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THE UNIVERSITY OF ALBERTA

MONETARY POLICY, SAVING AND INCOME IN EGYPT, 1947-1967

by

James R. Savary

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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The undersigned certify that they have read, and recommend to the faculty of Graduate Studies and Research, for acceptance, a thesis entitled MONETARY POLICY, SAVING AND INCOME IN EGYPT, 1947 - 1967, submitted by James Roy Savary in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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ABSTRACT

This study has three objectives: first, to examine the course of monetary policy in Egypt between 1947 and 1967 within the context of the increasing socialization of the Egyptian economy; second, to examine the way in which monetary policy may be able to influence long run growth through the effect of monetary variables on saving; third, to use one version of the Andersen-Carlson monetarist model to assess the extent to which monetary policy during the period permitted the maximum rate of growth in real income, given Egypt's real resources.

The findings can be briefly summarized. Changes in banking institutions during the period resulted in the monetary authority becoming able to achieve a high degree of control over both the supply of money and the allocation of credit in the economy. This was accomplished by acquiring the power to set interest rates and credit ceilings. The analysis of savings in Egypt shows that income is the primary determinant of saving; prices and interest rates were not in general statistically significant. The permanent income hypothesis does not improve the fit in Egypt's case.

The Andersen-Carlson model proved to be a good predictor of changes in income, real income, and the price level when tested with 1956 to 1967 data. Two alternative money supply policies were simulated with the model, and it was concluded that a more rapid rate of increase in the money supply during the late nineteen fifties would have led to a higher rate of growth of real income.

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INTRODUCTION

Until recently, the literature on development has tended to omit the study of monetary policy and of financial institutions generally in favour of fiscal policy and planning. However, during the past ten years some excellent studies have been published on the monetary systems of several underdeveloped countries. A number of differences have emerged between the monetary institutions of the developing countries and those of developed countries which have been modelled on British or American institutions. In particular, the experience of most underdeveloped countries has indicated the need for additional instruments of monetary control to be available to the central bank over and above the traditional ones of British or American practice. These instruments tend to emphasize direct control over bank portfolios, lead to greater dependence on the Central Bank for bank liquidity, and to the neglect of the rate of interest as an indicator. In consequence, more emphasis is placed on the stock of money, both as a policy variable and as an indicator.

The present study concentrates upon an analysis of Egyptian monetary experience during the period 1952-1967, with particular emphasis upon the influence of monetary variables on the rate of saving and on income. The basic premise underlying this study is that of the modern quantity theory. The rate of growth of real income in the long run is seen as a function of real variables,

i. e., of changes in the stock of capital, the supply of labour, technology, and entrepreneurial ability. In a country such as Egypt, which is over-populated relative to its natural resources, the major factor constraining the rate of long run growth is the rate of real capital formation, in turn dependent on the rate of real saving. In the short run, changes in the stock of money are viewed as exerting a strong influence on the rate of growth of income, initially on real income, then, as full capacity output is reached, on prices. Short run changes in real and nominal income are the major determinants of the rate of saving, which in turn governs the long run rate of growth of real income. From the standpoint of monetary policy, the intention of the monetary authority should be to so adjust the money stock as to maximize real income in the short run, and hence maximize the rate of real saving.

After a brief description in Chapter I of the Egyptian economy during the period, Egyptian financial institutions are discussed in Chapter II with emphasis upon the changes made as the period progressed. These changes were claimed by the government to have improved the allocation of financial resources; an attempt is made to evaluate this claim, although it is somewhat difficult to reach firm conclusions due to the paucity of data. The monetary policy followed by the Egyptian government between 1952 and 1967 is discussed in Chapter III. Chapter IV develops statistics on savings in Egypt, and tests several hypotheses concerning the form of the savings function. It is found that saving is insensitive to changes in the rate of interest, and that the marginal propensity to save out

of real income is relatively high and exceeds the average propensity to save. In Chapter V a monetary model is developed and tested, and an alternative monetary policy simulated. It is found that the model is a good predictor of short and medium term nominal and real income. It is concluded that Egyptian monetary policy should aim at maximizing real income in the short run, if necessary at the cost of some upward movement in prices. Because of the high marginal savings rate, such a policy would work toward the maximization of long run growth. Chapter VI consists of a brief summary and conclusions.

CHAPTER I

THE ECYPTIAN ECONOMY, 1952-1967

Like many other underdeveloped countries, Egypt is faced with problems of a large and rapidly growing population pressing against an agricultural resource base which is limited and incapable of expansion except at very high marginal cost. Productivity per unit of land in the fertile Nile Delta is among the highest in the world, so there is relatively little scope for increasing agricultural production by pursuing more capital-intensive techniques. Adding to arable acreage through irrigation projects is immensely costly, although such integrated schemes as the Aswan Dam provide electric power as a by-product, which may justify their cost. Ever since the Revolution, therefore, Egypt has attempted rapidly to expand its industrial sector in order to achieve three objectives: to provide employment for its growing population, to improve its balance of trade by developing import substitutes and industrial exports, and to maintain a position of military strength thus enhancing its political position in the Middle East. Numerous developing countries have seen in industrialization the main impetus to economic development, particularly since the theory of unbalanced growth became popular in the middle nineteen fifties.[1]

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[1] The theory of unbalanced growth, due originally to Albert O. Hirschman, claims that development should proceed through a series of deliberately created disequilibria which, in the process of being

The Egyptian programme of development is particularly interesting for at least three reasons: first, because it has achieved a measure of success in realizing the first[1] and third objectives mentioned above; second, because of the degree of structural change that has been achieved within a relatively short period of time; and third, because of the role of the Egyptian financial system in maintaining a high rate of growth without an inordinate degree of inflation. This chapter will consist of a brief discussion of the changing structure of the Egyptian economy since the Revolution in 1952.

Egypt's Economy in 1952

Egypt was typical of many underdeveloped countries midway through the twentieth century; over-populated in relation to arable land, a low per capita income of about £E72 (see Table 1), and a highly unequal distribution of land ownership and income. Although considerable progress had been made during the first half of the

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corrected, lead to other disequilibria. Scarce entrepreneurial and capital resources should be concentrated in certain strategic industries, which through the operation of forward and backward linkages induce the creation of other firms and industries. Advocates of unbalanced growth argue that investment should be concentrated in industry rather than in agriculture because of the weak linkages inherent in the agricultural production function. See Albert O. Hirschman, The Strategy of Economic Development (New Haven: Yale University Press, 1958). The theory has much in common with the Schumpeterian clustering of innovations and, like the latter, implies that periods of inflationary pressures are characteristic of development. Joseph A. Schumpeter, Theory of Economic Development, (New York: Oxford University Press, 1961), pp. 65-68, 228-32.

[1] This is not to deny that the rapid growth of the labour force remains a continuing problem. See p. 22.

century in terms of literacy and other indices of social welfare, there was little advance in real per capita income. The average annual rate of growth of national income since 1900 has been about 1½ per cent, not enough to keep real income per capita constant. Moreover, with the exception of the period during the Korean War, the movement in Egypt's terms of trade was adverse and so depressed average real income below average real product.[1]

In spite of an increasing interest in economic development on the part of the government since the end of the second World War, government involvement tended to be in the form of public works projects such as roads, electric power stations, and the like. On the eve of the revolution, the private sector accounted for 84 per cent of GNP and employed 92 per cent of the labour force.[2] Egypt remained an overwhelmingly agrarian economy; although considerable progress had been made in expanding the industrial sector, it still accounted for less than 14 per cent of Gross Domestic Product and even this figure is inflated by the high level of protection given industry. (See Table 2). Foreign participation in the national economy was high, particularly in such sectors as finance.[3]

In ..., 1952, a group of army officers under Colonel Abdel

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[1] For brief discussions of the effects of the terms of trade on Egyptian national income, see Patrick O'Brien, The Revolution in Egypt's Economic System: From Private Enterprise to Socialism, 1952-1965 (London: Oxford University Press, 1966), pp. 2-3, and Donald Mead, Growth and Structural Change in the Egyptian Economy (Homewood, Illinois: Richard D. Irwin Inc., 1967), pp. 47-48.

[2] O'Brien, The Revolution in Egypt's Economic System, p. 63.

[3] See Chapter II, pp. 36-38.

TABLE 1

NATIONAL AND PER CAPITA INCOME
CURRENT AND CONSTANT PRICES
1952-1953 TO 1966-1967

Fiscal Year	NATIONAL INCOME (£E Millions)		PER CAPITA INCOME (£E)	
	Current Prices	1952-1953 Prices	Current Prices	1952-1953 Prices
1952-53	806.0	806.0	37.1	37.1
1953-54	847.0	871.0	38.0	39.1
1954-55	920.0	930.0	40.3	40.8
1955-56	965.0	881.0	41.3	37.7
1956-57	1067.0	897.0	44.6	37.5
1957-58	1126.0	959.0	46.1	39.9
1958-59	1157.0	985.0	46.3	39.4
1959-60	1285.2	1091.0	50.2	42.6
1960-61	1363.5	1139.0	51.9	43.3
1961-62	1411.1	1190.0	52.5	44.2
1962-63	1562.7	1324.0	56.6	48.0
1963-64	1739.6	1416.4	61.3	49.9
1964-65	1975.0	1480.0	67.6	50.7
1965-66	2124.1	1545.0	70.8	51.5
1966-67	2193.5	1550.8	71.7	50.7

Source: Central Bank of Egypt, Economic Review, Vol. VIII, Nos. 3 and 4, 1968.

Nasser seized power in a coup d'etat, brought about in part by the worsening economic situation and by the apparent corruption of the old regime. The group appeared to subscribe to no particular economic ideology; in fact, public statements made by the leaders soon after taking power seemed calculated to allay any fears that might have been felt concerning their intentions.[1] Between 1952 and 1956, the government continued to emphasize the role of the private sector. Although a four year plan calling for a much greater degree of public investment was formulated in 1953, it consisted mainly of social overhead projects usually left to the government in any case. Beginning in 1956, however, the direction of Egypt's government moved sharply to the left both economically and politically.[2] Sequestration of foreign property, followed by nationalization of much of the private sector and a much greater emphasis on planning has culminated in Egypt's becoming a socialist state. Much of industry, transport, finance and foreign trade is concentrated in the hands of the government, and the government budget accounts for well over 60 per cent of GNP. High direct taxation, effective agrarian reform, and the fixing of maximum salaries have brought a much greater degree of income equality. Egypt's economic problems, however, still remain considerable,

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[1] O'Brien, The Revolution in Egypt's Economic System, p. 68. O'Brien's book provides an excellent discussion and documentation of the evolution of the Egyptian government's economic philosophy after 1952.

[2] For a more detailed discussion of the causes underlying this change in thinking, see Charles Issawi, Egypt in Revolution: An Economic Analysis (London, Oxford University Press, 1963), pp. 51-60.

TABLE 2

PERCENTAGE SHARE OF GROSS NATIONAL PRODUCT BY SECTOR, SELECTED YEARS, 1945-1946 TO 1966-1967

Year	Agriculture	Industry and Electricity	Construction	Transportation & Communication (incl. Suez)	Housing	Commerce and Finance	Government and other Services
1945-46	40.0	12.1	2.7	5.4	6.7	[illegible].5	15.8
1950-51	31.0	13.6	3.0	8.1	6.5	[illegible].4	16.6
1955-56	30.0	15.6	2.4	6.0	6.3	[illegible].6	23.1
1959-60	29.3	16.7	3.4	7.0	5.8	17.0	20.7
1960-61	29.5	21.8	3.3	7.6	5.4	10.6	21.3
1961-62	26.4	23.2	5.2	8.3	5.4	10.7	20.3
1962-63	27.2	23.7	5.3	8.5	5.0	9.8	20.0
1963-64	27.3	23.7	5.5	9.0	4.5	9.2	20.3
1964-65	29.5	22.6	4.7	9.0	3.8	8.6	20.2
1965-66	28.7	22.8	4.5	9.3	3.6	8.5	21.5
1966-67	27.9	22.9	4.3	9.4	3.6	8.9	22.0

Source: Calculated from data in Mead, Growth and Structural Change, Appendix A. Table 1 for the years 1945-52; in Hansen and Marzouk, Development and Economic Policy in the UAR (Egypt), Statistical Appendix, Table 3 for years 1952-53 and 1959-69; and Central Bank of Egypt, Economic Review, Vol. VIII, Nos. 3 and 4, 1968, for 1960-61 to 1966-67. The figures for 1945-46 and 1950-51 are averages of calendar years.

not the least of which is its precarious financial position resulting from the very large foreign indebtedness it has incurred.

Agriculture

The proportion of national income contributed by the agricultural sector has fallen considerably from nearly 50 per cent in the early nineteen thirties. However, in 1967 agriculture still accounted for 28 per cent of gross domestic product and for nearly 80 per cent of Egypt's foreign exchange earnings. Cotton is the most important crop, providing some 75 per cent of exports, directly and indirectly.

There have been three strands to government policy since 1952. The first was the redistribution of agricultural land under the land reform programme. The second was the creation of government supervised co-operatives. The third aimed at expanding agricultural production through measures to increase both productivity and the quantity of arable land.

A major problem faced by the government was the maldistribution of land ownership. Except for the largest land owners, holdings were generally too small to permit economic farming operations. Moreover, the tenure system and the lack of proper medium and long term finance failed to provide incentives for improvements so that savings generated in agriculture tended to be used for conspicuous consumption rather than investment. Hence a programme of land reform was instituted. It was hoped that the redistribution of land would provide incentives to those actually working the land, and in addition break the political power of the

land owning class.[1] Under the regulations, maximum land holdings by any one individual were fixed at 200 feddans;[2] this was later reduced to 100 feddans.[3] The excess was expropriated by the government and redistributed among those actually tilling the land. Until 1964, compensation was paid in the form of government bonds; after 1964, no compensation was paid.[4] The resulting pattern of ownership is shown in Table 3.

A relatively small percentage of the cultivable land was immediately affected by the land reform programme. More important were the regulations passed at the same time regarding conditions of tenancy. Security of tenure was non-existent prior to 1952, since tenure was based only on an oral agreement and rents were controlled. Under the 1952 law, rents were fixed at seven times the 1949 land tax (far below the levels ruling just prior to land reform) and written leases with security of tenure for a minimum of three years were made compulsory. The effect of this was to

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[1] M. Riad El Ghonemy, "Investment Effects of the Land Reform in Egypt," Egypte Contemporaire, No. 278 (October, 1954); O'Brien, The Revolution in Egypt's Economic System, pp. 76-78, argues that the real reasons were political and to give the government control of agriculture.

[2] Law 178, 1952. One feddan is equal to 1.038 acres. Land classified as desert land intended for reclamation within 25 years was exempted.

[3] Laws 127 and 132, 1961.

[4] M. Riad El Ghonemy, "Economic and Institutional Organization of Egyptian agriculture since 1952," Egypt Since the Revolution, ed. P. J. Vatikiotis (London: George Allen and Unwin Limited, 1968), p. 67. An excellent discussion of the Egyptian land reform can be found in D. Warriner, Land Reform in the Middle East (London: Oxford University Press, 1962), and more briefly in El Ghonemy's two works already cited.

TABLE 3

CHANGES IN THE PATTERN OF LAND OWNERSHIP

Holdings in Feddans	Before Law 178, 1952			After Law 178, 1952			After Law 127, 1961			1965		
	Number	% of Owners	% of Area	Number	% of Owners	% of Area	Number	% of Owners	% of Area	Number	% of Owners	% of Area
Less than 5	2642	94.3	35.4	2841	94.4	46.6	2919	94.1	52.1	3033	94.5	57.1
5- 19	79	2.8	8.6	79	2.6	8.8	80	2.6	8.6	78	2.4	9.5
10- 20	47	1.7	10.7	47	1.6	10.7	65	2.1	10.7	61	1.9	8.2
20- 50	22	0.8	10.9	30	1.0	13.6	26	0.8	13.4	29	0.9	12.6
50-100	6	0.2	7.2	6	0.2	7.2	6	0.2	7.0	6	0.2	6.1
100-200	3	0.1	7.3	3	0.1	7.2	5	0.2	8.2	4	0.1	6.5
Over 200	2	0.1	19.7	2	0.1	5.9	-	-	-	-	-	-
Total	2801	100.0	100.0	3008	100.0	100.0	3101	100.0	100.0	3211	100.0	100.0

Source: Calculated from data in Central Bank of Egypt, Economic Review, Vol. III, Nos. 3 and 4, 1968.

redistribute income toward those who actually worked the land and away from the mainly absentee landlords. It was hoped that investment in agriculture would increase since the former land owners were not thought to have a high propensity to save.[1] Information is lacking as to the quantitative effects on income redistribution, and authorities differ. It seems likely, however, that at least in the early stages the rental restrictions proved unenforceable.

A provision of the land reform programme which was to have rather far reaching consequences was the requirement that land recipients join a co-operative. The rationale underlying this requirement was that the non-owners were without real entrepreneurial experience; they had had neither incentive nor opportunity in the past to acquire knowledge about proper agricultural practice, and would therefore need advice and assistance. Hence multi-purpose co-operative societies were set up in the land reform areas. These have several functions; to grant loans to members for agricultural purposes; to provide seeds, fertilizers, livestock, agricultural machinery, and other requirements together with storage and transport for the crop; to set policy with respect to crop rotation and methods of seed selection, pest control, and the provision of canals and drainage; and to provide for the marketing of the crop.[1] The proceeds of each farmer's crop are remitted to him, less his share of the co-operative's costs, installments on his land purchase debt, and payments on any loan outstanding. Each

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[1] Central Bank of Egypt, Economic Review, Vol. III, No. 2, 1963.

member is obliged to subscribe to the co-operative's capital in the amount of one pound per feddan of the land owned. The co-operatives are collectively placed under the supervision of the Supreme Committee on Agrarian Reform, and each co-operative is directed by a government agronomist who has the right of veto over policy.[1]

As is evident, land reform co-operatives in Egypt were not co-operatives in the sense in which the word is usually used, but involve a type of contract farming.[2] Nevertheless they appear to have been successful,[3] and beginning in 1957 the government began to promote the establishment of co-operatives throughout the whole of the country. This was done by giving the farmers every incentive to join. Between 1957 and 1961 a series of regulations were passed making agricultural credit available to farmers only through the co-operatives, and government technical advice was extended on a much wider scale. Moreover, seeds, fertilizers and other farm equipment have been sold at reduced prices through the co-operatives. The result was that by 1961 every farmer had become at least nominally a member of a co-operative. Co-operatives other

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[1] See O'Brien, The Revolution in Egypt's Economic System, pp. 166-68, for a discussion of the extent of government control.

[2] "Contract Farming," is the term given to this sort of arrangment by farmers in North America; they view it as a threat to their independence. A discussion of this and other aspects of agricultural co-operation can be found in James R. Savary, "Principles of Producers Co-operatives," unpublished M. A. thesis (University of New Brunswick, 1963).

[3] Central Bank of Egypt, Economic Review, Vol. III, No. 2, 1963.

than the supervised land reform co-operatives were originally voluntary in the sense that no government control was exercised over crop rotation, irrigation, etc. Since 1965, however, government policy has been steadily to convert voluntary co-operatives into supervised ones, the rationale being that to increase yields in agriculture government control must be made effective. In this way the diseconomies of small scale holdings can be overcome. Despite this policy, the majority of co-operatives were still voluntary in mid 1967.

It is difficult to determine the extent to which agricultural productivity has increased as a result of the creation and extension of government controlled co-operatives. One of the major intended benefits of such co-operatives, in addition to forcing the farmer to use modern techniques, was to overcome the diseconomies of small-scale production implied by the distribution of land in such small parcels. The land which had been distributed was grouped into plots of from fifty to one hundred feddans, each of which was placed under a single crop. Crops were then rotated every three years.[1] In this way large scale techniques could be used, while the farmer retained title to his land and to his produce. There is little question that yields in land reform areas are higher than yields outside these areas, as El Ghonemy shows. However, it is difficult to know whether the primary cause is the organizational factor or the greater availability of high yielding

[1] El Ghonemy, "Economic and Institutional Organization of Egyptian Agriculture Since 1952," pp. 76-78.

seeds, pesticides, etc. El Ghonemy argues that the control of agricultural credit and trade through co-operatives is as important as land reform itself. If this is the case it is difficult to see why the government considered it necessary to extend the system of supervised co-operatives throughout the country, for, since 1961, it has effectively controlled credit and trade through the voluntary co-operatives. Experience in other countries indicates that yields fail to rise after land reform programmes in the absence of measures for stricter government control.[1]

The third aspect of Egyptian agricultural policy has been to increase production by increasing the amount of arable land and by increasing productivity per unit of land. Until 1956, the government put more emphasis on the former. Land reclamation projects, the largest of which was the Aswan Dam development, resulted in the annual addition of 40,000 feddans of arable land.[2] Since 1956, more emphasis has been put upon measures to increase the productivity of the land. These measures included better drainage facilities to permit multiple cropping (and also to increase the production of rice, rapidly becoming an important crop) and provision of better seeds, fertilizers and insecticides.

The increase in production was satisfactory until 1960,

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[1] Doreen Warriner, "Land Reform and Economic Development," Agriculture in Economic Development, ed. by Carl Eicher and Lawrence Witt (New York: McGraw-Hill Book Company, 1964).

[2] Central Bank of Egypt, Economic Review, Vol. I, No. 2, 1961.

but agricultural targets could not be met during the 1960-1965 planning period. This led to some dispute over what policies Egypt should pursue in dealing with its agricultural problem. El Ghonemy[1] and Hansen and Marzouk[2] argued for higher investments in agriculture with greater emphasis on measures to increase productivity. In their 1967 Annual Report, the Board of Directors of the Central Bank of Egypt asserted that the future of Egyptian agriculture depends on increasing emphasis on land reclamation, presumably because they felt that yields per feddan were then at the maximum possible and that it was necessary to provide additional employment in the agricultural sector. Yet the following year the Board of Directors stated that the greatest need was for increased productivity. Again no reasons were given, but possibly they felt that once the High Dam and its auxillary works were completed there would be little scope for further land reclamation except at very high capital cost. Mead,[3] on the other hand, argued that because returns to capital were diminishing rapidly in Egyptian agriculture the best policy was to de-emphasize agriculture and to devote scarce resources to other sectors. This would expand employment opportunities outside the agricultural sector and ultimately

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[1] El Ghonemy, "Economic and Institutional Organization of Egyptian Agriculture Since 1952," p. 80.

[2] Bent Hansen and Girgis A. Marzouk, Development and Economic Policy in the UAR(Egypt) (Amsterdam: North-Holland Publishing Company, 1965), pp. 46-48.

[3] Mead, Growth and Structural Change in the Egyptian Economy, p. 97.

generate an export surplus sufficient to finance needed food imports. The effectiveness of such a policy would depend upon the prospects for Egyptian industry (which will be discussed in the next section). However, there seems to be room for re-allocation of agricultural resources to high yielding, exportable products such as rice, fruit, vegetables and flowers. It is probable that the government's efforts to extend control over agriculture by increasing the number of supervised co-operatives are being undertaken with this in mind.

Industry

In 1952, the relatively small industrial sector in Egypt consisted largely of establishments processing cotton and food-stuffs. Industrial production had increased only slightly since the end of World War II. When the new government was formed in 1952, it indicated that considerable emphasis would be placed on industrial development in order to provide employment for the rapidly growing population.[1]

Between the years 1952 and 1960, government policy was to encourage private investment in industry. Tariffs were raised substantially, until by 1961 the average rate was over 100 per cent ad valorem.[2] Other measures included subsidies, exemption from taxes on profits for five years, exchange rate manipulations,

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[1] Central Bank of Egypt, Economic Development Since the Revolution, p. 87.

[2] Hansen and Marzouk, Development and Economic Policy in the UAR (Egypt), p. 162.

and the lowering or eliminating of tariffs on capital equipment and on some intermediate goods. As a result, industrial production increased substantially between 1952 and 1960, the average annual rate of growth being just over 9 per cent.

In addition to encouraging private industry, the government also became directly involved in industrial production, particularly after 1956. Direct government investment was at first generally restricted to heavy industry, such as the Helwan Iron and Steel Works, petroleum, and public utilities. After the 1956 nationalizations, government participation in industry increased steadily, as did restrictions on private enterprise after 1958. The National Planning Committee was created in January 1957, and it proceeded to draw up an interim five-year investment programme pending the completion of a more detailed ten-year plan. Some 60 per cent of the hundred and fifty projects listed were to be financed by the public sector. Although the remainder were to be financed by the private sector there was apparently no real attempt to secure the support of private enterprise. Apparently the government expected that a combination of tax incentives, rent controls, and appeals to patriotism would bring about the desired results. To halt what the authorities felt was a growing tendency to distribute too high a proportion of profits in the form of dividends, an attempt was made to limit the amount distributed in any one year to 10 per cent above that of the previous year.[1] Additionally,

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[1] Law 27, 1959. Later the government relaxed the regulations to permit a twenty per cent higher distribution.

firms were compelled to invest an amount equal to 5 per cent of distributed profits in government bonds. Coupled with Law 21 of the preceding year, which made the establishment, expansion, and change of purpose or location of any industrial plant subject to licence, these changes seemed to put the government in a position to secure compliance with their plans. In fact, however, the results were disappointing; although investment in areas disapproved of by the government could be effectively prevented, total investment suffered. Despite the lack of detailed information, there is little doubt that the targets for private investment were underfilled.

By 1960, the government apparently decided that it would have to control directly a large part of the economy if the needed degree of economic progress was to be achieved. Already much of the financial infrastructure of the economy was in government hands as an aftermath of the Suez War, and controls upon private enterprise were becoming stringent. Seventy-five per cent of gross domestic capital formation was carried out by the government, largely in heavy industry and through the Bank Misr, which was nationalized in 1960. This was followed in 1961 by a wholesale nationalization of Egyptian industry, so that by the end of 1964 almost all large companies in every field of activity were in the government's hands. In effect the government achieved virtually complete control of the infrastructure, financial institutions, heavy industry, external trade and all large corporate enterprises. Land, housing, motorized transport, internal trade and most small

scale industrial and commercial concerns remained privately owned.

The start of the nationalization programme in 1960 coincided with Egypt's first comprehensive plan for economic development. As outlined by the National Planning Committee, the objective was to achieve a doubling of national income after ten years, with some 40 per cent of the increase to take place in the first five years.[1] Details were published only for the first five years of the Plan. Investment was to be concentrated in industry, and as a result the share of industry in national income was expected to rise from 21.3 per cent in 1959-60 to 30.1 per cent in 1964-65. Concomitantly, the share of agriculture was expected to fall from 31.2 per cent to 28.5 per cent over the same period. When considered together with the projected rate of growth of income, this implied an average annual rate of growth for industrial output of nearly 20 per cent.

The actual growth of the industrial sector between 1960 and 1967 is set out in Table 4, with annual rates of changes in Table 5. It will be seen that although growth in industrial output was rapid during the early years of the period, after 1964 the rate of growth declined significantly. Hence at the end of the five year planning period industrial output was at a level some 20 per cent below that estimated in the plan. The rather disappointing performance since 1964 has been variously attributed

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[1] Central Bank of Egypt, Economic Review, Vol. I, No. 1, 1961.

to excess capacity,[1] the failure to achieve planned investment targets[2] and, latterly, the effects of the June 1967 War.[3] One important reason seems to be the steep rise in consumption since 1961, which sharply limited the amount of investment the government could undertake without causing inflationary pressures that might have been difficult to control.

Most observers agree that productivity has not fallen as a result of nationalization, at least after the initial disruption effects were overcome. The industrialization programme has not, however, been as successful in overcoming Egypt's unemployment difficulties. In spite of the rapid growth of industrial output since World War II, less than 15 per cent of the increase in adult males in Egypt between 1947 and 1960 was absorbed in industry; the percentage of the total labour force employed in industry only rose from 9.8 per cent to 10.8 per cent.[4] Since 1960, employment in industry has increased only 2 per cent.[5] Recent legislation has been aimed at increasing such employment, but may well have

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[1] Central Bank of Egypt, Annual Report of the Board of the Board of Directors, 1967.

[2] Bent Hansen, "Planning and Economic Growth in the UAR (Egypt)," Egypt Since the Revolution, ed. P. J. Vatikiotis (London: George Allen and Unwin Ltd., 1968), p.38.

[3] Central Bank of Egypt, Economic Review, Vol. III, Nos. 1 and 2, 1968.

[4] Mead, Growth and Structural Change in the Egyptian Economy, p. 127.

[5] Central Bank of Egypt, Economic Review, Vol. VIII, Nos. 3 and 4, 1968.

TABLE 4

VALUE OF INDUSTRIAL OUTPUT BY SECTOR,
1952 AND 1958 TO 1967
(in millions of Egyptian pounds)

	1952	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Manufacturing:											
Textiles.....	84.6	156.8	183.4	230.1	259.0	286.1	317	333	358	374	389
Foodstuffs.....	122.3	154.9	164.1	172.7	179.3	197.9	222	283	285	308	343
Chemicals.....	20.5	40.2	43.3	49.0	64.7	81.0	97	121	140	151	130
Engineering.....	30.1	53.3	62.6	80.9	93.9	115.2	148	164	160	171	176
Building Materials	8.4	17.6	19.6	20.0	21.4	23.4	27	29	31	35	35
Subtotal.....	265.9	422.8	473.0	552.7	618.3	703.6	811	930	974	1039	1073
Mining.....	3.6	5.3	7.0	7.5	8.4	8.2	8	11	11	12	12
Petroleum.....	34.2	61.2	57.6	66.4	74.0	81.7	92	118	101	103	100
Electricity.....	10.1	18.2	21.3	29.4	37.1	39.8	42	54	55	59	60
Total	313.8	507.5	558.9	656.0	737.8	833.3	953	1113	1141	1213	1245

Source: Central Bank of Egypt, Economic Review, various issues, 1961 to 1968.

TABLE 5

ANNUAL PERCENTAGE RATE OF CHANGE IN INDUSTRIAL OUTPUT BY SECTOR, 1959 TO 1967

	1959	1960	1961	1962	1963	1964	1965	1966	1967
Manufacturing:									
Textiles	17.0	25.5	12.6	10.5	10.8	5.0	7.5	4.7	4.0
Foodstuffs	5.9	5.2	3.8	10.3	12.2	27.5	0.7	8.1	11.4
Chemicals	7.7	13.2	32.0	25.2	19.8	24.7	15.7	7.9	-13.9
Engineering	17.5	29.2	16.1	22.7	28.5	10.8	-2.4	6.9	2.9
Building Materials	10.7	2.0	7.0	9.3	15.4	7.4	6.9	12.9	0
Subtotal	10.8	16.8	11.9	13.8	15.3	14.7	4.7	6.7	3.3
Mining	32.1	7.1	12.0	-2.4	-2.4	37.5	0	9.1	0
Petroleum	-5.9	15.3	11.5	10.4	12.6	28.3	-14.4	2.0	2.9
Electricity	17.0	38.3	26.2	7.3	5.5	28.6	1.9	7.3	1.7
Total	10.1	17.4	12.5	12.9	14.4	16.8	2.5	6.3	2.6

Source: Calculated from data in Table 4.

the effect of lowering productivity, since dismissing redundant labour has now become very difficult.[1]

International Trade

Between 1952 and 1967, Egypt's balance of trade has been in deficit, although both exports and imports have shown considerable fluctuation (see Chart 1). Although the adverse trade balance was offset to some extent by a surplus on invisibles (generated mainly by revenues from the Suez Canal and from tourism), the deficit on current account was substantial and growing, especially during the latter years of the period. The current account deficit was met at first by drawing down foreign assets accumulated during World War II; after 1958, foreign assistance was increasingly required.

A major objective of the Nasser government was to improve Egypt's balance of trade. This was to be accomplished in two ways. In the short run, exports were to be promoted and imports controlled by a system of subsidies and taxes.[2] In the long run the structure of both exports and imports were to be changed. Industrialization was expected to lead to the export of industrial products and to a fall in their import. In agriculture emphasis was to be given

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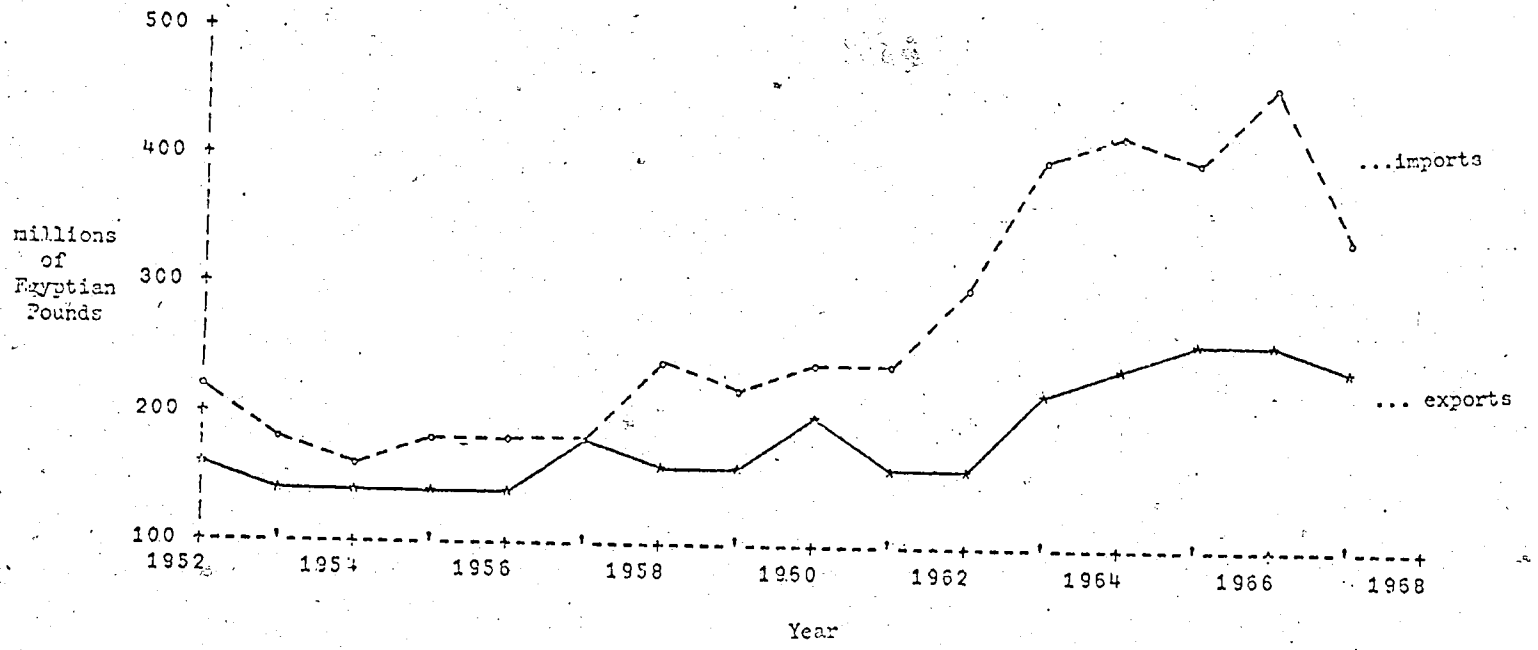
[1] Central Bank of Egypt, Economic Review, Vol. II, No. 2, 1967.

[2] For a brief discussion of these, see Hansen and Marzouk, Development and Economic Policy in the UAR (Egypt), pp. 196-98.

CHART 1

EXPORTS AND IMPORTS, 1952-1967



to developing the production for export of rice and other high value crops.

The effect of the subsidy and tax policies followed in the nineteen fifties was to create a system of multiple exchange rates, which, as Mead and Hansen have observed, resulted in what was effectively a gradual devaluation of the Egyptian pound, although the nominal rate remained at par with sterling. In 1961, an agreement was reached with the International Monetary Fund under which the subsidies and taxes were dropped and the Egyptian pound was devalued by 20 per cent. Statistics presented by Hansen suggest that this was in fact, approximately the percentage that the pound had depreciated by the end of the nineteen fifties, and hence devaluation could not have been expected to lead to a narrowing of Egypt's import surplus. In fact, as Chart 1 shows, the import surplus continued to grow every year after 1961 except 1965. This can be attributed to the heavy import demands of the five year plan, financed with International Monetary Funds credits provided as part of the 1961 agreement.

The longer run policy of changing the mix of goods traded has had some success. The value of exports of finished and semi-finished products rose from 11.8 per cent of total exports in 1960 to 29.8 per cent in 1966, while the value of raw materials exported fell from 69.7 per cent of total exports in 1960 to 61.7

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[1] Mead, Growth and Structural Change in the Egyptian Economy, pp. 173-75; Hansen and Marzouk, Development and Economic Policy in the UAR (Egypt), pp. 195-98.

per cent in 1966. Imports of consumer goods fell from 25.1 per cent of imports in 1960 to 14.1 per cent in 1966.[1] In general, Egyptian industrial output is substituting for imports in consumption and in some intermediate production processes; the share of imports consisting of intermediate goods fell slightly over the period.

In many cases, however, Egyptian industry requires the import of raw materials. Although a greater portion of value added in the production of finished products formerly imported is now generated in Egypt, the need to import raw materials has made the effect of industrial development on the balance of payments less than that anticipated in the 1960-1965 development plan.

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[1] These percentages are calculated from statistics appearing in the Central Bank of Egypt, Economic Review, various issues 1961 to 1968.

CHAPTER II

EGYPTIAN FINANCIAL INSTITUTIONS

The Egyptian financial system comprises three categories of institutions: the monetary authority, the commercial banks and the specialized banks.

The Monetary Authority

Unlike in most underdeveloped countries, central banking functions were performed in Egypt as far back as 1898. At that time, Egyptian financial affairs were administered by Britain on behalf of several European creditors, although Egypt remained a nominally independent country.[1] The lack of a bank of issue was felt by the British to be a constraint upon financial development of the country. Hence a new bank, the National Bank of Egypt (henceforth the NBE), was founded to perform certain of the functions usually performed by a central bank in addition to undertaking commercial banking functions. Half of its initial capital was subscribed in London and half in Egypt. The head office of the Bank was situated in Egypt. Three members of the Board of Governors

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[1] A good short discussion of the period prior to 1940 can be found in Charles Issawi, Egypt: An Economic and Social Analysis (London: Oxford University Press, 1947). For a fuller description of the period before 1900, see D. Landes, Bankers and Pashas (London: Oxford University Press, 1966).

(known as the London Committee) were resident in London; their function was to act as the Governor's agent in London and generally to advise him on policy matters. The government's participation was at first restricted to the appointment of two commissioners to the Board of Governors in Cairo. These had no voting power, but came to exercise considerable moral suasion.[1]

Central banking functions conferred upon the NBE were: (i) the monopoly of the note issue, (ii) financial adviser to the government, (iii) the right to rediscount short term bills payable in Egypt. The important powers of a central bank not explicitly granted to the NBE were the right to undertake open market operations and the right to force the commercial banks to maintain reserves against deposits, the ratio of reserves to deposits to be determined by the NBE.[2] The first would have been an empty privilege because of the lack of an organized money market. In any case, the Bank could use its rediscounting powers to some extent to influence the structure of interest rates. The second was a more serious deficiency which, in conjunction with the Egyptian currency system, made an active monetary policy possible only within rather narrow limits.

Prior to 1916, Egypt was on the gold standard; 50 per cent of the note issue was to be covered by gold, and the remainder by

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[1] National Bank of Egypt, The National Bank of Egypt, 1898-1948 (Cairo: 1948), p. 18.

[2] Ibid., pp. 17-18

securities approved by the Government. In 1916, gold was demonetized; the gold portion of the note issue was replaced by British Treasury Bills.[1] Egypt was then on a virtual sterling exchange standard, with scope for an independent monetary policy extremely limited. Funds moved back and forth between London and Cairo, expanding and contracting the Egyptian money supply to meet the seasonal needs of financing the cotton crop. An increase in the stock of money required an increase in sterling resources, which could be obtained only through increasing the foreign trade balance or through borrowing abroad. With no barrier to the transfer of funds and with changes in the money supply a function of changes in the balance of payments, counter-cyclical monetary policy, though not impossible, could only be pursued through moral suasion and hence depended very much on the reaction of the banking system. Changes in the rediscount rate could only be of peripheral influence, since the banking system did not generally take advantage of the NBE's rediscounting facilities. Had the NBE been given the right to require the maintenance of cash reserves, and the power to vary the required reserve ratio periodically, the monetary crises of 1914-1916 and 1931-1932 might have been less intense.[2] It remains true, however, that as long as no barriers existed to the transfer of sterling between London and Cairo, no domestic control of the money supply was possible.

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[1] Ibid., pp. 36-38. See also Issawi, Egypt: An Economic and Social Analysis, pp. 123-24.

[2] For a discussion of these, see National Bank of Egypt, The National Bank of Egypt, 1898-1948, pp. 36-42 and pp. 54-58.

After the withdrawal of Egypt from the sterling area in 1947, a greater degree of domestic monetary control did become possible, and indeed necessary. In 1951, the NBE was given full legal status as the Central Bank under Law 57 of that year. Essentially, the Law provided for the Egyptianization of the Board of Directors, and the creation of a Supreme Monetary Committee to determine monetary policy. The Committee was to be composed of three representatives of the NBE and four of the Government, including the Minister of Finance as chairman.[1] Commercial banks were required to keep interest-free reserves with the NBE, the ratio of reserves to deposits to be set from time to time by the NBE. The NBE was also made lender of last resort.

Once the link with sterling was broken and the status of the NBE changed, an active monetary policy became possible. Egypt went from a sterling exchange standard to an inconvertible paper standard. The portion of the note issue formerly backed by gold or British Treasury Bills was to be backed by Egyptian Treasury Bills, and the remainder backed by other securities of the Egyptian Government. The establishment of a required reserve ratio, and provisions for its variation, allowed the NBE to counteract undesired inflows of funds through the commercial banks. Although nominally independent from government, the policies of the Bank were set by the Supreme Monetary Committee. Because of the Committee's composition this meant that close co-operation between

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[1] O'Brien, The Revolution in Egypt's Economic System, p. 93.

the Bank and the Government was inevitable. However, it was not until after 1956 that active government policies to control the economy were instituted.

Although the NBE had been given de jure the powers of a Central Bank which it had previously exercised de facto, there continued to be pressure for change. In spite of the provision for Egyptianization, it was argued that the process was slow and that in fact the bank continued to act in the interest of its shareholders rather than in those of the State.[1] Moreover, the withdrawal of Egypt from the sterling area in 1947 left in its wake considerable bitterness, and the NBE received most of the blame. Thus, despite the fact that monetary policy was determined by a committee composed of four members representing the Government and three from the Bank, there was continued pressure for nationalization. Although outright nationalization did not take place until 1960, the Government held a majority ownership after sequestering British-owned shares in 1956 following the Suez War.

There was little immediate change in the organization of the governing structure of the bank following sequestration. The management of the Bank was the responsibility of the Bank's Board of Directors, which consisted of fifteen members chosen by the General Assembly for a term of five years. The Board chose a Chairman and a Deputy Chairman from among its members. In addition, there was a Governor and a Deputy Governor of the Bank nominated

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[1] Hussein El Fahmy, "The Techniques of Central Banking in Egypt," Middle East Economic Papers, 1 (1954), pp. 66-67.

by the Government for a term of five years.

Monetary policy was at first determined by the Supreme Monetary Committee.[1] This gave the Government effective control of monetary policy, and thereby in theory ensured against conflicts of fiscal and monetary policy. However, apparently the administration of policy was unsatisfactory under this arrangement, for, under Law 163 of 1957, government control over the NBE was strengthened as was the latter's control over the commercial banks. In effect, the government decided that orthodox methods of monetary policy were not sufficiently effective in the Egyptian context. The NBE, by Law 57 of 1951, had been given the power to fix reserve and liquid asset ratios and to vary the bank rate. These powers, together with a monopoly of the note issue, enabled the NBE to control the quantity of money. Yet little attempt was made to pursue an active monetary policy, probably due to the interest inelasticity of investment and the lack of a money market.[2] But by 1956, the desire for growth had become the major focus of the government's policy, implying much greater emphasis on industrial investment. If this was to be accomplished, more direct methods

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[1] El Fahmy argues that fiscal policy had not complimented monetary policy, and even after the government increased its control over the NBE in 1957, monetary and fiscal policy often conflicted. el Fahmy, "The Techniques of Central Banking in Egypt," p. 70.

[2] Investment, particularly real capital formation, is generally considered to be interest inelastic in developing countries because of a high rate of time preference, factor immobility, etc. This seems to have been the case in Egypt; see el Fahmy, "The Techniques of Central Banking in Egypt," pp. 67-68.

of channelling available credit had to be found.

Thus, Law 163 of 1957 made the Supreme Monetary Committee responsible for both the formulation and the administration of monetary policy. Banks were required to "regulate the availability and cost of credit in such a way that the real requirements of the commercial, industrial, and agricultural sectors are met."[1] The NBE was empowered to fix interest rates for all banks and to impose selective credit controls, as well as to vary reserve and liquidity ratios. In this way it was expected that investment could be channelled in the direction desired by government. Both by varying interest rates selectively, and by fiat, the NBE hoped to be able to influence the flow of funds throughout the economy in a way that would be commensurate with government targets.

In 1960, the government decided to create a central bank that would be separate from the NBE. One reason for the decision was the criticism that the NBE could not properly carry out its function as a central bank while at the same time functioning as a commercial bank — this despite the fact that its commercial business was severely restricted under the Law 163 of 1957. Therefore, under Law 250 of 1960 the Issue Department of the NBE became the Central Bank of Egypt (henceforth CBE). The CBE took over the assets and liabilities of the note issue department, as well as the liabilities of the banking department connected with government assets and those of certain other public bodies. In

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[1] Law 163, 1957.

addition, the CBE became responsible for both the accounts of international monetary institutions and the legal reserves of the commercial banks. These liabilities were met by assets consisting of gold, foreign exchange, and foreign securities.[1] The NBE then became solely a commercial bank and was nationalized. This enabled its large number of rural branches to be used to greater effect than when its commercial activities had been limited.

In 1961, the entire banking system was nationalized and placed under control of the General Organization for Banking. This divided the responsibility for managing the banking system between the CBE and the General Organization. In 1964, the General Organization for Banking was abolished with its functions being taken over by the CBE, thus centralizing control over the entire banking system in the CBE.[2]

The Commercial Ban

At the time of the Revolution of 1952, the Egyptian commercial banking system was almost entirely foreign owned. The only exception was the Bank Misr, founded in 1920 entirely with Egyptian capital in order to finance local industry. Foreign domination of the banking system had led in previous years to two main difficulties. The first concerns the ease with which each

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[1] Central Bank of Egypt, Annual Report of the Board of Directors, 1961, p. 24; Central Bank of Egypt, Credit and Banking Development in 1960, p. 34.

[2] Presidential Decree No. 1466, 1964.

bank could obtain funds from abroad through its head office. Since the NBE was obligated to convert sterling to Egyptian pounds and vice versa at a fixed rate,[1] credit conditions abroad and the balance of trade determined the size of the domestic note issue. The seasonal nature of exports, consisting mainly of cotton, and the fact that cheques were not generally used as a means of payment outside the cities, meant that the note issue varied markedly over the years. The high currency ratio[2] and low velocity of circulation of deposits constituted a leakage which limited the potentially large expansion and contraction of the money supply consequent upon the changes in the note issue. Nevertheless, the system functioned so as to transfer to Egypt monetary crises originating abroad. The second difficulty with foreign ownership of the banking system was the preference of the banks for short term loans secured by merchandise. El Gritly,[3] in particular, places considerable stress on the fact that the profitability of financing foreign trade, coupled with the bias of British bankers against long term lending, caused the industrial sector to be starved for funds. This was not strictly a consequence

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[1] Issawi argues that the NBE was under no de jure obligation to convert Egyptian pounds to sterling. (See Issawi, Egypt Since the Revolution, p. 24). However, there would appear to be no instance of such conversion being refused.

[2] Defining money to include currency plus demand deposits, the currency ratio was slightly over 49 per cent in 1938, just prior to the outbreak of World War II.

[3] A. A. I. el Gritly, "The Structure of Modern Industry in Egypt," L'Egypte Contemporaine, 38 (December, 1947), pp. 426-29.

of foreign ownership, since it could be countered by appropriate government regulations concerning the composition of the bank's local portfolios. However, the imposition of such controls over the banking system would have been difficult prior to the end of the Second World War because of the strength of the commercial banking system, the influence of British banking traditions, and the lack of a strong central bank. After 1951, the additional powers given to the NBE set the stage for the imposition of such regulations, although the only immediate effect was to force all commercial banks to publish monthly reports showing their local transactions and to submit to annual audit by the NBE.

In spite of the extent to which the banking system was foreign owned, the government at first made no real attempt to control its operations. The reserve ratio was initially set at 15 per cent of total deposits, and lowered in 1954 to 12.5 per cent, at which level it remained until 1957. Little use was made of the rediscount rate, and the banks continued to hold substantial excess reserves. The necessity of submitting to annual audit may have made possible some degree of moral suasion on the part of the NBE. However, the government's generally laissez-faire stance in the five years after assuming power makes it unlikely that serious attempts were made to change bank lending policies.

The year 1956 marked the economic revolution in Egypt which was the counterpart of the political revolution of 1952. Using the argument that foreign controlled firms, particularly

those in the financial sector, were attempting to apply economic pressure to Egypt, the government sequestered all British and French property within the country.[1] This gave them immediate control of the two commercial banks which had the largest deposits, Barclay's DCO and the Ottoman Bank. At the same time, Law 22 of 1957 was passed, requiring that all commercial banks be incorporated in Egypt and be Egyptian managed, with all capital shares to be held by Egyptian subjects. The sequestered banks were taken over immediately by the government-owned Economic Development Organization and merged with existing Egyptian banks; the remaining foreign-owned banks were given a period of five years to meet the Egyptianization requirement.

Initially the government intended to sell the sequestered banks to the banks with which they were merged. However, this was not done and ownership remained vested in the government. As a result, the government controlled seven commercial banks including two of the largest in terms of assets and number of branches; the only large bank remaining outside government control was the Bank Misr. It appeared that this would be adequate to enable the government to control the supply of credit sufficiently to permit a modicum of planning, especially since the NBE (then the Central Bank) was given additional powers to direct the flow of bank credit. However, the failure of the private sector to

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[1] National Bank of Egypt, The Economy of the UAR During the Nineteen Fifties (Cairo: National Bank of Egypt, 1963), p. 18.

participate effectively in the first attempts at planning between 1958 and 1960 seemed to convince the government that more changes were required. Moreover, the NBE's control over the flow of credit was by no means complete. In particular, the Bank Misr remained under private ownership, although the government had the power to veto appointments to its Board of Directors as a result of the bank's reorganization in 1941. O'Brien states that the government used this veto power after 1956 to force the Bank Misr to expand its industrial investments in the direction desired by the government.[1] Thus by 1959, some 50 per cent of planned investments in the private sector were by Misr companies.

Conflicts which had developed between the Bank Misr and the government came to a head in 1960.[2] Although the independence of the Bank was rather severely circumscribed by the government's power to control appointments to the Board, nevertheless the degree of autonomy remaining must have seemed excessive to a government in the process of shifting to comprehensive state planning. Since Misr companies by 1960 controlled some 20 per cent of industrial production (50 per cent of textiles), the bank's acquisition by the government would enable the latter to control the major part of Egypt's industry hitherto in private hands. These considerations led to the nationalization of the

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[1] O'Brien, The Revolution in Egypt's Economic System, p. 93.

[2] Evidence is hard to find on this point; the statement is based on O'Brien, The Revolution in Egypt's Economic System, p. 125, which in turn is based in part on press reports.

Bank Misr in February, 1960.[1] The NBE was nationalized at the same time.

In June of 1961, a further wave of nationalization took place, during which all commercial, industrial and mortgage banks not yet government owned were taken over and placed under the newly formed Organization for Banks.[2] All insurance companies still in private hands were also nationalized. At the same time, under Article 7 of Law 250 provision was made for the CBE to carry out periodic inspections of the commercial banks to ensure their compliance with the regulations and directives laid down by the bank. These regulations provided, inter alia, for regular reports on credit extension in excess of £E100 thousand to any one client, and were subsequently tightened to require regular reports on the entire financial position of any borrower employing credit facilities greater than £E10 thousand.[3] Thus during 1960 and 1961 the government greatly increased its control of the country's financial infrastructure as a first step towards completely centralizing financial decision-making in the economy.

Official statements make it clear that the government's actions were motivated by its disappointment with the results of the industrial plan of 1958-1960, and its resulting conviction that economic growth could be fostered only under comprehensive

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[1] Law 39, 1960.

[2] Law 117, 1961.

[3] Central Bank of Egypt, Credit and Banking Developments in 1961-62, p. 32; Circular 24, (11-4-61 and 15-10-61).

state planning. The general uncertainty as to the future direction of the economy during the 1958-1960 planning period, together with the short time preference and high risk aversion typical of the Egyptian investor, make it probable that targets for the private sector were badly under achieved.[1] Although the monetary authority could place ceilings on the amount of the various kinds of credit that could be extended, it was difficult to persuade investors to transfer their interests to other fields when they were denied credit for their preferred line of endeavour. The elasticity of substitution between types of investments is generally considered to be much lower in underdeveloped countries than is the case in advanced countries,[2] and Egypt seems to have been no exception in spite of a generally sophisticated upper and middle class. Thus the nationalization of the banks was, to quote the CBE,

> ...intended to secure a banking system designed to serve the proper interest of the national economy. Profits will not be the main goal of these institutions. It should not be forgotten that in an underdeveloped country which is striving for rapid economic progress, profit is not always the rule. The scale of priorities in an economy that plans its development is very different from what classic theory of choice postulates.[3]

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[1] Although direct evidence on this point is lacking, since official figures were never published, data published in National Bank of Egypt, The Economy of the UAR During the Nineteen Fifties, p. 99, indicates that nearly one-third of the projects planned for the industrial sector were not completed during the plan period.

[2] This is due in part to lack of knowledge concerning alternative investment opportunities. See, for example, U Tun Wai, "Interest Rates in the Organized Money Markets of Underdeveloped Countries," International Monetary Fund, Staff Papers, 5 (August, 1956); Benjamin Higgins, Economic Development: Principles, Problems and Policies, Revised Edition (New York: W. W. Norton, Inc., 1968), Chapter 23.

[3] Central Bank of Egypt, Credit and Banking Developments in 1960, p. 36.

With respect to the nationalization of much of the industrial sector, the Board of Directors of the CBE remarked that the nationalizations

> ...endeavour to put an end to capitalist monopoly, and to expand control of the State over the various economic sectors with a view to mobilizing the resources and directing production... to secure the balance of growth of the economy.[1]

With most of the industrial sector under government control as well as the entire financial sector, the government felt itself able to plan with some confidence.

There is limited evidence that the banking system did indeed fail to respond adequately to the type of indicative planning attempted during the late nineteen fifties. The pattern of bank lending showed little change, although holdings of government long term securities did increase over the period. Long term lending to the private sector fell each year from 1956 to 1959; only in 1960 did the level of such lending exceed that of 1956. (See Table 6). After 1960, bank lending increased sharply and the banks began borrowing heavily from the Central Bank in order to provide the credit required under the Plan.

By 1964 it had become apparent that the banking system was poorly structured for the task which the government wanted it to perform. There were too many banks and they were competing with each other to provide finance to some sectors while other sectors were being starved for funds.[2] Moreover, it was useful

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[1] Central Bank of Egypt, Report of the Board of Directors, 1961, pp. 9-10.

[2] Central Bank of Egypt, Economic Review, Vol. IV, No. 2. pp. 162-63, and Central Bank of Egypt, Report of the Board of Directors, 1963-1964, pp. 32-33.

TABLE 6

AGGREGATE BALANCE SHEET OF COMMERCIAL BANKS, SELECTED ITEMS
1952-1967[a]
(millions of Egyptian Pounds)

	1952	1953	1954	1955	1956	1957	1958	1959	1960
Assets:									
Cash	7.2	5.9	5.9	6.2	6.8	7.5	7.3	6.1	6.5
Balances with CBE[b]	35.0	36.8	32.0	43.6	40.0	46.0	45.6	51.3	61.1
Treasury bills	2.1	2.1	1.2	1.3	6.8	6.8	-	.4	3.0
Investments and Securities									
(i) Government[c]	7.7	7.4	8.4	9.0	15.3	15.7	23.1	30.9	48.1
(ii) Other	9.4	9.5	10.6	10.8	13.3	12.3	12.6	11.7	14.5
Loans and Advances	102.7	101.9	126.7	126.8	142.9	157.4	186.2	219.2	218.4
Liabilities:									
Borrowing from CBE[b]	4.4	4.2	11.0	9.5	16.3	7.9	20.5	31.1	31.3
Deposits									
(i) Government	8.7	8.8	9.5	9.8	11.8	19.1	29.0	35.1	47.4
(ii) Private current	112.8	106.9	117.6	123.9	135.1	160.9	154.8	172.7	183.1
(iii) Private time & saving.	33.7	42.1	48.4	50.3	49.6	48.6	57.0	65.8	67.6

TABLE 6 --- continued

	1961	1962	1963	1964	1965	1966	1967
Assets:							
Cash	11.4	16.0	16.9	17.8	20.3	22.4	20.2
Balances with CBE[b]	54.0	44.7	54.5	71.9	85.4	74.7	119.5
Treasury bills	37.5	44.3	70.0	60.7	40.9	23.0	31.0
Investments and Securities:							
Government[c]	106.9	111.5	120.0	127.5	118.7	116.9	106.2
Other	12.9	16.6	13.3	5.5	5.6	6.0	6.3
Loans and Advances	231.7	261.1	311.6	400.0	491.0	566.8	647.2
Liabilities:							
Borrowing from CBE[b]	21.5	32.9	63.9	121.7	161.4	182.0	277.5
Deposits:							
Government	60.9	43.9	51.7	91.9	115.0	77.7	84.3
Private current	246.3	226.7	260.1	246.0	229.1	262.0	275.8
Private time and saving	67.5	127.3	159.7	210.7	237.9	235.6	249.0

[a]Source: Compiled from Central Bank of Egypt, Economic Review, various issues. All data pertain to year end only.

[b]NBE prior to 1961.

[c]Includes government guaranteed securities.

from the planning point of view to be able to monitor closely the resources and uses of credit for each branch of the public sector. Therefore, the commercial banks were consolidated into five large banks, the six smallest being combined with the five largest. Each of the banks was then assigned a specific group of public companies in the financing of which it was to specialize; the banks and their financing responsibilities are outlined in Table 7. The financing of agricultural marketing remained the responsibility of the entire banking system, both because its demands were great and because the rural branches of the entire system were necessary to deal with what was still basically a disaggregated sector of the economy. Even then, however, competition could only be of a non-price nature; the banks were not permitted to vary their interest charges, nor the conditions under which advances could be granted.[1]

At the same time, the Organization for Banks was abolished, the CBE taking over full responsibility for the commercial banks. With the previous overlap of authority ended, the CBE was then able to supervise closely the flow of financial resources to each sector. The effect of these changes has been to greatly increase the degree of supervision of the economy. Each bank is in fact made responsible for overseeing the [illegible]ion of the companies which they finance. As the 1963-64 Report of the CBE's Board of Directors puts it, they are "... to follow up the activities of the productive units

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[1] Central Bank of Egypt, Report of the Board of Directors, 1968-69, p. 39.

TABLE 7

FINANCIAL SPECIALIZATION OF COMMERCIAL BANKS, 1964

BANK	SECTOR FINANCED
Bank Misr	All companies affiliated with the General Organization of Spinning and Weaving, Ministry of Light Industry.
National Bank of Egypt	All companies affiliated with the Ministeries of Agriculture, Agrarian Reform, Land Reclamation, Transport and Communications, and War; Suez Canal Authority, Railways Authority, Telecommunication Authority, Military Factories Organization.
Bank of Alexandria	All companies attached to Ministry of Industry, and to the Egyptian General Petroleum Organizations.
Bank of Cairo	All companies attached to the General Trade Organization and to the Ministries of Housing and Public Utilities, Information, and Tourism.
Bank of Port Said	All companies attached to Ministries of Health, Supply and Internal Trade, and the General Pharmaceuticals Organization.

Source: Central Bank of Egypt, Report of the Board of Directors, 1963-64.

in the public sector and to appraise the extent of their contributions to the realization of the Development Plan Targets."[1] To this end, during 1965 and 1966, accounts were opened for each establishment to enable the bank responsible for its financing to monitor company flows of funds. The elimination of the Organization for Banks also tightened the control of the CBE over the commercial banks. All decisions by the Directors of the Commercial Banks were subject to review by the CBE, and could be vetoed if, in the opinion of the CBE, they were not in conformity with the requirements of the monetary authority.[2]

The Specialized Banks

Various attempts had been made to create specialized financial institutions for Egyptian agriculture and industry in the early decades of the present century. There were several reasons why specialized institutions were felt to be necessary. In the case of agriculture, although there existed several foreign controlled mortgage companies, these would lend a minimum amount so large as to be beyond the capacity of small landowners to repay. Since the commercial banks preferred to lend only on short term, small holders had virtually no access to credit on medium or long term. Even their access to short term financing was limited; the year to year variability of cotton

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[1] Central Bank of Egypt, Report of the Board of Directors, 1963-64, p. 32.

[2] Central Bank of Egypt, Report of the Board of Directors, 1964-65, p. 41.

prices meant that loans secured by cotton were risky unless the borrower was financially stable. Hence most small holders had to resort to high interest loans from village money lenders.[1] In the case of industry, much the same sort of arguments were used to justify special arrangements. The commercial banking system emphasized short term lending; hence long term funds for industrial development were difficult to obtain, although short term accommodation secured by inventory was available.

Agricultural Finance

Early attempts to create a bank for the finance of agriculture failed due to the many defaults which occurred during periods of falling cotton prices.[2] In 1931, however, the Credit Agricole d'Egypte was created to make medium and long term loans over periods varying from five to twenty years in duration, and short term loans for up to fifteen months.[3] Long term loans were secured by land mortgages, and short term by a lien on the crop. Installments on loans were collected at the same time as taxes, and the Bank was exempted from provisions of the Five Feddans Law.

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[1] A good summary of the financial difficulties facing Egyptian farmers can be found in E. Eshag and M. A. Kamal, "A Note on the Reform of the Rural Credit System in Egypt," Bulletin of the Oxford University Institute of Economics and Statistics, 29 (May, 1967), pp. 95-107.

[2] The most successful early attempt was the Agricultural Bank, organized in 1902. It provided short and long term loans at a maximum interest rate of 8 per cent. The bank did well until 1913, but never recovered from the imposition of the Five Feddans Law. See Issawi, Egypt: An Economic and Social Analysis, p. 126; and also Eshag and Kamal, op. cit, pp. 98-99.

[3] Issawi, Egypt: An Economic and Social Analysis, pp. 127-28.

The latter law had prevented the foreclosure of mortgages on land of less than five feddans, and was an important factor in the failure of earlier attempts at agricultural financing.

In order to control the use to which borrowed funds were put, and to expedite the work of the agricultural extension departments, the bank was empowered to make loans in kind as well as in cash. Small landowners and co-operatives were favoured as a matter of policy; cash loans were available only to small landowners and to co-operatives, and the Bank participated in the financing of new co-operatives as well as making loans to existing ones. Moreover, interest rates were lower for co-operatives, being 5 per cent compared to 7 per cent for individuals.[1]

In an attempt to prevent a sharp increase in foreclosures during the depression of the nineteen thirties, the Credit Hypothecaire d'Egypte was created as a subsidiary of the Credit Agricole to take over existing mortgages; in 1941 it was established as a separate mortgage lender to small landowners. It raised its funds by the issue of debentures which carried a government guarantee as to principal and interest.[2]

Eshag and Kamal have argued that the apparatus for financing agriculture favoured the large landowners rather than the small, contrary to the intent of these institutions when

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[1] Eshag and Kamal, "A Note on the Reform of the Rural Credit System in Egypt," p. 99.

[2] National Bank of Egypt, 1898-1948, pp. 61-62

first created.[1] Their evidence for this conclusion, in the absence of any data respecting loans by recipient, is the increase from £E300 to £E500 in the size of the maximum loan extended by the Agricultural Bank, the higher sum being beyond the financial capability of small landowners. In the case of the Credit Agricole, the fact that loans in cash were available to any landowner, large or small, and that loans in cash were available to co-operatives, the membership of which was not limited to small landowners, does support the presumption that much of the financial resources available may have gone to large landowners. Moreover, the definition of a "small" holding was continually revised upwards, from 30 feddans in 1931 to 200 feddans in 1937; thus 99.9 per cent of the farmers, owning over 75 per cent of the land, were considered to be small landowners. Issawi also points out that the practice of collecting loans through the taxation apparatus made small landowners hesitate to take advantage of what funds were available.[2]

Suggestive as these arguments may be, they are by no means conclusive. The decline of the Agricultural Bank after the passing of the Five Feddans Law seems to indicate that the bulk of its resources were committed to the small landowners, and that it had little appeal for those owning more than five feddans. The argument is somewhat stronger in the case of the Credit Agricole; however, the fact that its total lending remained relatively in-

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[1] Eshag and Kamal, "A Note on the Reform of the Rural Credit System in Egypt," pp. 99-100.

[2] Issawi, Egypt: An Economic and Social Analysis, p. 127

significant prior to 1956 indicates that its appeal to both large and small landowners was relatively weak. Small landowners may have been discouraged by the bureaucratic procedures involved, especially for individuals, and the pressure put on them to join a co-operative. Large landowners generally had access to sufficient credit at reasonable interest rates from the banking system, and it is possible that the Credit Agricole was viewed by them more as a leader of last resort.

In any event, the operations of the Credit Agricole were on a relatively limited scale until 1956. From £E2 million in 1933, loans outstanding rose to £E5 million in 1935, and remained at that level until 1947. Although there was a sharp increase in its lending between 1947 and 1952, from 1952 to 1956 the amount outstanding varied between £E16 million and £E19.5 million (Table 8). Advances covered less than 20 per cent of production costs; a rather low level in the light of credit requirements in the agricultural sector. Advances by the commercial banks during the same period were some four times as great.

In 1956 it was decided to greatly increase agricultural credit by permitting the bank to issue 3 per cent bonds to the value of £E20 million, this limit increased to £E30 million in 1962. Most of these issues were purchased by the NBE and, later, by the Central Bank. This resulted in a fairly rapid increase in agricultural credit (Table 9) channelled through the bank. The trend accelerated sharply in 1961, when credit to co-operatives

TABLE 8

SOURCES OF AGRICULTURAL CREDIT, 1952-1956
(millions of Egyptian Pounds)

Year	Credit Agricole		Commercial Banks	
	Amount	Percentage of Production Costs	Amount	Percentage of Production Costs
1952	16.0	12.6	41.9	87.4
1953	16.4	15.3	41.9	84.7
1954	17.4	16.8	55.7	83.2
1955	19.5	18.9	44.7	81.1
1956	17.7	16.0	63.4	84.0

Source: National Bank of Egypt, Economic Developments Since the Revolution (Cairo: 1963).

NET LENDING OPERATIONS OF THE CREDIT AGRICOLE ET COOPERATIF, 1957-1967[a]
(millions in Egyptian Pounds)

Year	Total Loans	Short Term[b]	Medium Term	Long Term
1957	8.7	8.1	0.4	0.2
1958	9.9	9.1	0.7	0.1
1959	11.6	10.4	1.0	0.2
1960	13.7	12.5	1.9	0.3
1961	22.5	17.0	5.1	0.4
1962	43.2	22.8	2.9	17.5
1963	44.2	28.9	4.7	10.6
1964	55.3	41.4	6.8	7.1
1965	34.8	21.6	12.2	1.0
1966	34.0	24.5	8.4	1.1
1967	61.9	51.3	9.4	1.2

[a]Source: Calculated from figures appearing in Central Bank of Egypt, Statistics on Credit and Banking, 1962-67.

[b]Short term is for a period of less than fourteen months; medium term is from fourteen months to five years and long term over five years.

was made free.[1] In 1964, the Bank was converted into a public organization attached to the Ministry of Agriculture under the name "Egyptian General Organization for Agriculture and Co-operative Credit."[2] Its responsibilities were broadened to include the provision of credit and in addition it became a central planning agent of the government for agriculture. All branches of the Bank were converted into agricultural and co-operative credit banks owned by the government. By far the major portion of its resources were drawn from the banking system, although it held relatively small deposit accounts for a large number of co-operatives. In 1967 the banking system was the source of some 70 per cent of its financial resources; only 12 per cent was made up of deposits of the co-operative societies. Since 1961, when the commercial banks were nationalized, the proportion of its resources obtained from the CBE has fallen, and that from the commercial banking system has risen.

Industrial Finance

Until the creation of the industrial bank in 1949, the small Egyptian industrial sector was largely self-financing or was financed through the Bank Misr.[3] The latter was formed in 1920, the first bank to be organized solely with Egyptian capital. Its

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[1] Law 4, 1962. See also Eshag and Kamal, "A Note on the Reform of the Rural Credit System in Egypt," p. 101.

[2] Central Bank of Egypt, Economic Review, Vol. 4, No. 2.

[3] El Gritly, "The Structure of Modern Industry in Egypt," p. 434. el Gritly provides an excellent discussion of Egyptian industry and its financing up to the end of World War II.

main objective was to finance industry; it is also credited by Issawi with having done much to spread the banking habit in Egypt by opening branches throughout the country and thereby encouraging deposits.[1] In addition to both short and long term lending to industry, the bank participated directly in ownership in a wide variety of fields. The Misr group of companies was dominant in textiles and was of considerable importance in other fields ranging from insurance to fisheries. In addition to its deposits, its major source of funds was the NBE by way of the government, and most of its lending was to firms in which it has some direct financial participation.

The Bank Misr was entirely committed to industrial finance, and hence did not have a diversified asset portfolio to help cushion the effect of periodic economic shocks. Several financial crises involving the bank culminated in its reorganization in 1941. The government provided E2 million to meet the Banks debts and guaranteed its deposits; in return, it assumed the right to appoint a government commissioner to the Board of Directors and to veto appointments to the Board.[2]

Although the reorganization of the Bank Misr placed it on a sounder footing, there is some indication that the financing of new companies suffered. The Director General of the Ministry of Finance, writing in 1944, made it clear that the Egyptian government

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[1] Issawi, Egypt at Mid-Century, p. 216.

[2] el-Gritly, "The Structure of Modern Industry in Egypt," p. 435.

looked to rapid industrialization after the war as a key to the country's development.[1] This was followed in 1949 by the creation of an industrial bank along the lines of the Credit Agricole. The government contributed 51 per cent of the initial capital stock of £E1.5 million, the major banks 30 per cent, and the public the remainder. In addition, it guaranteed principle and interest on the Bank's debentures and a minimum dividend of 3.5 per cent on equity capital. It also provided up to £E2 million in grants and loans for working capital.[2]

The Bank, like the Credit Agricole, became a specialized financial intermediary rather than a bank in the ordinary sense. It could obtain funds solely through the issue of debentures. It participated directly in industry; in addition it advanced short term loans secured by inventory, medium term loans of up to ten years to newly established firms for the purchase of equipment, and long term loans of up to twenty years for the creation of new enterprises. Moreover, the Bank was able to assist individual graduates of technical schools through making loans to them of up to five years in order to assist them in forming small businesses.

Like the Credit Agricole, the Industrial Bank did not have much early success. Poor operating procedures, inadequately trained personnel and improperly prepared and supported application made a proper allocation of its financial resources difficult. By 1958,

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[1] Mahmoud S. el Falaki, "Post War Planning of the Currency and the Money Market in Egypt," L'Egypte Contemporaine, 35 (January-February, 1944), p. 194.

[2] Issawi, Egypt at Mid-Century, p. 226.

loans outstanding had reached only the relatively low level of E2 million; most of this went to large firms, in spite of the lower rate of interest than that charged by the commercial banks.[1]

Bureaucratic difficulties, rather strict conditions for borrower eligibility, and a conservative outlook all acted to keep lending relatively low. In 1954, after the government increased its guarantee for loans made by the Industrial Bank, the Bank did begin to participate to a greater extent in the founding of new firms. Even then, however, it often simply guaranteed the loans that the commercial banking system made to industry. Since these were mostly short term, this did not really meet the needs of the industrial sector.

In 1956, the Industrial Bank was placed under the supervision of the newly formed Economic Development Organization which was to oversee and co-ordinate government owned establishments in the economy. The following year the government raised its guarantee to E7 million and again in 1960 to E10 million.

Until 1954, most of the Bank's activities had involved the provision of medium and long term loans, as was intended under the terms by which it was organized. Some 60 per cent of its lending in 1954 was for periods of greater than one year.[2] Between 1954 and 1964, most of the emphasis gradually shifted towards short term lending, largely because long term loans were

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[1] Central Bank of Egypt, Economic Review, Vol. I, No. 3.

[2] National Bank of Egypt, The Economy of the UAR During the Nineteen Fifties, p. 91.

available from the government through the commercial banking system. As Table 10 illustrates, the volume of lending remained relatively low through 1966, apparently because the Industrial Bank was redundant in the context of the Egyptian financial system.

After 1961, when most of the industrial sector and the entire financial infrastructure came under government control, the flow of finance through industry was centrally directed through the commercial banks. Because each bank was made responsible for the entire financial programme of a specific sector, there was little need for a specialized institution for industry. Since 1964, however, the Industrial Bank has gradually been converted into an institution specializing in financing small commercial and industrial establishments in the private sector. This has resulted from the government's increased concern with that sector and led to a sharp increase in the Industrial Bank lending in 1967.[1]

The Government and the Financial System

The Egyptian financial system is now closely integrated with the national economy. Each of the five commercial banks is the provider of finance, the financial adviser, and the central accounting branch for the companies to which it is affiliated. At the same time, each bank acts as overseer on behalf of the monetary authority to ensure that their financial operations are

[1] Central Bank of Egypt, Report of the Board of Directors, 1968-69, p. 39; see also the Report of 1967-68, pp. 3 and 39.

TABLE 10

NET LENDING OPERATIONS OF THE INDUSTRIAL BANK, 1958-1967[a]
(millions of Egyptian Pounds)

Year	Total Loans	Short Term[b]	Medium Term	Long Term
1958	3.7	2.3	0.5	0.9
1959	4.9	3.6	0.4	0.9
1960	6.5	4.7	0.9	0.9
1961	7.9	5.5	1.3	1.1
1962	7.4	5.3	1.0	1.1
1963	7.3	5.7	0.7	0.9
1964	7.1	5.9	0.4	0.8
1965	6.1	1.1	3.4	1.6
1966	7.7	1.7	2.8	3.2
1967	11.1	0.8	3.1	7.2

[a]Source: Central Bank of Egypt, Statistics on Credit and Banking, 1962-67.

[b]Short term is for a period of less than one year, medium term is from one to five years, and long term over five years.

those that are permitted within the detailed directives laid down by the Central Bank of Egypt, and, indirectly, the planning authority. Banks no longer compete with each other, nor can they on their own responsibility decide whether or not to extend credit or vary the terms on which such credit will be granted. Commercial banks act as financial intermediaries in the sense that they serve to some degree as mobilizers of loanable funds; they do not, however, govern the allocation of these funds. Although they have more discretion with respect to their operations in the private sector, nonetheless even here banks are restricted. Ceilings are placed on the extension of credit to the private sector, and lending for capital formation cannot take place unless sanctioned by the monetary authority.

All companies within the public sector are affiliated with one of the general organizations; there are some thirty of these. Each of the organizations is placed under the supervision of a cabinet minister; each minister has responsibility for some five to eight organizations. All organizations are co-ordinated by the Supreme Council for Public Organizations, chaired by the President of the UAR and composed of the cabinet ministers responsible for the organizations attached to their departments. The Supreme Council co-ordinates the operations of the organizations, lays down output targets and approves their budgets. Each minister is expected to ensure the implementation by the organizations under his charge of the plan targets approved by the Supreme Council. There is some overlap in membership between the Supreme Council for

Public Organizations and the Supreme Council for Planning, which was also created in 1961. The latter is chaired by the President, and is composed of some of the ministers and the chairmen of the public organizations. Its function is to approve the overall development plan, which is prepared under the direction of the Vice President for Planning.[1]

These organizations are not part of the civil service, but rather are holding companies for the concerns attached to them. Each organization is managed by a board of directors. The system is somewhat unwieldly, and in practice the chairmen of the organizations' board of directors and the companies' managers have a great deal of day-to-day independence.

The CBE, although a nominally independent authority, works closely with the Supreme Council and with the Treasury. In 1965, the CBE integrated administratively much more closely than previously with the commercial banking system. By Law 17 of 1965, the Board of Directors was changed to consist of the Governor (who presides over the Board), the Deputy Governor, a representative of the Ministry of the Treasury, two representatives from the Ministry of Economy and Foreign Trade, the chairmen of the commercial and specialized banks or their delegates, and three distinguished persons conversant with monetary and financial affairs chosen by the President upon the recommendation of the Minister of Economy and Foreign Trade. In contrast to usual central banking

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[1] Presidential Decree No. 1898 of 1961; Central Bank of Egypt, Economic Review, Vol. III, No. 4; Laws 60 and 61, 1963.

practices, the Central Bank of Egypt has great powers over the commercial banking system. In addition to the usual powers of undertaking open market operations, varying reserve and liquidity ratios and the control of the note issue, it has the legal powers to compel the banking system to follow its directives in place of the informal moral suasion open to most central banks. The result is that the Central Bank of Egypt is in a position to formulate and administer a monetary policy much more direct and flexible than is the case for the central banks of most other countries. The monetary policy actually followed by the CBE since its inception will be analysed and evaluated in the next chapter.

CHAPTER III

MONETARY POLICY, 1947 - 1967

Until Egypt withdrew from the sterling area in 1947, an active monetary policy in the usual sense of the term was virtually impossible. This does not imply that the NBE had no influence upon monetary conditions in Egypt before World War II. In fact, the NBE on more than one occasion was able to use its position as financial adviser to the government and as lender of last resort to the commercial banks to soften the adverse effects which had resulted from periods of depressed cotton prices.[1] However, the Bank could only have a marginal effect as long as Egypt was on a gold or sterling exchange standard.

The economic disorganization of Britain following the end of World War II and the consequent blocking of the sterling assets of the sterling area, including Egypt, led to often embittered negotiations between Egyptian and British officials over arrangements to secure Egyptian import needs, particularly those from non-sterling countries. The upshot of this was Egypt' withdrawal from the sterling area in 1947. Since sterling was inconvertible, the portion of the note cover made up of British Treasury Bills was replaced by Egyptian Treasury Bills. Thus,

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[1] See National Bank of Egypt, 1898-1948, for a discussion of some examples.

the Egyptian monetary system was no longer based on a sterling exchange standard, but became a managed currency.

Although controversy over the advantages and disadvantages accruing from the sterling exchange standard had existed for some time prior to the decision to leave the sterling area, it seems clear in retrospect that the need for additional freedom to manage the economy would soon have made such a move mandatory even had Egypt not been forced off sterling by post war conditions. As long as sterling could be converted at a fixed rate into Egyptian pounds without limit, and vice versa, the NBE had no effective way of controlling the quantity of money. Thus any disequilibrium could be resolved only by throwing the entire burden of adjustment on the domestic economy, as indeed was the case under the gold standard. Although the NBE was able to counteract cyclical tendencies in the economy to some degree by means of its own credit policy and moral suasion, these tools on the whole proved inadequate to dampen effectively the instability typical of the years 1900-1947.

The main arguments in favour of remaining tied to sterling were twofold. First, a high proportion of Egyptian trade was with sterling area countries, particularly Britain and India, and that trade would benefit from stability of the currency in terms of sterling. This argument lost force after the war, when the sterling area's lack of capacity to fill Egyptian import needs was a major factor causing Egypt's departure from the sterling area. Second, in the words of Hallet, "British monetary policy has so

far proved to be as good as, if not better, than any other."[1]

Unfortunately, Hallet does not spell out what he means by this statement, even though it would be easy to think of cases in which the correct monetary policy for each of the two countries would be diametrically opposed. The separation of the Egyptian monetary system from that of Great Britain would enable a monetary policy to be formulated in terms of Egyptian rather than British monetary conditions.

Table 11 presents data covering the money supply and the factors affecting the money supply between 1947 and 1951. It can be seen that the NBE followed a generally expansionary policy during the 1947-1951 period. The money supply both narrowly defined and broadly defined[2] increased in every year except in 1949. The slight fall in 1949 was caused by a contraction in bank claims on the government of some £E20 million together with a fall of nearly £E6 million in foreign assets; against these, bank lending to the private sector increased by £E25 million. The note issue expanded steadily throughout the period at an annual rate of just

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[1] Ernest Hallet, "Currency and Credit in Egypt," L'Egypte Contemporaine, 27 (February, 1936), p. 184. This also seems to have been the view of el Falaki, then Director-General of the Ministry of Finance. See el Falaki, "Post-War Planning of Currency and the Monetary Market in Egypt," pp. 192-94.

[2] Following the International Monetary Fund, money narrowly defined consists of currency outside the banks plus private demand deposits (government-owned entities are considered part of the private sector). Money broadly defined consits of money narrowly defined plus time and savings deposits. Quasi-money consists of time and savings deposits in the commercial banks plus savings deposits in the post office savings bank.

TABLE 11

MONEY SUPPLY AND AFFECTING FACTORS[a], 1947-1951
(millions of Egyptian Pounds)

	1947	1948	1949	1950	1951
Money Supply:					
Net currency circulation[b]	141.1	154.8	170.3	188.7	204.1
Demand deposits	176.8	195.2	177.4	171.8	168.8
Total money supply	317.9	350.0	347.7	360.5	372.9
Quasi Money[c]	19.1	23.5	25.0	28.7	35.0
Total Money plus Quasi Money	337.0	373.5	372.7	389.2	407.9
Affecting Factors:					
Net foreign assets	354.7	347.3	341.4	336.9	340.2
Net claims on Government[d]	- 78.7	- 39.9	- 60.1	- 45.1	- 13.6
Claims on private sector	85.8	99.1	124.1	140.1	128.7
Other items (net)[e]	24.8	33.0	32.7	43.2	47.4

[a] Source: Compiled from International Monetary Fund, International Financial Statistics, various issues, and National Bank of Egypt, Economic Bulletin, various issues. Data is at year end.

[b] Net currency outside banking system.

[c] Time and savings deposits with the banking system.

[d] Net claims on Government consist of bank holdings of government bonds, less government deposits.

[e] Miscellaneous items, including capital, reserves and profits.

under 10 per cent. Lending to the private sector rose steadily until 1951, and was the main factor accounting for the increase in the money supply. The buoyant performance of the private sector was caused by boom conditions resulting from the Korean War. Cotton prices were high during most of the period, and industrial development was being encouraged. The latter largely accounted for the drawdown of foreign assets during the period because of the high import content of capital investment.

Looking only at money supply statistics, one might be inclined to question the appropriateness of NBE policy between 1947 and 1951. Nominal income increased in each of the four years, whereas real income increased in each of 1948, 1949, and 1950, and fell in 1951, (see Table 12). The consumer price index increased at an average annual rate of 3.3 per cent, mostly in the last two years. Although the money supply increased at the relatively low average annual rate of 4.0 per cent narrowly defined and 4.8 per cent broadly defined, the rapid rate of increase in prices suggests that an even less expansionary policy might have been appropriate.

However, it would have been difficult for the NBE to have fine-tuned the economy to this extent. The rather mild expansionary policy followed by the bank generated larger than anticipated increases in nominal income and prices mainly because velocity rose continually during the period. While it is true that this might have been anticipated on the grounds that pent-up demand during the war would result in a much higher level of expenditures during the immediate post war period, the extent of the rise in velocity

TABLE 12

GNP, REAL GNP, MONEY, VELOCITY, AND PRICES, 1947 to 1951[a]

Year	GNP (£ E million)	RGNP (£ E million)	M1 (£ E million)	V1	M2 (£ E million)	V2	P (1963 = 100)
1947	556.5	597.7	317.9	1.751	337.0	1.651	93.1
1948	648.0	688.6	350.0	1.851	373.5	1.734	94.1
1949	773.5	830.8	347.7	2.225	372.7	2.075	93.1
1950	872.5	890.3	360.5	2.420	389.2	2.242	98.0
1951	920.3	860.9	373.0	2.468	408.0	2,256	106.9

[a] GNP = Nominal gross national product, RGNP = real gross national product, M1 = currency plus demand deposits, V1 = GNP ÷ M1, M2 = M1 plus time and savings deposits, V2 = GNP ÷ M2, P = consumer price index.

would have been difficult to predict very precisely in advance. Moreover, the scarcity of many goods usually imported contributed to the rise in prices. The NBE stated that sterling assets, which amounted to some £E300 million in 1950, would have been drawn down much more rapidly as an anti-inflationary measure had not some £E225 million been blocked.[1] It was not until a series of agreements governing the release of Egypt's sterling assets were negotiated during the next decade that Egypt was able to make full use of these.

From 1952 to 1956, the NBE followed a somewhat restrictive monetary policy. As the Bank put it: "The objective of this policy was to stop the extravagances that had prevailed before 1952, and to apply orthodox financial measures to secure the stability necessary for planning the economic development of the country."[2] Thus the money supply narrowly defined fell each year from 1952 through 1954 (see Table 13), and remained approximately constant in 1955. During the same period, the consumer price index fell by an average of 3.3 per cent the first three years, and rose by 2 per cent in 1956. At the same time, nominal and real income fell between 1952 and 1953, but increased at an average annual rate of 5.7 per cent and 6.3 per cent respectively over the next three years (Table 14). One reason why the decrease in money supply did not have a

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[1] National Bank of Egypt, The Economy of the UAR During the Nineteen Fifties, p. 15.

[2] National Bank of Egypt, The Economy of the UAR During the Nineteen Fifties, p. 5.

TABLE 13

MONEY SUPPLY AND AFFECTING FACTORS, 1952-1967[a]

	1952	1953	1954	1955	1956	1957	1958	1959	1960
Money Supply:									
Net currency circulation[b]	205.7	189.0	187.0	185.3	226.6	213.0	206.9	200.0	219.8
Private demand deposits	156.4	157.6	152.9	154.7	170.5	185.4	177.9	189.7	185.0
Total money supply	362.1	346.6	339.9	340.0	397.1	398.4	384.8	389.7	404.8
Quasi Money[c]	66.7	74.5	85.4	93.2	85.8	86.6	104.9	123.7	120.7
Total Money plus Quasi Money	428.8	421.1	425.3	433.2	482.9	485.0	489.7	513.4	525.5
Affecting Factors:									
Net claims on government	75.9	74.4	64.0	100.9	181.6	197.8	190.6	203.3	273.2
Claims on private sector	112.4	119.6	154.7	160.2	175.3	189.8	217.4	251.4	255.8
Claims on specialized banks	18.0	13.0	7.9	11.1	17.9	46.3	54.7	83.5	89.3
Net foreign assets	259.4	250.0	252.8	221.9	180.2	142.6	137.6	126.0	112.4
Other deposits[d]	.2	.2	16.3	19.2	19.7	39.4	52.8	90.1	121.4
Other items (net)[e]	36.7	35.7	37.8	41.7	52.4	52.1	57.8	60.7	83.8

TABLE 13 -- continued

	1961	1962	1963	1964	1965	1966	1967
Money Supply:							
Net currency circulation[b]	256.4	276.0	345.0	417.2	453.2	447.7	449.9
Private demand deposits	199.0	166.8	170.7	199.2	199.2	233.9	255.5
Total money supply	455.4	442.8	515.7	616.4	652.4	681.6	705.4
Quasi Money[c]	129.5	186.4	232.4	247.6	271.3	256.9	278.4
Total Money plus Quasi Money	584.9	629.2	748.1	864.0	923.7	938.5	983.8
Affecting Factors:							
Net claims on government	326.7	403.8	532.3	622.1	698.7	816.2	891.7
Claims on private sector	262.3	291.1	317.1	329.1	337.6	332.7	323.8
Claims on specialized banks	96.1	105.1	109.8	124.7	123.5	107.1	122.9
Net foreign assets	99.3	56.5	54.9	46.7	10.6	50.9	68.3
Other deposits[d]	129.1	161.9	192.8	210.3	190.5	195.4	204.1
Other items (net)[e]	70.4	65.4	73.2	48.3	55.2	71.2	82.2

[a]Source: Compiled from the Central Bank of Egypt, Economic Review, various issues. Data is at year end.

[b]Net currency outside the banking system.

[c]Includes time and savings deposits with the banking system, and savings deposits with the Post Office Savings Bank.

[d]Includes U. S. counterpart funds deposits, IMF accounts, and clearing accounts.

[e]Miscellaneous items, including capital reserves and profits of the NBE, balancing items.

TABLE 14

GNP, REAL GNP, MONEY, VELOCITY, AND PRICES, 1952 - 1967[a,b]

Year	GNP (£E million)	RGNP (£E million)	M1 (£E million)	V1	M2 (£E million)	V2	P (1963=100)
1952	968	913.7	362.1	2.673	428.8	2.257	106.0
1953	904	913.0	346.6	2.608	421.1	2.146	99.0
1954	963	1013.1	339.9	2.833	425.3	2.264	95.0
1955	1014	1066.8	340.0	2.982	433.2	2.340	95.0
1956	1072	1104.8	397.1	2.699	482.9	2.219	97.0
1957	1125	1113.9	398.4	2.823	485.0	2.319	101.0
1958	1195	1183.2	384.8	3.105	489.7	2.440	101.0
1959	1256	1243.6	389.7	3.222	513.4	2.446	101.0
1960	1372	1345.3	404.8	3.389	525.5	2.610	102.0
1961	1467	1438.5	455.4	3.221	584.9	2.508	102.0
1962	1550	1565.5	442.8	3.500	629.2	2.463	99.0
1963	1679	1679.0	515.7	3.255	748.1	2.244	100.0
1964	1884	1818.5	616.4	3.056	864.0	2.180	103.6
1965	2192	1838.9	652.4	3.359	923.7	2.373	119.2
1966	2388	1839.7	681.6	3.503	938.5	2.544	129.8
1967	2459	1881.4	705.4	3.485	983.8	2.499	130.7

[a]Source: Central Bank of Egypt, Economic Review, various issues.

[b]GNP = nominal gross national product, RGNP - real gross national product, M1 = currency plus demand deposits, V1 = GNP ÷ M1, M2 = M1 plus time and savings deposits, V2 = GNP ÷ M2, P = consumer price index.

greater dampening effect on the rate of growth of income was the marked rise in velocity from 2.673 in 1952 to 2.982 in 1955. Moreover, the rise in time and savings deposits offset to some extent the decline in the narrow money stock; money broadly defined fell only in 1953, and over the remainder of the period increased at an average of 1.5 per cent compared to an average rate of decrease in narrow money of 2.1 per cent. The relatively low rate of increase in the supply of money raises the question of whether an even more rapid rate of economic growth could have been achieved had a somewhat more expansionary monetary policy been followed. It will be argued later in this study that in fact this would have been the case.

During the first two years after the revolution, loans to the public sector were reduced while those to the private sector were expanded as incentives were given to private investment. In 1955 and 1956, however, the increase in net government borrowing was substantial as a result of the government increasing its investment in infrastructure and, in the latter year, the Suez War. The expansionary effects on the money supply were offset almost completely by drawing down foreign assets in 1955; although net foreign assets decreased even more in 1956, the expansionary effect of an £86.6 million increase in net claims on government was only partly offset by this and by increases in time deposits. Hence the money supply increased by £57 million, some 16.7 per cent over the 1955 level.

From 1957 to 1960, the money stock, whether narrowly or

broadly defined, increased only slightly. The reason for the relative constancy of the money stock can be seen from Table 13 to be the contractionary effects of the steady downward trend in foreign assets. Against this, net claims on government increased after 1955, reaching in 1960 a level of £273.2 million and becoming the largest element in the banking system's portfolio. Lending to the private sector also increased substantially over the period. Loans outstanding amounted to £255.8 million in 1960 compared to £160.2 million in 1955, equivalent to an average annual growth rate of 9.4 per cent.

Between 1956 and 1960 nominal and real income grew at an average annual rate of 6.2 and 4.9 per cent respectively, whereas prices increased at an annual rate of only 1.1 per cent. The fairly satisfactory growth and price performance of the economy during this period of relative constancy in the money supply may be attributed to three factors. The first was the strong stimulative effect of sizeable government investments during the period.[1] The second was the fact that foreign assets were used to meet the increased demands for producer and, to some extent, consumer goods.[2] The third was the steady rise in velocity throughout the period, which mitigated what would otherwise have been the adverse effects

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[1] Magdi M. el Kammash, Economic Development and Planning in Egypt (New York: Frederick A. Praeger, 1968), pp. 213-14; Mead, Growth and Change in the Egyptian Economy, pp. 230-31.

[2] Mead, Growth and Structural Change, pp. 170-72.

of the slow rate of growth of the money supply. It will be argued in Chapter V that a more expansionary monetary policy during this time would have led to a somewhat higher rate of real economic growth, although possibly accompanied by a somewhat more rapid rise in prices.

The institutional changes of 1961 described above resulted in a significant increase in the ability of the monetary authority to influence not only total credit in the economy but its allocation. When the issue department of the NBE became the Central Bank of Egypt on the first of January, 1961, it was given increased powers over the commercial banks. Since 1957, the commercial banks had been required to submit monthly data to the NBE concerning the composition of their portfolios and to undergo periodic inspection. The NBE had increasingly relied on moral suasion, through the issue of bank directives, to influence the allocation of credit. These directives took the form of requests, but with the nationalization of the banking system in 1961 the CBE directives assumed the force of law. These changes were brought about by the need of the government to control the allocation of credit as well as its level in order to assure the requisite finance for the 1960-65 Five Year Plan.

The 1960 to 1967 period was characterized by a considerably greater degree of fluctuation in monetary aggregates than had been typical of previous periods. The first comprehensive planning attempt coincided with the reduction of net foreign assets to a level beyond which further drawings were undesirable for foreign exchange reasons. Hence foreign exchange assets could no longer

be used as freely to offset other expansionary policies.

In 1961 the money supply increased by approximately £E50 million (see Table 14), a 12 per cent increase over the 1960 level. The increase was caused almost entirely by the expansion of net claims on government by £E53 million. A large part of the increase in the money supply occurred as an increase in the note issue, which rose 16.7 per cent over the previous year. The expansionary effect of the increase was cushioned by a sharp drop in velocity, keeping prices roughly constant. Nominal income rose 6.6 per cent, and real income 6.7 per cent.

The drop in observed velocity may appear to be somewhat surprising. The failure of the cotton crop in 1961 greatly reduced the capacity of the economy to import, and led to scarcities of imported consumer goods as foreign exchange was diverted to capital imports.[1] Hence with a constant velocity, one would expect prices to rise. The failure of prices to do so suggests that price controls were rigidly enforced. The fall in observed velocity may then have been caused by shortages of goods, which may have caused the community to hold a higher level of real balances than they would otherwise have desired.

Some support is given to this interpretation by the policy of the CBE during the following year. Following the advice of the International Monetary Fund, the CBE embarked on a stabilization programme. Since 1957 the required reserve ratio had been fixed at

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[1] Central Bank of Egypt, Report of the Board of Directors, 1961.

12.5 per cent, although it was varied seasonally to facilitate the financing of the cotton crop. In both 1960 and 1961 the reserve ratio was reduced to 7.5 per cent for six weeks in order to facilitate the flotation of new government issues of long term development bonds.[1] In May of 1962, however, three changes were made. The reserve ratio was raised to 17.5 per cent, the rediscount rate was raised from 3 per cent to 5 per cent, and the commercial banks were informed that ceilings were to be imposed and enforced on credit to the non-government sector.[2]

The result was a drop in the stock of money, narrowly defined, by 2.8 per cent; quasi-money increased by 7.3 per cent largely due to increase in United States counterpart funds. Nominal income rose by nearly 6 per cent, and real income by 8.5 per cent as prices fell slightly. The recovery in the rate of growth of income was due mainly to the recovery of agriculture following the crop failure of the previous year.

The CBE returned to an expansionist policy in 1963 and 1964, money narrowly defined increasing at an average annual rate of 16.4 per cent. Money broadly defined increased at the slightly lower rate of 15.8 per cent. A sharp fall in velocity dampened the expansionary effects of the increase in money; prices rose only slightly in 1963 and increased only 3 per cent in 1964. Nominal income on the other hand increased at an average rate of

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[1] Central Bank of Egypt, Credit and Banking Developments, 1961-62, p. 7.

[2] Ibid., p. 8.

9.7 per cent over the two years, and because of the slight rise in prices real income increased at an average annual rate of 7.5 per cent.

There is little doubt that the price data, and hence the reported rates of change in real income, must be treated with a good deal of scepticism. Between 1960 and 1964, according to the consumer price index, prices rose at an average annual rate of just under 1 per cent, whereas money broadly defined rose an average annual rate of 10.7 per cent. Given the rate of economic growth between 1956 and 1960, it seems unlikely that Egypt had sufficient excess capacity during this time to permit such a rapid increase in real income while maintaining relatively constant prices. Hence real income is almost certainly overstated. After 1964, prices, although still controlled, were made more flexible.

Government borrowing from the CBE was the main factor underlying the expansion of the money supply. Between 1962 and 1964 net claims on the government rose by over E218 million, equivalent to an annual rate of increase of over 21 per cent.

For the remainder of the period a much less expansionary policy was followed. Both narrowly and broadly defined money increased slowly at an average annual rate of about 4.4 per cent. Although the rate of increase of net claims on government moderated somewhat, these still grew at an average rate of 12.2 per cent annually. The expansionary effects of the increase in government borrowing were partly offset by the use of additional foreign

credits, mainly from the International Monetary Fund.

Looking at the 1952-1967 period as a whole, the monetary authorities followed a generally conservative policy from 1952 to 1960, except in 1956, the year of the Suez War. The average annual rate of increase in broadly defined money was only 2.5 per cent, compared to an annual average growth rate of nominal income amounting to nearly 6 per cent. Prior to the Suez War, net lending to the private sector grew more rapidly than did net lending to the government; after 1956, the latter grew far more rapidly than did the former. The expansionary effects of these increases were countered by using up foreign assets, thus limiting the increase in the money supply. This policy permitted a relatively satisfactory rate of growth together with stable prices.

After 1960 monetary aggregates increased, on average, more rapidly and the amplitude of fluctuations around the upward trend was much greater. The higher average growth rate of money (nearly 9 per cent, broadly defined) is due to two factors. The undertaking of a long term development plan under which national income was to double in ten years required, it was argued, a more expansionist monetary policy than was the case during the previous decade. Second, the near exhaustion of foreign assets meant that the expansionary effects of rapidly increasing bank lending could not be as easily offset by using up foreign resources. There was considerable variability in the policy actually followed between 1960 and 1967, and the CBE at times appeared uncertain as to the proper course of action. There is some evidence of conflict

between the bank and the government as to the right direction for policy, and this may partly account for the apparent uncertainty.[1] In any case, a highly expansionary policy was followed in 1961, followed by a very restrictive policy the next year. Expansionary policies were implemented during 1963 and 1964, whereas from 1964 to 1967 a restrictive policy was followed. Overall, real income grew at an average annual rate of 4.8 per cent. Prices rose fairly rapidly during the last three years of the period, and this may account for the restrictive policy followed from 1965 to 1967. However, the rise in prices may represent to some degree a lagged adjustment in controlled prices, although there is no firm evidence of this. To the extent that it does so, however, the growth rate of real income is understated.

The CBE appears to have sufficient instruments at its disposal to carry out an active monetary policy, although institutional factors specific to Egypt mean that these instruments may be different from those usual in other countries. In general, the interest rate is of little influence on investment taken as a whole, since the bulk of investment is performed by government or by nationalized agencies. On the other hand, the Bank does control fairly precisely the quantity of money. Commercial banks have frequent recourse to the CBE, and in fact this is the main method by which the CBE provides additional liquidity to the banking

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[1] See Central Bank of Egypt, Report of the Board of Directors for the years 1964-65 and 1965-66.

system. Ceilings are placed on bank credit extended to all sectors of the economy and this permits the CBE to distribute the flow of financial resources among the various sectors in accordance with government policy. Since both the level of credit and its allocation can be controlled by the monetary authority, monetary policy can be an important factor in determining economic growth. The influence of monetary changes on income will be examined in Chapter V.

CHAPTER IV

MONETARY POLICY AND SAVING

In general, if the rate of growth in most developing countries is to be increased either domestic saving must increase or additional foreign aid must be obtained. It is, of course, true that the increased saving must be productively invested. This is likely to be less of a problem over the medium term than is the generation of real savings, particularly in the case of countries in which a large proportion of new investment is carried on by the government either directly or indirectly.

Hence an important goal of monetary policy in such countries must be to increase the rate of real saving. Monetary policy can do so in essentially three ways. First it can affect interest rates. To the extent that savings are a positive function of interest rates and a negative function of wealth, a policy of higher interest rates will lead to higher savings. If, on the other hand, saving is a positive function of wealth, whether wealth effects resulting from higher interest rates will offset the positive substitution effects can only be determined empirically. Second, to the extent that money illusion exists, the monetary authority may be able to increase real saving through pursuing an inflationary policy. This amounts to assuming that real saving is a positive function of nominal income, and that the substitution and wealth effects of the lower interest rates which are implied are re-

latively weak. Third, if real saving is assumed to be a function of real income, to the extent that monetary policy is successful in increasing real income, real saving will increase.

Several investigations into the nature of the savings function in developing countries have been made during the last decade.[1] These have included both cross-section studies of groups of countries and time series studies of particular countries. Hypotheses tested range from relatively simple functions using either current or permanent income as the independent variable to more complex functions allowing for differing income distributions, the inflow of foreign resources, various interest rates, and the rate of change of prices.[2] In general, cross-section studies indicate that changes in income explain most of the changes in saving. Interest rates turn out to be insignificant, as do price changes. These general conclusions do not hold for time series studies of particular countries, however. For example, using Indian data, K. L. Gupta found that the coefficient of saving on the interest

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[1] After this chapter was completed, an excellent brief review of these appeared in the Journal of Economic Literature. See Raymond F. Mikesell and James E. Zinser, "The Nature of the Savings Function in Developing Countries: A Survey of the Theoretical and Empirical Literature," Journal of Economic Literature, 11 (March, 1973), pp. 1-26.

[2] For examples see H. S. Houthakker, "On Some Determinants of Saving in Developed and Underdeveloped Countries," Problems in Economic Development, ed. E. A. G. Robinson (New York; Macmillan and Company, 1965); I. Friend and P. Taubman, "The Aggregate propensity to Save: Some Concepts and Their Application to International Data," Review of Economics and Statistics, 48 (May, 1966), pp. 113-23; N. H. Leff, "Dependency Rates and Savings Rates," American Economic Review, 59 (December, 1969); pp. 880-96; K. L. Gupta, "Personal Savings in Developing Nations: Further Evidence," Economic Record, 46 (June, 1970), pp. 243-49, K. L. Gupta, "On

rate was positive and significant in the case of per capita saving.[1] This contrasts with J. G. Williamson's finding that interest rates had either a negative or insignificant impact on saving in Korea, Japan, Taiwan, Burma, the Philippines and India.[2] The substantial differences in the coefficients on the various independent variables which result from time series studies of individual countries bring into question the usefulness of using cross-section methods to study the savings function. A more promising approach to studying the determinants of saving is to use time series analysis of particular countries. It is possible that functions embodying relatively few variables may fit specific countries rather well. Moreover, from a policy viewpoint the government of a given developing country needs to know the saving function appropriate to that country rather than a generalized international savings function if it is to attempt to increase the rate of economic growth through increasing the rate of saving.

In the present chapter, statistics on savings in Egypt are presented and discussed, together with an analysis of the effect of government policies on saving with particular reference to the role of Monetary Policy. Various savings functions will then be

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Some Determinants of Rural and Urban Household Saving Behaviour," Economic Record, 46 (December, 1970), pp. 578-83.

[1] K. L. Gupta, "Personal Saving in Developing Countries: Further Evidence," p. 248.

[2] J. G. Williamson, "Personal Saving in Underdeveloped and Developed Countries; An Intertemporal Cross-Section from Asia," Economic Record, 44 (June, 1968), pp. 194-210.

fitted in an attempt to determine the effects on savings of changes in income, interest rates, and prices.

Savings in Egypt 1945-1967

Statistics on savings prior to 1945 are non-existent, and at best only the roughest kinds of inferences could be made. A more comprehensive analysis can be made for the period after World War II and particularly after 1952. Even here, however, data problems occur, largely because of frequent re-classifications of data which make it difficult to draw up a consistent series of figures.

The definitive work on aggregate savings in Egypt was done by Professor Bent Hansen for the Egyptian Institute of National Planning.[1] His results are reproduced here as part of Table 15, and his methodology has been followed in re-estimating his provisional figures for fiscal 1963, and in deriving estimates for fiscal years 1964 through 1967. The estimates are derived from either of the following sets of national accounting identities:

(i) GNP - PNI = PDGI

(ii) PDGI - PC = PGS

or

(iii) GI - NFB = DGS

(iv) DGS - PS = PGS

GNP is gross national product, PNI is public current net income, PDGI is private disposable gross income, PC is private consumption, PGS is private gross savings, GI is gross investment, NFB

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[1] B. Hansen, Savings in the UAR (Egypt), 1938-39 and 1945-46, 1962-63, Memorandum No. 551 (Cairo: Institute of National Planning, March, 1965).

TABLE 15

SAVINGS AND INVESTMENT, 1945-1967
(millions of Egyptian Pounds)

	1945	1946	1947	1948	1949	1950	1952
Gross National Product	552	535	578	718	829	916	968
Public Current Net Income	82	85	79	105	129	146	152
Private Disposable Gross Income	470	450	499	613	700	770	816
Private Consumption	433	459	495	573	661	721	761
Private Gross Saving	37	-9	4	40	39	49	55
Total Public Saving	33	35	27	35	45	29	22
Total Domestic Saving	70	26	31	75	84	78	77
Foreign Borrowing	-45	13	21	7	4	11	34
Gross Investment	25	39	52	83	88	89	111
Percentages:							
Domestic Gross Saving/ Gross National Product	12.9	4.9	5.4	10.4	10.1	8.5	8.0
Gross Investment/Gross National Product	4.5	7.3	9.0	11.6	10.6	9.7	11.5
Total Public Saving/ Gross National Product	6.0	6.5	4.7	4.9	5.4	3.2	2.3
Public Saving/ Domestic Gross Saving	47.1	134.6	87.1	46.7	53.6	37.2	28.6
Private Gross Saving/ Private Disposable Gross Income	7.9	-2.0	0.8	6.5	5.6	6.4	6.7
Private Disposable Gross Income/ Gross National Product	85.1	84.1	86.3	85.4	84.4	84.1	84.3

TABLE 15-- continued

	1953	1954	1955	1956	1957	1958	1959	1960
Gross National Product.....	904	963	1014	1072	1125	1195	1256	1372
Public Current Net Income.....	151	162	168	212	201	252	253	265
Private Disposable Gross Income.....	753	801	846	860	924	943	1003	1107
Private Consumption	704	686	753	775	819	904	919	1050
Private Gross Saving.....	49	115	93	85	105	39	84	57
Total Public Saving.....	18	27	28	48	26	80	80	78
Total Domestic Gross Saving.....	67	142	121	133	131	119	164	135
Foreign Borrowing.....	31	-10	25	39	20	46	17	36
Gross Investment.....	98	132	146	172	151	165	181	171
Percentages:								
Domestic Gross Saving/ Gross National Product....	7.4	14.7	11.8	12.4	11.6	10.0	13.1	9.8
Gross Investment/ Gross National Product....	10.8	13.7	14.4	16.0	13.4	13.8	14.4	12.5
Total Public Saving/ Gross National Product....	2.0	2.8	2.7	4.5	2.3	6.7	6.4	5.7
Public Saving/ Domestic Gross Saving.	26.9	19.0	22.3	36.1	19.8	67.2	48.8	57.8
Private Cross Saving/ Private Disposable Gross Income.	6.5	14.4	11.1	9.9	11.4	4.1	8.4	4.9
Private Disposable Gross Income/ Gross National Product...	83.3	83.2	83.5	80.5	82.1	78.9	80.0	80.7

TABLE 15 -- continued

	1961	1962	1963	1964	1965	1966	1967
Gross National Product	1467	1550	1679	1884	2192	2388	2459
Public Current Net Income	273	270	326	441	480	544	524
Private Disposable Gross Income	1194	1280	1353	1443	1712	1844	1935
Private Consumption	1063	1111	1171	1249	1463	1583	1633
Private Gross Saving	131	169	182	194	249	261	302
Total Public Saving	62	10	9	38	53	47	38
Total Domestic Gross Saving	193	179	191	232	302	308	340
Foreign Borrowing	36	69	109	140	79	138	46
Gross Investment	229	248	300	372	381	446	386
Percentages:							
Domestic Gross Saving/ Gross National Product	12.5	11.5	11.4	12.3	13.7	12.9	13.8
Gross Investment/ Gross National Product	15.7	16.0	17.9	19.8	17.4	18.7	15.7
Total Public Saving/ Gross National Product	4.2	0.6	0.5	2.0	2.4	2.0	1.6
Public Saving/ Domestic Gross Saving	33.9	5.6	4.7	16.4	17.6	15.3	11.2
Private Gross Saving/ Private Disposable Gross Income	10.9	13.2	13.4	13.4	14.5	14.2	15.6
Private Disposable Gross Income/ Gross National Product	81.4	82.6	80.6	76.6	78.1	77.2	78.7

Source: For 1945-60, from B. Hansen, Savings in the UAR (Egypt), 1938-39 and 1945-46 -- 1962-63, Memorandum No. 551 (Cairo: Institute of National Planning, March, 1965). For 1960-67, budget data of the UAR. Data are for calendar years through 1950, and fiscal years ending June 30 for the years 1952 to 1967.

is net foreign borrowing, DGS is domestic gross savings, and PS is public savings. Private saving is thus estimated as a residual, and to this extent is subject to error, since it will contain any errors in all the other series from which it is derived. Moreover, unrecorded stock changes prior to 1964 add a further possibility of error; Hansen suggests that his figures may be out by from 2 to 3 per cent of GNP and thus claims that this saving series can only be used as a guide.[1] Data on stock adjustments have been published since 1964, so the statistics are somewhat more reliable for the last three years of the series.

Savings in Table 16 are defined broadly, in part because of statistical limitations. Public savings includes, in addition to budgetary savings, the accumulation of funds in the public general insurance and pension authority and the general organization for social insurance, but does not include profits of the publicly owned enterprises attached to the various economic organizations. Since the social security plans are compulsory, and the funds are available to the government, a case can be made for including accumulations as part of public saving, although they are at some degree a substitute for private saving; the correlation coefficient between the annual percentage change in private saving and the annual percentage change in social security funds is -.41. On the other hand, since the publicly owned companies are under government control, and because their accumulated funds are also at the disposal of the government (particularly

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[1] Hansen, Savings in the UAR, p. 7.

since 1966, see below), they should also perhaps be considered as part of public rather than private saving. They are not classified in this way because there is still considerable autonomy on the part of company management, and profit remains the main criterion of success. Moreover, although investment for such companies is largely centrally planned, new regulations permitting some flexibility in the use of profits without reference to central authority have recently been introduced. Thus there remains a conceptual problem as to how publicly owned companies should be treated; official UAR statistics submitted to the International Monetary Fund continue to place publicly owned companies in the private sector. Table 16 gives an estimate of the proportion of private saving generated by publicly owned companies since 1962.

Domestic gross savings as a percentage of GNP was little changed in 1967 from that prevailing in 1945 (Table 15). The relative constancy does, however, mask the significant variations in the ratio which occurred during the period. The 1945 figure is, of course, high because of World War II, and the low figures for the next two years can be largely attributed to the explosion of pent-up demand typical of most countries after hostilities ceased. Between 1948 and 1952 the substantial increase in real income led to a marked increase in the savings rate. The main reason for the increase in income was the improvement in Egypt's terms of trade resulting from the strong demand for cotton during the Korean War. As was discussed in the previous chapter, a relatively few landowners held the bulk of the land. It is possible, then, that the

TABLE 16

PRIVATE SAVING AND PROFITS OF PUBLICLY OWNED COMPANIES, 1962-1963 to 1967-1968
(millions of Egyptian Pounds)

Year	Total Private Gross Saving	Profits of Public Companies	Private Gross Saving Excluding Public Companies	Private Saving Percentage of Gross National Product	Profits of Public Companies Percentage of Gross National Product
1962-63	182	77.8	104.2	6.2	4.6
1963-64	194	92.1	101.9	5.4	4.9
1964-65	249	133.0	116.0	5.3	5.3
1965-66	261	140.1	120.9	5.1	5.9
1966-67	302	146.9	155.1	6.3	5.9
1967-68	213	77.4	135.6	5.4	3.1

Source: Table 15 and budgetary data.

distribution of income became more unequal between 1948 and 1952, with saving in the agricultural sector being the main component in the higher rate of saving for the economy as a whole. It is unfortunate that because of the aggregate nature of the available statistics no evidence on this question can be presented.

From 1952 until 1962, the gross saving rate fluctuated around 12 per cent, with the exception of the low rate in 1952-53 consequent upon the disruptions caused by the Revolution. Since the beginning of the first five-year plan, and the subsequent series of nationalizations discussed in Chapter I, the ratio has increased somewhat, but rather less than one would have expected given the plan target for doubling national income in ten years. The plan was based on the assumption that the savings rate could be quickly raised to 14 per cent during the first year of the plan period, and was expected to reach 20 per cent by 1965.[1] Only in 1965 and in 1967 was the 14 per cent rate approached.

Turning now to a consideration of the components of gross domestic saving, private gross saving since World War II remained relatively stable at around 6 percent of gross national product until 1954, with the exception of the very low levels just after the end of the war. Between 1952 and 1960, private savings as a percentage of private disposable income tended to fluctuate considerably. Hansen attributes this largely to the unreliability

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[1] Hansen and Marzouk, Development and Economic Policy in the UAR (Egypt), p. 309; Central Bank of Egypt, Economic Review, Vol. 5, No. 4.

of the estimates, and in particular to unrecorded stock changes. Surely this can only be part of the explanation, however. For example, the sharp increase in 1954 may be due to the land reform programme which may well have increased investment in agriculture. Even though the actual land redistribution was small in these early years, the effect may have been pronounced. Furthermore, the announced intention of the government to pursue a laissez-faire policy generally and to encourage both industry and private investment may underlie the relatively high rate of close to 11 per cent through 1956-57.[1] The fall in the period 1958 through 1960 may be due, as Hansen suggests, to unrecorded stock increases after the Suez War and to a temporary fall in private savings following the increased rate of taxation as a result of the War. But a major reason would seem to be uncertainty on the part of the business community as to the future course of the economy. As was pointed out in Chapter I, the business community failed to respond to the government's expectations, and the failure of the 1957-1960 industrial development plan was attributed to a serious short-fall in business investment. This is reflected in the low rates for private saving in the late nineteen fifties.

This interpretation is supported by comparing the private savings ratio in 1961 with that of 1960. The wave of nationalizations in mid 1960 and in 1961, which was discussed in Chapter I, resulted in much of the industrial sector coming under government

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[1] Hansen, Savings in the UAR, p. 8.

control. The sharp increase in the private sector savings ratio in 1961 is almost certainly due to the government's assumption of control over a large component of private saving. That the private savings ratio could be raised so quickly supports the argument that low levels of business saving were the cause of the low private savings ratio of the preceding few years.

Between 1961 and 1967, the private savings ratio increased steadily to 15.6 per cent. Total saving as a percentage of GNP, however, changed very little because of the fall in public saving.

It would be useful to break down private saving into its components; household, private corporate, and public corporate. Unfortunately, statistics for households and for private corporations are unavailable separately; however, private corporate saving and investment is known to be insignificant since 1961. Private saving narrowly defined has fluctuated between 5.1 and 6.3 per cent of GNP over the period; the jump in 1967 is possibly due to the 50 per cent increase in the compulsory saving scheme imposed in that year. On the other hand, public company profits as a per cent of GNP have shown a steady rise. Table 16 provides an estimate of public corporate saving since 1963.

Turning now to the sources of public saving, Table 17 shows that public saving has increasingly depended on the accumulation of funds under the compulsory social insurance programme. Budgetary surpluses were earned until 1961, but since then increasingly large deficits have been realized. Since the introduction of the compulsory social insurance programme, however, premiums (contributed

TABLE 17

PUBLIC SAVING, 1952-1967

Year	Budgetary Surplus Deficit	Social Insurance Accumulation
1952	21.5	—
1953	18.4	—
1954	27.3	—
1955	27.6	—
1956	47.7	—
1957	17.6	8.5
1958	65.2	14.5
1959	64.7	15.0
1960	57.5	20.1
1961	33.8	28.1
1962	-30.0	39.9
1963	-40.0	48.5
1964	-21.3	59.5
1965	-39.8	93.2
1966	-96.4	109.2
1967	-111.3	131.9

Source: For 1952-61, Hansen, Savings in the UAR (Egypt), 1938-39 and 1945-46 to 1962-63, Memorandum No. 551, Institute of National Planning, Cairo; for 1962-67, Budgetary data of the UAR. Data are for fiscal years ending June 30.

by employer and employee in both public and private companies) have exceeded claims leading to significant accumulation of funds. These may permit public saving to continue to increase after the economy completes its readjustment to conditions following the June 1967 hostilities, since politically the programme represents a relatively painless way of increasing taxes.

The Role of Financial Institutions

Throughout the post-war period domestic investment in Egypt exceeded domestic savings by an amount which increased sharply after planning began in 1960 (see Table 15). The difference between domestic saving and domestic investment was at first filled by drawing down foreign reserves accumulated during the War. These were exhausted by 1960 and the subsequent gap had to be filled by foreign borrowing. However, the potential for foreign borrowing has been nearly exhausted in recent years, so that Egypt faces balance of payments problems and a possible cut-back in its development programme unless domestic saving can be significantly increased.

Government policy to promote saving since the nationalization of 1961 has been to build retained profits within the public corporations and to encourage private saving both by exhortation and by compulsion. Table 18 shows the development of saving through the banking system. Time deposits are largely those of the corporate sector. This category has increased significantly, especially since 1964. Purely private savings, which consists of savings deposits in the commercial banks and the Post Office Saving Bank, have also increased, but not as rapidly as might have been expected given the

TABLE 18

TIME AND SAVING DEPOSITS, COMMERCIAL BANKS, 1952-1967[a]
(millions of Egyptian Pounds)

Year	Time Deposits[b]			Savings Deposits	Post Office Savings Bank
	Government	Semi-Government	Private		
1952	5.6		19.7	11.5	26.3
1953	5.8		26.5	12.6	26.8
1954	5.8		31.0	13.9	26.4
1955	6.2		32.7	15.8	27.2
1956	7.1		31.4	13.6	26.6
1957	0.3	12.7	26.0	16.5	31.5
1958	4.2	12.0	29.3	22.3	34.8
1959	5.8	16.6	33.4	26.8	38.6
1960	9.7	20.8	35.8	24.6	40.6
1961	9.9	23.2	31.6	27.7	43.4
1962	1.4	29.2	33.9	31.9	51.6
1963	1.6	23.2	89.3	41.7	59.2
1964	15.7	18.9	113.0	53.0	68.3
1965	27.4	40.1	132.0	62.4	74.0
1966	24.2	35.4	142.1	66.6	75.7
1967	26.6	22.3	169.8	64.8	69.0

[a] Source: Central Bank of Egypt, Credit and Banking Development, various issues; for Post Office Savings Bank, Central Bank of Egypt, Economic Review, various issues.

[b] No separate breakdown of semi-government time deposits is available prior to 1957.

relatively high private marginal propensity to save.[1] One reason is that income may have been redistributed toward profits in recent years through fairly substantial increases in controlled prices during 1965 and 1966. The second and probably more important reason, however, is that a ceiling was placed on savings accounts; initially it was set at two thousand Egyptian pounds and was later raised to five thousand Egyptian pounds. A third reason appears to be a fear on the part of depositors that large accounts may lead to unwelcome attention from tax authorities. Finally, it is possible that the banking nationalizations and subsequent reorganization may have led to some loss of confidence in the banking system which was slow in being overcome.

In 1965, a compulsory savings scheme was introduced.[2] This initially provided for payroll deduction of one-half day's wages per month, later raised to three-quarters of a day's wage. The money was placed in an account paying 5 per cent interest, tax free, which could not be drawn upon for five years except in very exceptional circumstances. In a further attempt to mobilize savings the National Bank of Egypt was authorized to issue long term savings certificates, which would be tax free but non-transferable.[3] These sold relatively slowly at first, but were then combined with a lottery and have since done rather better.

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1 Estimated later in this chapter to be .222 over the 1953-67 period. See Table 20, p. 108.

2 Law No. 42, 1965.

3 Law No. 8, 1965.

Government policy towards private saving appears to be something of an anomaly. On the one hand, there is no doubt that private saving is to be encouraged. On the other, the ceilings on bank accounts, the close government supervision of the banking system, and the government's record of confiscation during the early 1960's cannot but discourage private depositors from entrusting their funds to the banking system. Hoarding can, of course, be matched by an equal amount of credit creation without inflation but the threat of dishoarding is always present. Moreover, the work of Raymond Goldsmith suggests that to at least some extent savings may be a function of the range of financial institutions available.[1] Hence policies which lead to public distrust of the financial system may be counter-productive with respect to increasing private saving.

Apparently dissatisfied both with the extent and with the allocation of savings made by publicly owned companies, the government introduced changes in 1966 requiring companies to deposit undistributed profits with a newly created investment fund which would be part of the Treasury.[2] This fund was intended to reduce the amount of government borrowing necessary to finance planned development projects.

During the latter part of the period, interest rates rose fairly rapidly, accompanied by an increasing degree of inflation.

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[1] Raymond Goldsmith, Financial Structure and Development (New Haven; Yale University Press, 1969).

[2] Central Bank of Egypt, Economic Review, Vol. VI, Nos. 2 and 3.

The effect of higher interest rates and higher prices on real saving depends on the nature of the savings function. This will be the subject of the next section.

The Determinants of Saving in Egypt

In this section savings functions are fitted to the data presented in the first section in order to study several of the factors determining saving in Egypt. Three questions are of concern from the point of view of monetary policy. First, of primary importance is the size of the marginal propensity to save. If the marginal propensity exceeds the average, the proportion of income saved may be expected to increase as income grows hence permitting proportionately more investment and a higher rate of growth. Evidence from other studies is mixed. Chenery and Eckstein,[1] in a study of saving in sixteen Latin American countries, found that the marginal propensity to save exceeded the average in only three of the sixteen. Johnson and Chiu[2] in their study of thirty countries found that in only about half of the countries did the marginal propensity exceed the average, whether household or private saving was used as the dependent variable. On the other hand, Williamson's[3] study of six Asian countries showed only three countries with an average propensity

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[1] H. B. Chenery and Peter Eckstein, "Development Alternatives for Latin America," Journal of Political Economy, 78 (Supplement, July-August, 1970), pp. 966-1006.

[2] Dudley W. Johnson and John S. Y. Chiu, "The Saving-Income Relation in Underdeveloped and Developed Countries," Economic Journal, 78 (June, 1968), pp. 321-33.

[3] Williamson, "Personal Saving in Developing Nations: An Intertemporal Cross-Section from Asia," pp. 197-201.

greater than the marginal, and in all three cases the coefficient on the intercept was not statistically significant. In his study of Brazil, Leff[1] found that the average propensity exceeded the marginal, whereas Gupta[2] found in India's case that the marginal propensity exceeded the average whatever definition of saving he used as the dependent variable.

The second important question is the extent to which changes in the rate of interest influence saving, and the direction of this influence. Again, evidence from other countries is mixed. Williamson[3] found that the correlation between saving and real interest rates was negative for all six of the Asian countries of his study, whereas Gupta[4] found that in India the real rate was positively related to saving. Since interest rates in Egypt are closely controlled by the monetary authority, if saving is significantly influenced by interest rates there may be some scope for using changes in these rates as a device to increase saving.

The third question to be investigated concerns the influence of price changes. Even in the absence of money illusion, changes in the price level will affect aggregate real saving if, as seems

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[1] Leff, "Marginal Savings Rates in the Development Process: The Brazilian Experience," p. 615.

[2] Gupta, "Personal Saving in Developing Nations: Further Evidence," p. 244.

[3] Williamson, "Personal Saving in Developing Nations," pp. 204-05.

[4] Gupta, "Personal Saving in Developing Nations: Further Evidence," pp. 247-48.

likely, income distribution changes as a result and individual marginal propensities to save differ. If money illusion exists, a rising price level may stimulate aggregate saving. Should price changes in Egypt prove to be positively related to real saving, it could be argued that a somewhat higher real rate of growth could be generated by following a more inflationary policy.

In fitting savings functions to Egyptian data, several statistical difficulties are apparent: first, the relatively low number of observations; second, the tentative nature of the data itself; third, the fact that neither interest rates nor price levels are freely determined in the market. In order to use as much of the data as possible it was necessary to adjust for the change in 1952 from calendar to fiscal year reporting. This was done by the simple, if crude, procedure of averaging the year-end data to get an approximation of the annual flow of saving and income at the end of the fiscal year. Two interest rates series were available; the rate on long term government bonds back to 1945 and the yield on treasury bills back to 1953. These are given in Table 19. Regressions were run using each of these, on the assumption that the yield on government bonds would serve as a proxy for long term rates and the yield on treasury bills as a proxy for short term rates. The latter assumption is not likely to hold in practice. Treasury bills are sold exclusively to the banking system, making up a large part of secondary reserves. Their yield could only serve as a proxy for short term interest rates if the market for loans functions smoothly enough so that changes in their yields are reflected in rate changes elsewhere.

TABLE 19

PERCENTAGE YIELD ON GOVERNMENT LONG TERM BONDS, 1945-1967 AND ON TREASURY BILLS, 1953-1967

Year	Treasury Bills	Long Term Bonds
1945	-	2.76
1946	-	2.74
1947	-	2.72
1948	-	2.80
1949	-	3.09
1950	-	3.10
1951	-	3.50
1952	-	3.98
1953	.77	3.42
1954	.75	3.11
1955	.75	3.03
1956	1.00	3.38
1957	1.01	3.81
1958	1.03	3.52
1959	1.02	3.61
1960	1.05	3.39
1961	1.01	3.78
1962	1.00	4.15
1963	1.27	4.89
1964	1.02	6.44
1965	1.00	5.96
1966	1.00	5.94
1967	1.00	6.85

Source: Central Bank of Egypt, Economic Review, various issues; International Monetary Fund, International Financial Statistics, various issues.

There is no evidence that such is the case. Although by no means ideal, the long term government bond yield seems to be more promising. The bonds are marketed more broadly, rates fluctuate to a greater extent, and there is participation in the market by non-bank institutions. A priori considerations would lead one to expect that changes in this rate would have some positive influence on saving, at least that part which is generated in the corporate sector.[1]

The choice of what price index to use as the deflator and as a measure of price changes was made somewhat arbitrarily. Consumer prices are closely controlled in Egypt, and showed little change until relatively late in the period. Wholesale prices, while not as tightly controlled, tend also to be relatively stable since much of the wholesale trade is wholly or partially in government hands. Functions were fitted using both price indices alternatively as deflators; little difference in the results occurred. Results presented here use the consumer price index as the deflator.

There are two general forms of the savings function which theoretical considerations suggest may be applicable. The first is the Keynesian relationship in which real saving depends upon real income. When estimated in linear form, the intercept co-

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[1] Although the government controls a large proportion of the corporate sector, corporate managers prior to 1966 had considerable freedom to decide how to allocate retained earnings within the broad constraints of the development plan and under the general financial supervision of the banking system (see Chapter II, pp. 46-48, 61-62). The implementation as far back as 1957 of regulations perscribing a minimum percentage of profits that must be used for the purchase of government bonds suggests that the government was dissatified with the extent of corporate participation in the bond market. One may conjecture that one reason for the low level of participation was the low yield on long term bonds prevailing for most of the period.

efficient is expected to be negative, and the coefficient on income positive. This implies a marginal propensity to save greater than the average propensity to save. The second form of the function, associated with the work of Milton Friedman[1] and his followers, relates real saving to permanent or expected income; empirically, permanent income is approximated by some type of distributed lag. When estimated in linear form, the intercept coefficient is expected to approach zero, the coefficient on permanent income to be positive and less than one, and the coefficient on transitory income to be positive and close to unity.

When interest rates are introduced into the equation, the sign of the coefficient become much less straightforward. An increase in interest rates reduces current wealth. Hence to the extent that saving is a function of wealth, saving should fall and the sign should be negative. However, the substitution effect of a rise in interest rates is, of course, positive in the sense that an increase in yields implies a fall in the price of bonds which leads to a net increase in bond purchases.[2] As noted earlier, the evidence in the literature is inconclusive, and it seems probable that the effect of interest rates varies between countries and

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[1] Milton Friedman, A Theory of the Consumption Function (Princeton, New Jersey: National Bureau for Economic Research, 1957).

[2] This assumes well-functioning financial markets in the sense that a higher bond rate will ultimately lead to a higher spectrum of yields for all forms of assets, and so lead, at the margin, to the substitution of saving for consumption. The extent of the effect on saving will depend on the sensitiveness of portfolio managers and savers to change in the rate of interest. See M. L. Burstein, Money (Cambridge, Mass.: Schenkman Publishers Company, 1963), pp. 216-25.

possibly over time.

Real long term interest rates, R_L, were approximated by subtracting from the average annual yield on long term government bonds the annual rate of change of the consumer price index. The series covers the years 1947 to 1967. Short term real rates, R_s, were approximated by the annual yield on three month treasury bills less one-fourth of the annual rate of change in the consumer price index; the series runs from 1953 to 1967. Other variables are defined as follows (money values are in millions of constant 1963 Egyptian pounds):

S	=	domestic gross saving
S_{pr}	=	private gross saving
Y	=	gross national product
Y_{pr}	=	private gross disposable income
DP	=	annual rate of change in the consumer price index
N	=	population in millions

permanent variables are designated with an asterisk (*), transitory with t.

Table 20 presents the regression results for the basic Keynesian savings function, estimated over the twenty year period 1947-1967 and also 1953-1967, which begins with the first full year of the Nasser government.[1] Whether total or private concepts of saving

[1] An obvious question which arises in the empirical work is whether such events as the Suez War and the nationalizations of 1960-61 affected saving. Dummy variables were included in the various functions during the estimation process in an attempt to investigate that possibility. In no case were the coefficients on the dummy variables significant.

TABLE 20

REGRESSION RESULTS, ABSOLUTE INCOME FUNCTIONS

AGGREGATE:

1947 - 1967	$S = -56.56 + .161Y$	$(4.40)\ (16.15)$	$\bar{R}^2 = .929$, D.W. = 2.21
	$S_{pr} = -113.24 + .217Y_{pr}$	$(5.91)\ (11.73)$	$\bar{R}^2 = .873$, D.W. = 1.38
1953 - 1967	$S = -41.82 + .151Y$	$(1.80)\ (9.41)$	$\bar{R}^2 = .862$, D.W. = 2.43
	$S_{pr} = -119.89 + .222Y_{pr}$	$(3.28)\ (6.99)$	$\bar{R}^2 = .774$, D.W. = 1.39

PER CAPITA:

1947 - 1967	$S/N = -3.99 + .194Y/N$	$(4.41)\ (10.72)$	$\bar{R}^2 = .851$, D.W. = 2.00
	$S_{pr}/N = -8.08 + .302Y_{pr}/N$	$(6.85)\ (10.29)$	$\bar{R}^2 = .840$, D.W. = 1.48
1953 - 1967	$S/N = -2.39 + .166Y/N$	$(1.55)\ (5.80)$	$\bar{R}^2 = .700$, D.W. = 2.42
	$S_{pr}/N = -7.72 + .294Y_{pr}/N$	$(3.31)\ (5.47)$	$\bar{R}^2 = .671$, D.W. = 1.47

Note; t statistics are in parentheses.

and income are used, the Keynesian function provides quite a good explanation of saving over the periods of estimation. Both slope and intercept coefficients are significant at the 95 per cent level except for the aggregate and per capita total savings functions estimated over the 1953 to 1967 period. For the latter, the slope coefficient remains highly significant; the intercepts are significant at the 90 per cent but not at the 95 per cent level. The estimated aggregate marginal propensity to save over 1947 to 1967 is .161, slightly over the .134 average for Latin America reported by Chenery and Eckstein.[1] When private concepts of saving and income are used, the marginal propensity to save is .217 on an aggregate basis and .302 on a per capita basis. The aggregate measure is slightly above the .203 for Asia reported by Williamson,[2] and the .153 for India reported by Gupta,[3] whereas the per capita marginal propensity is somewhat less than .349 for India reported by Gupta.[4] Both Williamson and Gupta used personal rather than private concepts of saving and income, so the comparison can only be approximate.

An alternative form of the saving function is to use the permanent income hypothesis of Friedman. The results of estimating the function in this form are given in Table 21. Permanent income was approximated by a weighted three year moving average of income;

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[1] Chenery and Eckstein, "Development Alternatives for Latin America," p. 998.

[2] Williamson, "Personal Saving in Developing Nations," p. 200.

[3,4] Gupta, "Personal Saving in Developing Nations: Further Evidence," p. 244.

TABLE 21

REGRESSION RESULTS, PERMANENT INCOME

AGGREGATE:

1949 - 1967	S =	$-52.47 + .159Y^{*} + .111Y^{t}$		$\bar{R}^2$ =	.913
		(3.42) (14.11) (.549)		D.W. =	2.25
	S_{pr} =	$-111.09 + .217Y^{*}_{pr} + .099Y^{t}_{pr}$		$\bar{R}^2$ =	.847
		(4.83) (10.34) (.295)		D.W. =	1.44
1955 - 1967	S =	$-35.51 + .156Y^{*} - .272Y^{t}$		$\bar{R}^2$ =	.911
		(1.66) (11.14) (1.27)		D.W. =	3.06
	S_{pr} =	$-150.9 + .254Y^{*} - .187Y^{t}$		$\bar{R}^2$ =	.817
		(3.72) (7.45) (.404)		D.W. =	1.75

PER CAPITA:

1949 - 1967	S/N =	$- 3.63 + .187Y^{*}/N - .164Y^{t}/N$		$\bar{R}^2$ =	.775
		(2.99) (7.94) (.767)		D.W. =	2.04
	S_{pr}/N =	$- 8.72 + .318Y^{*}/N + .161Y^{t}/N$		$\bar{R}^2$ =	.732
		(3.95) (5.98) (.463)		D.W. =	1.92
1955 - 1967	S/N =	$- 2.12 + .172Y^{*}/N - .309Y^{t}/N$		$\bar{R}^2$ =	.815
		(1.70) (7.39) (1.40)		D.W. =	3.05
	S_{pr}/N =	$- 9.70 + .351Y^{*}/N - .332Y^{t}/N$		$\bar{R}^2$ =	.759
		(4.08) (6.31) (.748)		D.W. =	2.01

Note: t statistics are in parentheses.

the weights were arbitrarily chosen to be .60, .30, and .10, and were applied to income in periods t, t-1, and t-2. Regressions were run with other weighting patterns, and the results did not differ greatly. Other studies have used simple two or three year moving averages; this is equivalent to assuming a weight of unity for each period.

The permanent income hypothesis does not appear to constitute an improvement over the Keynesian absolute income hypothesis as far as Egypt is concerned. Although the coefficients on transitory income are positive for aggregate and per capita total and private saving and income for the 1949 to 1967 period, the coefficients are not significant at the 90 per cent level. Moreover, the coefficients are smaller than the coefficients on permanent income, and the intercepts are significant at the 95 per cent level. Both the latter results are contrary to the hypothesis, which suggests that the intercept should approach zero and the coefficient on transitory income approach unity. For the 1955 to 1967 period, the coefficient on transitory income is in all cases negative and not significant at the 95 per cent level.

These results contrast with certain of the results reported by Williamson and by Gupta. Williamson found some degree of support for the permanent income hypothesis in his study of six Asian countries.[1] For four of the countries under investigation, the marginal propensity to save out of transitory income was positive

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[1] Williamson, "Personal Saving in Developing Nations," pp. 201-04.

and greater than the marginal propensity to save out of permanent income; only in the cases of Taiwan and India was the coefficient on transitory income negative. However, his cross-section estimate yielded a coefficient on transitory income that was not significantly different from zero.

In his studies of India, Gupta found, using a two year moving average of actual income, that when permanent and transitory concepts of income were made explanatory variables the fit of his savings function was somewhat improved.[1] In a subsequent article, he found that when separate savings functions, using permanent and transitory definitions of income based on a three year moving average, were fitted to urban and rural income separately, the results were considerably improved over those using actual income.[2] However, in none of the cases that he investigated did he find that the marginal propensity to save out of transitory income approached unity as predicted by the hypothesis.

Gupta's finding that the savings functions differ significantly when income and saving is divided into rural and urban components is suggestive, and it may well be that greater support for the permanent income hypothesis as an explanation of saving in Egypt might be generated if a similar procedure could be followed. The inaccessibility of Egyptian data relating to rural and urban income precluded such an approach here.

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[1] Gupta, "Personal Saving in Developing Nations: Further Evidence," pp. 245-46.

[2] Gupta, "On Some Determinants of Rural and Urban Household Saving Behaviour," pp. 580-81.

Read interest rates more than [illegible]

TABLE 22

REGRESSION RESULTS, AMOUNTS INVOLVED AND REAL INTEREST RATES

AGGREGATE:

1947 - 1967

$$S = -54.43 + .159Y + .432R_L \qquad \bar{R}^2 = .995 \quad D.W. = 2.19$$
$$(3.90) \quad (15.43) \quad (-.450)^L$$

$$S_{pr} = -113.6 + .217Y_{pr} + .070R_L \qquad \bar{R}^2 = .865 \quad D.W. = 1.38$$
$$(5.48) \quad (11.26) \quad (.654)^L$$

1953 - 1967

$$S = -19.24 + .138Y - 6.34R_s \qquad \bar{R}^2 = .867 \quad D.W. = 2.54$$
$$(.658) \quad (7.20) \quad (1.23)$$

$$S = -27.64 + .144Y - 1.28R_L \qquad \bar{R}^2 = .862 \quad D.W. = 2.48$$
$$(1.01) \quad (8.07) \quad (.975)$$

$$S_{pr} = -113.9 + .218Y - 1.68R \qquad \bar{R}^2 = .756 \quad D.W. = 1.35$$
$$(2.41) \quad (5.66)^{pr} \quad (.228)^s$$

$$S_{pr} = -122.1 + .284Y + .269R_L \qquad \bar{R}^2 = .75 \quad D.W. = 1.38$$
$$(2.81) \quad (6.25)^{pr} \quad (.1)^L$$

PER CAPITA

1947 - 1967

$$S/N = -3.91 + .192Y/N - .011R_L \qquad \bar{R}^2 = .813 \quad D.W. = 1.99$$
$$(4.03) \quad (10.193) \quad (.272)^L$$

$$S_{pr}/N = -8.12 + .303Y/N + .007R_L \qquad \bar{R}^2 = .831 \quad D.W. = 1.48$$
$$(6.50) \quad (9.98) \quad (.149)^L$$

1953 - 1967

$$S/N = -1.02 + .143Y/N - .265R \qquad \bar{R}^2 = .714 \quad D.W. = 2.57$$
$$(.551) \quad (4.32) \quad (-1.28)^s$$

$$S/N = -1.91 + .152Y/N - .057R_L \qquad \bar{R}^2 = .702 \quad D.W. = 2.51$$
$$(.863) \quad (4.87) \quad (1.06)^L$$

$$S_{pr}/N = -7.20 + .284Y_{pr}/N - .116R_c \qquad \bar{R}^2 = .648 \quad D.W. = 1.51$$
$$(2.56) \quad (.280)^{pr} \quad (.413)^c$$

$$S_{pr}/N = -7.64 + .293Y_{pr}/N - .005R_L \qquad \bar{R}^2 = .644 \quad D.W. = 1.47$$
$$(2.59) \quad (4.89)^{pr} \quad (.066)^L$$

Note: 't' statistics are in parentheses.

TABLE 23

REGRESSION RESULTS, PERMANENT INCOME AND PERMANENT REAL INTEREST RATES

AGGREGATE:

1950 - 1967	S	$= -54.8 + .161Y^{*} + .054Y^{t} + .622R_L^{*}$				$\bar{R}^2 = .896$
		(3.01)	(11.65)	(.202)	(.352)	D.W. = 2.29
	S_{pr}	$= -111.78 + .218Y^{*}_{pr} + .077Y^{t}_{pr} - .264R_L^{*}$				$\bar{R}^2 = .438$
		(4.66)	(9.94)	(.209)	(.180)	D.W. = 1.46
1955 - 1967	S	$= -38.90 + .160Y^{*} - .324Y^{t} + 1.57R_s^{*}$				$\bar{R}^2 = .901$
		(1.14)	(5.73)	(.713)	(.132)	D.W. = 3.06
	S	$= -43.43 + .164Y^{*} - .441Y^{t} + 1.51R_L^{*}$				$\bar{R}^2 = .904$
		(1.64)	(8.21)	(1.14)	(.537)	D.W. = 3.04
	S_{pr}	$= -161.6 + .266Y^{*} - .353Y^{t} + 4.49R_s^{*}$				$\bar{R}^2 = .798$
		(2.86)	(5.02)	(.469)	(.288)	D.W. = 1.86
	S_{pr}	$= -164.4 + .268Y^{*} - .463Y^{t} + 2.29R_L^{*}$				$\bar{R}^2 = .804$
		(3.43)	(6.32)	(.684)	(.578)	D.W. = 1.96

PER CAPITA:

1948 - 1967	S/N	$= -3.75 + .190Y^{*}/N + .106Y^{t}/N + .0[illegible]R_L^{*}$				$\bar{R}^2 = .762$
		(2.91)	(7.53)	(.403)	(.403)	D.W. = 2.10
	S_{pr}/N	$= -8.88 + .321Y^{*}/N - .093Y^{t}/N + .083R_L^{*}$				$\bar{R}^2 = .753$
		(4.99)	(7.57)	(.287)	(.975)	D.W. = 1.84
1955 - 1967	S/N	$= -2.54 + .182Y^{*}/N - .430Y^{t}/N + .119R_L^{*}$				$\bar{R}^2 = .796$
		(1.18)	(3.90)	(.788)	(.243)	D.W. = 3.04
	S/N	$= -2.72 + .186Y^{*}/N - .546Y^{t}/N + .072R_L^{*}$				$\bar{R}^2 = .804$
		(1.71)	(5.73)	(1.26)	(.644)	D.W. = 3.01
	S_{pr}/N	$= -9.77 + .353Y^{*}/N - .354Y^{t}/N + .022R_s^{*}$				$\bar{R}^2 = .732$
		(3.18)	(4.65)	(.494)	(.042)	D.W. = 2.03
	S_{pr}/N	$= -10.07 + .361Y^{*}/N - .491Y^{t}/N + .048R_L^{*}$				$\bar{R}^2 = .736$
		(3.71)	(5.56)	(.750)	(.345)	D.W. = 2.13

Note: t statistics are in parentheses.

TABLE 24

REGRESSION RESULTS, ABSOLUTE INCOME AND PRICE CHANGES

AGGREGATE:

1947 - 1967	$S = -54.93 + .159Y + .375DP$	(3.99) (14.32) (.408)	$\bar{R}^2 = .925$, D.W. = 2.19
	$S_{pr} = -112.51 + .216Y_{pr} + .160DP$	(5.48) (10.52)^{pr} (.127)	$\bar{R}^2 = .865$, D.W. = 1.37
1953 - 1967	$S = -27.51 + .140Y + 1.26DP$	(.995) (6.93) (.942)	$\bar{R}^2 = .862$, D.W. = 2.53
	$S_{pr} = -118.3 + .221Y_{pr} + .081DP$	(2.68) (5.51)^{pr} (.041)	$\bar{R}^2 = .756$, D.W. = 1.37

PER CAPITA:

1947 - 1967	$S/N = -3.91 + .192Y + .009DP$	(3.97) (9.50) (.221)	$\bar{R}^2 = .843$, D.W. = 1.99
	$S_{pr}/N = -8.06 + .301Y_{pr}/N + .0015DP$	(6.37) (9.38)^{pr} (.031)	$\bar{R}^2 = .831$, D.W. = 1.48
1953 - 1967	$S/N = -1.25 + .143Y/N + .060DP$	(.692) (4.12) (1.15)	$\bar{R}^2 = .707$, D.W. = 2.54
	$S_{pr}/N = -7.825 + .297Y_{pr}/N + .017DP$	(2.12) (3.48)^{pr} (.207)	$\bar{R}^2 = .584$, D.W. = 1.72

Note: t statistics are in parentheses.

TABLE 25

REGRESSION RESULTS,

PERMANENT INCOME AND THE RATE OF CHANGE OF PERMANENT PRICES

AGGREGATE:

1948 - 1967	S =	- 54.17	+ .163Y^{*}	+ .052Y^{t}	- .575DP^{*}	$\bar{R}^2$ =	.896
		(3.04)	(10.08)	(.189)	(.338)	D.W. =	2.29
	S_{pr} =	-111.14	+ .218Y^{t}	+ .100Y^{t}	+ .024DP^{*}	$\bar{R}^2$ =	.837
		(4.65)	(9.25)^{pr}	(.258)^{pr}	(.017)	D.W. =	1.44
1955 - 1967	S =	- 43.08	+ .168Y^{*}	- .435Y^{t}	- 1.30DP^{*}	$\bar{R}^2$ =	.903
		(1.56)	(5.86)	(1.03)	(.456)	D.W. =	3.05
	S_{pr} =	-164.8	+ .277Y^{*}	- .482Y^{t}	- 2.06DP^{*}	$\bar{R}^2$ =	.903
		(3.31)	(4.95)	(.650)	(.522)	D.W. =	2.49

PER CAPITA:

1948 - 1967	S/N =	- 3.78	+ .193Y^{*}/N	+ .107Y^{t}/N	- .025DP^{*}	$\bar{R}^2$ =	.762
		(2.87)	(6.75)	(.394)	(.361)	D.W. =	2.09
	S_{pr}/N =	-8.95	+ .329Y^{*}/N	- .083Y^{t}/N	- .065DP^{*}	$\bar{R}^2$ =	.748
		(4.86)	(7.08)	(.242)	(.791)	D.W. =	1.79
1955 - 1967	S/N =	- 2.97	+ .198Y^{*}/N	- .589Y^{t}/N	- .072DP^{*}	$\bar{R}^2$ =	.803
		(1.57)	(4.08)	(1.15)	(.610)	D.W. =	3.03
	S_{pr}/N =	-10.13	+.367Y^{*}/N	- .484Y^{t}/N	- .037DP^{*}	$\bar{R}^2$ =	.735
		(3.45)	(4.57)	(.677)	(.281)	D.W. =	2.11

Note: t statistics are in parentheses.

price change is everywhere negative, but not significant. Again, little change in the explanatory power of the equation results.

There appear to be three possible reasons for the insignificance of the coefficients on the real interest rate and on the annual rate of change in the price level. First, the measure of short and long term real interest rates may be inappropriate. Ideally, one would prefer to have more direct measures of the return on saving, such as the average dividend rate on common stock or the interest rate paid on savings deposits. Statistics on dividends are available only from 1954 to 1959, too short a period to be of any empirical help. In any case, the dividend rate is an unreliable measure of the return to savings since dividends rose quickly throughout the nineteen fifties because of nationalization fear. Bank deposit rates were fixed at relatively low levels throughout most of the period, and hence no series of such rates have been published. The measures used, besides being the only ones available, are in accord with those generally used in studies of other developing countries.

The second, and more important reason, is that interest rates were so low throughout most of the period that real interest rates often became negative. Interest rate movements were almost always dominated by changes in the price index. Third, the price index itself reflected to an increasing degree the widening of price controls during the latter half of the period. Hence, the price of goods and services included in the index were unlikely to represent true scarcity prices, and so any measure of real

interest rates and of price changes using these indices may be inappropriate. Notwithstanding these arguments, however, the fact that the findings reported here are broadly consistent with those reported for other developing countries suggests that the measures used here are no worse than those used elsewhere.

Summarizing the evidence, the prime determinant of saving in Egypt appears to be the level of real income. When permanent and transitory income are used as explanatory variables, the coefficients on transitory income are negative both in aggregate and per capita forms for the 1955 to 1967 period and positive for the 1949 to 1967 period. The low absolute size of the coefficients and their lack of significance may be due to the relatively low level of transitory income per capita (in most years well under one pound). A priori, it seems possible that such a relatively small level of transitory income is likely to be consumed, with savings rising only when such increases are expected to continue, i. e., when permanent income increases. Neither real interest rates nor the rate of change in the price level were significant. Nevertheless, some tentative conclusions can be drawn. The fact that the coefficient on expected rates[1] is positive suggests that increases in real interest rates which are expected to continue may lead to increases in saving. More specifically, the changes in real rates have mainly been caused by changes in the price

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[1]The permanent re rate of interest is here considered to be a proxy for the expecte rate.

level. Should interest rates be permitted to rise to the point at which the nominal rate approximates the real opportunity cost of money, some stimulus to saving might follow. In Egypt, rates were kept low as a matter of policy until the mid nineteen sixties. With most investment now being directly or indirectly carried out by the state, little negative effect on investment would be likely to result from higher rates.

The rate of change in the price level entered the absolute income functions positively and the permanent income function negatively, although the coefficients were not significant. Nevertheless, one might tentatively conjecture that unanticipated price increases are not fully discounted, and some positive effect on saving results. Once price increases are anticipated and adjusted for, some slight negative effects on savings results. It will be suggested in the next chapter that a somewhat higher rate of economic growth might have been achieved during the late nineteen fifties had a higher level of inflation been accepted. In the short run, the higher rate of inflation might have mildly stimulated savings. Even in the longer run, with inflation fully anticipated, the beneficial effects of higher real incomes would offset the negative effect of a higher rate of inflation. Had nominal interest rates been permitted to increase as well, an even higher level of real saving might have been attained over the period.

CHAPTER V

A MONETARIST APPROACH TO THE EGYPTIAN ECONOMY

The purpose of the present chapter is to examine the influence of the stock of money, and changes in the stock of money, on economic activity in Egypt. A major controversy in monetary theory during the past decade has been over the question of whether central bank determined changes in the quantity of money provide a more reliable policy instrument for stabilization and growth than do fiscal instruments. The two basic points at issue are, first, can the monetary authority control the size of the money stock with some degree of precision, and second, are changes in the stock of money followed quickly and predictably by changes in the same direction in total output? Those who answer these questions affirmatively have been termed monetarists and those who disagree neo-Keynesians.[1]

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[1] There are several excellent reviews of the monetarist neo-Keynesian controversy. For a monetarist view of the issue, see Karl Brunner, "The Role of Money and Monetary Policy," Federal Reserve Bank of St. Louis, Review, 50 (July, 1968), pp. 3-25; David I. Fand, "Some Issues in Monetary Economics," Banca Nazionale del Lavoro, Review, 90 (September, 1969), pp. 215-47. David I. Fand, "A Monetarist Model of the Monetary Process," Journal of Finance, 25 (May, 1970), pp. 275-89; For a neo-Keynesian view, see Warren L. Smith, "On Some Current Issues in Monetary Economics: An Interpretation," Journal of Economic Literature, 8 (September, 1970), pp. 767-82; Richard L. Teigen, "A Critical Look at Monetarist Economics," Federal Reserve Bank of St. Louis, Review, 54 (January, 1972), pp. 10-25; Yung Chul Park, "Some Current Issues in the Transmission Process of Monetary Policy," International Monetary Fund, Staff

The monetarist position may be briefly summarized as follows: statistical investigations of the demand for money show that velocity is relatively stable in the short run, and in particular more stable than the Keynesian consumption function.[1] From this it is argued that money is the primary determinant of changes in total spending. This hypothesis has been tested in the form of a single equation regressing first differences in nominal income on current and lagged first differences in the stock of money and government expenditures, using quarterly data for the United States.[2] Several different definitions of expenditures and of money were used. The results of the tests support the hypothesis, yielding R^2 coefficients ranging from .53 to .73 depending on which definitions were used. The coefficients on money were positive and significant over four quarters. On the other hand, those on the fiscal variable were positive for the first two quarters and negative for the last two, and in all four quarters were significantly different from zero. This approach turned out to have somewhat greater success in predicting the growth path of nominal income throughout the late

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Papers, 19 (March, 1972), pp. 1-45. In addition, an excellent set of brief papers on various aspects of the issues may be found in Federal Reserve Bank of Boston; Controlling Monetary Aggregates, Proceedings of the Monetary Conference held June 8-10, 1969. Particularly useful are the papers of Warren L. Smith, A. H. Meltzer and James Tobin.

[1] Milton Friedman and David Meiselman, "The Relative Stability of Monetary Velocity and the Investment Multiplier 1897-1958," Research Study Two, Stabilization Policies, United States Commission on Money and Credit, Prentice-Hall, 1963.

[2] Leonall C. Anderson and Jerry L. Jordan, "Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization," Federal Reserve Bank of St. Louis, Review, 50 (November, 1968), pp. 11-24.

nineteen sixties than did the various econometric models which emphasize fiscal instruments as the prime income determining variables. Later work by Keran[1] found that essentially the same conclusions applied when tested on data over a much longer time period.

The monetarist approach has been criticized on at least three grounds: methodological, theoretical, and empirical. Methodologically, monetarists are said to be implicitly accepting the methodology of positive economics propounded by Friedman when they judge the usefulness of their approach solely by its accuracy in prediction. Johnson claims that this approach is not scientifically respectable; unfortunately he advances no reasons for his assertion.[2] It appears to rest, however, on the proposition that those who follow such a methodology attempt to find empirical regularities which they either do not justify theoretically or at best justify ex post by vague and imprecise generalizations. A more scientifically acceptable approach is to first develop an abstract, theoretical model which can then, perhaps, be empirically tested by progressively relaxing certain of the assumptions.

These methodological objections were well taken when applied to earlier monetarist writings, and in recent years a fairly substantial proportion of the monetarist literature has been devoted

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[1] Michael W. Keran, "Monetary and Fiscal Influence on Economic Activity - The Historical Evidence," Federal Reserve Bank of St. Louis, Review, 51 (November, 1969), pp. 5-24.

[2] Harry G. Johnson, "The Keynesian Revolution and the Monetarist Counter-revolution," American Economic Review, 61 (May, 1971), pp. 12-13.

to developing its theoretical basis.[1] Essentially, monetarists look at the economy from a Walrasian point of view. An increase in the nominal stock of money is assumed to cause an excess supply of real balances, implying excess demand in one or more of the markets for goods and services. As the community attempts to rid itself of its excess balances, prices in the goods and services market adjust upward until equilibrium is restored. The new equilibrium is characterized by higher nominal balances, a higher level of prices and the former level of real balances.

This is essentially a quantity theory approach. The differences between the classical quantity theory and the modern monetarist version are found as much in the assumptions concerning the state of the economy as in the quantity theory itself. Unemployed resources in the economy will cause any increase in the money supply to have its initial impact on output and only secondarily on prices. Thus, it is claimed, monetary policy becomes a powerful stabilization tool. Second, velocity is not assumed to be constant, as was generally the case with the classical quantity theory, but instead it is assumed to be a stable function of a small number of variables. One of these may be the rate of interest, although in practice most monetarists expect the interest elasticity

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[1] See, for example, Milton Friedman, "A Theoretical Framework for Monetary Analysis," Journal of Political Economy, 78 (March/April, 1970), pp. 193-238; Milton Friedman, "A Monetary Theory of Nominal Income," Journal of Political Economy, 79 (March/April, 1971), pp. 323-27; David I. Fand, "A Monetarist Model of the Monetary Process," Journal of Finance, 25 (May, 1970), pp. 275-89.

of the demand for money to be very low.

Empirically, the appropriateness of the reduced form equation has been questioned.[1] One of the conditions that must hold if the reduced form approach is to yield useful results is that the exogenous variables must be truly exogenous. In particular, it has been suggested that the size of the money stock is not exogenous, since it depends on the decisions of the public and of the banking system as well as on the central bank.[2] Hence the high coefficients of determination may be spurious. Moreover, the equations used in the earlier work by Friedman and Meiselman turned out to be highly sensitive to the measure of autonomous expenditures;[3] no criteria exist for unambiguously separating autonomous from induced expenditures. Nevertheless, the advantages of reduced form equations are considerable. Both the direct and indirect effects of a change in

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[1] Richard G. Davis, "The Role of the Money Supply in Business Cycles," Federal Reserve Bank of New York, Monthly Review, (April, 1968), pp. 63-73; James Tobin, "Money and Income: Post Hoc Ergo Propter Hoc?", the reply by M. Friedman, and Tobin's rejoinder, in Quarterly Journal of Economics, 84 (May, 1970), pp. 301-29.

[2] Frank de Leeuw and John Kalchrenner, " Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization - Comment," Federal Reserve Bank of St. Louis, Review, 51 (April, 1969), pp. 6-11. For a response see Leonall C. Anderson, "Additional Empirical Evidence on the Reverse Causation Argument," Federal Reserve Bank of St. Louis, Review, 51 (August, 1969), pp. 19-23.

[3] Albert Ando and Franco Modigliani, "Velocity and the Investment Multiplier," and Michael DePrano and Thomas Mayer, "Autonomous Expenditures and Money," and the ensuing discussion in American Economic Review, 55 (September, 1965), pp. 693-795.

the exogenous variables are captured, and, if judged by the predictive accuracy of short term forecasts, more effectively than in the larger econometric models.[1]

Early monetarist work was carried out using data from the United States and other developed countries. In recent years, however considerable work has been done on the demand for money in developing countries.[2] The majority of these studies have concluded that the interest rate does not significantly enter the demand for money function. For example, Gujarti found that interest elasticities varied from -.102 to -.285 when long term rates were used, and from -.031 to +.046 when short term rates were used, depending on the form of the function estimated.[3] In all cases, the coefficients

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[1]Keran, "Monetary and Fiscal Influence on Economic Activity - The Historical Evidence," p. 8.

[2]See for example, Hannan H. Ezekiel and Joseph O. Adekunle, "The Secular Behaviour of Income Velocity: An International Cross-Section Study," International Monetary Fund, Staff Papers, 16 (July, 1969), pp. 224-39. K. L. Gupta, "The Demand for Money in India: Further Evidence," Journal of Development Studies, 6 (January, 1970), pp. 159-68; Yung Chul Park, "The Variability of Velocity: An International Comparison," International Monetary Fund, Staff Papers, 17 (November, 1970), pp. 620-37. See also Teh-Wei Hei, "Hyperinflation and the Dynamics of the Demand for Money in China 1945-1949," Journal of Political Economy, 79 (January/February, 1971), pp. 186-95. S. Y. Lee, "Money, Quasi-Money and Income Velocity of Circulation in Malaya and Singapore 1947-1965," Economic Development and Cultural Change, 20 (January, 1971), pp. 287-312. Paul B. Trescott, "Demand for Money and Other Liquid Assets in Thailand 1946-1967," Economic Development and Cultural Change, 21 (January, 1972), pp. 260-79.

[3]Damodar Gujarti, "The Demand for Money in India," Journal of Development Studies, 5 (October, 1968), pp. 59-64.

were statistically insignificant. Similar results were obtained by Khetan and Waghmare in a more elaborate study[1] and by Trescott in his study of Thailand.[2] In a study of nine Asian countries Fan and Liu found that the coefficients on interest rates were insignificant throughout.[3] On the other hand, Mammen found that the interest rate was significant in determining the demand for money in India when the demand for currency, demand deposits, and time deposits were estimated separately.[4] The elasticities, however, were low, varying between -.37 and -.77.

If, as is suggested by many of these studies, the demand for money is primarily determined by income, a monetarist model may be applicable to many of the developing countries, particularly if it can be assumed that the size of the money stock can be closely controlled by the monetary authority. Although the appropriateness of such an assumption is very much in dispute at present, it is a reasonable one in the Egyptian context. The usual grounds for instability advanced in the literature involve the argument that the commercial banking system may partially fustrate the intentions of the monetary authority by failing to adjust portfolios in response to central bank open market operations. This argument has less

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[1]C. P. Khetan and R. R. Waghmare, "Monetary Adjustments in India," Indian Economic Journal, 18 (April/June, 1971), pp. 496-513.

[2]P. B. Trescott, "Demand for Money and Other Liquid Assets in Thailand 1947-1965," p. 278.

[3]Thampy Mammen, "A Test of Friedman's Demand for Money with Indian Data," Indian Economic Journal, 17 (April/June, 1970), pp. 494-99.

[4]Liang-Shing Fan and Zeng Rung Liu, "Demand for Money in Asian Countries: Empirical Evidence," Indian Economic Journal, 18 (April/June, 1971), pp. 474-81.

force in the case of Egypt, particularly since the nationalization and rationalization of the banking system was completed in 1961. Although the system continues to be one based on fractional reserves, the commercial banks have little discretionary power. They act as intermediaries between the monetary sector and the various sectors of the economy, and secondarily, as intermediaries between savers and investors. Bank portfolios are closely controlled; each of the banks (with the exception of the NBE) is responsible for financing a specific sector of the economy, and all banks are required to hold a minimum proportion of their assets in government bonds.

The monetarist model developed by Leonall Andersen and Keith Carlson at the Federal Reserve Bank of St. Louis has been fairly successful in predicting short run changes in American macro-economic variables.[1] This model has the advantage of simplicity as well as the ability to forecast changes in both nominal and real GNP. It was therefore decided to apply the model to Egyptian data for the 1953 to 1967 period in order to test whether monetarist models are likely to be useful in the context of developing countries. As initially formulated, the model consisted of five equations and three identities:

$$(1) \qquad \Delta Y_t = f_1(\Delta M_t, \ldots, \Delta M_{t-n}, \Delta E_t, \ldots, \Delta E_{t-n})$$

$$(2) \qquad \Delta P_t = f_2(D_t, \ldots, D_{t-n}, \Delta P_t^a)$$

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[1] The model is described in Leonall Andersen and Keith M. Carlson, "A Monetarist Model for Economic Stabilization," Federal Reserve Bank of St. Louis, Review, 52 (April, 1970), pp. 7-25. The results from using the model for forecasting are reported in Keith M. Carlson, " Projecting with the St. Louis Model: A Progress

$$(3) \qquad D_t \equiv \Delta Y_t - (X_t^f - X_{t-1})$$

$$(4) \qquad \Delta Y_t \equiv \Delta P_t + \Delta X_t$$

$$(5) \qquad R_t = f_3(\Delta M_t, \Delta X_t, \ldots, \Delta X_{t-n}, \Delta P_t, \Delta P_t^a)$$

$$(6) \qquad \Delta P_t^a = f_4(\Delta P_{t-1}, \ldots, \Delta P_{t-n})$$

$$(7) \qquad U_t = f_5(G_t, G_{t-1})$$

$$(8) \qquad G_t \equiv \frac{X_t^f - X_t}{X_t^f}$$

The variables are defined as follows:

ΔY = change in nominal GNP
ΔM = change in the money supply
ΔE = change in high employment government expenditure
ΔP = change in the price level, scaled in dollar units
ΔP^a = anticipated change in the price level
D = demand pressure
X^f = potential output
ΔX = change in real GNP
R = market interest rate
G = GNP gap
U = unemployment as a per cent of the labour force

Changes over time are in the form of first differences. Equations 1 and 2 represent the essential aspects of the monetarist approach. Equation 1 relates changes in nominal GNP to changes in the money supply and changes in full employment government expenditures. Although Andersen-Carlson point out that such a formulation encompasses the Keynesian as well as the monetarist hypothesis, their empirical findings

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Report," Federal Reserve Bank of St. Louis Review, 54 (February, 1972), pp. 20-27.

show that the fiscal variable is not significant. Equation 2 makes the change in the price component of GNP a function of demand pressure and the change in price anticipations. Equation 3 is an identity, which provides an estimate of excess demand in period t by subtracting from that period's change in nominal GNP the difference between that period's full employment output and the preceding period's real output. The expression in brackets is a measure of the increase in real output which can occur without putting upward pressure on prices. Subtracting this from the change in nominal GNP gives excess demand in period t. Equation 4 is an identity dividing the change in nominal GNP between changes in real GNP and changes in the price component of GNP. Equation 5 determines interest rates as a function of the money supply, real output, the change in price level, and the change in price anticipations. Equation 6 specifies that the change in expected prices is a function of past price changes. Unemployment is determined in Equation 7 as a function of the GNP gap, defined in Equation 8 as a proportion of full employment output in time t.

Andersen-Carlson present two alternative versions of equation 2, the price equation, both versions avoid the direct use of anticipated price changes. Equation 2a and 2b are as follows:

$$(2a) \qquad \Delta P_t = f(D_t,\ldots,D_{t-n},(R^L_{t-1}\cdot X_{t-1}).01)$$

$$(2b) \qquad \Delta P_t = f(D_t,\ldots,D_{t-n},\ \Delta M_t,\ldots,\Delta M_{t-1})$$

The rational of both alternative equations lies in the fact that expected prices are unobservable and thus cannot be econometrically estimated. Anticipated price changes are replaced in equation 2a

with the long term interest rate and in equation 2b with past changes in the money stock. When either of these equations is used, equation 6 is eliminated. In their empirical work, Andersen-Carlson estimated all three versions, and found that the explanatory power of the three equations was approximately equal.

In applying the model to the Egyptian experience, the lack of any data on unemployment precluded any attempt to use equations 7 and 8 to predict changes in employment. A second difficulty was the lack of any official measure of potential output such as that of the United States Council of Economic Advisers which was used by Andersen-Carlson. The absence of any such series led to considerable experimentation before selecting an autonomous measure. What was finally done was to select the three year period 1953 to 1955 as representing a period during which real output approximated the full employment level. These three years were characterized by steady growth in the real GNP while prices remained nearly constant. The average annual compound rate of growth was calculated for these three years, and it was then used to generate a series through 1967 which would serve as a proxy for full employment real output.

Quarterly data on the money supply is now available for Egypt back to 1953; unfortunately, only annual data on GNP exists. The money supply series used was derived by averaging the quarterly data for each year to get a yearly figure for the average stock of money. Following Andersen-Carlson the conventional narrow definition of money was used, i. e., money is defined to consist of currency

outside the banks plus demand deposits. The consumer price index was used as the deflator and as a measure of the change in the price level. All equations were estimated by regressing first differences of the dependent variable against current and lagged values of the independent variables. The weights on the lagged variables were constrained to fall along an n degree polynominal according to Almon's methods.[1] A difficulty with using Almon lags is the necessity of specifing ex ante the degree of the polynominal and the number of lags. One procedure to follow is to choose the degree of polynominal that minimizes the standard error of the equation, subject to the number of degrees of freedom available. In practice, a polynominal of degree two proved most suitable. The lags were chosen such that the number of periods lagged was increased until just before the coefficient on the lagged term became insignificant at the 95 per cent level.

Equation 1 was estimated using alternatively government expenditures and the budget surplus or deficit as the fiscal variable. Neither was significant; the effect of including either was to reduce the coefficients on the money supply, lower the $\bar{R}^2$ slightly, and lower the Durbin-Watson statistic considerably. Experimentation with dummy variables was carried out to try to improve the fit by

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[1]The technique was developed by Shirley Almon, " The Distributed Lag between Capital Appropriations and Expenditures," Econometrica, 33 (January, 1965), pp. 178-96. For brief discussion of this and other distributed lags, see Jan Kmenta, Elements of Econometrics (New York: Collier-Macmillan, 1971), pp. 473-95.

[2]Kmenta, Elements of Econometrics, pp. 492-93.

taking account of the effects of the Suez War in 1956 and the nationalizations of 1960 to 1961, but the coefficients were not significant. The fiscal variable was therefore dropped. The estimated equation then became:

$$\Delta Y = \underset{}{36.88} + \underset{(1.94)}{1.54}\,\Delta M_t + \underset{(3.14)}{1.31}\,\Delta M_{t-1} \qquad \underset{(2.87)}{}$$

(t statistics are in parentheses)

Constraint: 2nd degree
$\bar{R}^2 = .731$
S.E.E. = 40.49
D.W. = 2.02

Equation 2 was estimated in all three versions suggested by Andersen-Carlson. Only equation 2b produced satisfactory results. When anticipated prices were estimated by using as weights the coefficients of interest rates regressed on changes in the price level (in equation 5; this is the procedure used by Andersen-Carlson), it was found that these coefficients were low and insignificant. Apart from the legitimacy of using as weights coefficients which were not significant, it seems unlikely that interest rates, which are closely controlled, enter into expectations in the way suggested by the equation.

The price component equation as estimated is:

$$\Delta P_t = \underset{}{27.89} + \underset{(.837)}{.474}\,D_t + \underset{(2.94)^t(1.31)^{t-1}}{.347}\,D_{t-1} - \underset{(.337)}{.266}\,\Delta M_t + \underset{(1.88)}{.791}\,\Delta M_{t-1} + \underset{(1.93)}{.866}\,\Delta M_{t-2}$$

Constraint: 2nd degree
$\bar{R}^2 = .828$
S.E.E. = 40.5
D.W. = 2.07

(t statistics are in parentheses)

The results are interesting, in that the coefficient on money is negative, although not significant, in the current period, and that the coefficient is largest in period t-2. Extending the lag resulted in a positive but not significant coefficient for period t-3.

The intercept is not significant; however, when using the model in simulation it performed better when the intercept was retained in this equation. The fact that the price component reacts more quickly to demand pressure than to changes in the money supply may be because the authorities adjust prices primarily when demand pressures become significant rather than in response to monetary pressure. In other words, in the Egyptian context changes in the money supply may not be a very good proxy for changes in anticipations, although the equation does appear to fit the data well.

Equation 1 enables one to predict the change in nominal GNP following changes in the stock of money, and equation 2 permits the prediction of changes in the price component of GNP. The change in real GNP can then be found using equation 4, since ΔP_t is defined to be $(P_t - P_{t-1}) X_{t-1}$ and ΔX_t as $(X_t - X_{t-1})P_{t-1}$. The cross-product term $(P_t - P_{t-1})(X_t - X_{t-1})$ was treated by Andersen-Carlson as if it were zero. When calculated for Egypt over the estimation period, at no time did the cross product term exceed two/tenths of one per cent of that year's GNP, and in most years it was considerably lower. Hence, following Andersen-Carlson, the term is dropped for simplicity.

In order to test the predictive capability of the model, it was used to estimate GNP, real GNP, and prices from 1956 through 1957; both levels and annual percentage rates of change were calculated. One method of evaluating a model such as this is to use actual values of exogenous variables and to replace the lagged variables with their actual values in period t as each period

t + 1 is estimated. Otherwise (since errors are compounded) forecasts become increasingly unreliable as the length of the forecast period is increased, even if the model is structurally correct. This may be the best procedure to follow if the purpose of the model is simply to predict next period's income. However, if it is desired to use the model to simulate the effects of different policies at some time in the future, it is obviously impossible to update the lagged variables. Hence it is important to know how well the model tracks the economy.

The results of an ex post dynamic simulation[1] can be found in Tables 26 and 27, and in Charts 2, 3 and 4. Actual values for the money supply were used, and solution values generated in period t became inputs to the model in period t + 1. While the criteria for judging the adequacy of econometric models are not well defined,[2] the model appears to fit the data reasonably well. Looking first at nominal GNP, when levels are predicted, the mean error is -32.07, less than 2 per cent of average GNP and less than .01 per cent of its variance. When the predicted annual rate of change is considered, the mean error is -.131. Referring to Chart 2, the model overestimates the fall in the rate of growth in 1959 and predicts an increase rather than a fall in 1961 and 1965. Bearing in mind that the

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[1] Andersen and Carlson, "A Monetarist Model for Economic Stabilization," p. 16.

[2] An excellent review of evaluation methods for econometric models may be found in Phoebus J. Drymes, et al., "Criteria for Evaluation of Econometric Models," Annals of Economic and Social Measure, 1 (July, 1972), pp. 291-324.

TABLE 26

ACTUAL AND FORECAST GNP, REAL GNP, AND THE CONSUMER PRICE INDEX
1956 to 1967

Date	Actual GNP [a]	Estimated GNP[a]	Error[a]	Actual Real GNP[b]	Estimated Real GNP[b]	Error[b]	Actual Price Level[c]	Estimated Price Level[c]	Error[c]
1956	1072.0	1079.3	7.3	1104.8	1116.6	11.8	97.0	96.6	- .4
1957	1125.0	1147.4	22.4	1113.9	1119.4	5.5	101.0	102.5	1.5
1958	1195.0	1210.6	15.6	1183.2	1178.4	-4.8	101.0	102.7	1.7
1959	1256.0	1240.8	-15.1	1243.6	1235.0	-8.6	101.0	100.4	- .6
1960	1372.0	1303.0	-69.0	1345.3	1366.7	21.4	102.0	95.3	-6.7
1961	1467.0	1419.3	-47.7	1438.5	1496.9	58.4	102.0	94.8	-7.2
1962	1550.0	1516.9	-33.1	1565.5	1530.7	-34.8	99.0	99.0	0
1963	1679.0	1630.6	-48.4	1679.0	1612.0	-67.0	100.0	101.1	1.1
1964	1884.0	1865.3	-18.7	1818.5	1799.4	-19.1	103.6	103.6	0
1965	2192.0	2112.0	-80.0	1838.9	1853.5	14.6	119.2	113.9	-5.3
1966	2388.0	2304.0	-84.0	1839.7	1861.4	21.7	129.8	123.7	-6.1
1967	2459.0	2425.0	-34.0	1881.4	1951.1	69.7	130.7	124.2	-6.5
Mean Error			-32.07			5.73			-2.38
Mean Absolute Error			39.62			28.12			3.09
Root Mean Squared Error			46.96			36.22			4.19

Notes: [a] In millions of Egyptian Pounds

[b] In millions of 1963 Egyptian Pounds

[c] The Consumer Price Index, 1963=100

TABLE 27

ACTUAL AND ESTIMATED ANNUAL PERCENTAGE CHANGE IN GNP, REAL GNP, AND THE CONSUMER PRICE INDEX
1956 to 1967

Date	Actual GNP[a]	Estimated GNP[a]	Error[a,b]	Actual Real GNP[b]	Estimated Real GNP[b]	Error[b,d]	Actual Price Level[c]	Estimated Price Level[c]	Error[c,d]
1956	5.71	6.44	0.73	3.56	4.67	1.11	2.08	1.69	-0.39
1957	4.94	6.31	1.37	0.82	0.25	-0.57	4.08	6.04	1.96
1958	6.22	5.50	-0.72	6.22	5.26	-0.96	0.00	0.22	0.22
1959	5.10	2.49	-2.61	5.10	4.80	-0.30	0.00	-2.20	-2.20
1960	9.23	5.01	-4.22	8.17	10.66	2.49	0.98	-5.10	-6.08
1961	6.92	8.92	2.00	6.92	9.52	2.60	0.00	-0.54	-0.54
1962	5.65	6.88	1.23	8.82	2.25	-6.57	-2.91	4.52	7.43
1963	8.32	7.49	-0.83	7.25	5.30	-1.95	1.00	2.07	1.07
1964	12.20	14.38	2.18	8.31	11.62	3.31	3.59	2.47	-1.12
1965	16.34	13.22	-3.12	1.12	3.01	1.89	15.05	9.91	-5.14
1966	8.94	9.09	0.15	0.04	0.42	0.38	8.89	8.63	-0.26
1967	2.97	5.25	2.28	2.26	4.82	2.56	0.69	0.40	-0.29
Mean Error			- .131			.333			- .445
Mean Absolute Error			1.79			2.06			2.22
Root Mean Squared Error			2.11			2.64			3.29

Note: [a]In millions of Egyptian Pounds

[b]In millions of 1963 Egyptian Pounds

[c]The Consumer Price Index

[d]The differences are not exact because of rounding in the tabular presentation

CHART 2

ACTUAL AND ESTIMATED RATE OF CHANGE IN NOMINAL GNP
1956 - 1967

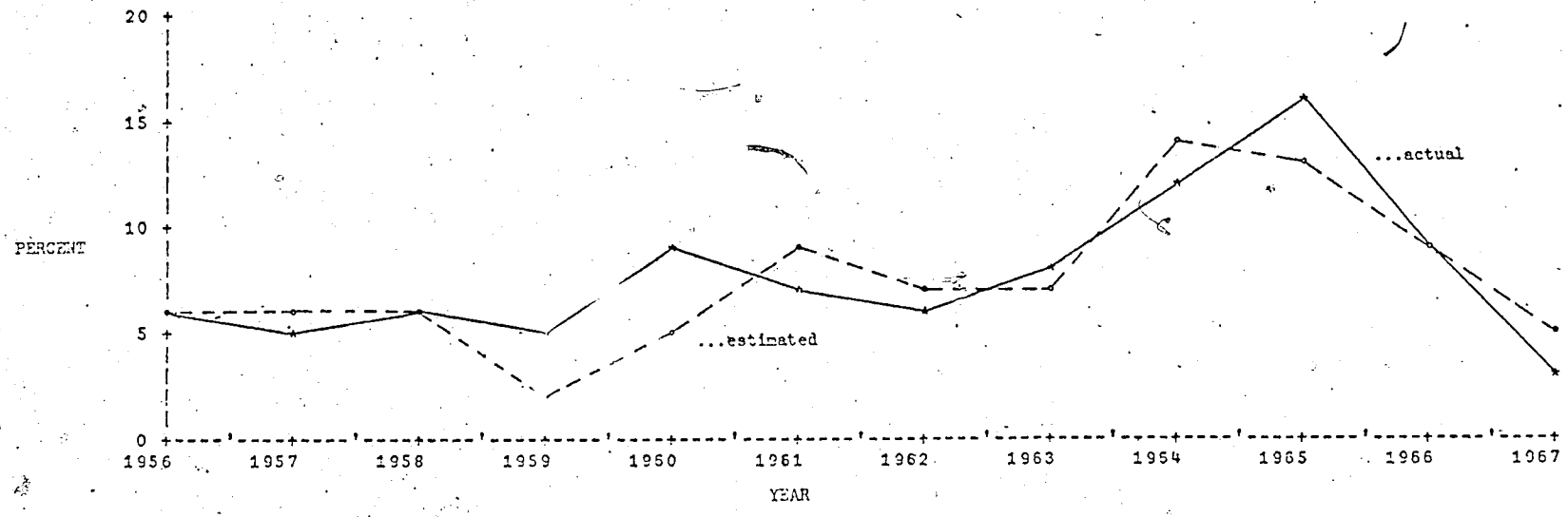


CHART 3

ACTUAL AND ESTIMATED RATE OF CHANGE IN REAL GNP
1956 - 1967

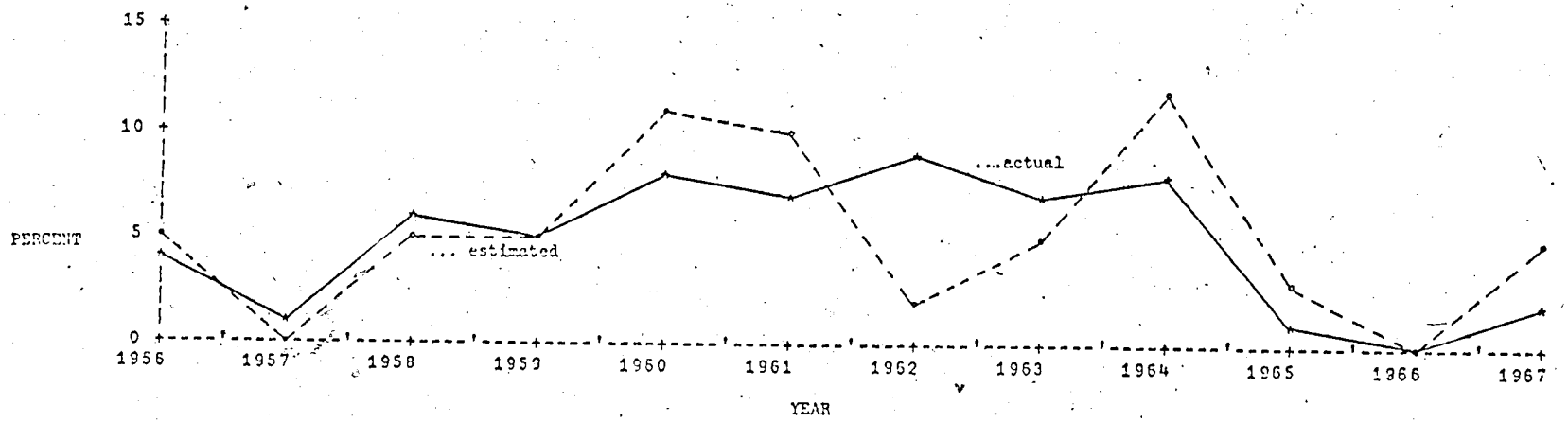
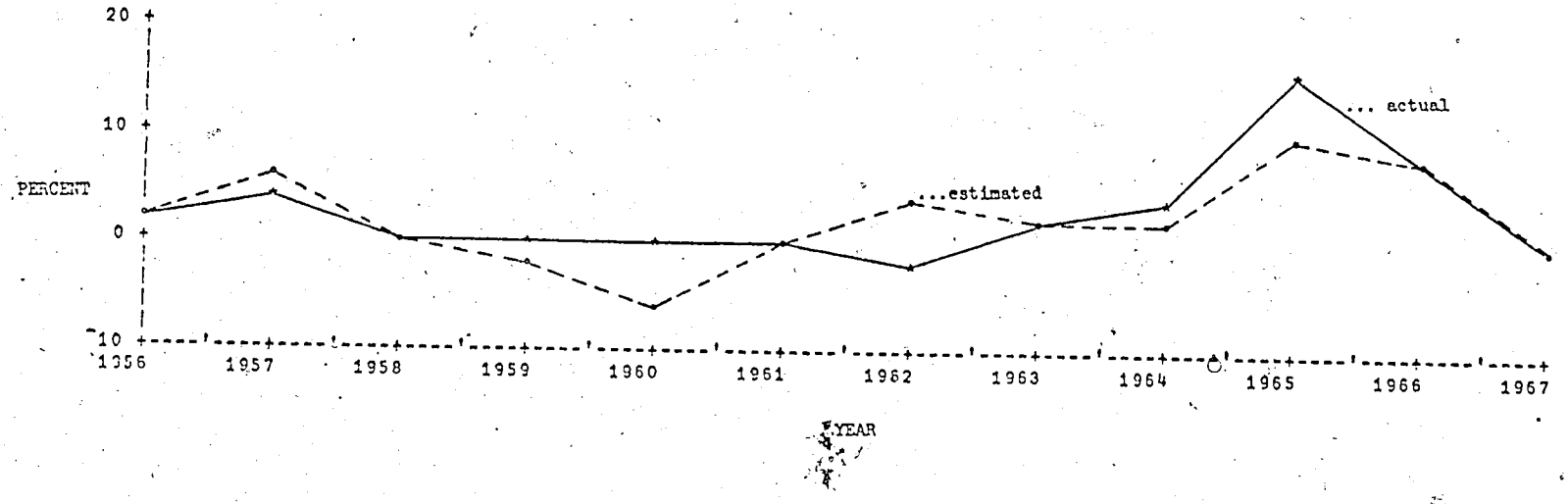


CHART 4

ACTUAL AND ESTIMATED RATE OF CHANGE IN THE CONSUMER PRICE INDEX
1956 - 1967



model is estimating income over an eleven year period, the margin of error seems reasonable.

In the case of the estimated series for real GNP, if anything the model tracks the economy somewhat more closely than it does in predicting nominal GNP. All three error measures are lower than their counterparts for nominal GNP, and the mean error amounts to less than .40 per cent of average real income and less than .01 per cent of its variance. As Chart 3 shows, the model misses turning points only in 1962, when it falsely predicted a sharp fall in the rate of growth when in fact an increase occurred, and in 1963 when it predicted a rise when a fall actually occurred.

With the time path of both nominal and real GNP tracked fairly closely, it is somewhat surprising that the rate of change in prices is not mirrored quite as closely. The model falsely predicts a fall in both 1959 and 1960, and an increase in 1962 when in fact prices fell somewhat. Both errors are due to the model respectively over and underestimating the rate of change in real income in 1960 and 1962. Nevertheless, the mean error is relatively low. Moreover, the closeness of the estimate improved (as it did for real GNP) after 1964 when prices were permitted to vary more freely.

The model was next used to simulate the effects of alternative monetary policies. With the estimated series on GNP, real GNP, and prices serving as a "control" solution,[1] two alternative

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[1] For brief discussions of simulation methods in econometric models, see L. R. Klein, "Econometric Analysis of the Tax Cut of 1964," and Gary Fromm, "An Evaluation of Monetary Policy Instruments,"

monetary policies were simulated. As was discussed in Chapter III, Egypt followed a rather tight monetary policy during the nineteen fifties. More specifically, the annual rate of increase in the money supply was under 5 per cent in every year except 1956, under 2 per cent for five of the years, and in fact was negative in 1953.

In order to determine whether this relatively low annual increase in money constrained the growth of real national income, a steady 6 per cent annual rate of growth in money was simulated. A steady 10 per cent annual rate of increase was also tried, in an attempt to discover whether a more rapid rate of inflation might increase real economic growth by affecting real saving and investment. The results are set out in Table 28. The effects of the 6 per cent rate are generally favourable. Nominal income is higher in each year until 1965, after which it fails to rise as rapidly as did actual income. Real GNP is higher in every year except 1961 and 1964. The rate of price increase is very gradual after 1959. Comparing these results with those resulting from a 10 per cent annual increase in money, the net effect of the higher rate of increase is a much more rapid rate of inflation and a lower level of real GNP (except 1957 to 1959) than was the case with a 6 per cent

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in J. S. Duesenberry, et al, ed. The Brookings Model: Some Further Results (Chicago: Rand-McNally, (May, 1969), pp. 473-511. A simpler discussion may be found in F. de Leeuw and E. M. Gramlich, "The Channels of Monetary Policy," Federal Reserve Bulletin, 55 (June, 1969), and I. A. Stewart, " RDX2: Research Department's 'Xperminetal' Model, Version 2," Bank of Canada, Review (April, 1972), pp. 3-28.

TABLE 28

ACTUAL AND SIMULATED GNP, REAL GNP, AND THE CONSUMER PRICE INDEX
1956 to 1967

Date	Actual GNP[a]	Estimated GNP[a] Policy 1[d]	Estimated GNP[a] Policy 2[d]	Actual Real GNP[b]	Estimated Real GNP[b] Policy 1	Estimated Real GNP[b] Policy 2	Actual Price Level[c]	Estimated Price Level[c] Policy 1	Estimated Price Level[c] Policy 2
1956	1072.0	1072.0	1072.0	1104.8	1131.6	1131.6	97	94	94.7
1957	1125.0	1125.9	1147.2	1143.9	1156.5	1171.7	100	97	97.8
1958	1195.0	1231.4	1296.2	1183.2	1249.5	1279.7	0	98	101.1
1959	1256.0	1364.6	1479.6	1243.6	1309.1	1313.3	100	104	112.7
1960	1372.0	1524.8	1697.5	1345.3	1345.6	1328.7	101	113	127.2
1961	1467.0	1613.9	1853.1	1438.5	1394.6	1373.3	101	114	133.2
1962	1550.0	1714.2	2029.2	1565.5	1585.4	1567.2	99	108	130.1
1963	1679.0	1849.1	2250.8	1679.0	1719.5	1702.8	100	107	133.4
1964	1884.0	44.0	2444.3	1818.5	1777.1	1757.9	103	109	139.4
1965	2190.0	35.1	2747.4	1838.9	1854.2	1830.8	119	115	149.7
1966	2388.0	2274.5	3013.7	1839.7	1965.8	1938.1	129	116	155.5
1967	2459.0	2365.8	3248.5	1881.4	2044.5	2012.9	130	117	160.7

Notes: [a]In millions of Egyptian Pounds

[b]In millions of 1963 Egyptian Pounds

[c]The Consumer Price Index, 1963=100

[d]Policy 1 represents a steady annual increase in the money supply of 6 per cent, Policy 2 represents a steady annual increase in the money supply of 10 per cent.

annual rate of increase. Nevertheless, the results of the 10 per cent annual rate were somewhat better than those of the policy actually followed.

Although either of the simulated policies would appear to be superior to the one actually followed, it is by no means intended to suggest that a steady expansion of the money supply according to some rule would be an optimal policy to follow.[1] On the contrary, to the extent that the model is capable of predicting the short and medium term growth path of income, the power of discretionary monetary policy should be enhanced. Nevertheless, the results of the simulations suggest that a less restrictive monetary policy in the early stages of the period together with a less expansionary policy after 1964 would have led to a higher level of real income with a lower level of inflation. This implies that a higher rate of growth would not have been constrained by lack of capacity. If, as was demonstrated in Chapter IV, saving is relatively income elastic in Egypt, a higher rate of growth would seem to have been possible during the late nineteen fifties. This implicity assumes, however, that the needed foreign exchange could be made available for capital imports. The transformation of a high rate of domestic savings into exports in order to earn the foreign exchange necessary to maintain capital imports at a high level is a major problem for any country whose

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[1] Milton Friedman is the best known economist arguing for a steady income in the money supply. See, for example, his "The Role of Monetary Policy," American Economic Review, 58 (March, 1968), pp. 1-17.

export basket is as concentrated as is that of Egypt. Investment policy during the late nineteen fifties would have had to concentrate largely on the machine tools industry and on import substitution in the consumer goods industry. Moreover, measures would have had to be taken to restrict the capital outflow that Mead argues restricted investment severely during the period.[1] Indeed, comprehensive planning would need to have been introduced as early as 1957, rather than in 1961 as actually occurred.

These comments highlight the fact that the advantages of highly simplified monetary models such as this are also their weakness. The reduced form model captures the direct and indirect effects of changes in the supply of money, but in doing so does not specify how these effects are transmitted to the economy. In essence it is assumed that other factors adjust, although possibly with a lag. This may be a particularly important problem in the case of an underdeveloped country in which the growth of the economy may be constrained by the failure of the capacity to import to grow commensurately. During most of the period for which this model was estimated, the capacity to invest was not seriously constrained by the lack of foreign resources. After 1961, however, Egypt could only maintain its level of investment by foreign borrowing. As its indebtness increases, a larger part of its foreign exchange earnings will be needed for debt servicing, making the maintenance of a high level of capital formation difficult given the high import content of the Egyptian investment programme.

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[1] Me , Growth and Structural Change in the Egyptian Economy, pp. 203-0

Because of these considerations, it is quite possible that the the structural equations underlying the model would not hold for some later period than that for which they are specified. This is, of course, true for any econometric model but is particularly important for one in which predictive power depends heavily on two equations. A larger, fully specified, econometric planning model of the Egyptian economy would be required if, for example, one wished to capture the effect of changes in the capacity to import and the effect of these changes on the level of capital formation undertaken. Nevertheless, the evidence presented here does suggest that relatively straightforward monetary models can be useful both for forecasting the growth path of nominal and real income, and for evaluating different monetary policies.

CHAPTER VI

SUMMARY AND CONCLUSIONS

This study has attempted, first, to trace the course of monetary policy in Egypt since the end of World War II within the context of spreading governmental control of the economy and, second, to analyze from a monetarist point of view the extent to which monetary policy can affect economic growth in the short and medium term.

The monetary policy followed during the first half of the nineteen fifties was conservative and rather passive. The money supply was increased only at a very low annual rate, and no effort was made to direct the flow of credit within the economy. After the Suez War of 1956, the government began extending its influence throughout the economy and at the same time took greater control of the financial sector, beginning with the sequestration and later nationalization of the British and French owned commercial banks. Regulations were later passed governing the composition of bank portfolios and applying selective ceilings on borrowing and lending rates. In 1961, the entire banking system was nationalized and consolidated; in 1963, each bank was made responsible for the financing of a specific sector of the economy. The Central Bank of Egypt, created in 1961 from the issue department of the National Bank of Egypt, was given wide powers over the commercial banks. By

1967, the commercial banking system no longer acted to independently allocate credit throughout the economy, but served only as mobilizer of loanable funds.

In a developing country, it is essential that all the tools of government policy be brought to bear on the problems of economic growth. Monetary policy can influence growth in the short run by ensuring that the supply of finance is sufficient to enable the economy to operate at full capacity, and in the long run by acting so as to maximize the rate of saving. Various savings functions fitted to Egyptian data showed that savings in Egypt were influenced mainly by the level of income; neither interest rates nor the rate of change in the price level proved to be significant. Hence it was argued that the objective of monetary policy should be to maximize income in the short run even at the cost of some inflation. In this way, real savings would be maximized, given the aggregate propensity to save. Assuming that maximum savings can be productively invested, maximum long run growth should result.

In Chapter V the Andersen-Carlson monetarist model was tested and found to predict Egyptian nominal and real income over an eleven year period with a reasonably high degree of accuracy. Two alternative monetary policies were simulated with the model, and it was found that a less restrictive policy during the nineteen fifties would have led to a higher level of real income.

In conclusion, it should be emphasized that the approach to the analysis of saving is a narrow one, aimed only at assessing the effects of monetary actions on saving. Although the functions

fit the data reasonably well, growing evidence for other developing countries indicates that such other factors as the inflow of foreign capital have a significant influence on saving. In addition, monetarist models are restricted in their scope in that while they may be capable of explaining changes in macro-economic variables they provide no explanation of sectoral changes. It seems likely that future research will be devoted to integrating such models with more complex econometric work in order to capture some of these sectoral effects.

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