944	1945
A. LP thousand		100				
Agriculture	1,578	2,016	3,810	5,824	7,617	9,600
Manufacturing	5,500	8,800	16,000	21,950	25,000	29,800
Construction	820	719	1,200	969	2,700	3,600
Services	12,723	18,582	30,322	37,242	41,071	45,248
All sectors	20,621	30,117	51,332	65,985	76,388	88,248
B. Per cent						
Agriculture	7.6	6.7	7.4	8.8	10.0	10.9
Manufacturing	26.7	29.2	31.2	33.3	32.7	33.7
Construction	4.0	2.4	2.3	1.5	3.5	4.1
Services	61.7	61.7	59.1	56.4	53.8	51.3
All sectors	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 7. Net Domestic Product, by Sector: 1940-45

SOURCE: See text, pp. 46-48.

The product of manufacturing for 1940, 1941, and 1942 is taken from Ater.⁵⁸ The 1943 entry is filled by extrapolating from 1944, using the wage-bill index of Jewish manufacturing available from 1939.⁵⁹ The estimate of net product of construction for 1942 also originates from the Ater compilation; the other years are filled by interpolating over our index of Jewish building activities: 1940 from 1939, 1941 from 1942, and 1943 from 1944.⁶⁰

This leaves us with the share of services. The high 1939 share is kept constant over the depression years 1940 and 1941. From 1941 a linear interpolation is carried toward the 1944 share.

The 1940-45 estimates are set out in Table 7.

⁵⁸ Ettinger (Ater), op. cit., p. 22. The first chapter of this work consists of a summary of the national income figures for Palestine during the war years, by community and by economic sector.

⁵⁹ Jewish Agency, Handbook, op. cit., p. 230.

⁶⁰ The index itself covers only activities *within* the Jewish sector, but it is here used as interpolator, and the 1944 and 1942 benchmarks should include construction work done by Jewish firms for the government and the Allied forces.

5. The projection toward 1950

The series of estimates has now reached 1945. It is carried forward to the end of the mandatory period, and then taken up to the standard national accounts series of Israel, which starts from 1950. The benchmark of the projection is the net domestic product estimate for 1945.

The net product of agriculture is carried forward by indexes which project value added in mixed farming and citrus production separately. For mixed farming the index is given by yearly figures of Tnuva sales, linked in 1948 with an index of yearly estimates of agricultural production (excluding citrus) presented by the Central Bureau of Statistics.⁶¹ The 1945 value added of citrus is carried forward by an index of citrus production, constructed from indexes of physical production and export f.o.b. prices, with the share of the Jewish sector for the years 1946–48 still taken as 50 per cent of the total production of palestine.⁶²

For manufacturing, the extrapolation from 1945 is based on the Jewish Agency wage-bill index.⁶³ However, 1949 is given by extrapolating backward from the 1951 estimate:⁶⁴ here the official wage-bill index is discarded, and an index based on actual employment figures is substituted.⁶⁵ This follows from the fact that 1945–48 were years of more or less stable employment in manufacturing, so that the official index—based on a sample of establishments—could be considered a reasonable indicator of changes in the level of activity. The post-1948 changes require, however,

- ⁶¹ The CBS estimates appear in *Statistical Bulletin of Israel*, I (No. 1, July 1949), p. 34, Table 1 (for 1948); and in *Statistical Abstract of Israel 1949/50*, pp. 47–48, Table 1 (for 1949).
- ⁶² Production figures from Loftus, op. cit. (1945), p. 3 (for 1945); Jewish Agency, "Palestine's Economy since the End of the War," Bulletin of the Economic Research Institute, X (No. 1, 1946), 8 (for 1946); Jewish Agency, "The Position of Palestine Agriculture in 1946," Bulletin of the Economic Research Institute, XI (No. 2, 1947), 50 (for 1947); later figures from Ministry of Finance, Data and Plans (Jerusalem: Government Printer, 1953), p. 20; and M. H. Sachs, "The Citrus Industry in Israel, 1948/49," Israel Economist Annual 1949-50 (Jerusalem: 1950), p. 277.

F.o.b. prices computed from foreign trade figures (implicit average price for all citrus fruit), and for 1948 from I. Rokach, "Marketing of Citrus," *Palestine Economist Annual 1948* (Jerusalem: 1948), p. 160.

- 63 CBS, Statistical Bulletin of Israel, I (No. 2, August 1949), p. 124, Table 1.
- ⁶⁴ See the first essay in this book, Table 5.
- ⁶⁵ Employment from A. L. Gaathon, Survey of Israel's Economy 1951 (Technical Paper No. 1; CBS and Falk Project, 1959), p. 18, Table 1-6. Daily wages in manufacturing from CBS, Statistical Abstract of Israel 1949/50, p. 63, Table 5, and Statistical Abstract of Israel 1950/51, No. 2, p. 54, Table 2.

a more sensitive measure, which can reflect the huge change in total manufacturing employment.

The net product of construction is carried forward by an index computed (for 1945, 1946, and 1949) from Gaathon's figures of investment in structures and annual depreciation.⁶⁶ Two years, 1947 and 1948, are entered by extrapolation, from 1946 and 1949, respectively. The extrapolation is carried out by indexes of activity constructed from physical data (licensed building area in the first exercise, and completed area in the second) and the price index used by Gaathon.⁶⁷

	1946	1947	1948	1949	
A. LP or IL thousan	nd		1.00		
Agriculture	11,574	14,180	20,895	28,101	
Manufacturing	33,287	31,618	31,946	71,873	
Construction	7,168	10,580	9,996	25,770	
Services	57,737	65,652	86,775	166,684	
All sectors	109,766	122,030	149,612	292,428	
B. Per cent					
Agriculture	10.6	11.6	14.0	9.6	
Manufacturing	30.3	25.9	21.3	24.6	
Construction	6.5	8.7	6.7	8.8	
Services	52.6	53.8	58.0	57.0	
All sectors	100.0	100.0	100.0	100.0	

TABLE 8. Net Domestic Product, by Sector: 1946-49^a

^a The figures for Israel (1949) are for the whole economy, i.e., the non-Jewish economy is included. See also p. 27, note 2.

SOURCE: See text, pp. 49-51.

The share of services is entered using yearly estimates of the employment share and relative productivity of services. Employment shares are available for 1945 and 1947–51; 1946 was interpolated. Relative productivities were computed for 1945 and 1951, and were then interpolated

⁶⁶ A. L. Gaathon, "The Estimate of Depreciation in Israel's National Accounts," Bank of Israel Bulletin, No. 11 (January 1960), p. 46, Table 3.

⁶⁷ Ibid., p. 49, Table 6. Licensed area in Palestine in 1946 and 1947 from Palestine, Department of Statistics, General Monthly Bulletin of Current Statistics, XII (December 1947), 685. Completed area in 1948 from CBS, Statistical Abstract of Israel 1949/50, p. 59, Table 1.

linearly for the intervening years; the resulting yearly data were multiplied by the services employment share to yield the share of services in net domestic product.⁶⁸ For 1948, however, the employment figures (based on 'he 1948 census) obviously understate the services element. Consequently, the product share figure was arbitrarily raised to 58 per cent.

The estimates for 1946-49 are presented in Table 8.

Gaathon has made some rough estimates of the Jewish national income for these years.⁶⁹ Generally, our estimates are higher: by 14 per cent for 1946, and by 11 per cent for 1947. The 1948 estimates are very close—our figure is practically identical with the Gaathon estimate of the national income of Israel (including the Arab sector) 'at the end of 1948'. Our estimate is 3 per cent higher than the estimate for the Jewish sector alone.

For 1949 several estimates are available, and our figure is 20 per cent higher than the usually quoted aggregate.⁷⁰ It seems clear that—taking as given the standard series which starts in 1950—the old 1949 figure was an underestimation. On the other hand, a projection of our 1949 estimate toward 1950 yields a net domestic product figure for that year of IL 383 million. The official 1950 estimate is IL 362 million; this is an estimate from the income side, understated in comparison with the expenditure side of the accounts. The errors and omissions item—which is generally attributed to the income side—amounts to IL 41 million.⁷¹ Our projection thus agrees very well indeed with the official figure.

6. The computation at constant prices

The ideal deflation procedure for national product series computed from the product side would be 'double deflation', given by price indexes of output and inputs other than value added. Alternatively, given information on trends of technological change (and their effects on marginal productivities of labor and capital), it would be possible to deflate by indexes of factor prices. None of this information is available. Nor can

- ⁶⁸ Employment share from Ofer, *loc. cit.* (for 1945, 1947–48), and Gaathon, *Survey of Israel's Economy in 1951, loc. cit.* (for 1949–51). Product share, adjusted Loftus figures (for 1945), and the first essay in this book, Table 5 (for 1951).
- ⁶⁹ Gruenbaum (Gaathon), "The National Income of Israel," Shivat Zion, op. cit., pp. 278-81.
- ⁷⁰ IL 240 million from David Horowitz, *The Economy of Israel* (Tel Aviv: Massada, 1954; Hebrew), p. 298, Table 197.
- ⁷¹ Levy and Others, op. cit., p. 16, Table 7. The figure of IL 362 million is national income (of IL 359 million) plus net factor payments to the rest of the world.

we fall back on indexes of the final uses of domestic product, since the estimates do not cover the expenditure side of the accounts. We are left with two summary indexes, which are available from the early 1920s, the index of wholesale prices and the retail price, or cost-of-living, index. Both originate with the government; the Jewish Agency published an index of the cost of living of Jewish workers only from 1939.⁷² Both these official indexes suffer from severe shortcomings. The unweighted index of wholesale prices consists almost entirely of agricultural commodities. The cost-of-living index includes only food items, soap, and kerosene. It is based on an almost entirely non-Jewish sample of consumer budgets (114 families of government officials, mostly Arabs) and represents consumer patterns and prices rather different from those of the Jewish community.⁷⁸

Both indexes had, therefore, to be discarded, and a substitute, referring to the Jewish economy, was sought. After 1939 the Jewish Agency index referred to above was available.⁷⁴ For the early years a Jewish cost-of-living index had to be computed. The computation was made by three groups of items: food and allied items; rent; durable consumer goods.⁷⁵

The index of food prices (including soap and kerosene) was constructed using the budget analysis of the 1939 inquiry and an early exercise of the Department of Statistics of the Palestine Zionist Executive (carried out in August 1926), covering 102 families of Jewish workers in the three main towns of Palestine.⁷⁶ The two surveys yield two sets of quantity weights

- A useful discussion of the price indexes of Palestine is to be found in H. Cats, A Study of Price Indices in Palestine (Tel Aviv: By the author, 1939).
 See also A. Nizan (Zanker), The Standard of Living in Palestine (Israel) During the Last 20 Years (Special Series No. 7A; Jerusalem: CBS, 1952; Hebrew), pp. 16-30.
- ⁷³ The methodology of the index is set out in Palestine, Department of Commerce and Industry, "Report of Investigation of Cost of Living," *Commercial Bulletin*, II (No. 23, November 21, 1922), 504–507; and *Commercial Bulletin*, II (No. 24, December 7, 1922), 557–63.
- ⁷⁴ The basis of the index is set out in Jewish Agency, "Standard of Life of Jewish Urban and Rural Workers," Bulletin of the Department of Statistics, No. 12 (July 1940; Hebrew, English summary). The index numbers are given in Jewish Agency, Handbook, op. cit., p. 318.
- ⁷⁵ [The official indexes and the components of the present compilation are presented in Table 13. Ed.]
- ⁷⁶ Palestine Zionist Executive, "Report on Investigation of Cost of Living of Jewish Workers Families, August 1926," *Statistical Bulletin*, No. 14 (Jerusalem: 1927). For background material see Department of Labor file S9 1836e at the Central Zionist Archives.

to which price data can be applied. Unfortunately, we do not have sufficient yearly data on prices of food in Jewish markets in the 1920s and early 1930s. In their absence, retail prices of food published by the government must be adopted. These refer mainly to Arab or to mixed urban markets, and in some commodities (particularly dairy goods) both quality and prices could be considerably different from those prevailing in purely Jewish markets. No adjustment, however, could be made on this account. This series breaks in 1937, and is replaced by separate data on retail prices in Jewish and Arab markets.⁷⁷ The last segment of the index can therefore be based on Jewish prices. For the first seven years, 1926–32, 1926 quantity weights are used; from then on we switch to 1939 weights. The linkage between the two indexes takes place in 1933.

The next component was an index of the cost of dwelling services, i.e. rent. It was computed by dividing an index of expenditure on rent by an index of the real flow of dwelling services. This last series was represented by the stock of dwellings of the Jewish economy of Palestine (at 1936 prices) derived from our capital stock estimates, which are discussed in the next essay. The expenditure is given by projecting the estimated weights of expenditure on dwelling services on yearly net domestic product figures at current prices. The weights originate in the 1926 and 1939 consumption studies, in an earlier pilot exercise undertaken in 1925,78 the estimate of the share of rent in the 1931 product (derived from the 1930 census of wages), and the share of rent in the aggregate private consumption of the Jewish sector as in the 1936 accounts. For 1937, the weight was taken from the pattern of Jewish consumption emerging from the Benensohn study.⁷⁹ The 1933 and 1934 weights are extrapolated from 1931 by data on the change in the composition of workers' budgets in the period.⁸⁰ For all other years, interpolations are used, with the average between the 1925 and 1926 weights (15.6 per cent in the boom year 1925; 15.0 per cent in 1926, a recession year) taken back to cover 1924, 1923, and 1922. The underlying assumption of the exercise is that the weights used reflect the share of rent expenditure in private consumption and that the ratio of private consumption to net domestic product was approxi-

⁷⁷ The presentation of separate data from 1937 on can be considered as official recognition of the disruptive effect of the 1936–39 disturbances on the economic interrelations between the two national communities of Palestine.

⁷⁸ Department of Labor file S9 1836e at the Central Zionist Archives.

⁷⁹ Op. cit.

⁸⁰ W. Preuss, "Changes in Prices and the Index Problem," *Cooperative Bulletin*, II (No. 19, November 8, 1934; Hebrew), 273-74.

mately constant over the period. The behavior of the resulting index of dwelling costs is on the whole consistent with the pattern of fluctuations in the level of economic activity and with figures on the levels and movements of urban rents.

The last component of our cost-of-living index for the Jewish economy reflects the prices of durable consumer goods. Here we adopted the index of export prices of the industrial countries of Europe, as presented by Charles Kindleberger in his study of the terms of trade.⁸¹ This should reflect the fact that durables were mostly imported, or produced locally with a rather high import content.

The three indexes are now combined to produce the aggregate cost-ofliving index; this is done using weights which are averages of the 1926 and 1939 consumption inquiries.

It is interesting to compare the behavior of our construction to the two indexes of prices published by the government (see Table 13 and Figure 1). The three series move in considerable sympathy; the main difference is that the index constructed for the Jewish economy is less affected by the downward trend of agricultural prices from the early 1920s onward; and on the other hand it reflects the price effects of the Jewish economic cycles, particularly the developments connected with the Fifth Aliya boom (1934-35). From 1939 onward we use the index prepared by the Jewish agency on the basis of the 1939 budget study. This was used in Palestine and Israel until 1951, when a new index, based on the 1950/51 expenditure survey, was introduced.82 The Jewish Agency index was based on August 1939; we shifted the base to the average level of prices in 1939 and linked it-in 1939-with the series outlined above. One adjustment, however, was required here. We have already mentioned in a previous section the need to adjust the national accounts of the war years (and, by implication, the postwar accounts projected forward from 1945) for the effects of rent control, introduced in Palestine in 1940. Admittedly, this was not the only element of price administration in the war economy of Palestine, but it surely had the strongest distorting effect on the measure of economic activity of the Jewish sector. It is also relatively easy to adjust for. Following the adjustment in the national accounts, the price index should be adjusted by eliminating the rent component which reflects

⁸¹ C. Kindleberger, *The Terms of Trade* (New York: The Technology Press of Massachusetts Institute of Technology and John Wiley, 1956), pp. 22–23, Table 2–4A.

⁸² CBS, Official Statistics in Israel (Jerusalem: 1963), pp. 75-76.



FIGURE 1. Price Indexes: 1922-46

	Average popula-	Cost-of- living index (1936=100)	Product at current prices		Product at 1936 prices		
	tion ^a (thousands)		40-	Per	Ag- gregate LP thou- sand $(3) \div (2)$ (5)	Per capitab	
			gregate LP thou- sand (3)	capitab LP (3)÷(1) (4)		LP (4)÷(2) (6)	Per cent increase over pre- ceding year (7)
1922	83.8	138.2	2,246	26.8	1,625	19.4	
1923	89.7	120.6	2,056	22.9	1,705	19.0	-2.0
1924	94.9	130.4	2,860	30.1	2,193	23.1	21.5
1925	121.7	145.2	4,649	38.2	3,202	26.3	13.9
1926	149.5	132.3	4,419	29.6	3,340	22.3	-15.1
1927	149.8	126.0	4,687	31.3	3,720	24.8	11.1
1928	151.7	116.0	4,786	31.6	4,126	27.2	9.6
1929	156.5	114.2	5,512	35.2	4,827	30.8	13.3
1930	164.8	104.2	5,904	35.8	5,666	34.4	11.5
1931	174.6	95.5	6,362	36.4	6,662	38.2	11.0
1932	181.7	98.1	7,319	40.3	7,461	41.0	7.6
1933	210.7	119.1	11,677	55.4	9,804	46.5	13.4
1934	255.5	117.0	14,552	57.0	12,438	48.7	4.6
1935	322.0	110.6	18,125	56.3	16,388	50.9	4.5
1936	371.0	100.0	18,353	49.5	18,353	49.5	-2.8
1937	389.0	105.4	18,182	46.7	17,250	44.3	-10.3
1938	403.0	101.1	16,766	41.6	16,584	41.1	-7.2
1939	432.4	102.9	17,297	40.0	16,810	38.9	-5.5
1940	460.1	123.5	20,621	44.8	16,684	36.3	-6.7
1941	474.2	152.7	30,117	63.5	19,723	41.6	14.7
1942	483.6	221.7	51,332	106.1	23,154	47.9	15.1
1943	498.7	269.3	65,985	132.3	24,502	49.1	2.6
1944	522.6	274.2	76,388	146.2	27,858	53.3	8.5
1945	549.0	294.7	88,248	160.7	29,945	54.5	2.3
1946	579.1	311.5	109,766	189.5	35,238	60.8	11.6
1947	609.0	315.4	122,030	200.4	38,691	63.5	4.4
1948	671.9	400.1	149,612	222.7	37,394	55.7	-12.4
19490	1,059.0	407.8	292,428	276.1	71,709	67.7	21.6

TABLE 9. Nominal and Real Net Domestic Product: 1922-49

Census population in 1922 and 1931; end of June population in 1923-30; mean population in 1932-49.

b Calculated from less rounded figures underlying those shown.

Including the non-Jewish economy.

SOURCE: Net domestic product—Tables 6 (1922–39), 7 (1940–45), and 8 (1946–49). Population—1922–48, see Table 8 in the next essay. 1949 from CBS, Statistical Abstract of Israel 1966, No. 17, p. 20. Cost-of-living index—see Table 13 and pp. 51–54.
the controlled official level of prices of dwelling services and understates the rise of prices in the economy.⁸³ We assume, therefore, that the behavior of the cost of living in the Jewish economy from 1939 onward is given by the residual items (i.e. excluding rent) of the Jewish Agency index.

The linked 1922–49 index is now used to deflate to constant (1936) prices the net domestic product figures presented in the earlier sections. This is done in aggregate and per capita terms, and the yearly rates of growth of the per capita product are computed. The figures are set out in Table 9. Over the 26 mandatory years, 1922–47, real product per head of population increased by 227 per cent, implying an average yearly compounded rate of growth of 4.9 per cent.

7. The product estimates and monetary data

In order to check our estimates of net domestic product two main tests were carried out: the series at constant prices was related to the behavior of the economy's stocks of factors of production, and the current-price estimates were checked against monetary data. Here we present the monetary test. It consists of the computation of ratios between magnitudes reflecting the volume of economic activity and the stock of means of payment—the money supply. We expect such ratios to behave in an orderly way, i.e. to be relatively stable and to display certain features of trend and variation over the business cycle.

The exercise requires the construction of monetary series relating to the Jewish economy, and going back to the early 1920s. This has to be related to the net domestic product estimates. Yet another step is needed: the usual comparisons between money supply and indicators of economic activity in economies in which the inflows and outflows of goods and services are relatively large and unbalanced, refer not to product, but to total resources at the disposal of the economy. The justification of this procedure derives from the fact that the monetary stock is employed for the purpose of effecting *transactions*, and resources are a better predictor of the total volume of transactions than net product. The net domestic product estimates must therefore be adjusted, at the second stage of our test, for the relationships with the rest of the world. (In the case of

⁸³ The Jewish Agency index went up from 100 in 1939 to 253.4 in 1945. Food prices rose to 312.5; clothing prices to 490.0; and furniture and related items to 730.0; the item 'rent and rates' reached only 122.1; (Jewish Agency, *Handbook, op. cit., p. 318*). It should be remembered that the high weight of rent (22.4 per cent) reflects the free market situation of the 1930s.

ESTIMATES OF THE DOMESTIC PRODUCT

Palestine, the rest of the world should include, at least implicitly, the non-Jewish sectors of the economy.) The first stage of exercise will, however, be carried out in terms of net domestic product only.

Statistics of the total money supply of Palestine begin with 1936; figures of currency in circulation are available from 1928, but bank demand deposits were collected only from the later year. Another problem, from our point of view, stems from the fact that the money supply of Palestine served not only the Jewish economy, but the non-Jewish sectors as well; indeed, it served also the economy of the Emirate of Transjordan. The test to be undertaken requires a series that will both reach 1922 and be as far as possible specific to the Jewish sector. It seems that the best alternative is to use aggregate deposits of those Jewish banks for which records are available; the deposit figures were extracted from published balances, and it was impossible to distinguish between demand and time deposits. This is a disadvantage in terms of the conventional formulation of money supply, but—rather encouragingly—it was also the approach taken by M. Friedman in his great study of American monetary history.⁸⁴

From 1922 to 1935 deposits of the Jewish banks are given by data of the Anglo-Palestine Bank (the central financial institution of the economy) the Workers' Bank, and the aggregated deposits of the credit cooperatives. This accounts for about 90 per cent of total deposits in the Jewish banking system over the period. From 1936 onward we use an available breakdown of deposits in Palestinian banks, including in the Jewish sphere the Anglo-Palestine Bank, other Jewish banks, and credit cooperatives (which, although not tabulated by community, were almost entirely Jewish).

In Table 10 the deposits of the Jewish banks in Palestine are set against the net domestic product estimates. Owing to the difference between the two sets of bank deposits, the table is split into two, not strictly comparable, sections.

The ratios given in column (6) of the table display considerable stability along some segments of the series, notably 1925–32 (excluding 1931, a year which was affected by the suspension of the gold standard in September ⁸⁵)

⁸⁴ M. Friedman and A.J. Schwartz, A Monetary History of the United States 1867–1960 (National Bureau of Economic Research, New York; Princeton: Princeton University Press, 1963).

⁸⁵ The decline in bank deposits in 1931 reflects pessimistic expectations about the rate of exchange of the pound. The sharp reduction in the import surplus in face of a continuing expansion of domestic activity suggests also some flight of capital from Palestine.

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1933-35, and 1944-46. The behavior of the figures over the business cycle agrees-with one notable exception-with the expected pattern: 86 an increase in product velocity (the product-money ratio) over expansionary phases of the cycle and reductions in velocity during recessions. Thus, the ratios [column (6)] trace rather well the 1923-27 cyclical sequence and the steady expansion toward the early 1930s. During the war years, the revival of the economy from the depression of the late 1930s can be seen, and thereafter the phase of repressed inflation of the late years of the war, with the effect of the renewed 'opening' of the economy in 1946-47. The exception relates to the Fifth Aliya boom, over which the ratio is disturbingly low and in fact diminishing. This is overdramatized in our presentation, which does not adjust for the transactions effect of the inflow of resources from abroad, but-as we shall see presently-the adjustment does not eliminate the difficulty. The phenomenon reflects an important structural facet of the Jewish economy of Palestine. The business cycle was dictated by an external inflow of people and capital. Capital imports were used directly to finance import surpluses, or stored as deposits or currency in circulation to expand the monetary base of the economy. Thus, the main factor making for expansion affected at the same time the level of activity and the volume of banking deposits, the numerator and the denominator of the ratio shown in the table. Any change in the share-out of the yearly capital inflow between monetary and real uses would, of course, influence velocity, sometimes in completely uncyclical ways. This happened in the early years of the 1930s boom, as the import surplus clearly lagged behind the import of capital, in the process swelling the volume of bank deposits 87 and reducing the coefficients of column (6).

The velocities of column (6), though not unreasonable, are not very satisfactory: in 16 out of 24 cases, the yearly rate of change in velocity exceeds 10 per cent; in 7 cases it exceeds 20 per cent. The obvious way to improve the results is to adjust for the main weakness of this test—the exclusion of external flows of goods and services.

Two sources of data for an adjustment of this type are available:

⁸⁶ Friedman and Schwartz, op. cit., p. 682.

⁸⁷ According to Asher Halperin, "Palestine's Balance of Payments, 1932-1946" (unpublished Ph. D. dissertation, Princeton University, 1954), p. 376, Table XCVI, the balance on capital account as a percentage of the balance on current account came to 92, 154, and 142 in 1932, 1933, and 1934, respectively. Permission to quote from this source in gratefully acknowledged.

	Net domestic product	Capital imports	Adjustmen for expor surplus	t Resources t available to the economy	Deposits in Jewish banks ^a	Product velocity	Resources velocity	
	(1)	(2)	(3)	(1)+(2)-(3) (4)	(5)	(1)÷(5) (6)	(4)÷(5) (7)	
1922	2,246	3,821		6,067	1,320	1.70	4.60	
1923	2,056	4,147		6,203	1,370	1.50	4.53	
1924	2,860	5,522		8,382	1,580	1.81	5.31	
1925	4,649	6,762		11,411	1,915	2.43	5.96	
1926	4,419	5,013		9,432	2,063	2.14	4.57	
1927	4,687	2,917		7,604	1,975	2.37	3.85	
1928	4,786	2,891		7,677	1,959	2.44	3.92	
1929	5,512	3,423		8,935	2,215	2.49	4.04	
1930	5,904	3,683		9,587	2,411	2.45	3.98	
1931	6,362	3,225		9,587	2,295	2.77	4.18	
1932	7,319	4,569		11,888	3,397	2.15	3.50	
1933	11,677	7,681		19,358	6,628	1.76	2.92	
1934	14,552	11,093		25,645	9,150	1.59	2.80	
1935	18,125	10,836		28,961	11,332	1.60	2.56	
1936	18,353	7,079		25,432	13,021	1.41	1.95	
1937	18,182	5,541		23,723	12,342	1.47	1.92	
1938	16,766	6,388		23,154	13,756	1.22	1.68	
1939	17,297	6,868		24,165	11,625	1.49	2.08	
1940	20,621	4,824	1,060	24,385	10,204	2.02	2.39	
1941	30,117	4,496	3,625	30,988	12,998	2.32	2.38	
1942	51,332	5,408	9,109	47,631	19,914	2.58	2.39	
1943	65,985	8,238	12,432	61,791	36,626	1.80	1.69	
1944	76,388	10,231	8,831	77,788	53,385	1.43	1.46	
1945	88,248	11,780	4,230	95,798	68,118	1.30	1.41	
1946	109,766	14,710		124,476	76,736	1.43	1.62	
1947	122,030	9,755		131,785	71,750	1.70	1.84	

TABLE 10. Product, Resources, and Jewish Bank Deposits: 1922–47(LP thousand)

^a End of year figures. The series from 1936 on is not strictly comparable with the earlier data.

SOURCE: Product-Table 9.

Capital imports—Jewish Agency, Statistical Handbook of Jewish Palestine 1947 (Jerusalem: Department of Statistics, 1947), p. 375 (for 1922-44; the source data in Jewish years converted to calendar years by prorating by quarters); Palestine Economic News, III (No. 6, 1947; Hebrew) (for 1945-46); D. Horowitz, The Economy of Palestine and Its Development (rev. ed.; Tel Aviv: Dvir for Mosad Bialik, 1948; Hebrew), p. 264 (for 1947; the figure from this source chained onto the 1946 figure).

Export surplus adjustment—Jewish share in the national income of Palestine [L. Gruenbaum (Gaathon), "The National Income of Israel," *Shivat Zion*, Vol. I (Jerusalem: 1950; Hebrew), p. 278] applied to export surplus of Palestine [Asher Halperin, "Palestine's Balance of Payments, 1932–1946" (unpublished Ph. D. dissertation, Princeton University, 1954), p. 376, Table XCVI]. The national income share figures are cited in note 95 on p. 64.

Bank deposits—1922-35: Anglo-Palestine Bank deposits from Anglo-Palestine Company, *Annual Reports* (owing to changing definitions in this source we had to use a wide concept of deposits for our series). Workers' Bank deposits from B. Siew, *Money and Credit in Palestine* (Tel Aviv: By the author, 1937; Hebrew), p. 97. Credit cooperatives from *ibid.*, p. 132, the item deposits and savings; the figures are for end of September in 1922-30 and for end of June in 1934-35.

1936-46: Halperin, op. cit., p. 109, Table IX, the items Anglo-Palestine Bank; Jewish banks; and credit cooperative societies.

1947: Extrapolated from 1946 on the basis of Anglo-Palestine Company figures.

yearly figures of the import surplus of Palestine⁸⁸ and parallel estimates of Jewish imports of capital. The first source is more reliable statistically; its drawbacks are, first, the difficulty of extracting the Jewish component;⁸⁹ second, the problem of the import surplus that the Jewish economy runs *inside* Palestine with the non-Jewish sectors (the Arab economy and the government).⁹⁰ Estimates of Jewish imports of capital are certainly rough, and different sources do not always agree on the yearly magnitudes. In

⁸⁹ An estimate of the Jewish share of the 1936 import surplus is available in the Gaathon figures [Gruenbaum (Gaathon), National Income and Outlay in Palestine 1936, op. cit., Chapter IV, pp. 52-53]. No other serious attempts are known.

⁹⁰ On this problem, and on the 1936 magnitudes, see the first essay in this book, pp. 4, 6.

⁸⁸ From 1932 on, available for goods and services from *ibid.*, *loc. cit.* Before 1932, available for goods only.

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addition there is no method of estimating how much of the annual capital import was in fact used to finance the excess purchases from abroad and within Palestine.

There are, accordingly, no strong *a priori* reasons for preferring one or the other of the two indicators of net external inflow of goods and services to the Jewish economy; nevertheless, imports of Jewish capital seem preferable—the elimination of the tedious problem of allocating the import surplus between the national sectors is the main reason for our preference. Imports of capital are therefore treated as proxy for the expenditure of the Jewish economy on goods and services in excess of its annual net domestic product.⁹¹ The series of capital imports used here is that published by the Jewish Agency and based on the work of A. Ulitzur.⁹² Projected forward to 1947, it is shown in column (2) of Table 10.

One additional problem remains to be settled. During the war years, 1940–45, the economy of Palestine was running a surplus in its current balance-of-payments account. Accordingly the sum of net domestic product and capital imports (which continued to flow, albeit on a much reduced scale) would give exaggerated estimates of total resources available to the Jewish economy. They were adjusted downward by the estimated Jewish share of the current account surplus, taken as the Jewish share in the national income of Palestine, which, at 56 to 57 per cent, was almost constant over the war years.⁹³ The computation of the ratio relating

⁹¹ We bear in mind the 'percolation' of capital imports into foreign assets, chiefly via the monetary system of Palestine, which geared every monetary expansion to investment in the United Kingdom. It is assumed that this effect was not very strong, at least on a yearly basis.

After the choice was made, a computation based on the rejected alternative was also carried out. It produced a more variable coefficient.

- ⁹² A. Ulitzur, National Capital and the Building of Palestine (Jerusalem: Keren Hayesod, 1939; Hebrew), pp. 239-51.
- ⁹³ This procedure amounts to saying that imports of capital enabled the Jewish economy to maintain a level of resource use in excess of net domestic product. During the war years this excess was curtailed by the current-account export surplus of Palestine. Subtracting the Jewish share of the export surplus restores the original conditions. The estimated share used [57 per cent in 1940–42, 56 per cent in 1943–45 (see sources to Table 10)] is slightly higher than the Jewish share of the net foreign assets of Palestine at the end of 1945 (54 per cent) as estimated in Palestine, A Survey of Palestine (Government Printer, 1946), Vol. II, p. 566.

It will be noted that the *Survey* credits the Jewish sector with the ownership of LP 62 million, whereas only LP 39 million [column (3) of Table 10] were accumulated during the war. The difference is equal to the net accumulated excess

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Jewish bank deposits to the estimate of resources available to the Jewish economy (the resources velocity of deposits) is set out in column (7) of Table 10, which shows that it is more stable than the product velocity shown in column (6). The yearly rate of change exceeds 20 per cent in only 3 out of 24 cases (7, for product velocity); it exceeds 10 per cent in 13 cases (against 16 in the first experiment). Sharp changes in the coefficients are confined to the cyclical sequence of the early 1920s, the years 1938 and 1939-when a steep reduction in the volume of deposits, connected presumably with the outbreak of war, brought about an increase of velocity of 24 per cent above the depressed 1938 level-and the onset of repressed inflation in 1943. On the whole the results seem reasonable. and can be treated as a fair corroboration of the product series. The rebounds of velocity in 1923-26 suggest that our estimates for the early 1920s are-as could well be expected-the weakest of the series. On the other hand, the volatility of the coefficients should not be seen exclusively as attesting to the weakness of the estimates. The economy of the early 1920s was very small, fragile, and extremely liable to be affected by exogenous forces. The 1926-27 recession was a traumatic experience for Jewish economic, social, and political life in Palestine. It might well be argued that the violent shifts in velocity are not merely evidence of faulty estimates, but reflect very real phenomena.

The general cyclical pattern of Table 10 is, on the whole, better evident in column (7) than in column (6). The 1933–35 boom, however, is still obscured in terms of velocity, even if the decline from 1932 is less pronounced than in the first variant. Over the period, a general trend of decrease in the ratio of available resources to the monetary variable is seen, in conformity with the findings of Friedman and Schwartz on the United States.⁹⁴

Finally, another test is attempted, utilizing the figures of total money supply available since 1936. The two sets of magnitudes—net domestic product and available resources—are related, over the years 1936-47, to the money supply of Palestine. This assumes, of course, that the proportions of total money supply serving the Jewish and non-Jewish sectors stayed approximately constant over the period, a not too far-fetched

of capital imports over the import surplus. It therefore represents the percolation of Jewish resources into foreign assets during the mandatory years—a process which went on as the Jewish economy expanded and indicates a cumulative overstatement of available resources as measured here. The problem was touched on in footnote 91 above.

⁹⁴ Op. cit., pp. 679, 682, and p. 774, Table A-5.

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assumption, remembering that the sectoral shares in total product changed only slightly.⁹⁵ The data are presented in Table 11.

	Net domestic product	Resources available to the	Currency in cir- culation	Demand deposits	Money supply ^a	Product velocity (1)÷(5)	Resources velocity (2)÷(5)
	(1)	economy	(3)	(1)	(3)+(4)	(6)	(7)
	(1)	(2)	(5)	(4)	(5)	107	1.7
1936	18,353	25,432	6,206	13,675	19,881	0.92	1.28
1937	18,182	23,723	5,164	12,755	17,919	1.01	1.32
1938	16,766	23,154	4,839	12,427	17,266	0.97	1.34
1939	17,297	24,165	6,466	15,417	21,883	0.79	1.10
1940	20,621	24,385	11,662	11,939	23,601	0.87	1.03
1941	30,117	30,988	13,576	13,804	27,380	1.10	1.13
1942	51,332	47,631	18,031	21,464	39,495	1.30	1.21
1943	65,985	61,791	29,082	37,888	66,970	0.99	0.92
1944	76,388	77,788	38,249	54,571	92,820	0.82	0.84
1945	88,248	95,798	45,700	69,716	115,416	0.76	0.83
1946	109,766	124,476	47,726	83,306	131,032	0.84	0.95
1947	122,030	131,785	45,388	86,215	131,603	0.93	1.00

 TABLE 11. Product, Resources, and Money Supply: 1936–47

 (LP thousand)

^a Total Palestine. Figures are for the end of June.

SOURCE: Product and resources-Table 10.

Currency in circulation and demand deposits—1936-39, Palestine, Office of Statistics, *Statistical Abstract of Palestine*, the following issues: 1937-38, p. 120, Table 126 (1936 demand deposits); 1939, p. 121, Table 140 (1937 demand deposits); 1940, p. 128, Table 151 (1936-39 currency in circulation), and p. 129, Table 152 (1937-38 demand deposits). 1940-47, Jewish Agency, "Current Statistics," Bulletin of the Economic

Research Institute, the following issues: VI (No. 1, 1942); VIII (No. 2, 1944); and XI (No. 3, 1947).

Comparing the ratios computed in Table 11 with those of Table 10, we note the general similarity in trend of the velocities, and a significant difference in their behavior in the years 1938–40. The general trend still reflects the decrease in velocity over the depressed late 1930s, an upward movement during the warming up period of the war economy, a decrease,

⁹⁵ According to the original Gaathon data the Jewish share in the national income of Palestine was 55 per cent in 1936; 57 per cent in 1939-42; 56 per cent in 1943-46; and 55 per cent in 1947 (see sources to Table 10).

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setting in in 1943, during the later years of the war, and an increase from 1945 toward 1947. The series of Jewish bank deposits was however on the decline from 1938 to 1940, registering a sharp increase in velocity in 1939, the year in which deposits were greatly reduced, and a further increase in 1940, when the first elements of economic revival set in, on a relatively low level of bank deposits. Money supply, however, grew from 1938 to 1940. There was a heavy increase in currency in circulation which offset the decrease in deposits; in Table 11 this occurs only in 1940 and not in 1939, as the data refer to the end of June of each year, and not to the end of December; the effects of the outbreak of war in September 1939 are consequently included in the 1940 entry. The continued increase of money supply results in a decline in velocities until 1940, with 1941 the year of rebound. Thus Table 11 traces better the behavior of the cycle of Jewish economic activity, since both our estimates of domestic product (Table 9) and unemployment data indicate that only from 1940 on did the economy enter its expansionary phase.

As with the previous measurement, the behavior of the monetary data with relation to the estimate of total available resources is more orderly than with relation to product alone. Of the 11 yearly changes in coefficients, 7 exceeded 10 per cent and 2 exceeded 20 per cent in column (6). In column (7) only 3 yearly changes exceeded 10 per cent, and only one (from 1942 to 1943) amounted to more than 20 per cent. Taking into consideration the pressures of the war economy, the coefficients of column (7), displaying the Jewish-resources velocity of the money supply of Palestine, are remarkably stable and orderly, and attest fairly well to the reliability of the underlying estimates of economic activity.

	Product-ou	tput ratio	Services estimate				
	Manu facturing ^c	Construction	Product share	Er	nployment share		Relative productivity
1922*	47.3	50	49.9	=	38.1	×	1.31
1923	47.3	45)					
1924	47.1	}	49.9				
1925	46.9	J					
926	46.6		54.9				
927*	1	- 40	60.0	=	45.8	X	1.31
928	1 11		59.9				
929	43.4		59.9				
930	J		59.8				
1931*)		59.7	÷	45.4	=	1.31
932	\$ 45.2	37.9	57.7	=	45.4	X	1.27
933]	35.9	55.4	=	45.4	X	1.22
934	1	33.8					
1935		31.8	56.0	=	45.9	X	1.22
936*	1	29.7	59.9	÷	49.1	=	1.22
937	6 44.4	37.3	60.5				
938	1	44.9	61.0				
1939*	J	52.5	61.7				

TABLE 12. Summary of Product Series Computations:^a 1922–39^b

^a This table was prepared by the editor in accordance with the recorded intention of the author.

b Benchmark years are marked by an asterisk.

For 1922-30 the ratio is from the 1929 compilation; for 1931-33, from the 1933 data; and for 1934-39 from the 1936 data.

NOTES: A. Agriculture

The basic compilation was for output throughout, and product was estimated by applying the 1936 product-output ratio (49.4 per cent). The estimates are described in detail in the text, as follows: pp. 35-36 (1922); p. 33 (1927); pp. 30-31 (1931); p. 39 (1939); and pp. 40-42 (interpolation of other years).

B. Manufacturing

Both output and product estimates were compiled from the sources for 1929, 1933, and 1936. The basic compilation or projection was for output in 1922–28, 1930, 1934–35, and 1937; and for product in 1931–32 and 1938–39. The 1929, 1933, and 1936 product-output ratios were applied to output (product) to give product (output) as indicated in note c of the table. (For 1922–26, the computation, using the 1929 ratio, was done separately for manufacturing industry and handicrafts, and the resulting weighted average ratio accordingly varies slightly from year to year.)

The following adjustments were made to the crude product-output ratio derived from the sources:

- 1922-26: The 1929 ratios for manufacturing industry (47.8 per cent) and handicrafts (57.5 per cent) both adjusted for depreciation by a coefficient of 0.927.
- 1927-30: The 1929 ratio of 49.5 per cent adjusted by a coefficient of 0.877 (the ratio of net value added to census value added from the 1931 compilation).
- 1931-33: The 1933 ratio of 54.3 per cent adjusted by a coefficient of 0.832 (the ratio of product to census value added deduced from the 1936 accounts).

The estimates are described in detail in the text, as follows: pp. 36-37 (1922); pp. 33-34 (1927); p. 31 (1931); pp. 39-40 (1939); and pp. 42-44 (interpolation of other years).

C. Construction

The basic compilation was for output throughout, with product derived by applying the product-output ratios shown. The ratios for 1922 and 1931 are discussed in the text; the 1936 ratio is derived from the benchmark compilation; and the 1939 figure is derived from the benchmark product figures and the output series.

The 1923 figure is the mean between the 1922 and 1931 ratios; for 1924-30, the 1931 ratio is used; for 1932-35 and 1937-38, the ratios are linear interpolations between 1931 and 1936, and between 1936 and 1939, respectively.

The estimates are described in the text as follows: pp. 37-38 (1922); p. 34 (1927); p. 32 (1931); p. 40 (1939); and p. 44 (interpolation of other years).

D. Services

Figures in **bold** type are those used in making the estimates for other years (as end-points for interpolation or in computations).

The components of the calculations were derived as follows:

Employment share: 1922, 1927, 1931, and 1936 from Tables 4, 3, 2, and 1, respectively; 1935 from the source cited in the text, p. 46, note 52. The 1931 figure is used for 1932–33.

Relative productivity (ratio of product share to employment share): the 1931 ratio is applied to 1922 and 1927; the 1936 ratio is applied to 1933-35; the arithmetic mean of 1931 and 1936 ratios is applied to 1932.

Product share: 1931, 1936, and 1939 are benchmark estimates explained in the text and shown in Tables 2, 1, and 5, respectively. 1922, 1927, 1932-35 computed according to relative productivity as indicated; the 1922 share is applied to 1923-25; the 1926 figure is the arithmetic mean of the 1922 and 1927 shares; 1928-30 and 1937-38 are linearly interpolated between benchmark product shares.

The estimates are described in the text, as follows: p. 38 (1922); pp. 34-35 (1927); pp. 33-34 (1931); p. 40 (1939); pp. 44-46 (interpolation of other years).

	Cost-o	f-living (o	wn comp	Gov	ernment	indexes		
	Food	Rent	Export prices	Weighted index	Retai	l prices	Wholesale prices	
	(0.69)	(0.22)	(0.09)	(1.00)	All Jewis markets marke		h Is	
1922	157.7	87.5	112.6	138.2	156.6		157.4	
1923	136.2	70.5	123.5	120.6	135.6		132.7	
1924	144.2	90.6	122.7	130.4	141.0		134.0	
1925	152.0	131.7	125.2	145.2	148.8		143.6	
1926	147.0	92.6	116.8	132.3	145.6		136.5	
1927	138.8	90.2	116.0	126.0	136.5		130.1	
1928	124.9	88.5	114.3	116.0	127.5		126.6	
1929	119.6	98.2	111.8	114.2	119.7		117.6	
1930	105.7	99.1	105.0	104.2	106.0		99.4	
1931	96.1	97.0	88.2	95.5	95.6		90.7	
1932	94.8	119.5	71.4	98.1	97.9		98.1	
1933	100.1	193.1	83.2	119.1	94.9		96.5	
1934	98.9	179.9	102.5	117.0	95.4		96.2	
1935	98.4	152.9	100.8	110.6	94.7		96.5	
1936	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
1937	107.7	99.1	103.4	105.4	104.8	104.8	107.4	
1938	105.4	86.5	104.2	101.1	99.4	102.6	101.0	
1939	107.0	88.1	107.3	102.9	101.3	104.3	100.3	
1940				123.6	118.4	118.8	124.4	
1941				152.7	160.2	153.5	169.9	
1942				221.7	183.7	194.8	247.8	
1943				269.3	222.9	234.3	302.2	
1944				274.2	231.5	239.4	319.2	
1945				294.7	244.9	254.6	319.4	
1946				311.5	254.5	263.7	332.2	
1947				315.4				
1948				400.1				
1949				407.8				

TABLE 13. Price Indexes: 1922–49^a (1936 = 100)

^a This table was prepared by the editor in accordance with the author's recorded intention.

SOURCE: Wholesale prices—1922-42, Palestine, Department of Statistics, Statistical Abstract of Palestine 1944-45 (Jerusalem: Government Printer, 1946), p. 110, Table 1.

1942-44, Jewish Agency, *Statistical Handbook of Jewish Palestine 1947* (Jerusalem: Department of Statistics, 1947), p. 325.

1944-46, Jewish Agency, "Current Statistics," Bulletin of the Economic Research Institute, XI (No. 3, 1947), 95.

Retail prices (all markets)—1922-41, Statistical Abstract of Palestine, op. ctt., p. 119, Table 6. The series in this source breaks at 1936/1937, and is linked at this point according to Jewish Agency, Handbook, op. cit., p. 317.

1942-46, *ibid.*, p. 320 (1942-45) and Jewish Agency, *Bulletin of the Economic Research Institute, loc. cit.* (1945-46), linked to the series on 1939; the Jewish Agency shows the government figures on the base August 1939, and it was here shifted to average 1939 according to *Statistical Abstract of Palestine, loc. cit.*

Retail prices (Jewish markets)-1936-37, according to the 'all markets' index.

1937-41, Jewish Agency, Handbook, loc. cit.

1942-46, linked on 1939 as described for the 'all markets' index, and from the same source. [Conversion of the 1939 base from August to average for the year according to Palestine, Office of Statistics, *Statistical Abstract of Palestine 1940* (Jerusalem: Government Printer, 1940), p. 115, Table 137.]

Cost-of-living index (own compilation)—1922–39, see text, pp. 52–54. Owing to problems of comparability, the movement from 1938 to 1939 is taken not from our weighting system but from the index of retail prices (Jewish markets) in *Statistical Abstract of Palestine 1940, loc. cit.*

1939-49, the Jewish Agency's cost-of-living index (August 1939=100) from Jewish Agency, *Handbook*, op. cit., p. 318 (for 1939-46); CBS, Statistical Bulletin of Israel, I (No. 1, July 1949), 59, Table 1 (for 1947-48), and *ibid*. (No. 8, August-September 1950), 561, Table 2 (for 1949). The rent component of the index was excluded using a weight of 0.224 for rent, and the result linked on 1939. Conversion of the 1939 base from August to average for the year was according to Jewish Agency, *Handbook*, op. cit., p. 317, assuming that only the food component was affected (i.e., that there was no change in the index between August 1939 and average 1939 for non-food items).

ESTIMATES OF THE CAPITAL STOCK OF THE JEWISH ECONOMY OF PALESTINE: 1922–47

1. The available estimates

Studies of the capital stock of mandatory Palestine are—predictably fewer and less rigorous than studies of national accounts. Nothing comparable to the comprehensive work of Gaathon or to the national income investigations of the government statisticians is available. Our figures of capital will thus be more rough than the product estimates presented in the preceding essay.

Three sources of capital stock figures exist. The Government of Palestine included an estimate of the capital assets of the Jewish and Arab economies in 1945 in the *Survey* it prepared for the Anglo-American Committee of Inquiry.¹ A. W. Duesterwald-Doroth did a large amount of work on the capital stock of Palestine and Israel, and in several of his publications there are estimates of the capital stock of the Jewish and non-Jewish sectors: for 1920/22, 1930, 1939, and 1944, and in later years for the Jewish economy alone.² An estimate for 1937 appears in M. Benensohn's study of the macro-economic structure of the Jewish sector.³

All these sources have been scrutinized and compared, in order to discover their definition of capital stock, methods of estimation, and solution of pricing problems. What we sought to obtain were estimates of the stock of reproducible assets of the Jewish economy, if possible by type of asset or by sector of employment, net of depreciation or discards, and computed at clearly defined prices.⁴

¹ Palestine, A Survey of Palestine (Government Printer, 1946), Vol. II, pp. 563-69.

- ² The relevant papers by Duesterwald-Doroth are: "National Wealth in Israel" (mimeographed as manucript; Tel Aviv: 1948/49; Hebrew with English); Table 2 (Hebrew) contains an adjustment of the estimate given in A Survey of Palestine, loc. cit. "The National Wealth of Israel," Israel Economic Bulletin, VI (supplement to No. 5/6, February-March 1954). "National Wealth," Encyclopaedia Hebraica, VI (1957; Hebrew), 740-44. "Ten Years Development of Israel's National Weath," reprinted from The Israel Yearbook 1958 (Tel Aviv: Israel Publications, n.d.).
- ³ M. Benensohn, *Balancing the National Economic Budget* (Tel Aviv: School of Law and Economics, 1938; Hebrew).
- ⁴ This definition would make the figures conceptually comparable to the capital stock estimates of Israel; see A. L. Gaathon, *Capital Stock, Employment and*

The government estimate for 1945 was discarded on conceptual grounds. Some of the Duesterwald-Doroth figures seem acceptable; others however do not, and the lack of sectoral breakdowns and adequate explanations of sources and procedures makes any evaluation difficult. The Benensohn 1937 estimate, on the other hand, can be better tested and compared with other data, even if the methods of estimation are not entirely clear and the results rather crude. Benensohn's capital stock estimate (LP 47,596 thousand, see Table 1) is accompanied by a national income figure of LP 17,994 thousand that agrees well with the original Gaathon estimate for 1936, and even better with our net domestic product figures for 1936 and 1937.5 The capital-product ratio computed from his figures (2.6) falls within the expected range. Finally, the sectoral structure of the capital stock is consistent with the structure of product and closely resembles that of the economy of Israel in the 1950s.6 Benensohn stresses the point that his figures relate to reproducible capital only, and his discussion leaves the impression of a good approximation to present-day concepts. It was therefore decided to adopt the Benensohn estimate as a benchmark for our capital stock estimates and to move forward and backward from this benchmark using investment series prepared at current prices and subsequently recomputed to constant (1936) prices. The series relate to gross investment, and the net changes in the stock of reproducible assets are worked out through the use of discard figures: different categories of assets have been assigned assumed lengths of economic life, at the end of which they are removed from the capital stock. The discard of a given year (to be deducted from the gross investment in order to obtain the net increase in capital stock) is therefore given by past investments. This procedure, however, creates a problem for the earlier-pre-1936-period wherever discard figures should have included assets created before 1922, the first year of the inquiry.7 It was found impossible to reconstruct the

Output in Israel: 1950–1959 (Special Studies No. 1; Jerusalem: Bank of Israel Research Department, 1961). Some problems of territorial coverage would still remain, however.

⁵ Benensohn's national income figure from *op. cit.*, p. 22. The original Gaathon estimate of LP 19.0 million from Ludwig Gruenbaum (Gaathon), *National Income and Outlay in Palestine 1936* (Jerusalem: Jewish Agency Economic Research Institute, 1941); our own product estimates (LP 18.4 million in 1936 and LP 18.2 million in 1937) from column (3) of Table 9 in the preceding essay.

⁶ Table 6 in the first essay in this book.

⁷ In the case of dwellings this is also a problem in the later years, but it is then quite manageable (see p. 80).

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yearly investment net of discards and to arrive at a direct estimate for the beginning of 1922. Instead, a synthetic benchmark had to be constructed for that year, at 1936 prices. This was done for three main uses of capital: dwellings, manufacturing, and agriculture, with an allowance for the residual. The estimate of the stock of dwellings assumes that the real volume of dwellings per head of population doubled between the beginning of 1922 and 1937; a Jewish construction series confirms this assumption. Dwelling assets are obtained by applying half of the 1937 per capita stock (IL 33.4, based on the Benensohn estimate) to the 1922 Jewish population

	Thousands	of 1936 LP	Per cent		
	1922	1937	1922	1937	
Agriculture	1,554	10,446	30.7	21.9	
Manufacturing	462	8,500	9.1	17.9	
Dwellings	2,799	26,000	55.4	54.6	
Other services	241	2,6506	4.8	5.66	
Total	5,056	47,596	100.0	100.0	

TABLE 1. Stock of Fixed Reproducible Capital, by Sector: 1922 and 1937^a

Figures in this and subsequent tables refer to the Jewish economy of Palestine unless otherwise specified.

b Includes LP 250,000 capital of building industry (see p. 17 of source).

SOURCE: 1922, see text; 1937, M. Benensohn, Balancing the National Economic Budget (Tel Aviv: School of Law and Economics, 1938; Hebrew), p. 18 (agriculture); p. 14 (manufacturing); p. 15 (dwellings); pp. 17, 19-20 (services).

(Table 8). The capital stock of agriculture was computed using the 1937 capital-product ratio.⁸ This was projected on the 1922 product estimate, and the resulting capital figure revalued at 1936 prices, using our index of citrus investment prices (Table 3). The capital assets of manufacturing (including handicrafts) are obtained, at current prices, from the work done on the 1922 product estimate; they are based on the Palestine Economic Society survey. We convert them to 1936 prices through a price index of investment in industrial equipment. This index is also explained later (pp. 77–79). Finally, other items, mainly services capital, are assumed to add

⁸ Computed from Benensohn's stock figure (Table 1) and our product figure (Table 6 in the preceding essay).

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5 per cent to the estimate. This is arbitrary, but rests on the proportion of capital assets other than dwellings, agriculture, and manufacturing in the Benensohn estimate: 6 per cent of these three categories. The 1922 proportion should be somewhat smaller, since the economy was less diversified.

Computed in this way, the 1922 estimate of capital stock (at 1936 prices) amounts to LP 5,056 thousand, and is almost identical with the 1920/22 Duesterwald-Doroth figure of LP 5 million (at 1937/38 prices).⁹

The two benchmark estimates are presented in Table 1, by three sectors of employment of capital, with other services as the residual category, which, in 1937, includes the assets employed in construction. The estimates are assumed to be net of discards.

2. The investment series

The next step consists of the preparation of series of yearly investments of the Jewish economy of Palestine, first at current and then at constant prices.

Current prices

Six investment series were compiled, the first five being used in the estimate of the stock of fixed reproducible assets: structures; citrus orchards; investment in mixed farming; industrial equipment; transport and miscellaneous services. The sixth item—not included in the further steps—was acquisition of land. These series should cover the great majority of investments in fixed assets by the Jewish sector. It should be stressed that they do not include government investment which could have been allocated to the Jewish sector on grounds of benefit and use.¹⁰

The five series were derived as follows. Investment in structures (dwellings, other buildings, and public works) for the period 1922–39 are given by the output of the Jewish construction sector. From 1940 a considerable proportion of the output of Jewish construction represents 'exports' of structures out of the Jewish economy, to the government and the Allied armed forces. For 1945 and 1946 detailed estimates are

^o Duesterwald (Doroth), "National Wealth in Israel," op. cit., Table 1 (English).

¹⁰ In 1936 the gross capital formation figure given in our series covers 86 per cent of the Gaathon figure as it appears in our input-output formulation (Table 1 in the first essay of this book) adjusted by excluding government investment benefiting the Jewish economy. Taking into account the great detail of the Gaathon estimate and the fact that for 1923–36 the investment series are used only as interpolators, this coverage can be considered reasonable.

	Struc- tures ^a	Citrus	Mixed farming ^b	Manu- factur- ing equip- ment	Transport Land and miscel- laneous services		Total (1) through (6)	Total excluding land
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1922	625	-	101	167	323	517	1,733	1,216
1923	359	29	103	148	350	173	1,162	989
1924	668	31	123	173	466	201	1.662	1,461
1925	1,834	32	143	282	571	870	3,732	2.862
1926	759	324	145	251	352	159	1,990	1,831
1927	332	387	163	192	205	98	1.377	1,279
1928	306	406	89	201	203	79	1,284	1,205
1929	472	879	83	290	240	342	2,306	1,964
1930	826	840	113	337	307	137	2,560	2,423
1931	1,065	600	113	274	268	136	2,456	2,320
1932	1,331	1,200	67	249	200	149	3,196	3.047
1933	3,661	1,800	117	670	300	855	7,403	6,548
1934	5,325	1,500	83	1,374	700	1,648	10,630	8.982
1935	7,655	1,180	93	1,410	650	1,699	12,687	10,988
1936	5,325	1,000	167	789	550	159	7,990	7,831
1937	3,994	790	167	1,011	600	393	6,955	6,562
1938	2,796	100	267	746	725	175	4,809	4,634
1939	2,000	-	300	972	620	382	4,274	3,892
1940	1,519	-	252	512	527	182	2,992	2,810
1941	1,331	-	222	305	430	42	2,330	2,288
1942	2,222	-	320	471	683	-53	3,643	3,696
1943	1,795	-	578	450	638	776	4,237	3,461
1944	5,000	-	909	1,069	676	940	8,594	7,654
1945	6,667	100	833	960	553	1,341	10,454	9,113
1946	13,200	200	1,000	3,500	1,800	1,375	21,075	19,700
1947	22,146	-	1,158	5,000	2,839	420	31,563	31,143

 TABLE 2. Gross Domestic Fixed Capital Formation: 1922–47 (LP thousand)

^a Dwellings, other buildings, and public works.

b Adjusted to exclude rural structures included in column (1).

SOURCE: See pp. 73-76.

available which allow the elimination of outside sales; ¹¹ the 1945 figure is projected back toward 1940 by the net product of Jewish construction.

¹¹ A. L. Gaathon, "The Estimate of Depreciation in Israel's National Accounts," Bank of Israel Bulletin, No. 11 (January 1960), p. 48, Table 4. We have here included the items industrial structures; buildings and public works in towns; and—by assumption—two thirds of the item mixed farms.

For 1947, it was assumed that the external sales of construction are one half of those of 1946.

Investment in citrus orchards has already been estimated for the purpose of recording the output of agriculture. So has investment in mixed agriculture, available from Jewish Agency sources for the 1930s, and computed for the 1920s and the war years by a regression equation,¹² relating the agricultural investment of the Jewish Agency in the 1930s to investment in mixed farming. This series is carried forward to 1947.¹³ These figures include, however, investment in rural structures which is already accounted for in the structures category. This has to be adjusted for; after scrutiny of the mixed farming investment series and other available data (imports of agricultural and irrigation equipment, imports of cattle and working animals, and the series of mixed farming investment out of agricultural output) it was decided that over the years 1922–31 only one quarter of mixed farming investment is accounted for by items other than structures, and one third for the years since 1931.

Figures of Jewish investment in industrial equipment since 1943 are available from Gaathon's study.¹⁴ They are carried back to 1922, extrapolated by yearly data of imports of industrial machinery extracted from the foreign trade statistics of Palestine.¹⁵ Estimates of industrial investment were produced—for the 1930s and, by grouped years, for the 1920s by the Jewish Agency. However, they cover industrial construction, not only equipment, and their inclusion would imply double-counting of the relevant construction items. This, in addition to the preference for own estimates based directly on Gaathon's careful figures and official foreign trade data, over the unchecked estimates of the Jewish Agency.¹⁶

- ¹² See p. 30, note 10, in the preceding essay.
- ¹³ For investment in mixed farming in 1945 and 1946 see Gaathon, "The Estimate of Depreciation," loc. cit. The 1947 estimate is constructed from Gaathon's constant-price series of agricultural equipment investment (Capital Stock, Employment and Output, op. cit., p. 87, Table A-1): the real increase from 1946 to 1947 was multiplied by our price index for mixed farming investment (Table 3).
- ¹⁴ Gaathon, "The Estimate of Depreciation," op. cit., p. 50, Table 7.
- ¹⁵ Palestine, Office of Statistics, Statistical Abstract of Palestine, various issues (for 1927-43); Memoranda Prepared by the Government of Palestine for the Use of the Palestine Royal Commission (Jerusalem: Government Printer, n.d.), Vol. I, p. 178, Table 12 (for 1925-26); Palestine, Department of Commerce and Industry, Commercial Bulletin (May 25, 1923) (for 1922 and 1924). The 1923 figure was interpolated according to total imports.
- ¹⁶ For these estimates see D. Horowitz, The Economy of Palestine and Its Development (rev. ed.; Tel Aviv: Dvir for Mosad Bialik, 1948; Hebrew), pp. 19, 24. For

The option of two different sources was not open in the case of investment in transport and other services. Here Jewish Agency data were used for all years until 1939.¹⁷ From 1939 forward extrapolation by imports of transport equipment was adopted.

This brings us to the sixth and last series, which was not included in the estimates of the reproducible capital stock: land acquisitions. Yearly figures of net Jewish purchases of land were extracted from various sources of the Jewish Agency.¹⁸

The estimated yearly gross investment is set out in Table 2.

Constant (1936) prices

Five of the six investment series given in Table 2 have now to be converted to 1936 prices in order to construct the required capital stock estimates. Four deflators were prepared for this purpose.

Investment in structures was deflated by an index of building costs. The 1922–39 segment of the index is based on data for building costs in 1925, 1927, 1929, 1931–34, and 1936 contained in a contemporary study.¹⁹ These were compared with a weighted index of Jewish construction wages and the government index of wholesale prices—representing, respectively, the labor and materials inputs into construction. There was good agreement between the two for the 1920s, and the weighted index was used for 1922–24, 1926, 1928, and 1930. For all the other years until 1936 the available Kahn-Naphtali figures were used with 1935 entered by interpolation, given by wages of Jewish labor in construction. The 1937–39 index numbers were again taken from the weighted index of labor costs and wholesale prices. In 1939 the series was linked with the index of building costs used by Gaathon.²⁰

the 1920s, see *idem*, *Palestine Facts and Figures* (Tel Aviv: Jewish Agency Economic Department, 1947), p. 407.

¹⁷ The grouped investment figures for the 1920s (Horowitz, *Palestine Facts and Figures, loc. cit.*) were allocated by year according to weights obtained from yearly estimates of capital imports.

¹⁸ Jewish Agency, Statistical Handbook of Jewish Palestine 1947 (Jerusalem: Department of Statistics, 1947), p. 135 (for 1922-44); Jewish Agency, "Current Statistics," Bulletin of the Economic Research Institute, XI (No. 3, 1947), 94-95 (for 1945-47).

¹⁹ E. Kahn and F. Naphtali, "The Economic and Financial Requisites for Cheaper Rents," *Housing in Jewish Palestine* (Jerusalem: Jewish Agency Economic Research Institute, 1938), pp. 147–48.

²⁰ "The Estimate of Depreciation," op. cit., p. 49, Table 6.

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The second basic index was for prices of industrial equipment, ormore exactly—of imported capital goods. The index was based, over the 1922–38 segment, on prices of capital goods in the three major suppliers

	Construc- tion	Equipment	A gric inves	ultural stment	Implicit index	Index of wholesale	Cost-of- living
		(2)	Citrus	Mixed farming	menta	prices	(Jewish economy)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1922	128.0	114.6	111.5	114.4	121.1	157.4	138.2
1923	108.6	119.7	98.7	110.4	113.8	132.7	120.6
1924	110.9	106.7	102.2	105.6	108.5	134.0	130.4
1925	121.7	101.4	106.5	105.1	113.8	143.6	145.2
1926	112.0	99.5	97.7	99.7	104.0	136.5	132.3
1927	110.3	99.2	92.5	96.9	99.3	130.1	126.0
1928	105.7	99.6	96.5	99.1	99.9	126.6	116.0
1929	96.1	101.1	97.5	100.0	98.2	117.6	114.2
1930	92.7	100.3	99.4	100.6	97.3	99.4	104.2
1931	86.5	99.4	94.6	97.8	91.8	90.7	95.5
1932	82.5	108.4	95.6	105.1	91.0	98.1	98.1
1933	103.7	105.2	100.0	104.5	102.9	96.5	119.1
1934	111.9	97.6	107.1	101.6	107.4	96.2	117.0
1935	102.7	99.9	105.3	102.1	102.4	96.5	110.6
1936	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1937	102.9	103.7	99.1	102.1	102.6	107.4	105.4
1938	98.0	102.0	97.2	100.3	99.4	101.0	101.1
1939	94.1	120.8	105.2	115.6	105.1	100.3	102.9
1940	94.1	135.3	94.1	120.3	108.5	124.4	123.6
1941	131.7	144.2	105.1	130.3	135.3	169.9	152.7
1942	150.6	168.5	185.9	173.6	157.7	247.8	221.7
1943	207.0	197.9	352.3	241.7	209.1	302.2	269.3
1944	263.5	204.1	352.6	243.4	244.8	319.2	274.2
1945	282.3	224.8	352.5	243.0	267.6	319.4	294.7
1946	301.1	210.3	387.3	268.3	268.8	332.2	311.5
1947	319.9	263.5	395.1	284.8	302.2		315.4

TABLE 3. Price Indexes for Investment: 1922-47(1936=100)

a Total [Column (8)] of Table 2 divided by total of Table 4.

SOURCE: Investment indexes, see pp. 76-79.

Cost-of-living index and index of wholesale prices, Table 13 in the preceding essay.

of Palestine: the United Kingdom, Germany, and the United States. The price indexes of Germany and the United States were adjusted for

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variations in the rate of exchange with the pound sterling, and the three series were weighted according to the share of each country in imports of machinery to Palestine. From 1939 onward only the United States index was used.²¹ To allow for the local input component in the installation,

	Structures	Citrus	Mixed farming	Manufac- turing equipment ^a	Transport and miscel- laneous services ^a	Total
1922	488	-	88	146	282	1,004
1923	331	29	93	124	292	869
1924	602	30	116	162	437	1,347
1925	1,507	30	136	278	563	2,514
1926	678	332	145	252	354	1,761
1927	301	418	168	194	207	1,288
1928	289	421	90	202	204	1,206
1929	491	902	83	287	237	2,000
1930	891	845	112	336	306	2,490
1931	1.231	634	116	276	270	2,527
1932	1.613	1,255	64	230	185	3,347
1933	3,530	1,800	112	637	285	6,364
1934	4,759	1,401	82	1,408	717	8,367
1935	7,454	1,121	91	1,411	651	10,728
1936	5,325	1,000	167	789	550	7,831
1937	3,881	797	164	975	579	6,396
1938	2.853	103	266	731	711	4,664
1939	2.125	-	260	805	513	3,703
1940	1.614	-	209	378	390	2,591
1941	1.011	-	170	212	298	1,691
1942	1,475		184	280	405	2,344
1943	867	-	239	227	322	1,655
1944	1.898	-	373	524	331	3,126
1945	2,362	28	343	427	246	3,406
1946	4,384	52	373	1,664	856	7,329
1947	6.923	-	407	1,897	1,077	10,304

 TABLE 4. Real Gross Domestic Fixed Capital Formation: 1922–47 (thousands of 1936 LP)

a Deflated by index for equipment.

SOURCE: Data of Table 2 divided by appropriate price index in Table 3.

²¹ The U.K. index of prices of capital goods [James B. Jefferys and Dorothy Walters, "National Income and Expenditure of the United Kingdom, 1870-1952," *Income and Wealth*, series V, ed. Simon Kuznets (London: Bowes and Bowes, 1955), p. 40, Table XVI(A)] was carried back from 1924 to 1922 over the Board of Trade index of wholesale prices of iron and steel [Great Britain, Board

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and to some extent the fabrication, of equipment in Palestine, the price index of imported capital goods was weighted with an index of Jewish industrial wages. This was the procedure adopted by Gaathon in his depreciation study. For 1943–47 Gaathon's weights—ranging between 10 and 28 per cent, with 28 per cent in 1943—were used; ²² from 1943 back the local weights were progressively scaled down, and from 1940 they were kept at 10 per cent.

This index was used to deflate both the manufacturing equipment and the transport and miscellaneous services series, the assumption being that the latter also consists largely of imported equipment or of items based on imported components. The relatively high local weights adopted by Gaathon for the war years should account for the considerable expansion of production of equipment and other capital goods in Palestine during that period.

The two other indexes, relating to agricultural investment (citrus and mixed farming), consist of combinations of wage indexes of Jewish agricultural labor with the index for equipment, which should allow for agricultural machinery, irrigation equipment, and similar items. The deflator of citrus investment has a 10 per cent equipment weight throughout, 90 per cent being assigned to local labor costs. In the index used to deflate investment in mixed farming the labor weight is much smaller, ranging between 37 and 50 per cent.

The four deflators are presented in Table 3, alongside two other price indexes: the government wholesale index and the Jewish sector cost-of-living index which was used to deflate net domestic product.²³ The series of gross capital formation at 1936 prices are set out in Table 4.

of Trade, Statistical Abstract for the United Kingdom, 1913 and 1921 to 1934 (London: HMSO, 1936), No. 79, p. 238, Table 163]. German indexes of wholesale prices of machinery from Statistiches Jahrbuch für das Deutsche Reich 1932, p. 257; and from Statistisches Jahrbuch für die Bundesrepublik Deutschland 1954, p. 441; the German figures were included only from 1924. The U. S. index used was the implicit deflator of producer durables [United States, Department of Commerce, Survey of Current Business, XLV (No. 8, August 1965)]; this series starts in 1929 and was projected back to 1922 by the index of wholesale prices of metals and metal products [United States, Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1957 (Washington: U. S. Government Printing Office, 1960), p. 116]. Adjustment for rate of exchange—including the discount on German marks for emigrant transfers (under the Ha'avara transfer arrangement)—according to data from various issues of League of Nations, Statistical Yearbook.

²² Gaathon, "The Estimate of Depreciation," op. cit., p. 51, text and Table 8.

²³ See the preceding essay, p. 52 and Table 13.

3. The capital stock estimates

The estimates are prepared first for the 1922–37 segment. Between the two benchmarks, 1922 and 1937, the stock of fixed capital assets—considered to be net of discards—increased over the 15 years by LP 42,540 thousand (Table 1). Between 1922 and 1937 (i.e., for the years 1922–36) gross fixed capital formation amounted, according to the estimates presented in Table 4, to LP 53,643 thousand (at 1936 prices). The difference, LP 11,103 thousand, has therefore to be regarded as the value of fixed assets discarded over the 15 years. The underlying discard proportion is 20.7 per cent of gross investment.²⁴

For estimating the annual additions (net of discards) to the stock of capital between 1922 and 1937 we apply the average proportion of net out of gross investment for the whole period (100.0 - 20.7 = 79.3 per)cent) to the gross investment figures of Table 4. Given the 1922 benchmark, the series of annual additions permits us to fill in the estimates of capital stock for the intervening years. From 1937, another method is adopted. For these years, we have a sufficient picture of past investment to carry out direct estimates of discards for the capital asset categories other than structures and citrus. This follows from the assumptions on the length of economic life of each asset group. Following Gaathon,25 we assume that manufacturing equipment is discarded 14 years after installation, the assets of transport and miscellaneous services after 8 years, and investment in mixed farming also after 8 years (like services and agricultural equipment in Gaathon's estimates). Thus, discard figures for all these categories are available from 1937 onward.26 Data on yearly discards of structures and citrus are still missing: the length of life of structures is assumed to be 40 years, following Gaathon, and this is applied to citrus orchards as well. Discards of citrus can be ignored, owing to the small scale of planting before 1907, i.e. within the range of discard of the 1937-47 period.27 For structures, estimates of yearly discardsthat is, of investment in 1897-1907-were constructed. The stock of structures at the beginning of 1897 was assumed to consist of dwellings

- ²⁴ In our 1936 accounts (Table 1 of the first essay in this book) depreciation amounts to 22 per cent of gross investment.
- ²⁵ Capital Stock, Employment and Output, op. cit., p. 93, Table A-4.
- ²⁶ They are in fact available for 1936 too—but we preferred to fill all the entries between the two benchmarks according to the same method.
- 27 It is assumed that the maintenance of citrus groves during the world war prevented the discarding of assets. This is admittedly a rather weak assumption.

	Gross capital			Discard	ds		Net addition	Capital stock
	formation	Struc- tures	Mixed farming	Manufac- turing equip- ment	Transport and miscel- laneous services	Total (2) through (5) ^b	to stock (1)–(6)	net of discards¢
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1922	1,004					208	796	5,056*
1923	869					180	689	5,852
1924	1,347					279	1,068	6,541
1925	2,514					520	1,994	7,609
1926	1,761					364	1,397	9,603
1927	1,288					266	1,022	11,000
1928	1,206					250	956	12,022
1929	2,000					414	1,586	12,978
1930	2,490		88		282	515	1,975	14,564
1931	2,527		93		292	523	2,004	16,539
1932	3,347		116		437	693	2,654	18,543
1933	6,364		136		563	1,317	5,047	21,197
1934	8,367		145		354	1,732	6,635	26,244
1935	10,728		168		207	2,221	8,507	32,879
1936	7,831		90	146	204	1,621	6,210	41,386
1937	6,396	71	83	124	237	515	5,881	47,596*
1938	4,664	74	112	162	306	654	4,010	53,477
1939	3,703	77	116	278	270	741	2,962	57,487
1940	2,591	80	64	252	185	581	2.010	60,449
1941	1,691	83	112	194	285	674	1.017	62,459
1942	2,344	86	82	202	717	1,087	1,257	63,476
1943	1,655	89	91	287	651	1.118	537	64,733
1944	3,126	92	167	336	550	1,145	1,981	65,270
1945	3,406	95	164	276	579	1,114	2,292	67,251
1946	7,329	99	266	230	711	1,306	6,023	69,543
1947	10,304	103	260	637	513	1,513	8,791	75,566

TABLE 5. Stock of Fixed Reproducible Capital: 1922–47^a (thousands of 1936 LP)

^a Gross capital formation and discards during year. Capital stock at beginning of year; the benchmark estimates are marked by an asterisk.

b For 1922-36 the detail in columns (3), (4), and (5) is shown only for comparison; discards were computed globally as column (1) *multiplied by* 20.7 per cent (the average discard ratio for the period—see text, p. 80).

^c Computed as stock at beginning of year t plus discards during year t = stock at beginning of year t+1.

SOURCE: Gross capital formation-Table 4.

Discards [columns (3) to (5)] entered from Table 4 according to assumptions made about the length of economic life of the various asset categories. Structures [column (2)] are based on estimated investment in 1897–1907.

Capital stock benchmark figures-Table 1.

	LP th	LP thousand		Capital– Capital stock product per head of		Index	x (1936=	100)
	Capital stock	Net domestic product	ratio $(1) \div (2)$	Popula- tion	Em-	Capital– product ratio	Capital per hea	stock ad of
		prounce		(<i>LP</i>)	per- sons (LP)		Popula- tion ^a	Em- ployed per- sons ^a
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1922	5,056	1,625	3.11	60.3	222.7	138.2	54.1	84.2
1923	5,852	1,705	3.43	65.3	232.2	152.4	58.5	87.8
1924	6,541	2,193	2.98	68.9	238.7	132.4	61.8	90.3
1925	7,609	3,202	2.38	62.5	227.8	105.8	56.0	86.1
1926	9,603	3,340	2.88	64.2	240.1	128.0	57.6	90.8
1927	11,000	3,720	2.96	73.4	262.5	131.6	65.8	99.3
1928	12,022	4,126	2.91	79.3	260.8	129.3	71.1	98.6
1929	12,978	4,827	2.69	82.9	249.1	119.6	74.3	94.2
1930	14,564	5,666	2.57	88.4	247.3	114.2	79.2	93.5
1931	16,539	6,662	2.48	94.7	251.7	110.2	84.9	95.2
1932	18,543	7,461	2.49	102.0	273.1	110.7	91.5	103.3
1933	21,197	9,804	2.16	100.6	273.9	96.0	90.2	103.6
1934	26,244	12,438	2.11	102.7	263.8	93.8	92.1	99.7
1935	32,879	16,388	2.01	102.1	252.7	89.3	91.5	95.6
1936	41,386	18,353	2.25	111.6	264.4	100.0	100.0	100.0
1937	47,596	17,250	2.76	122.4	273.1	122.7	109.7	103.3
1938	53,477	16,584	3.22	132.7	298.3	143.1	118.9	112.8
1939	57,487	16,810	3.42	133.0	305.8	152.0	119.2	115.6
1940	60,449	16,684	3.62	131.4	305.8	160.9	117.8	115.6
1941	62,459	19,723	3.17	131.7	309.4	140.9	118.1	117.0
1942	63,476	23,154	2.74	131.3	306.5	121.8	117.6	115.9
1943	64,733	24,502	2.64	129.8	306.8	117.3	116.4	116.0
1944	65,270	27,858	2.34	124.9	296.1	104.0	112.0	112.0
1945	67,251	29,945	2.25	122.5	288.4	100.0	109.8	109.0
1946	69,543	35,238	1.97	120.1	286.1	87.6	107.6	108.2
1947	75,566	38,691	1.95	124.1	298.7	86.7	111.2	112.9

TABLE 6. Capital Stock, Product, and Employment: 1922–47(at 1936 prices)

^a Computed from less rounded figures underlying columns (4) and (5).

SOURCE: Capital stock-Table 5.

Product-Table 9 in the preceding essay.

Population and employment-Table 8.

at the 1922 per capita quantity (at 1936 prices) and of nondwelling structures taken as 15 per cent of the total stock. The aggregate was assumed to grow over the period at the (compounded) rate of growth of total Jewish population.²⁸ These hypothetical investment figures were entered as discards of structures for 1937–47. Summing the yearly discard figures and deducting them from the gross investment data given in Table 4, we obtain the yearly additions to the stock of capital from 1937 onward. The whole procedure is summarized in Table 5.

Following the estimation of the capital stock series, a number of basic relationships can be computed: the yearly ratios between capital stock and net domestic product, both at 1936 prices; capital stock per head of total Jewish population and per head of employed Jewish population.²⁹ The data are presented in Table 6, in absolute figures and in terms of indexes based on 1936.

4. Testing the capital stock series

To test the capital stock estimates presented in the previous section we shall relate them to the Gaathon figures of the capital stock of Israel, which start in 1950. At 1957 prices, the stock of reproducible fixed capital net of discards (gross capital stock in Gaathon's terminology) was IL 2,483 million at the beginning of 1950.⁸⁰ In order to carry out the comparison with our estimates for the Jewish economy of mandatory Palestine three adjustments have to be undertaken: first, a conversion ratio between 1936 and 1957 prices has to be computed; second, investment figures (net of discards) have to be entered for the years 1947 and 1949 (assuming that no net investment took place in 1948); third, our figures have to be blown up in order to allow for the capital assets existing in the territory of Israel, and therefore included in the Gaathon estimate, and not originating in the Jewish economy of Palestine. This category consists of capital assets constructed by the mandatory government and its agencies, the capital stock of the Arab sector of Israel, and finally the abandoned property, the fixed reproducible assets-mainly structures-left by the Arab refugees and subsequently integrated into the economy of Israel. The three required adjustments can be carried out only in a rather rough

²⁶ The 1896 population (interpolated between the 1895 and 1900 figures) was taken to be 47,600, and the 1907 population was 72,000.

²⁹ [The population and employment series used are set out in Table 8. Ed.]

³⁰ Gaathon, Capital Stock, Employment and Output, op. cit., p. 96, Table A-6 (A).

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way, and the whole test is liable to a considerable margin of error. Nevertheless, it should be instructive.

The first stage consists of deflating the 1950 capital stock estimate to 1950 prices; this is done using Gaathon's implicit price indexes relating to structures and equipment and deflating each asset category by the appropriate index.³¹ The estimate at current prices is IL 501 million. The problem now reduces itself to the computation of the 1950/1936 price ratio. The implicit index of investment prices stood at 302.2 (1936=100) in 1947 (Table 3). Between 1947 and 1950 the construction price index used by Gaathon went up by 23.5 per cent, and the equipment price index by 25.6 per cent.³² The equipment price index, however, does not take into account the 1949 devaluation of the 1950/1947 price change will be 30.4 per cent, and linking this to the 1947/1936 index we obtain a factor of 394.1 by which to convert the capital stock from 1936 to 1950 prices.

The allowance for the 1947 and 1949 investment is the next stage of adjustment. The 1947 investment (net of discards) is deducible from Table 5. It amounts to LP 8.8 million at 1936 prices. The 1949 figure can be projected from 1947 using the 1949/1947 ratio of gross investment,³³ according to which real gross investment in 1949 was double that of 1947; accordingly it is entered as IL 17.6 million, at 1936 prices.

The capital stock of the Jewish economy was, according to Table 5, LP 75.6 million at the beginning of 1947. The 1950 stock at 1936 prices projected from our series adds up to IL 102.0 million; at 1950 prices it becomes IL 402 million.

We are left with the adjustments for coverage. The capital assets that Israel inherited from the mandatory government are assumed to consist only of structures. In his depreciation study, Gaathon summarized the construction investment of the Government of Palestine which may be assumed to be included within the boundaries of Israel.³⁴ From this

- ³¹ Ibid., p. 92, Table A-3.
- ³² Gaathon, "The Estimate of Depreciation," op. cit., p. 49, Table 6, and p. 51, Table 8.
- ³³ At 1957 prices. (Gaathon, Capital Stock, Employment and Output, op. cit., p. 87, Table A-1.)
- ³⁴ Gaathon, "The Estimate of Depreciation," op. cit., p. 46, column (3) of Table 3, and p. 47, text. For 1945 and 1946, *ibid.*, p. 48, Table 4 (the items transportation; railways and postal services).

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source a series of government investment in structures for the years 1924–46 is available. Government construction in 1947 is entered, arbitrarily, as half the 1946 figure, at constant prices. The series is converted to 1936 prices by our index of construction costs, and thereafter to 1950 prices using the 1947–50 movement of construction prices, discussed above. The result is IL 35 million (at 1950 prices).

The estimate of capital assets originating in the Arab sector of Palestine, both abandoned property and capital employed by the Arab economy of Israel, is based on the figures of Duesterwald-Doroth, in his re-assessment of the capital stock data given in A Survey of Palestine. We limit the adjustment to the evaluation of the stock of structures other than for agriculture and manufacturing, i.e. to dwellings and services structures. Duesterwald-Doroth puts the value of this item in 1945 (at 'prewar prices', taken here to be identical with the 1936 base) at LP 16 million.35 This, and the parallel Jewish figure have been checked against population data and our 1937 benchmark, and found reasonable, if rather conservative. In the same work, Duesterwald-Doroth gives an estimate of 60 per cent for the share of total urban property of the Arab population of Palestine falling within the boundaries of Israel.³⁶ Applying this percentage to the figure of LP 16 million quoted above-i.e. assuming that it applies to the total stock of dwellings and services structures of the Arabs of Palestine-we obtain the estimated value of structures of Arab origin in the territory of Israel at the beginning of 1950: IL 9.6 million at 1936 prices, IL 37.9 million at current prices. The conservative nature of the estimate, the fact that it applies to 1945 rather than to 1947, and the exclusion of asset categories other than dwellings and structures employed in services-all these should offset the effect of damage sustained by assets of Arab origin in the 1948 war.

Adding now the two adjustments (the assets originating in the Arab economy and those constructed by the mandatory government) to the original estimate projected to 1950 and computed at 1950 prices, we obtain the sum of IL 475 million, 94.8 per cent of the Gaathon figure for the stock of capital in the economy of Israel, net of discards, at 1950 prices: IL 501 million.

Considering the nature of our series and their time-span, which allowed the accumulation of differences over 25 years, a 5 per cent difference from

 ³⁵ Duesterwald (Doroth), "National Wealth in Israel," op. cit., Table 2 (Hebrew).
 ³⁶ Ibid., p. 10 (Hebrew).

the detailed Gaathon estimate can be considered a rather favorable result for our data.

The construction of the 1950 projection of the series is summarized in Table 7.

	Millions of 1936 LP	Price index, 1950 (1936=100)	Millions of 1950 IL (1) × (2)
	(1)	(2)	(3)
Capital stock, 1947 ^a	75.6	1	297.9
Investment net of discards		L	
1947	8.8	394.1	
1949	17.6]	34.7
			69.4
Subtotal : Capital stock of Jewish economy			
1950a	102.0		402.0
Structures inherited from Government			
of Palestine	8.9	2051	35.2
Structures from Arab economy of Palesting	9.6	\$ 395.1	
		,	37.9
Total: Capital stock of Israel, 1950a	120.5		475.1

TABLE 7. Projection of 1947 Capital Stock Estimate to 1950

^a Beginning of year figures.

SOURCE: Column (1)-stock and investment 1947, Table 5. For other figures see pp. 84-85.

Column (2)-see p. 84.

	Population	Employed labor force (thousands)
1922	83,790	22.7
1923	89 660	25.2
1924	94.945	27.4
1925	121.725	33.4
1926	149,500	40.0
1927	149.789	41.9
1928	151.656	46.1
1929	156,481	52.1
1930	164,796	58.9
1931	174,606	65.7
1932	181,741	67.9
1933	210,655	77.4
1934	255,457	99.5
1935	321,998	130.1
1936	370,990	156.5
1937	388,970	174.3
1938	402,994	179.3
1939	432,355	188.0
1940	460,091	197.7
1941	474,183	201.9
1942	483,618	207.1
1943	498,730	211.0
1944	522,588	220.4
1945	549,044	233.2
1946	579,148	243.1
1947	608,995	253.0
1948	671,871	

TABLE 8. Jewish Population and Employment: 1922-47ª

^a This table was taken from the author's working papers.

SOURCE: Population—Palestine, A Survey of Palestine (Government Printer, 1946), Vol. I, p. 141, Table 1 (for 1922-31); M. Sicron and B. Gil, Jewish Population by Sex, Age and Country of Birth, 1931-1954 (Special Series No. 37; Jerusalem: CBS, 1955), pp. 7-10 (for 1932-48).

Employed labor force—The series is based on benchmarks for 1922 and 1927 (direct own estimates), and 1931, 1936, 1939, 1943, 1945, and 1947 from Gur Ofer, *The Service Industries in a Developing Economy: Israel as a Case Study* (Jerusalem and New York: Frederick A. Praeger with the Bank of Israel, 1967), p. 88, Table 4.6. There is also a series of Histadrut figures on the number of 'workers'.

The other years were interpolated as follows: The ratio (employed labor force *less* 'workers') \div (Population) was calculated for the benchmark years and linearly interpolated for the intervening years. The resulting ratios were multiplied by the population, to give a series of employed labor force excluding 'workers'. Finally, the figure for 'workers' was added back.

PALESTINE ON THE EVE OF JEWISH COLONIZATION 1

The colonization of Palestine by Jewish immigrants and the evolution of a secular Jewish society in the country-as distinct from the traditional religious communities concentrated in Jerusalem and the other Holy Cities-is usually dated from 1882. This is the year of the First Aliya-the First Immigration. Following the anti-Jewish outbreaks in Russia after the assassination of Czar Alexander II in 1881 and the general mounting of social and national tensions in Eastern Europe, a massive movement of immigration to the West-Western Europe and the United Statesdeveloped among the Jews of Russia, Russian Poland, and Romania. On the margin of this migration, small groups crystalized round the idea of immigration to Palestine and the restoration of a measure of Jewish national life there. The highest expression of this restoration was to be settlement on the land. These groups, known generally as 'Lovers of Zion' (Hovevei Zion), sprang up among widely different social stratatradesmen and shopkeepers in obscure Romanian townships, students and intellectuals in the big Russian cities-and on very different ideological premises, ranging from national-religious revivalism to purely secular conceptions of national and social reconstruction. Members of these groups and organizations immigrated to Palestine from early 1882, founded the first agricultural colonies, and contributed to the establishment of nuclei of modern Jewish settlement in Jerusalem, Jaffa, and Haifa. Thus the First Aliya created the basis of a Jewish society oriented to the colonization of the land and sustained by a national ideology. It created, as it were, the framework within which the Jewish settlement of Palestine was to unfold. Nevertheless, it must be stressed that the Palestinian scene and the Jewish community of Palestine were undergoing considerable change and development over some decades before the advent of the First Aliya. The immigrants of the early 1880s arrived in a still underdeveloped and underpopulated, but definitely not stagnant, oriental country. In order to assess properly the environment into which the Jewish colonization was grafted, it is necessary to give a short outline of the Palestinian scene and how it changed since the middle of the 19th century.

¹ [This fragment is the first section of the introductory chapter of the author's projected book. Ed.]

The Palestine of the mid-century was a rather peripheral region of the Ottoman empire, divided between the provinces of Beirut and Syria. The total settled population should have been of the order of 400,000, but this is more of a guess than an estimate.2 The contemporary squalor of the country constrasted severely with the historical monuments and memories. Centuries of decentralized Ottoman government had brought about long periods of disorder and warfare between local potentates and enabled the Bedouins to make inroads into the plains and valleys. The rural population of Palestine retreated from the plains to concentrate in the hills and mountains of Galilee, Samaria, and Judea, with only few areas of relatively dense rural settlement round the towns of the coastal plain. The Arab village lived on traditional-almost biblical-agricultural and allied crafts. The branches of agriculture were field crops (wheat and barley in winter, sesame and sorghum in summer), vegetables, fruit, and livestock. The rural economy, centered on the farming family, was not however a subsistence economy. There was trade, if only to a small extent, between villages and between village and town. Agricultural taxation, based on the traditional tithe, was levied by local strong men and notables who bought or inherited or otherwise acquired taxfarming rights from the Ottoman authorities or their representatives. The pressure of the tax farmers was one of the main plagues of the agriculture of Palestine, others being Bedouin raids, army recruitment, forced labor commandeered by the authorities, droughts and pests. It should, however, be mentioned that land ownership-or rather, hereditary users rights in land whose ultimate ownership was vested in the State (the principal land category)-was very widely diffused; over wide areas of land it combined with patterns of collective users rights exercised by the village community. and there was periodic rotation of fields among families. Thus, in spite of the strongly felt presence of the tax farmer, this was predominantly an agriculture of small independent peasants. Large-scale land ownership in Palestine was the product of the second half of the century.

The towns of Palestine reflected two different worlds. On the one side, the 'present' of the predominantly Moslem and rural country of the day, on the other, the historical and religious inheritance of the past. The last was personified by the Jewish population of the four Holy Cities—

² J. K. Hurewitz ["From the Early Nineteenth Century to the Beginning of the New Colonization, 1800–1880: A. General History," *Encyclopaedia Hebraica*, VI (1957; Hebrew), 498, 503] mentions a figure of 300,000, among them 5,000 Jews and 25,000 Christians, for the beginning of the century; for 1882 he gives 450,000, with 25,000 Jews and 45,000 Christians.

Jerusalem, Hebron, Tiberias, and Safed—and by the Christian religious establishments with their local communities. Towns like Nablus, Majdal, and Gaza belonged firmly to the Moslem economic and social fabric, while Jerusalem, Jaffa, and the towns of Galilee included nuclei of population largely exogenous to contemporary Palestine and sustained by ties with the outer world. Alongside Jewish and Christian elements, these towns included sizable Levantine minorities (Greek, Armenian) who traditionally mediated between the Orient and Europe and lived off the different foreign establishments.

The Jewish community was estimated at 5,000 at the start of the century ³ and at 10,500 in 1856.⁴

This 'Old Community' (Old Yishuv) of Palestine, based on and sustained by the religious immigration, had its ebbs and flows over the centuries, but almost always succeeded in maintaining a Jewish population in Palestine, however small. The scholars, the old and the poor of Jewish communities in Europe, North Africa, and the Middle East sought a fuller religious experience and a worthy death in Palestine; they came to pray, to meditate and to die in their Holy Land. These different elements were not equally divorced from wordly activities. The Sephardim, the oriental and Mediterranean Jews who were the majority of the Old Yishuv,⁵ had among them groups of long standing in the country, integrated in the local society and engaged in trade, finance, and other economic activities.⁶ In some localities, particularly in Galilee, there were small groups of Arabized Jews almost indistinguishable from the indigenous population. Nevertheless, the *majority* of the community was generally made up of recent immigrants and their immediate descendants and was dedicated

- ⁴ Estimate of Ludwig Angst Frankel, secretary of the Jewish community of Vienna, in his contemporary book *To Jerusalem* [quoted by Ben-Zion Gat, *The Jewish Community in Palestine, 1840-1881* (Jerusalem: Friends of the Hebrew High School of Jerusalem, 1963; Hebrew), pp. 20, 160-89]. Frankel's estimates are widely used and can be considered reliable.
- ⁵ Data assembled by Gat (*ibid.*, pp. 19–20) and other sources indicate that the Sephardim were a majority (albeit a declining one) in Jerusalem until the late 1870s. Jerusalem accounted for about half the Jewish population of Palestine from the 1840s to the end of the century. Figures for other localities are contradictory and unreliable, although it seems that Safed already had a two-to-one Ashkenazic majority in the 1850s.
- ⁶ The 'true' Sephardic immigration to Palestine had its origin in the eastward movement that followed the expulsion from Spain at the close of the 15th century (Gat, *ibid.*, p. 22).

³ See the preceding footnote.

OF JEWISH COLONIZATION

to religious pursuits.⁷ Economic activities were confined mainly to services supplied within the community and to various crafts. The mainstay of existence was charity: funds were collected all over the Jewish world for the support of the religious outposts in Palestine. These funds were collectively known as *Haluka* (share-out or dole).

At the beginning of the century the Haluka was administered from Amsterdam, and the funds distributed among the different Jewish communities according to an agreed formula, which was changed from time to time following changes in the structure of the Jewish population, by locality, origin, and pattern of organization.8 A separate system of collection developed during the first half of the century in Eastern Europe, for the specific purpose of assisting the growing population of East European origin. The centralized organization of the Haluka was gradually eroded, and by the middle of the century Amsterdam was financing only the German-Dutch community of Jerusalem and the social welfare expenditures of the Yishuv. Estimates of Haluka receipts differ considerably and are difficult to compare and reconcile. Frankel estimates the annual receipts in Jerusalem in 1856 at 25 shillings per capita.9 This, however, conceals considerable differences in the per capita receipts of groups and families, by origin, religious merit, etc. The pattern of distribution of the funds was considerably different in the Sephardic and Ashkenazic communities. In the former, Haluka money was primarily devoted to the support of rabbis, scholars, and the poor, and to communal uses. The rest of the population was expected to subsist on its own means and

⁷ The proportion of locally born people in the Jewish population was, at least in Jerusalem, rather low. This was a concomitant of the very high mortality rates, especially among children: in spite of very high birth rates, the rate of reproduction was negative. Because of this and the relatively high rate of immigration there was a majority of foreign-born, and, more specifically, recent, immigrants in the population. Cf. O. Schmelz, "Development of the Jewish Population of Jerusalem During the Last Hundred Years," Jewish Journal of Sociology, II (No. 1, June 1960), 56-73.

⁸ Cf. A. M. Luncz, "The Haluka, its Origins, History and Development," Jerusalem, IX (5671-1911; Hebrew). See also Gat, op. cit., pp. 93-109. The Haluka not only reflected the organization of the Old Yishuv, but also influenced it considerably. The formation and splitting of the kollelim (the organizational cells of Jerusalem Jewry) were largely dictated by the strategy required to obtain larger shares of Haluka. The power of the kollel and its ruling group vis-a-vis the individual was accentuated by its function as distributor of Haluka funds.

⁹ Gat, op. cit., p. 106.

enterprise. The Ashkenazim shared out the funds to all sections of the community, although they also gave preferential treatment to the religious personnel and to various notables.

Any calculation of the share of *Haluka* in financing total consumption private and communal—is liable to wild margins of error. Scrutiny of our sources indicates, however, that in the 1860s and 1870s it could not amount to more than one third of the aggregate consumption expenditure. The remaining share had to be financed by the savings of immigrants and by economic activity: communal services supplied to the Jewish population, trade, finance, and crafts. Frankel mentions 47 persons engaged in trade and finance in Jerusalem in 1856, and 150 craftsmen. This, out of a population of 5,700.¹⁰ The picture of the Old *Yishuv* as a community consisting only of scholars and beggars seems to be rather far from the truth, both at mid-century and during later periods. The *Haluka* funds were clearly insufficient to maintain such a population, and direct estimates of occupational data point to the existence—though on a small scale—of economic activity among the Jews of Palestine.

So far we have outlined the static features of the Palestinian scene around the middle of the century. Already at that time, however, substantial forces of change were affecting the country. All these forces were of an external nature. Their common origin was the breakdown of the isolation of Palestine and its emergence from the exclusive tutelage of the Ottoman empire.

¹⁰ These figures do not include various service occupations mentioned by Luncz in his enumeration of the late 1870s (porters, cleaners, water sellers, etc.). Thus, they should be treated as covering only a part of the economically active Jewish population.
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