

**Economic Consequences of
the War in Lebanon**

By

DR. NASSER H. SAIDI



Centre for Lebanese Studies

59 Observatory Street, Oxford OX2 6EP. Tel: (0865) 58465

September 1986

Nasser Saidi has taught macroeconomics and international economics at The University of Chicago (1977-80), the Graduate Institute of International Studies and the University of Geneva (1981-85). He is a consultant to governments, central banks and international financial organisations, in work relating to Latin America and the Middle East. He is the author of numerous articles and studies in theoretical and applied international macroeconomics, and of "*Essays in Rational Expectations and Flexible Exchange Rates*", (1981).

1. Introduction

1.1 This paper examines the consequences of Lebanon's prolonged war for the economy and its immediate future prospects. Currently, Lebanon is entering a state of severe economic depression and poverty, accompanied by a sharply accelerating inflation rate. The most visible symptom of the underlying state of the economy and its alarming monetary and financial conditions is the depreciation of the Lebanese Pound against all major currencies. The paper contends that – given the impact of the war on the productive capacity of the economy – it is the explosive state of public finance that is leading the country to hyperinflation and an accelerated depreciation rate for the Lebanese Pound.

1.2 The main results and conclusions of this paper are stated below – with the supporting analysis developed in the main body of the paper. The major consequences of the war in Lebanon are:

- (i) A sharp reduction in the level and growth rate of domestic production and income, accompanied by an even sharper reduction in investment spending.
- (ii) Destruction of wealth: there has been an unprecedented destruction of the human and non-human capital stock implying a large loss of productivity.
- (iii) A segmentation of markets – particularly in the labour market – and economic activity implying lower domestic labour mobility, increased costs and a reduction in efficiency: resources are not allocated to their most efficient uses or to their most efficient locations.
- (iv) A brain-drain and outmigration of human capital. A direct implication is a reduction in the productivity of semi-skilled and unskilled labour and a reduction in their real earnings, leading to even sharper inequality in the distribution of income.
- (v) A reduction in the ratio of males to females in the resident population and in the labour force. This has been accompanied by an increase in the labour force participation rate of women, an increase in the proportion of female-headed households, and an increase in the divorce rate.
- (vi) A large increase in the relative size of government, as measured by the share of government spending in Gross Domestic Product (GDP).

- (vii) A reduction in the quality of human capital as a consequence of the reduction in the number and quality of finished years of schooling and on-the-job training and apprenticeship.
- (viii) The emergence of large and growing public sector budget deficits which cannot be sustained. Government spending has continued to grow in real terms while revenues have been declining. This has led to a veritable explosion of the public debt which now stands at more than 130 per cent of GDP. Furthermore, interest payments on the public debt now exceed total government revenue so that the public sector is effectively in a state of bankruptcy and must either borrow or print money in order to finance interest payments as well as spending on goods and services. This is an untenable situation which will lead to hyperinflation.
- (ix) A sharp acceleration of money growth arising from Central Bank financing of government budget deficits, which, accompanying the reduction in real economic growth, has led to a sharp acceleration of inflation and to the depreciation of the Lebanese Pound (L.L.)

1.3 Summary Overview of the Economy, 1964-85

To set the background, we briefly review the major macroeconomic developments over the prewar and war periods.

Table 1 contains summary statistics on major macroeconomic variables over the periods 1964-74 and 1975-85 to reveal the contrast between the two periods. The major features are:

- (i) A sharp decline in real economic growth. My estimates of real GDP indicate an average rate of fall of about -4.5 per cent per year, in sharp contrast to an average growth rate of 5.8 per cent per year in the prewar period. In effect, real income has been cut by more than 50 per cent for the average Lebanese.
- (ii) There has been a sharp upsurge in the inflation rate during the war period, which has averaged close to 20 per cent per year. A typical bundle of goods which cost L.L. 10 in 1974, had risen to about L.L. 90 by the end of 1985. Furthermore, the inflation rate has been accelerating in the past two years.
- (iii) During the prewar period, the L.L. had been steadily appreciating against the \$U.S. and most major currencies. Since 1975 it has been depreciating – albeit not at a steady rate – by an average 18 per cent per year, and at an accelerating rate since the end of 1982.
- (iv) As table 1 shows, *real* government spending has grown at about the same rate as in the prewar period, while real tax revenues have been

falling at a faster rate than real GDP. The result has been an explosive growth rate of public debt and a tripling of money supply growth.

- (v) All monetary, financial and real variables display increased volatility and variability (as measured by the standard deviation of growth rates) during the war period. The war has led to an economic environment with a high degree of uncertainty and unpredictability, with detrimental implications for private and public decision-making.

Table 1
Main Economic Indicators, 1965-74, 1975-85
(growth rates, % per year)

Variable	1965-74		1975-85	
	Mean	s.d.	Mean	s.d.
Real GDP	5.8	4.9	-4.5	21.1
CPI	3.6	3.2	19.6	12.4
LL/\$	-2.8	6.2	17.8	27.7
Money M1	6.9	5.8	16.9	5.7
Money M3	12.3	6.1	24.8	8.5
Int. Reserves (\$)	24.7	25.7	3.6	24.7
Foreign Ex. Reserves (\$)	32.6	44.6	-1.6	42.4
Public Debt	-0.7	32.2	63.2	88.5
Imports (\$)	15.3	18.7	-1.9	53.0
Exports (\$)	31.3	22.2	-8.9	29.0
Real Gov't Exp.	5.9	3.9	4.8	40.4
Real Tax Rev.	6.9	6.1	-9.8	91.5

Notes: Mean and standard deviation (s.d.) of growth rates of indicated variables. Real GDP is GDP at constant (1974=100) prices; CPI, Consumer Price Index (1974=100); LL/\$ is the Lebanese Pound/U.S. Dollar exchange rate (annual average); M1, M3 denote narrow and broad definitions of the money supply, with M3 including foreign currency deposits; International Reserves in \$ held by the Bank of Lebanon, with gold valued at market prices; Foreign exchange reserves in \$ held by Bank of Lebanon; Public Debt definition comprises outstanding Treasury Bills and Bonds, and loans and advances of the consolidated banking system to the government; Imports, Exports are from Direction of Trade Statistics (DOTS) published by the IMF. Government expenditures and revenue at constant prices.

Sources: GDP, government expenditure and Tax revenue; Saidi (1984), CPI, Beirut Chamber of Commerce and Bank of Lebanon; LL/\$, M1, M3, Public Debt from Bank of Lebanon; International Reserves, Foreign Exchange Reserves, Imports, Exports from IMF.

1.4 The remainder of the paper is structured as follows: Section 2 below presents and discusses estimates of the consequences of the war on output, investment and the capital stock, as well as estimates of the costs of reconstruction. Section 3 reviews the issue of government budget deficits and the public debt. Section 4 discusses the relationships between money, budget deficits and inflation and the depreciation of the L.L. The final section includes some concluding remarks and prospects for the future.

2. Consequences of the War for Output and Investment

2.1 Prior to the onset of the war in 1975, the Lebanese economy was expanding at a relatively rapid pace and across a broad spectrum of activities. Relatively liberal and unregulated development had led to an economy dominated by services – banking, commerce, tourism – though a light manufacturing and industry sector was rapidly growing and export orientated.

There was nothing magical about the sources of growth of the Lebanese economy during the 1964-74 period. First, for an economy with a large services sector, an investment ratio (gross fixed investment as a per cent of GDP) averaging over 20 per cent per year is relatively high and implied a rise in factor productivity. Second and potentially more important (though not easily quantifiable) was the investment in human capital. A young and rapidly growing population was heavily investing in human capital and supplying a highly skilled labour force. This factor in conjunction with the availability of a low wage, relatively unskilled immigrant labour force from neighbouring countries provided a basis for rapid economic growth. Third, the dominant liberal stance of economic policy allowed the development of a competitive economy and facilitated the adoption of new technology from the rest of the world.

2.2 The war since 1975 has led to a severe decline in the growth and level of aggregate economic activity. Furthermore, contrary to widespread opinion, estimates of aggregate output indicate that the Lebanese economy never recovered from the initial violence and destruction that marked the onset of the war in 1975-76. The current deep recession appears as a further deterioration as opposed to a surprising phenomenon.

There are no available official statistics or estimates of measures of aggregate activity such as GDP or Gross National Product (GNP). However, such estimates – even if crude – are essential for an analysis of the current state of the economy and for the purposes of policy making and planning for an eventual reconstruction of the economy.

Table 2 below contains my estimates of GDP based on a simple econometric model (see Saidi (1984)).

The resulting series captures well the qualitative features of economic activity during the war period. There are major declines in economic activity for the periods of severe warfare, namely 1975-76 and 1982. In 1976, GDP declines by about 56 per cent followed by a sharp upturn in 1977 with the semblance of a return to normalcy. However, the initial rapid recovery is not sustained. With continuing fighting and uncertainty, the level of real activity (see Col (2) in Table 2) remains around the depressed level of 1977 until the 1982 Israeli invasion. The invasion provoked a 10 per cent drop in the level of real income and generated a downward spiral in economic activity. By 1985, real income stood at 60 per cent of its 1974 level (see Col (4)), and was 115 per cent below the trend level of real GDP (see Col (3)).

Table 2
Gross Domestic Product (GDP)
1974-85

(L.L. Millions)

	(1)	(2)	(3)	(4)	(5)	(6)
	NGDP	RGDP	Potential RGDP	RGDP RGDP74	RGDP Potential RGDP	DRGDP
					%	%
1974	8137	8137	8088	100	0.6	3.1
1975	8211	7471	8584	91.8	-13.9	-8.5
1976	6051	4272	9110	52.5	-75.7	-55.9
1977	10182	6027	9669	74.1	-47.3	34.4
1978	11411	6132	10262	75.3	-51.5	1.7
1979	14582	6331	10891	77.8	-54.2	3.2
1980	18979	6660	11559	81.8	-55.1	5.1
1981	22578	6637	12268	81.6	-61.4	-0.34
1982	24267	6013	13020	73.9	-77.2	-9.9
1983	25437	5880	13818	72.3	-85.4	-2.2
1984	27810	5464	14665	67.1	-98.7	-7.3
1985	42595	4931	15564	60.6	-114.9	-10.2

Notes: Col (1) NGDP denotes GDP at current prices
 Col (2) RGDP denotes GDP at constant (1974=100) prices
 Col (3) Potential RGDP denotes trend (prewar) RGDP
 Col (4) (RGDP/RGDP74) denotes RGDP index with 1974=100
 Col (5) (RGDP/Potential RGDP) denotes RGDP as a percent of potential RGDP
 Col (6) DRGDP denotes the growth rate of real RGDP

Source: Saidi (1984)

One measure of the direct economic cost of the war over the period 1975-85 is the loss of potential output. *This cumulative loss of output and real income* (the sum of the difference between actual and potential output) *stands at about L.L. 63 billion at constant 1974 prices or about L.L.550 billion at current prices,* (24 billion \$U.S. at current (April 1986) exchange rates). While this is enormous for a small country such as Lebanon, it is most certainly a low estimate of the true loss since it does not take into account indirect costs of the war such as the value of the loss of human life, physical disabilities, injuries and maiming, and potentially the most important: the reduction in the human capital stock of the currently young generation because of the reduction in educational time and expenditures and on-the-job training.

2.3 To the extent that the estimates presented above are credible they prompt an immediate question: why didn't the economy recover from the shocks of 1975-76 and 1982? Or, contrary to popular belief, why wasn't the economy resilient to warfare? Briefly, there are three factors that have played a dominant role.

First, because of the war and associated risk and uncertainty, there has been a large decline in investment expenditure. Investment spending tends to be more volatile than output and tends to be highly procyclical, that is rising faster than output in a boom and falling faster in a recession. As we shall see below, investment in Lebanon has declined at an even faster rate than real output. In turn, this implies a decline in productivity, and because gross investment spending is below the level required to maintain and replace the capital stock, a fall in output. In summary, the dynamic relationship between investment and output implies that an actual or expected decline in output leads to a decline in investment spending which tends to reinforce the fall in output.

Second, the war has led to a structural change in the economy: goods and labour markets have become increasingly segmented and separated. Increasingly, there are barriers to the flow of goods and labour services between regions. The loss and increasing costs of mobility imply a loss of productivity and output since resources are not allocated to their most efficient uses and do not move to their optimal regional locations.

Third, the war has led to the destruction of a substantial amount of the non-human physical capital stock and to the migration out of Lebanon of a substantial fraction of the skilled, professional labour force, a brain-drain. Both the human and non-human capital stock have been reduced leading directly to a permanent reduction in the level of economic activity. Furthermore, the destruction of the capital stock and the out-migration of the skilled labour force imply a reduction in the productivity of the remaining relatively lesser-skilled workforce, forcing a drop in real wages and earnings.

The combination of these factors has severe consequences for the future: unless there is an end to warfare, Lebanon will become a poor and, to coin a phrase, a 'dedeveloped' country.

2.4 Costs of Reconstruction

It is quasi impossible to conduct a complete survey and inventory the waste, damage and destruction inflicted on the Lebanese economy's capital stock. (However, fairly extensive surveys have been conducted by the Council for Development and Reconstruction, CDR.) In the absence of systematic surveys, we can take a broad view based on economic principles.

Table 3 contains some estimates of gross investment and a capital stock series (see Saidi (1984) for details). The capital stock series assumes that there are two types of deterioration of the physical capital stock: one part due to normal wear and tear or depreciation because of utilisation; another part which is the loss rate due to war and destruction. Several features of these estimates are noteworthy: (i) the investment ratio (gross investment as a fraction of GDP) has precipitously declined from a prewar average of about 20 per cent to less than 3 per cent by 1985! This is entirely consistent with the notion that investment is highly procyclical and is more volatile than output;

Table 3
Gross Investment, Capital Stock
1974, 1982-85
(Millions of L.L.)

	(1) I	(2) K	(3) (I/RGDP)	(4) (I/K)	(5) (K/RGDP)
1974	1644	20133	.202	.082	2.47
1982	298	12089	.050	.025	2.00
1983	229	11230	.039	.020	1.91
1984	173	10393	.032	.017	1.90
1985	118	10095	.024	.012	2.05

Notes: I denotes gross investment at constant prices (1974=100)
K denotes capital stock at constant prices (1974=100)
(I/RGDP) denotes the ratio of investment to real GDP
(I/K) denotes the ratio of gross investment to the capital stock
(K/RGDP) denotes the capital-output ratio.

Source: Saidi (1984), (1985)

(ii) the capital stock has sustained severe losses and now stands at less than 50 per cent of its 1974 level; (iii) gross investment spending is not high enough to cover depreciation of the capital stock, and consequently the capital stock will tend to fall further over time.

Based on the above we can consider two measures of the costs of reconstruction, defined as rebuilding the economy's capital stock. The first measure is simply the difference between today's capital stock and the prewar, 1974, value of the capital stock. This would imply reconstruction costs of about L.L. 87 billion at current prices. However, this estimate neglects the fact that today's capital stock is substantially below the value of the capital stock that would have obtained had the war not happened, the potentially available stock. To get a rough measure of the potential capital stock, assume that the capital to output ratio (see Col (5) in table 2) had remained constant, and that output had grown along its trend path; the 1985 value of the capital stock would have been about L.L. 38 billion at constant prices. Hence the alternative *value of reconstruction costs is the difference between the actual capital stock and the potential stock: at current prices this would be about L.L. 245 billion* (or close to \$U.S. 11 billion at current (April 1986) exchange rates). While this is not the forum to discuss the financing of such reconstruction costs, it is clear that Lebanon will not be able – even in the event of a return to peace – to finance such costs out of internal resources. Indeed, what will be required is a massive programme of aid and foreign investment and borrowing.

2.5 To conclude this section we can highlight the following results:

- (a) The war has led to a permanent reduction in the level of economic activity: estimates show that real output is more than 40 per cent below its 1974 prewar value, and that Lebanon may enter into a poverty and 'dedevelopment' cycle.
- (b) Foregone income because of the war and a measure of the direct cost of the war is a value of L.L. 550 billion.
- (c) The economy's productive capacity (capital stock) has sustained severe losses, and an estimate of the costs of reconstruction is of the order of L.L. 245 billion, some 11 billion \$U.S.

3. War, Deficits and the Fiscal Crisis

This section discusses the disastrous consequences of the war on the state of the public finances. The evidence below shows that Lebanon is in the unenviable position of having one of the highest ratios of public debt to income in the world, as well as having one of the highest fiscal deficits as a proportion of national income.

At the outset it is important to note that after 1979 actual government expenditures and revenues are not known with any precision; we have to make do with estimates. However, the orders of magnitude analysed and derived below are likely to be correct.

3.1 Government Expenditures

In accord with a general liberal economic policy stance and a 'laissez faire' approach, the prewar period reflects a limited role for government both in terms of the size of the public sector and in terms of scope of activities. The government did not play an active role in the development of the economy, nor were there any serious attempts at counter-cyclical economic policy. As a proportion of GDP the size of the government sector averages 14.3 per cent with relatively little variability. Overall, the 1964-74 period shows no upward trend in the share of government in aggregate spending, nor is there any evidence to suggest a contracyclical spending pattern: that is, there was no tendency for government spending to rise when aggregate output was below trend and vice-versa – a feature that characterises public spending in most developed countries. Indeed, the evidence suggests the opposite: there is a tendency for the share of government spending to be procyclical: above average when income rose above trend and lower when income was falling below trend. This reflects the fact that unlike most developed countries,

Table 4
Government Expenditure
1974, 1982-85
(Millions of L.L.)

	(1)	(2)	(3)	(4)
	Government	Real	Gov't Exp.	Growth Rate
	Expenditure	Government	GDP	of Gov't Exp.
		Expenditure		
1974	1219	1219	14.9	7.3
1982	9120	2260	37.6	2.3
1983	9974	2306	39.2	2.0
1984	11774	2313	42.3	0.3
1985	19330	2238	45.4	-3.3

Sources: Saidi (1984), Bank of Lebanon and Beirut Chamber of Commerce

government transfer payments, which normally rise during recessions, were a negligible proportion of total government spending.

The war period has led to a radical change in the importance of government in the structure of the economy. The growth of government expenditures has been faster than price inflation, and the average growth rate of real spending for the 1975-85 period is about 5 per cent per year. Since aggregate output and real income was falling during this period, the net result has been a *tripling* of the relative size of government. As table 4 shows, the share of government in GDP is now running at more than 45 per cent, having risen in every year since 1976.

Several factors account for the continued growth of government spending. First, unlike the private sector, the government has not laid-off workers, employees and bureaucrats despite large-scale absenteeism and low productivity. Indeed the size of the public sector workforce has increased both in total numbers and as a share of the total economically employed labour force. Furthermore, wages and salaries have been raised over the years to partially adjust for inflation. Second, the government has been actively subsidising the price of a number of commodities – namely petrol, sugar and wheat – and domestic prices were maintained at a fraction of world prices. Indeed it is highly ironical to note that the Lebanese government and consequently the general public have been subsidising petrol consumption in Syria, Jordan and Israel over the war years, since subsidised petrol was smuggled across the borders on a large scale! (In early 1986, the petrol subsidy had stopped, but merely because world oil prices had declined at a faster rate than the L.L. had been depreciating. This is temporary since even though world oil prices may remain at current depressed levels, the L.L. is likely to depreciate at a rapid pace and the subsidy will return). Third, since 1982, defence spending by the central government has been rapidly increasing and is the single largest item in both budgeted and actual spending. In conjunction with so-called 'reconstruction expenditure', military spending has led to a sharp upsurge in total government spending. Fourth, past deficit spending has implied a dramatic increase in the public debt and consequently in interest payments on the public debt. This latter component of total government expenditures is the fastest growing of all: interest payments on Treasury Bills had risen from L.L. 139 in 1980, to L.L. 1425 million in 1983 and are now running at more than L.L. 5.5 *billion*, both because of the rise in the Treasury Bill rate and the rise in the size of the outstanding debt. Indeed it is likely that interest payments now exceed total government revenue, which is an impossible situation to sustain. Eventually, in the very near term and in the absence of a radical change in public finances, the government will have to resort to the 'inflation tax', that is money finance of its budget deficits. We discuss this further below.

3.2. Tax Revenue

Though the war has not prevented the government from increasing spending, it has had disastrous consequences for revenue. As table 5 illustrates, the war-induced decline in income along with the difficulties and inefficient tax collection have caused a decline in tax revenue proportionally higher than the underlying decline in the tax base. By 1984-85 total revenues corrected for price inflation had declined by more than 50 per cent relative to their 1974 level, and the share of taxes in GDP had declined to little over 10 per cent (see Col (3) in table 5).

Table 5
Tax Revenue
1974, 1982-85
(Millions of L.L.)

	(1) Tax Revenue	(2) Real Tax Revenue	(3) Tax Rev GDP	(4) Growth Rate of Revenue
1974	1270	1270	15.6	15.2
1982	2926	725	12.1	-15.4
1983	2981	698	11.7	-3.8
1984	3287	646	11.8	-7.8
1985	4858	562	11.4	-13.9

Sources: Saidi (1984), Bank of Lebanon, Beirut Chamber of Commerce

During the prewar period (1964-74), the evolution of revenue had displayed a stable pattern, growing at about the same rate as GDP, and consequently the share of taxes did not display any trend. Furthermore, the share of government revenue was consistent with and comparable to the share of government spending, so that there was no tendency for systematic budget deficits or surpluses to emerge over time.

The structure of taxation had also remained stable over time in the absence of major changes in tax laws or fiscal reforms. In common with a large number of underdeveloped countries, indirect taxes accounted for more than 50 per cent of revenue collections, with customs revenue and trade taxes accounting for more than 35 per cent of total revenue. In sharp contrast to most developed countries or countries at similar levels of development, taxes on personal or business income never exceeded 10 per cent of total revenue.

In summary, the tax system was highly dependent on indirect taxes, and tax administration was never reformed in order to institute a system of personal or corporate taxation. The fiscal system tended to be regressive, taking a larger fraction at lower income levels. Furthermore, the withholding of income was only applied to larger sized firms in the private sector, thereby tending to give a fiscal disincentive to business incorporation and medium to large-sized companies, and an incentive to small-sized or small professional companies.

Several factors contributed to the decline in revenue during the war period. First, tax and non-tax revenue are a function of tax rates and the evolution of the underlying tax base. The decline in aggregate income because of the war, itself implied a fall in the tax base and consequently in revenue. Second, the inefficiency and inability of collecting taxes due to the lack of authority of the state and the breakdown of the judicial system and enforcement of laws. By far the most visible case is that of customs and trade tax revenue where ports are in the hands of various private parties or militias. However, it is also the case that private parties and militias have also been able to control the collection and disposal of revenue *within* existing and functioning government administra-

Table 6
Revenue Losses, 1975-85
(Millions of L.L.)

	(1) Actual or Estimated Revenue	(2) Expected Revenue	(3) Revenue Loss	(4) % Loss
1975	799	1200	-401	-0.33
1976	152	859	-707	-0.82
1977	1439	1519	-80	-0.05
1978	1476	1721	-245	-0.14
1979	1920	2252	-332	-0.15
1980	2190	3005	-815	-0.27
1981	2878	3634	-756	-0.21
1982	2926	3936	-1058	-0.26
1983	2981	4141	-1160	-0.28
1984	3287	4566	-1279	-0.28
1985	4858	6897	-2039	-0.30

Notes: Col (2) expected revenue based on the relationship between income and tax revenue; Col (3) = Col (1) - Col (2); Col (4) is equal to Col (3) as a percent of Col (2).

tions. Third, the Lebanese tax system is not responsive to inflation: various duties, charges and rates are on a specific basis and do not rise with price inflation. The absence of any indexation of revenue to the inflation rate and price increases generates a tendency for real revenue to decline as inflation rises. This last factor as a source of loss of revenue has become more important in the past two years as inflation has accelerated.

How important has the tax evasion and inability to collect taxes been over the war years? Table 6 below contains some estimates of tax revenue losses. These show that, on the average, revenue would have been higher by about 30 per cent in the absence of inefficient tax collection and evasion. Note that this refers to total tax revenue. For particular sources of revenue such as customs, the loss rate is probably much higher and in the region of 80 to 85 per cent.

3.3 Deficits and Public Debt

The net result of the diverging evolution of government spending and revenue over the 1975-85 period is the emergence of a structural budget deficit and an explosion of government indebtedness to finance the ever-rising deficits.

In the pre-1975 period, deficits or surpluses were small and rarely exceeded 1 per cent of GDP. However, beginning in 1975, budget deficits have risen to an incredible 36 per cent, or 53 per cent of GDP by 1985 depending on the measure of the budget deficit. Table 7 contains data on alternative measures of the deficit. Col (1) to Col (3) use the difference between reported/estimated government spending and revenue as a deficit measure; Col (4) to Col (6) use the change in public debt on an annual basis as a measure of the budget deficit on the financing side. The important feature is that under either definition the budget deficit is large, is growing faster than inflation so that the *real* deficit is rising, and has been accelerating as a fraction of GDP. Indeed, few countries except those approaching a hyper-inflationary situation appear to have attained such high deficit ratios.

The pattern of the evolution of debt is consistent with the evidence on government spending, revenue and deficits. Over the prewar period the public debt, both in nominal terms and relative to income, was small. The public debt to income ratio fluctuated around an average 2.1 per cent of GDP, with a tendency to fall over time. The debt ratio and budget deficit tended to rise during recessions – as over the period 1967-70 – and to fall when income was above trend, as during 1972-74. The fall in the debt-income ratio was rapidly reversed by the war. From a low of less than half a per cent of GDP in 1975, the debt ratio has taken successive jumps to reach over 50 per cent in 1982, and by 1985 was more than 125 per cent.

Table 7
Government Deficits
1974, 1982-85
(Millions of L.L.)

	(1) DEF1	(2) DEF1	(3) DEF1	(4) DEF2	(5) DEF2	(6) DEF2
	Nominal	Real	GDP	Nominal	Real	GDP
			%			%
1974	-51	-51	-0.6	-2.8	-2.8	-0.3
1982	6194	1535	25.5	7086	1756	29.2
1983	6993	1616	27.5	7637	1765	30.0
1984	8487	1667	30.5	9656	1897	34.7
1985	15281	1769	35.9	22769	2636	53.4

Notes: Col (1) DEF1 is government expenditure minus taxes from tables 4 and 5 above, at current prices
 Col (2) DEF1 real denotes deficit measure in Col (1) at constant prices
 Col (3) is ratio of deficit measure in Col (1) to GDP
 Col (4) DEF2 is change in domestic Public Debt
 Col (5) DEF2 real is Col (4) at constant prices
 Col (6) is ratio of deficit measure in Col (4) to GDP

Source: Tables 4, 5 and table 8

Recent developments in economic analysis (see for example, Barro 1979, 1984) on the determinants of the evolution of the public debt and deficit finance indicate that three factors play an important role in explaining debt growth and deficits: temporary increases in government spending relative to the normal level of spending, cyclical movements in real income and expected price inflation.

Briefly, the analysis argues the following. Permanent changes in the government's share of the national income should be financed by raising taxes and tax rates. On the other hand, temporary changes in government spending – such as those which occur during wartime, or to those which finance specific temporary programmes – would be financed by issuing debt. The reason is that it is not optimal to distort economic activity by raising taxes for a temporary increase in spending. Similarly, as economic activity changes during business cycles, tax revenue varies. It is optimal to use deficit finance (debt issue) rather than change tax rates over the business cycle. Finally,

expected inflation should have a one-to-one effect on the growth rate of nominal debt. That is the government would raise the growth rate of nominal debt with an increase in the expected inflation rate in order to keep the real value of its debt obligations constant.

In an earlier work (see Saidi (1984)) I have applied the above framework to explain the growth of public debt in Lebanon. The empirical results were that the growth of public debt is explained by the following factors:

- (i) The rise in real government spending relative to the normal level of spending. Each 10 per cent increase in government spending raised the debt growth rate by about 6 percentage points. In particular, the high growth rates of debt in 1977 and since 1981 are largely attributable to increased government spending.
- (ii) The persistent decline in real income below trend which caused a fall in tax revenues. The evidence is that each 10 per cent fall in income relative to trend has raised the debt growth rate by about 5 percentage points. The decline in income has been the single most important factor in accounting for the growth in debt over the war period.
- (iii) The evidence shows that the growth rate of debt has increased at the same rate as the increase in expected inflation. Expected inflation rates have increased by about 13 percentage points on the average over the period 1977-85. Hence the inflation factor raised debt growth rates by an average 13 percentage points per year.

In summary, the average growth rate of debt over the war period 1975-85 is 63 per cent per year. Most of the growth is accounted for by the real income factor, 37 per cent per year, government spending added an average 13 per cent per year and the inflation factor contributed another 13 per cent per year.

3.4 A Public Debt Collapse?

The government has mainly financed its deficits by issuing Treasury Bills which are held by the commercial banking system, and by borrowing from the Central Bank. In addition, the government has used the provisions of article 115 of the code of Money and Credit. Article 115 credits the account of the Treasury at the Central Bank with the foreign exchange revaluation gains (or losses) on the Bank's holdings of gold and foreign exchange. This means that the Treasury is credited on its account when the L.L. depreciates on the foreign exchange market. This provision – which is discussed further in section 4 below – creates a vicious circle: exchange rate depreciation leads to revaluation gains, the Treasury utilises these gains to finance its spending. This

Table 8
Public Debt (Domestic)
1974, 1982-85
(Millions of L.L.)

	(1) Nominal Debt	(2) Real Debt	(3) Debt GDP	(4) Growth Rate of Debt	(5) Nominal Debt2	(6) Debt2 GDP
			%	%		%
1974	52	52	0.6	-43.1	52	0.6
1982	14105	3495	58.1	69.8	17567	72.4
1983	21742	5026	85.5	43.3	25204	99.1
1984	31398	6169	112.9	36.7	35960	129.3
1985	54167	6271	127.2	54.5	58729	137.8

Notes: Col (1) sum of Treasury Bills and Bonds outstanding, loans and advances to government by Central Bank and Commercial Banks.
Col (2) debt from Col (1) deflated by consumer price index.
Col (3) ratio of debt (Col (1)) to GDP
Col (4) growth rate of debt (Col (1))
Col (5) sum of debt figures in Col (1) and cumulative utilisation of accounting foreign exchange gains by the government
Col (6) ratio of alternative debt measure in Col (5) to GDP

Sources: Bank of Lebanon, Saidi (1984)

in turn this leads to an increase in the money supply which adds to the pressure on the L.L. on the foreign exchange market leading to further depreciation and further revaluation gains, and so on.

Recently (April 1986), the Central Bank has introduced new restrictions on commercial banks' credit allocation and asset portfolios. Essentially, these imply that a rising proportion of funds will have to be placed in Treasury Bills, and that banks will mainly be brokers and financiers of the Treasury. In the final analysis, there will be no difference between currency and Treasury Bills except that the latter pay interest, since they are sold at a discount. However, this can only be a transitory phase. As we have seen, interest payments on the public debt currently exceed total government revenue. This means that public debt would be growing at a geometric rate and on an explosive path. In the absence of a radical fiscal reform involving an immediate and very substantial cut in government spending and accompanied by revenue raising measures, the only policy option open to the government will be to finance its budget

deficits through money creation and the inflation tax. Inflation would reduce the real obligations of the government, and under existing conditions, is the only remaining feasible option. In the absence of political stability accompanied by foreign aid and external transfers to the public sector, the only course open to the government will be to resort to the printing press, leading to increased inflation and the depreciation of the L.L. on the foreign exchange market.

4. Inflation and Exchange Depreciation

4.1 Table 9 contains data on inflation, the change in the exchange rate, money growth, the real exchange rate and foreign currency reserves of the Central Bank for the years 1974-85. The following features are noteworthy:

- (i) Since 1975 Lebanon has been experiencing double-digit inflation: price inflation has become persistent, although highly variable on a year-to-year basis. Furthermore, since mid-1984 the inflation rate has sharply accelerated and is currently running at over 75 per cent per year.
- (ii) The evidence in Col (2) does not support the widely-held opinion that the L.L. exchange rate held up well during the war period. Since 1975 the L.L. has been, on average, depreciating against the \$U.S. and most major currencies. However, the depreciation has not been steady, and the exchange rate has displayed a high degree of volatility on a month-to-month and a day-to-day basis. Finally, in 1984 and 1985 the rate of exchange depreciation had accelerated, and it appears that a collapse is in view. In the space of two years, foreign currencies have more than quadrupled in value against the L.L.
- (iii) Money growth has, in tandem with inflation and exchange depreciation, been at the two-digit level. However, money growth rates have tended to display less volatility than other variables.
- (iv) The real exchange rate (see Col (4)) – measuring the relative cost of foreign goods and services in terms of the domestic cost of goods and services – was appreciating over the period 1976-80 and again over 1981-83. In other words, the price of foreign goods converted at the ruling exchange rate tended to fall compared to the price of Lebanese goods. Since 1983, there has been a very sharp depreciation: goods and services in Lebanon are now relatively cheap.
- (v) Foreign exchange reserves have shown highly variable growth. Over the period 1979-84 reserves were falling – except in 1982 – reflecting a policy of intervention by the Central Bank to support the value of the L.L. on the foreign exchange market, and during 1983-84, the financing of imports by the government including large foreign military purchases.

Table 9
Money, Inflation and the Exchange Rate
1974-85

Year	(1) Price Inflation	(2) Exchange Rate	(3) Money Growth	(4) Real Exchange Rate (1974=100)	(5) Foreign Exchange Reserves Growth
1974	10.5	-11.4	10.1	100.0	99.6
1975	9.4	-1.1	20.6	98.3	-6.2
1976	25.4	22.1	28.2	100.1	8.1
1977	17.6	6.6	8.6	95.0	18.6
1978	9.7	-3.8	14.7	89.2	15.7
1979	21.3	9.3	15.5	85.9	-18.1
1980	21.3	5.8	10.1	80.3	3.6
1981	17.7	22.7	15.1	92.4	-4.6
1982	17.1	9.5	18.3	91.0	54.2
1983	6.9	-4.6	15.4	84.1	-31.5
1984	16.3	36.3	11.8	106.7	-104.1
1985	52.9	92.5	45.2	163.8	46.9

Notes: Cols. (1), (2), (3), (5) are growth rates (% per year) of the Consumer Price Index, LL/US\$ exchange rate, M1, and foreign exchange reserves. Col (4) is the exchange rate divided by the ratio of the Lebanese CPI to the U.S. general price level. A rise in the real exchange rate implies a depreciation.

4.2 Sources of Inflation

What factors account for the increase in inflation rates over the war years and the recent acceleration of inflation?

It is clear that in the Lebanese case, inflation is primarily a monetary phenomenon. Briefly, three factors appear to play an important role in determining the evolution of inflation: money growth, lower real economic growth, and expected inflation. First, following standard monetary theory, any increase in money supply growth that is not matched by an increase in money demand growth, will increase the inflation rate. In particular, holding money demand growth constant, an increase in money supply growth will tend to increase the inflation rate to the same extent. Thus, the average money growth rate of about 16 per cent per year over 1975-84, would have led to a similar value for the inflation rate, all other factors held constant. In fact, the inflation rate averaged 17 per cent. It is in this sense that inflation should be

deemed a mainly monetary phenomenon. However, the relation between money and inflation is not necessarily tight and should not be expected to hold year in and year out.

The second important determinant of the inflation rate has been the decline in real output growth. Monetary theory suggests that a decline in real income growth would lead to a decline in the growth of the demand for money, and given money supply growth, to an increase in inflation.

Third, money demand is also affected by expectations of inflation. The higher the expected inflation rate, the greater the incentive for the public to lower their holdings of L.L. denominated currency and deposits and to seek assets that are a hedge against inflation. This means buying commodities and real estate, shifting into higher interest bearing time deposits and of course foreign currency. However, as everybody attempts to lower their holdings of domestic money, the net result is a rise in the price level and the price of foreign currency.

In Lebanon, money growth has been driven by the financing of the government budget deficit, directly through the Central Bank, and indirectly by the government-imposed policy that allows the commercial banks to hold a special category of Treasury Bills which are interest-bearing as part of their required reserves and which increase the supply of base money (see Saidi (1984) and Saidi and Huber (1982) for further discussion).

As the government's current and expected future budget deficits rise, two things happen; the money supply increases which tends to raise the inflation rate, and expectations of future inflation increase since the public anticipates future increases in the money supply and this puts more upward pressure on the price level. Under existing circumstances with budget deficits growing in an explosive fashion, it is not surprising that expectations of inflation have risen and that the observed inflation rate has accelerated. Indeed, since the public knows – even if imperfectly – the current state of the government's finances and the explosion of the public debt which the government cannot repay, it understands that inflation and taxation through inflation is highly likely in the near future, and consequently, there is a rise in inflation today.

4.3 Exchange Rate Depreciation

The exchange rate is subject to the effects of the same factors that determine the domestic price level. In addition, since the exchange rate is the price of foreign currency in terms of the domestic currency, it is also determined by the evolution of foreign variables, such as money, income and interest rates in the rest of the world. As the major price link between the Lebanese economy and the rest of the world, its movement is determined by the relative evolution of domestic economic variables compared with foreign economic variables.

The depreciation of the L.L. on the foreign exchange market therefore is determined by relative movements in the money supply in Lebanon, evolution of real income, and perhaps most importantly, by expectations of the future value of the exchange rate. Exchange rate movements typically tend to be more volatile than price level movements. One reason is that expectations of future events which are likely to occur immediately reflect themselves on the foreign exchange market, but not necessarily in the goods market. An example occurred in 1982 when the L.L. appreciated in the last quarter against all currencies by more than 70 per cent at an annual rate, despite the fact that most of the country was occupied and despite the accompanying destruction and drop in real income. The appreciation of the L.L. towards the end of 1982 clearly reflected the market's anticipations at the time that the political developments occurring then would lead to political stability. In turn this would provide the background for an economic recovery in Lebanon, renewed investment, the return of economic growth and a reduction in the government's budget deficits. The appreciation reflected the anticipation and discounting of future economic growth.

A related aspect is that the recovery was expected to occur in the near future: typically, expectations of events that are likely to occur farther off in the future have a smaller impact on the value of the exchange rate.

By contrast, the sudden and large appreciation of the L.L. reflected the expectations that an upsurge of real economic growth was likely to be sustained. As it turned out these expectations of recovery were not borne out, and subsequently the exchange rate depreciated. (See Saidi (1982) for further discussion of the 1982 events).

Similarly, the large depreciation of the L.L. in 1985 and 1986 reflected a number of factors. Money growth had accelerated while real income was falling, and the Central Bank did not intervene massively on the foreign exchange market as it had done in 1984 in support of the L.L. All these factors acted to depreciate the L.L. Furthermore, an important role is played by expectations of future depreciation of the L.L. It is clear to the general public that political stability and an end to warfare is not imminent, deficit finance is growing and it is unlikely that the government will be able to limit the growth of its financial obligations, let alone provide for any potential repayment of the public debt. Hence the expectation is that there is likely to be a large upsurge of inflation in the very near future and this provokes a flight away from L.L. denominated assets towards foreign currency. As the public attempts to lower its holdings of L.L. currency and deposits and switches its portfolio to foreign currency assets, the L.L. depreciates on the foreign exchange market.

It may appear puzzling to most readers that no mention is made of foreign transfers and of the balance of payments in accounting for the depreciation of

the L.L. Indeed, the popular view is that reduced transfer payments from the rest of the world and the large trade and current account deficits are major determinants of exchange rate movements. Here the view taken is that flows through the foreign exchange market are not important determinants of the value of the Lebanese Pound except when trading is very thin. The exchange rate behaves in a manner similar to that of stock and equity prices: if everybody shares the view that the price of a particular share is overvalued, it takes only a small trading volume to bring the price down. On the other hand, if sharply conflicting views are present among market participants, a large volume of trading may take place, but with little impact on the price. Similarly, if most participants in the foreign exchange market share the view that the L.L. will depreciate, it takes only a small trading volume to lead to a large depreciation.

Finally, a few comments concerning the relationship between the price level and the exchange rate are in order. A popular notion is that exchange rate movements lead to or cause price level movements. An obvious example would be the price of imported goods whose prices are determined on world markets and where exchange rate changes translate into similar movements in domestic prices. Here the view is taken that the exchange rate and the domestic price level are jointly and similarly determined by the same set of forces, namely money and real income growth and expectations of the future monetisation of government budget deficits. Prices of goods and services may for a number of reasons lag or lead exchange rate movements; however, the fundamental determinants are the same. More problematic and potentially explosive at the social level is the fact that in the presence of a large and unexpected rise in the inflation rate, *real* wages and salaries will tend to fall because nominal wages and salaries are not immediately adjusted upwards for the increase in prices. This has already happened in the past year in Lebanon and is highly likely to occur again. Following a decline in real wages because of a general fall in productivity, a fall in real wages because of unexpected inflation and the non-adjustment of nominal wages, will lead to unprecedented poverty and social unrest in Lebanon. Eventually, wages will have to be indexed to cost-of-living indicators.

Even if wages are adjusted, there will remain a transfer of wealth from creditors to debtors. Loans and debts will be repaid at a fraction of their initial real value, and the government will be a major beneficiary since the real value of its indebtedness will melt away by virtue of the inflation tax.

5. Concluding Remarks

Lebanon now stands on the brink of widespread poverty, social unrest, rising inflation verging on hyperinflation and a rapid depreciation of the L.L.

on the foreign exchange market. The war has been responsible for the destruction or loss of the economy's productive capacity and for contributing, along with fiscal mismanagement, to monetary and financial disorder.

Even if political stability is restored and there is a return to normality in the private sector, the public sector will have to institute a radical fiscal reform to generate a substantial cut in government spending and increase in revenue. In the absence of fiscal reform, inflation induced by money financed deficits will persist and the Lebanese Pound will continue to depreciate.

If Lebanon is to be rebuilt and return to a semblance of its prewar state, at least three conditions will have to be fulfilled:

1. A permanent political settlement ensuring the long-term stable backdrop for the operation of the legal and judicial system and the protection of property rights and individual safety.
2. A massive programme of foreign aid and investment to supplement domestic saving and satisfy the requirements of domestic investment.
3. A major fiscal reform that will include a reform of the system of taxation and a limit on the growth of government spending.

Bibliography

ABDEL-AHAD, C., NOUJAIM, E., and SPITALLER, E., 'Money and Credit 1973-80', *Banque du Liban, Bulletin Trimestriel*, 7, pp. 15-28, 1980

BARRO, R., 'On the Determination of the Public Debt', *Journal of Political Economy*, 87, pp. 940-971, 1979

----, 'Federal Deficit Policy and the Effects of Public Debt Shocks' *Journal of Money, Credit and Banking*, pp. 747-762, November 1980

CHAIB, A., 'Des effets sur la monnaie de l'émission de bons du trésor', *Banque du Liban, Bulletin Trimestriel*, 13, pp. 19-22, 1982

CHIRINIAN, S., 'Endettement du secteur public auprès des banques commerciales: les bons du trésor'. *Banque du Liban, Bulletin Trimestriel*, 5, pp. 10-19, 1980

----, 'Secteur public, 1974-1980' *Banque du Liban, Bulletin Trimestriel*, 8, pp. 29-44, 1981

----, NOUJAIM, E. and SPITALLER, E., 'Monetary Implications of Institutional Ties between the Bank of Lebanon and the Government', *Banque du Liban, Bulletin Trimestriel*, 5 pp. 21-23, 1980

COUNCIL FOR DEVELOPMENT AND RECONSTRUCTION, *Reconstruction Project, 1978 and various Progress Reports on Reconstruction*

FAMA, E., 'Inflation, Output and Money', *Journal of Business*, 55, 1982

KHALAF, N., 'Manpower Movement and the Lebanese Conflict', *Banque du Liban, Bulletin Trimestriel*, 11, pp. 4-12, 1981

SAIDI, N., 'Flexible Exchange Rates and Competitive Banking : An Interpretation of Lebanon's Monetary Experience, 1950-1977', *Banque du Liban, Bulletin Trimestriel*, 9, pp. 28-40, 1981

----, 'Depenses Publiques, dette et reconstruction: Les seuils a ne pas franchir', *Banque du Liban, Direction des Statistiques et des Etudes Economiques*, Janvier 1983

----, 'The Lebanese Pound: What Future? Why did it appreciate?', Department of Political Economy, University of Geneva. Published in *Monday Morning*, Beirut, December 1982

----, and HUBER, G., 'The Monetary Base and Money Stock: Evidence from Lebanon, 1964-1981' *Banque du Liban, Bulletin Trimestriel*, 14-15, pp. 4-13, 1982