

Financing the Second World War

- India's Public Debt Transactions In The Inter War Period -

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The purpose of British Rule in India had been to turn, as Bipin Chandra says, into ‘an agricultural appendage of Britain.’ For this purpose, India was continuously made to pay a heavy ‘drain of wealth’ to Britain, which resulted in stunted growth in the Indian economy. However, around the time of the Second World War, India turned into a net exporter on her Balance of Payments. This helped India accumulate a lot of sterling assets, which helped India pay off her balance of trade deficits in the initial years of independence. Hence, this transformation of India from a net creditor to a net debtor is one of those parts of India’s economic history that have had a profound impact on the way that the modern Indian economy has evolved. In this paper, we attempt to explore the causes and trends of this transformation, and what were the immediate consequences of this transformation.

Contents

| | |
|--|----------|
| 1. <u>India’s External Balance</u> | - Pg. 2 |
| 1.1. Background | Pg. 2 |
| 1.2. How India turned into a net creditor | Pg. 4 |
| 1.3. RBI’s assets at the end of the War | Pg. 7 |
| 2. <u>Effects of ‘Net Creditor’ Status</u> | - Pg. 8 |
| 2.1. Money Supply | Pg. 8 |
| 2.2. Inflation | Pg. 10 |
| 3. <u>References</u> | - Pg. 13 |

India's External Balance

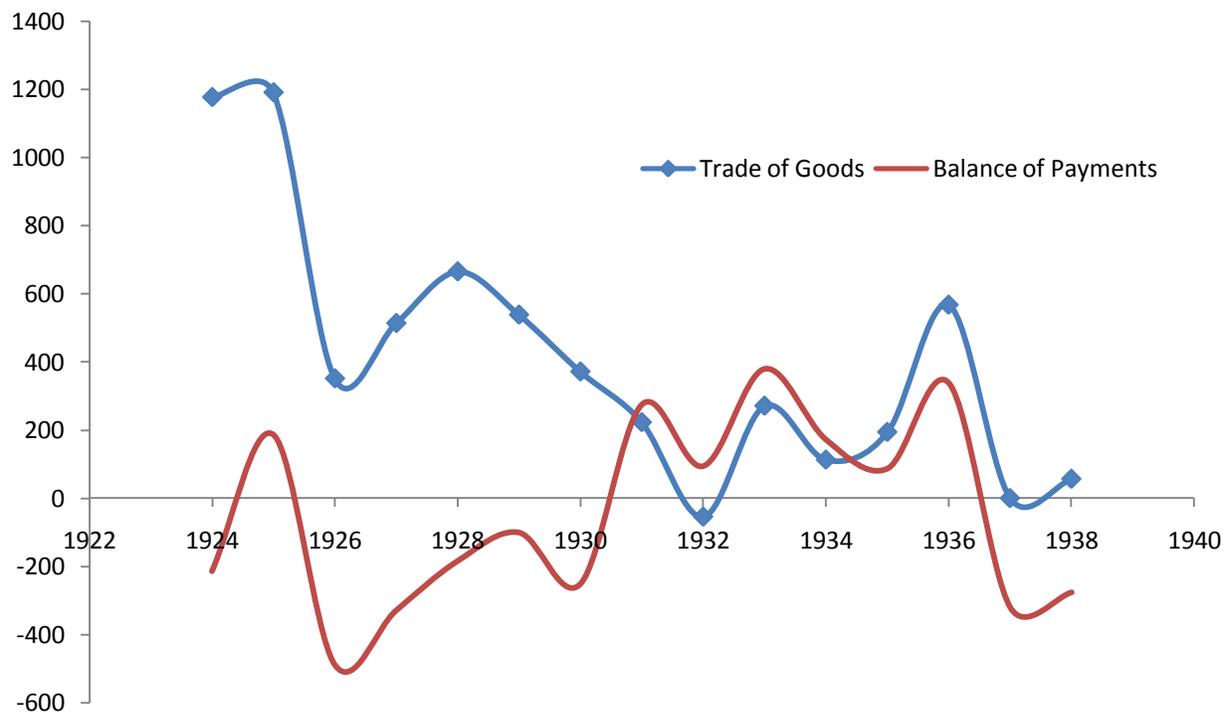
At the time of independence, India held over 50% of all sterling balances outside of U.K. Given that the Sterling at that time was still not completely replaced by the dollar, this enabled newly-independent India to easily settle its balance of payments. In this section, we deal with the causes of India turning into a debtor nation despite a positive balance of trade, and the consequences that lead to India turning from a debtor to a creditor nation.

Background

In the pre-war period, India was a net exporter of goods and services. For example, in 1924, India's surplus on balance of trade (of goods only) was Rs.1,176.6 million. While this balance of trade was generated by making India an 'agricultural appendage of the British empire'¹, it should have nonetheless lead to an increase in the sterling balances of the country.

However, as figure 1 shows, this was not the case. India consistently had a negative balance of payments that forced India to accumulate significant debt, both in rupees and in sterling. The only exception to this negative balance of payments was the great depression of the 1930s, when despite a falling trade surplus, India has a positive balance of payments, primarily on account of a massive outflow of gold that had been accumulated in previous years.

FIGURE 1: INDIA'S TRADE BALANCE AND BALANCE OF PAYMENTS (1924-1938)
(in millions of rupees)



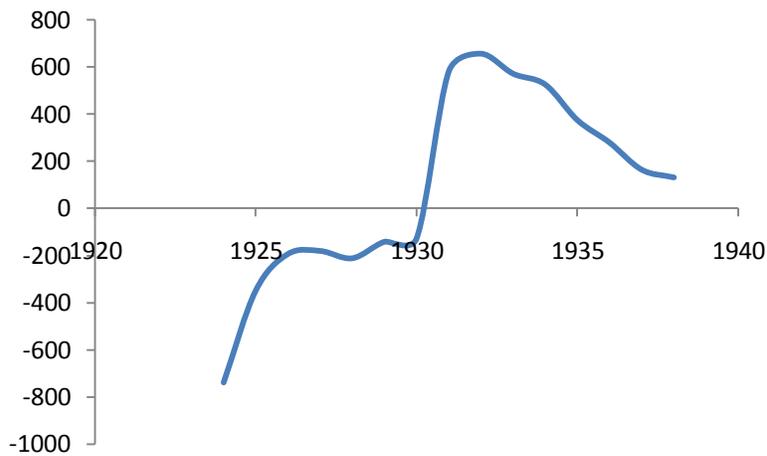
Source: *Balance of Payments, League of Nations (1938)*

¹ Bipin Chandra, *The Colonial Legacy* (Viking – Penguin Books, 1992)

The next question that arises is – what caused India’s balance of payments to be negative despite a positive trade balance? The answer lies in the ‘drain of wealth’ theory. India was systematically made to pay for invisibles such as ‘home charges’, defense etc., which lead to a negative balance of payments.

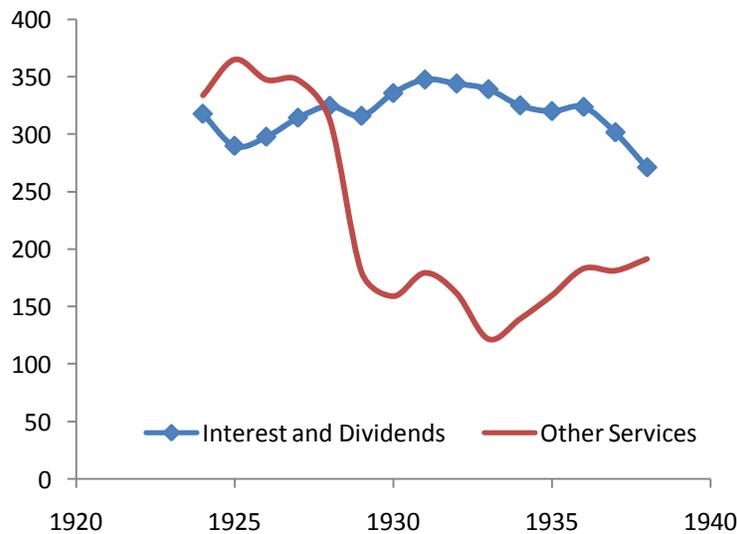
Moreover, as India needed to borrow to fund this balance of payments deficit, it incurred debt on which it had to pay interest and dividend, thus leading to a further drag on the balance of payments. Most importantly, Indians had a tendency to import a lot of non-monetary gold, a trend that was reversed only during the depression years.

FIGURE 2: INDIA’S TRADE IN GOLD (1924-1938)
(in millions of rupees)



Source: *Balance of Payments, League of Nations (1938)*

FIGURE 3: INDIA’S OBLIGATIONS TO THE REST OF THE WORLD (1924-1938)
(in millions of rupees)



Source: *League of Nations, Balance of Payments (1938)*

Hence, the next question that we turn to is – How did India turn to a net creditor of sterling balances in by the end of the Second World War? There were two primary causes for this – firstly, the trade in gold, and secondly, the monetary policy undertaken by the colonial Government of India.

How India turned into a net creditor

In this sub-section, we explore the two primary causes of India accumulating massive sterling reserves in the course of the Second World War. The first reason for this was that the Balance of Payments turned positive for the first time since British Rule began, and this happened primarily on account of gold exports surging. Hence, we first explore the reasons why this turnaround in India's international gold transactions happened. After that, we look at the efforts undertaken by the British Government to increase India's sterling balances.

India's Gold Imports

In the early colonial period, India was one of the largest importers of gold. So high was the quantity of gold imports that the Colonial Government was forced to legally restrict import of gold from time to time, such as during the World Wars, which we shall explore later in this sub-section.

Turnaround in Gold Imports

One of the most remarkable features of the story of India's gold imports is the turnaround that happened during the depression years. From a net importer of gold, India turned into a net exporter of gold. A lot of effort in India's economic history has been focused on explaining this phenomenon.

The standard argument used to explain this turnaround is that since Britain migrated to the gold standard in 1931-32, the resulting depreciation of the sterling against gold caused gold to be more expensive in the international market (in rupee terms) than in the domestic market. This was because the Indian rupee was still pegged to the sterling.

An alternative explanation that we would like to introduce in this debate was that the effect of the gold standard has been over-emphasized. We argue that India's gold imports were simply negatively correlated with its balance of trade. To further verify this hypothesis, we carry out correlation of gold imports with the different BOP components.

TABLE 1: CORRELATION COEFFICIENTS OF GOLD IMPORTS (1924-38)

| Merchandise | Interest | Other Services |
|--------------------|-----------------|-----------------------|
| -0.79 | -0.46 | 0.79 |

Source: Balance of Payments, League of Nations (1938)

We observe that gold imports show a highly negative correlation with balance of trade surplus. Hence, in years when India ran a huge balance of trade surplus, this resulted in increased sterling earnings for India. This increase in sterling balances would cause India to be able to purchase non-monetary gold

internationally with ease. Also, we must take into account the multiplier effect of increase in merchandise exports on the output.

During the great depression, the demand for India's exports plummeted. This can be seen in Figure 1. Hence, India now earned very little sterling balances to pay for the gold imports. Moreover, the decrease in world demand for Indian products would also depress the economy, and cause economic hardship in the countryside. This would reduce the demand for gold, and lead to an export of gold accumulated in more prosperous times in order to make up for reduced incomes.

Why Gold Imports were restricted during the Second World War

During the Second World War, gold imports were legally restricted. There were primarily two reasons that one can see for such a move:

- (1) An attempt to improve India's balance of payments' account, which would have enabled her to accumulate sterling reserves, and thus aid in repatriation of sterling borrowings being undertaken by the RBI at that time.
- (2) To maintain lower prices for gold in the international market by cutting off a potential source of demand. Since Britain had migrated to the gold reserve standard in 1931-32, all currency issued in Britain had to be backed by gold, and thus expensive gold would have made a monetary expansion, such as one required at the time of the war, difficult.

Monetary Policy Interventions

It was widely recognized in India and in Britain that the huge sterling debts incurred by the Indian Government would be harmful for the long-term fiscal health of the Indian Government. The main purpose of the British in keeping in check the sterling debt of India was to make sure that India's Balance of Payments (BoP) deficit did not spiral out of control.

The Capitation Tribunal

As a result of the recommendation of the Capitation Tribunal (also known as the Garran Tribunal), India received from 1933 an annual grant of £1.5 million from the British exchequer for her expenses in training British troops. As a result of the pay hike for British troops stationed in India from 1938 onwards, the British Government decided to supplement this with an annual contribution of £500,000. Over and above this amount, India received a capital grant of £5 million for the requirements of certain British and Indian units in India.

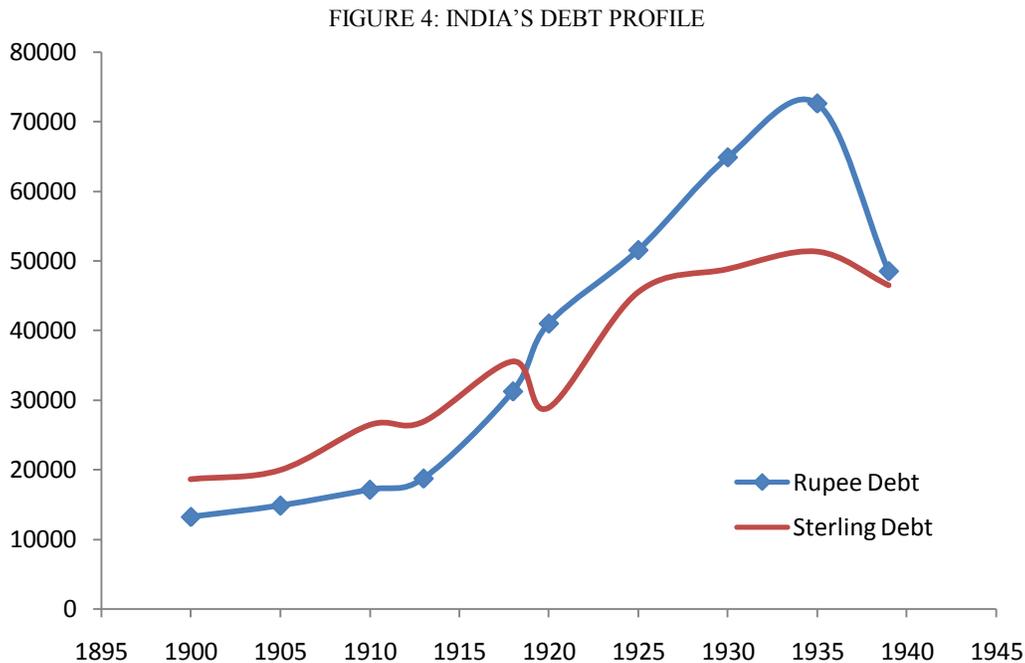
The Chatfield Committee

Slightly before the outbreak of the Second World War, it was decided that the British Government would pay in sterling for the upkeep of the Indian army. The Chatfield Committee, which was appointed by the UK Government in September 1938, at the suggestion of the Indian Government, recommended measures for modernizing the organization, equipment and maintenance of the Indian armed forces. The Chatfield Committee earmarked an amount of £34 million for this purpose, and later recommended a further increase of £500,000. The report of this committee was accepted by the Indian and British Governments shortly before the outbreak of the war, and was implemented even after the outbreak of the war.

Most importantly, the outbreak of the Second World War ensured that such sums allocated by these committees were further increased, and hence India's sterling coffers swelled. However, given that the so-called 'Home Charges' amounted to approximately £38 million in each of the three years 1936-37 to 1938-39, we can see that the benefits from such grants and loans were limited in their effect. More radical actions needed to be undertaken, and so they were undertaken.

Repatriation of Loans

On an average, 50% of the debt incurred by the Government of colonial India in the twentieth century was in sterling. As seen in Figure 3, this led to a continually increasing debt burden for the Government of India. Since the interest on this kind of debt was to be paid in sterling, it led to drain of wealth from India in the form of interest and dividends. Sometimes, this debt was acquired in sterling despite Indian debt offering a lower rate of interest. Finally, the need to substitute away from the sterling balances and towards rupee balances was recognized.



Source: India's Sterling Balance, Dhar (1957)

In the first stage, the RBI undertook purchase of sterling securities in London. For this, it drew upon its own reserves of sterling. Up to 31st March, 1941, India purchased in the open market sterling stock of the total face value of £29.30 million, representing only about 25% of the terminable sterling debt of India. Thus, this was not sufficient to drive down India's sterling debt, and hence repatriation by compulsion was undertaken.

Under repatriation, two schemes were undertaken. Firstly, non-residents of India were paid in sterling and the bonds issued to them were bought back by the RBI. Secondly, residents were given the option of not only cash, but also to exchange their sterling bonds by rupee bonds.

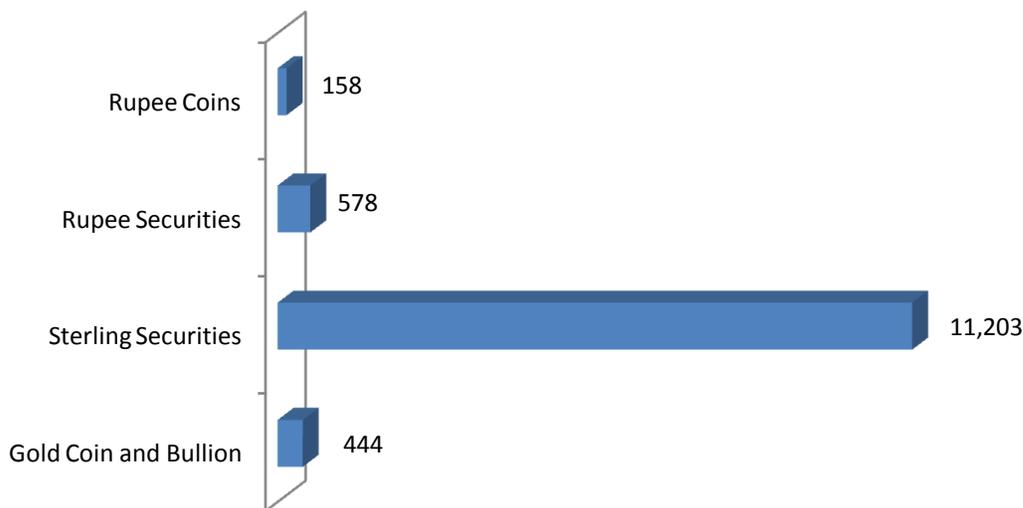
Sterling loans paid off, or repatriated, under this scheme by the end of financial year 1940-41 amounted to £60.05 million, representing nearly 65% of all remaining terminable sterling debt. Eventually, by the end of 1942, only about £11 million of terminable sterling debt remained.

A part of the sterling needed for repatriation was provided by the British Government, in recognition of India's need to run down its sterling debt. Moreover, it was rooted in deep economic strategy. By exchanging debt with sterling, this scheme increased the liquidity in the hands of Britishers, thus increasing the demand for British Government bonds. This increase in demand for bonds would increase the price of British Government bonds, and thus reduce the interest rates that the British Government would have to offer on its debt. This would aid in financing the war effort.

RBI's Assets at the End of the War

By the end of the Second World War, India had turned into a net creditor in the international sterling market. Most of its currency was backed by sterling assets, rather than by gold as had been the case before the Second World War.

FIGURE 4: ASSETS BACKING THE INDIAN RUPEE
(millions of rupees, 29th March 1946)



Source: History and Problems of Indian Currency (1835-1949), Malhotra

Because of the huge reserves of sterling securities that were accumulated by India, there were negotiations between the Governments of independent India and the United Kingdom regarding the use of these sterling reserves. While a full description of the results of these talks would make this paper too lengthy, readers can refer to *The Sterling Balances of India, Dhar (1957)* for more details.

Effects of 'Net Creditor' Status

The transformation of the position of India as a holder of sterling balances which took place in the course of the Second World War cut its way deep through social and economic changes in the country. In this section, we analyze some of the immediate effects relating to this phenomenon.

Money Supply

Currency issued in India under British rule could be backed either by gold or sterling, stipulated by law to be at least two-fifths of the total currency in circulation subject to the condition that the amount of gold reserve did not fall below Rs. 40 crores. This free and open substitution of sterling for gold was not used much before the Second World War. However, in keeping with the fiscal stimulus needed to fund the war efforts, and an RBI whose hands were tied by the Government, a huge monetary expansion was undertaken in this period.

By standard macroeconomic theory, the following formula describes the change in money supply in an economy:

$$\Delta M_s = m \{ \Delta (\text{Domestic Assets}) + \Delta (\text{Foreign Assets}) \}$$

Where Δ represents change in a policy variable, m is the money multiplier and M_s the domestic money supply.

During the Second World War, foreign assets (represented by sterling) increased manifold. At the same time, the loss in gold accompanying the depression was primarily on account of non-monetary gold and thus it did not affect the monetary gold kept as domestic assets. Lastly, the substitution of sterling debt by rupee debt, while keeping the debt of the Government intact, did not lead to any change in domestic assets.

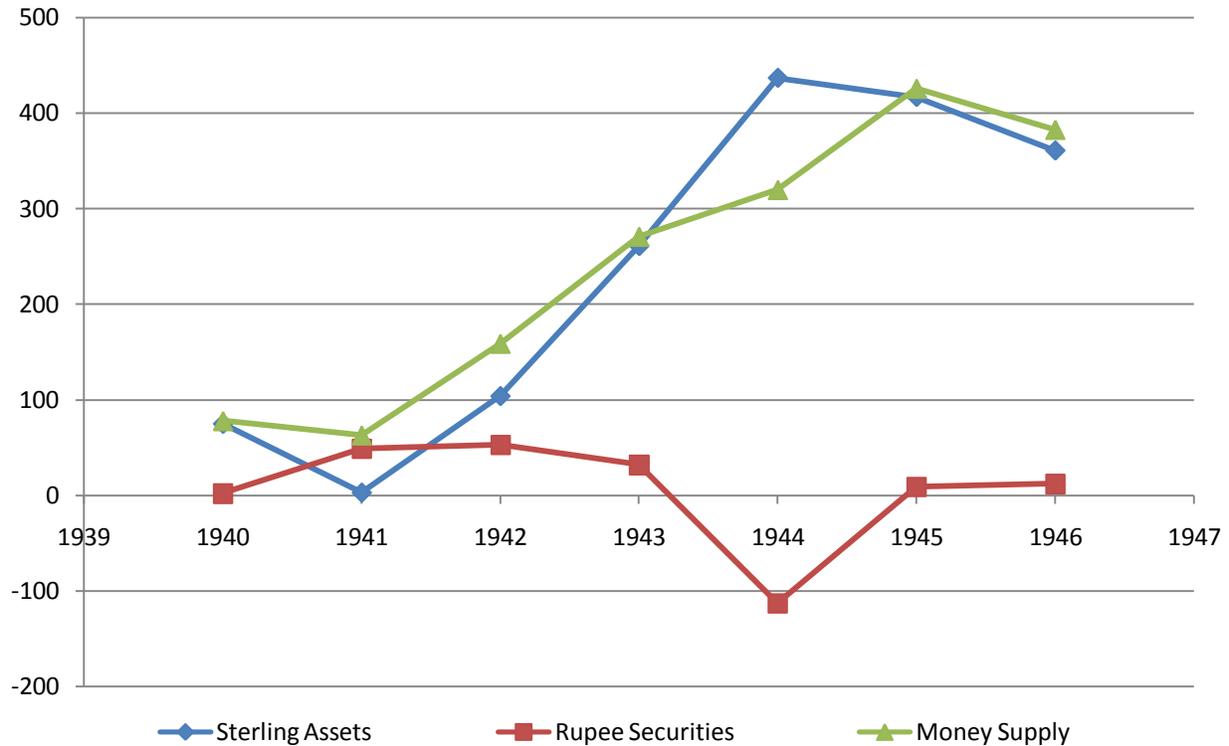
Hence, by macroeconomic theory, the money supply would have increased during the Second World War. This is exactly what was observed. As is seen in Figure 1, India's money supply increased massively during the war years. At a preliminary level, one can see that this increase in money supply was more responsive to the sterling balances than they were to the rupee securities. To test this assertion more formally, we construct a regression model to trace money supply expansion during the World War.

Let ΔM_s represent the change in money supply, ΔSt represent the change in sterling assets and ΔRe the change in rupee securities. Let us construct the following model:

$$\Delta M_s = \alpha \cdot \Delta St + \beta \cdot \Delta Re$$

We now run an Ordinary Least Squares (OLS) regression to estimate the value of α and β . The results are summarized in table 1.

FIGURE 1: CHANGE IN INDIA'S STERLING AND RUPEE ASSETS AND MONEY SUPPLY
(in crores of rupees)



Source: Sterling Balances of India, Dhar (1957)

The results of our regression analysis show that the above-mentioned formula can be approximated by:

$$\Delta M_s = 4.06 + 0.98 \cdot \Delta St + 0.99 \cdot \Delta Re$$

While the coefficient of the ΔRe term has a greater coefficient than the ΔSt term, it cannot be considered to be a major determinant of money supply growth primarily because of two reasons:

- (1) The t-stat and p-value of the ΔSt term is far more statistically significant than that of the ΔRe term. However, this in itself does not make the ΔSt term more significant since the ΔRe term's t-stat and p-value are statistically significant by themselves.
- (2) The change in rupee securities, ΔRe , during the war period was not much. Hence, though money supply does seem extremely sensitive to change in rupee securities, this change was not effected during the World War.

TABLE 1: RESULTS OF REGRESSION ANALYSIS

Adjusted R² value: 0.992

| | <i>Coefficients</i> | <i>t Stat</i> | <i>P-value</i> |
|-------------------------------|---------------------|---------------|-----------------------|
| Intercept | 4.06 | 0.38 | 0.72 |
| ΔSt | 0.98 | 25.39 | 1.42×10^{-5} |
| ΔRe | 0.99 | 8.17 | 0.001 |

Source: India's Sterling Balances, Dhar (1957)

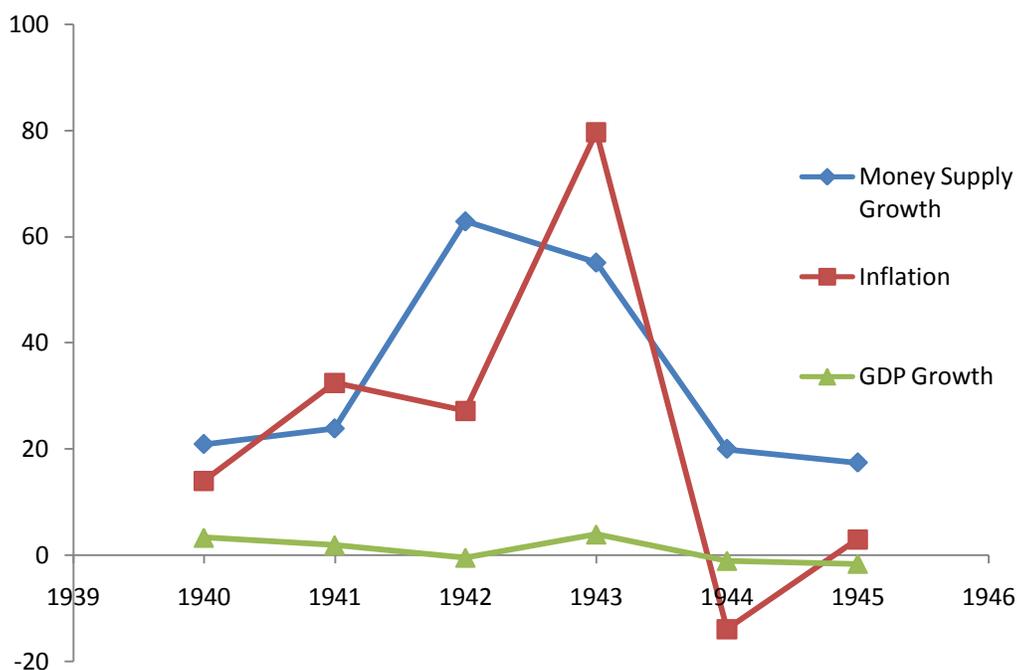
To conclude, the intercept coefficient is not statistically significant at all. Hence, the ‘stable’ component of money supply growth during the Second World War can be said to be as good as negligible. The entire money supply growth seen during the World War can be said to be a result primarily of growth in the sterling assets, and to a smaller extent the growth in rupee securities. Also, this growth was nearly one-to-one, i.e. for every unit increase in the sterling balance, the money supply also increased by one. This shows that the sterling balances were not only left unsterilized by the Indian Government, but were used to increase money supply proportionately.

Did this increase in money supply lead to expansion in the economy? We explore the answers to this question in the next sub - section.

Inflation

Macroeconomic theory tells us that an increase in money supply will shift the AD curve rightward, thus causing an expansion in the economy. However, this expansion in money supply can have two possible results – firstly, an increase in output and secondly, an increase in price level. The extent of the two effects depends on the slope of the aggregate supply (AS) curve and how rapidly the price expectations change.

FIGURE 2: GROWTH OF MONEY SUPPLY, INFLATION RATE AND GDP GROWTH RATE



Source: History and Problems of Indian Currency (1835-1949), Malhotra

First, to test how much of the effect of an increase in money supply was felt on price level, and how much on the output level, we construct two models. For this, we use data in the period 1940-45. In the first model, we use the following formula:

$$\Delta M_s = \alpha \cdot \Delta Y + \beta \cdot \Delta P$$

Where ΔM_s is the percentage change in money supply, ΔY is the percentage change in output (as measured by the GDP growth rate), and ΔP is the percentage change in price level (as measured by a price index set in Calcutta). We carry out an OLS estimation of α and β and obtain the following results:

TABLE 2: EFFECTS OF INCREASE IN MONEY SUPPLY

Adjusted R^2 value: 0.36

| | <i>Coefficients</i> | <i>t Stat</i> | <i>P-value</i> |
|------------------|---------------------|---------------|----------------|
| Intercept | 22.04 | 2.59 | 0.08 |
| GDP | -4.90 | -1.11 | 0.35 |
| Inflation | 0.69 | 2.11 | 0.13 |

Source: History and Problems of Indian Currency (1835-1949), Malhotra

In another alternative model, we replace GDP growth by growth in GDP per capita and run the OLS estimation again to obtain the estimates of α_1 and β_1 according to the following model:

$$\Delta M_s = \alpha_1 \cdot \Delta Y_{pc} + \beta_1 \cdot \Delta P$$

TABLE 3: EFFECTS OF INCREASE IN MONEY SUPPLY

Adjusted R^2 value: 0.36

| | <i>Coefficients</i> | <i>t Stat</i> | <i>P-value</i> |
|------------------|---------------------|---------------|----------------|
| Intercept | 15.49 | 1.41 | 0.25 |
| Inflation | 0.71 | 2.10 | 0.13 |
| GDP pc | -5.27 | -1.19 | 0.34 |

Source: History and Problems of Indian Currency (1835-1949), Malhotra

As we can see from tables 2 and 3, growth in money supply, in fact, lead to a decrease in GDP growth and in growth of GDP per capita. However, even if you discount for the fact that the coefficients α and α_1 are not very statistically significant, what stands out is that, as expected, increase in money supply does have a positive effect on inflation, and this coefficient β is statistically more significant than the coefficients α and α_1 .

What explains this rather counter-intuitive example that an increase in money supply could have lead to a decrease in growth of output?

In macroeconomic courses, the equation representing the Aggregate Supply (AS) curve can be represented as:

$$P = P_e \cdot (1 + \mu) \cdot F(u, Z)$$

Where μ is the mark-up of prices over wages, P_e is the expected price level and $F(u, Z)$ is a function of unemployment level u and a catch-all factor Z .

When output level Y increases, the unemployment rate u decreases, and thus P increases, which causes the aggregate supply curve to be upward sloping. When money supply expands, the AD curve shifts out, achieving a higher level of output, but at the cost of a higher price level, i.e. inflation.

There can be two possible reasons why output in India during the Second World War failed to respond to the increase in money supply.

- (1) Firstly, it might be the case that the output in India was not very responsive to the price level, which would cause the AS curve to be nearly vertical. Such a possibility is likely since in India, industries were still in a nascent stage, and India was a major importer of several goods. Hence, an increase in price level in India would typically make people substitute away from domestic goods towards imported goods and hence decrease the GDP growth rate.

If this hypothesis is to hold true, then production of consumer goods and heavy industries, which were easily substitutable by foreign goods, would have decreased more in comparison to primary products. Data accessed by us is supportive of this hypothesis. As seen in Table 4, the consumer goods and heavy industries suffered reverses at the peak of the monetary expansion in 1942-43.

TABLE 4: INDICES PRODUCTION OF SELECT PRIMARY AND SECONDARY INDUSTRIES

| | 1938-39 | 1939-40 | 1940-41 | 1941-42 | 1942-43 | 1943-44 |
|-------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Rice | 100 | 107.6 | 92.4 | 105.8 | 102.4 | 127.4 |
| Wheat | 100 | 108.2 | 100.4 | 101.1 | 110.7 | 97.3 |
| Pig Iron | 100 | 116.6 | 125.6 | 130.3 | 120.2 | 125.5 |
| Cotton Piecegood | 100 | 94.0 | 100.0 | 105.2 | 96.1 | 114.4 |

Source: History and Problems of Indian Currency (1835-1949)

- (2) The second possibility is that due to persistence of inflation, the expectation of price level in this period also went up. This would have ensured that the AS curve shifted up, and hence actual price level is also higher for the same level of output.

Hence, in this section we can conclude that the benefits of a higher money supply in the economy caused by the accumulation of sterling assets failed to benefit or revitalize the Indian economy, and instead raised the prices of raw materials, which instead harmed India's domestic industries by making inputs more expensive.

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